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The unfolding of mosaic governance and trust in three municipalities in Denmark – a case study

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This paper explores the role of trust in mosaic governance (MG) and is based on in-depth case studies in three municipalities with green volunteers and municipal planners in three municipalities in Denmark. MG refers to a normative governance design focused at stimulating the reflexive co-creation and management of natural areas. Results show that trust is crucial for successful collaboration between municipalities and green volunteers, and hence the unfolding of MG. Municipalities with higher levels of volunteer engagement report greater trust between volunteers and public officials. We show how different kinds of trust (institutional, procedural, rational, and affinitive) influence how collaborations are organized, and how the institutional context influences the possibilities for green volunteer engagement. Trust comes into play in different places and phases of MG and can be said to be the lubricant of MG.

Keywords: mosaic governance; active citizens; trust; distrust; nature resource management, reflexivity

1. Introduction

As urbanization, climate crisis, and biodiversity loss continue globally, effective nature conservation and management have become increasingly important (Chan *et al.* 2016; Coscieme *et al.* 2020; Díaz-Reviriego, Turnhout, and Beck 2019; Díaz *et al.* 2019). Research indicates that merely protecting nature is not adequate to address these crises, and that authorities need to involve multiple stakeholders to effectively conserve nature (Díaz *et al.* 2019; Buijs *et al.* 2022). Collaboration between planners, managers and active citizens or green volunteers can produce eco-logical and social benefits, including conflict resolution, better decision-making, and improved implementation (Innes 2007; Wondolleck and Yaffee 2000). Indeed, citizen involvement and physical participation are increasingly considered crucial for effect-ive nature conservation (Díaz *et al.* 2019; Rapp 2020; Toman, Curtis, and Shindler

2021; Voogd, de Vries, and Beunen 2021; Ganzevoort and Van Den Born 2020; Mattijssen 2022).

One outcome of this increased emphasis on citizen involvement is a broadening of nature management norms and practices in locations with traditionally state-based, top-down approaches to include more forms of public participation, including volunteering (e.g. Mattijssen *et al*. 2017). This process is exemplified in Denmark, where the general governance context is characterized by a strong, centralized state. While there is a long tradition of citizen engagement through volunteering in social settings, (Byrnak-Storm, Holm, and Gridsted 2024; Hjortsø, Busck, and Fabricius 2006; Ibsen and Levinsen 2017), citizen involvement in nature management has been low for many years. Generally, public authorities in Denmark have been expected to manage nature areas and green spaces on behalf of the public via support from tax payments (Molin and Konijnendijk van den Bosch 2014). However, recently Danish municipalities and the Nature Agency (administers state-owned nature areas) have started working with volunteers in a variety of nature management activities. Most often, however, this engagement with volunteers does not come about through a defined strategy but through ad hoc needs and as a response to more and more people wanting to be involved (Gentin *et al*. 2022). This shift tracks changes in how both green spaces and green volunteers are governed and managed and can be understood as a type of "mosaic governance" (Buijs *et al*. 2019).

Mosaic Governance has been defined as a "normative governance design focused at stimulating the reflexive co-creation and management of urban green and NBS through the application of a set of interrelated policy instruments to develop and strengthen cross-scale networks and collaborations between governmental and non-government actors" (Buijs *et al*. 2024). A key aim of the approach is to strengthen inclusive place-making and place-keeping through the integration of place-based efforts from active citizens with the ambitions and resources from regional and municipal governments. Mosaic governance is particularly important in the planning, implementation, and maintenance of natural environments (see e.g. Elmqvist *et al*. 2019; Pauleit *et al*. 2019; Adams, Frantzeskaki, and Moglia 2023). As active citizens, green volunteers play a crucial role in advocating and caring for natural sites such as parks and forests, while local governments are instrumental in providing resources, supporting and coordinating diverse actors, and setting a long-term agenda for overall nature management (Gentin *et al*. 2022; Mattijssen 2022). Here we define green volunteers as a type of active citizen following Gentin *et al*. (2022, 4180) "volunteers who have their primary activity in nature, and who at the same time have an aim, associated with their activity, which is related to more or better nature and/or better accessibility and/or better opportunities for outdoor recreation."

Mosaic governance (and protected area management in general) is closely related to issues of trust and the dynamic and emergent structure of trust as both an outcome and a prerequisite for participation and collaboration (Dietsch *et al*. 2021; Young *et al*. 2016; Michel *et al*. 2022; Jones *et al*. 2022; de Vries *et al*. 2019). High levels of trust between actors may contribute to kick-starting mosaic governance collaborations, but only if institutional actors are open to citizen participation (Gentin *et al*. 2022; Jones *et al*. 2022). However, in contexts with low trust, developing collaborations may need a longer, more deliberate process of building trust through small-scale collaborations that deliver public value, providing a proof-of-concept that contributes to further, more intense collaborations with higher trust (Jones *et al*. 2022; Michel *et al*. 2022;

Coleman and Stern 2018a, 2018b). To better understand the role of trust in green volunteering and mosaic governance, this paper investigates how different forms of trust emerge and play out in the context of citizen involvement in nature management in Denmark, and the effect of trust on practices of mosaic governance.

2. Background

2.1. Trust in natural resource management

Trust serves a vital role in collaborative natural resource management, supporting more effective group process and performance (Coleman and Stern 2018a; Dirks 1999; Smith *et al*. 2013; Voogd, de Vries, and Beunen 2021; Jones *et al*. 2022) and effective communications and negotiation (Fisher, Ury, and Patton 2011; Margerum 2011). Meanwhile, distrust can limit dialogue and meaningful negotiation (Pruitt and Carnevale 1993; Emborg, Daniels, and Walker 2020), influence participatory processes in ways that result in project failure (Michel *et al*. 2022), and negatively influence public support for protected area management (Brown *et al*. 2015). Developing trust in collaborative processes can be challenging, however, as interests, values, and problem definitions often conflict, power distributions are infrequently equitable, and different forms of risk and vulnerability are not shared equally (Balint *et al*. 2011; Michel *et al*. 2022; Jones *et al*. 2022). Frameworks for understanding what trust is and how it develops are thus required.

Although trust can be conceptualized in multiple ways (e.g. Dietsch *et al*. 2021; Stern and Coleman 2015; Toman, Curtis, and Shindler 2021; Van De Walle and Six 2014); here we follow Stern and Coleman (2015, 119) understanding of trust in collaborative natural resource management. This conceptualization of trust is based on an extensive literature review within the field of collaborative natural resource management (Stern and Coleman 2015), which fits the point of departure of this study. According to Stern and Coleman (2015, 119) trust is "context-specific and concerns a trustor, a trustee, and a potential action". A trustor is usually an individual or a group, while the trustee can be an individual, a process, an object, an organization, or an institution. Stern and Coleman (2015) differentiate between four different forms of trust: 1) dispositional trust; 2) rational trust; 3) affinitive trust and 4) procedural trust.

"Dispositional trust describes a general tendency or propensity of an individual to trust or distrust another entity in a particular context" (Stern and Coleman 2015, 122), and it is a characteristic of the trustor more than something affected by others. Dispositional trust in collaborative natural resource management is the baseline for rational and affinitive trust (Stern and Coleman 2015). Rational trust is often based on past experiences and predictability, and "on a calculation of the perceived utility of the expected outcome of placing one's trust in another entity" (Stern and Coleman 2015, 122). In natural resource management, rational trust is related to calculated expectations of personal benefits, and when present, eases the process of collaboration. Affinitive trust describes "trust in an entity based primarily on the emotions and associated judgments resulting from either cognitive or subconscious assessments of the qualities of the potential trustee" (Stern and Coleman 2015, 122). Unlike rational trust, affinitive trust does not rely on calculation, but is based entirely on the qualities of the trustee. In natural resource management, affinitive trust supports the formation of shared values, mutual understanding of interests and successful conflict resolution (Stern and Coleman 2015). Finally, procedural (or institutional) trust refers to "trust in

procedures or other systems that decrease vulnerability of the potential trustor, enabling action in the absence of other forms of trust" (Stern and Coleman 2015, 122). Accordingly, procedural trust is "based on the interactions between positive control systems, and other forms of trust" (Stern and Coleman 2015, 125). In natural resource management, institutional trust is often the most actionable form for managers. The joint development of procedures and transparent decision-making minimize risk for the trustor when the trustee is believed to comply with the rules.

2.2. *Mosaic governance*

Mosaic governance comprises place-based initiatives by green volunteers and other active citizens or social enterprises who are motivated by care for environmental and social challenges in society. These initiatives are embedded in a complex, multi-level network of actors from civil society, governments, and/or businesses, and by multiple values and types of knowledges. In mosaic governance, the diversity of *actors* often results in a diversity of *discourses* to be navigated. Discourses are the shared visions of policy makers and/or green volunteers and can range from greening visions to specific policy programs. In addition, formal and informal *rules of the game* need to be attuned to the needs and collaborative cultures of active citizens and formal institutions, while *resources* need to be shared and coordinated across actors (Buijs *et al*. 2019). Resources refer to "land, money and expertise" (Buijs *et al*. 2019, 55), while rules of the game include *trust*, traditions, formal and informal rules for participation and green space management. The "mosaic" of civic and governmental actors has a distinct spatial component, as the aim of governance is to both scale out – establishing and supporting localized engagements with a wide range of sites – and scale up – coordinating diverse local actors and extending their municipal and regional impact (Buijs *et al*. 2019). In natural resource planning and management, both scaling up and scaling out are important, as are positive discourses around collaboration with green volunteers and flexible rules of the game that enable collaboration and grassroot contributions. Moreover, mosaic governance may provide a safe space to relearn governance by practicing new approaches and overcoming siloed policy fields, while providing a context for social learning regarding the aims, behaviors, and capacities of all key actors (Mumaw and Raymond 2021).

Gentin *et al*. (2022) show that almost all Danish municipalities and all Danish Nature Agencies actively collaborate with green volunteers. In practice, these institutions may provide land, mechanical tools, subsidies, or professional ecological knowledge, while volunteers provide more informal resources such as motivation and time, practical and local knowledge, individual leadership and inspiration, and the ability to mobilize others. There is, however, a great degree of variation in these collaborations. Some municipalities are very supportive of green volunteering, whereas others are more reluctant, arguing that volunteers need specialist knowledge to care for high-value nature. Gentin *et al*. (2022) argue that green volunteering in Denmark is developing towards mosaic governance; however, there remains a need to explain the observed variation in green volunteering across Danish municipalities. Given the importance of trust to successful collaborative nature management (Brown *et al*. 2015; McGinlay, Jones, *et al*. 2023) and building local support for designating protected areas (McGinlay, Jones, *et al*. 2023; Jones *et al*. 2022; Michel *et al*. 2022), we ask whether variations in the type and level of trust are related to the observed differences in green volunteering.

3. Linkages between trust and mosaic governance

The unfolding of mosaic governance is strongly related to issues of trust, as collaboration both relies on, and strengthens, interpersonal relationships and enables shared action toward tangible outcomes (Buijs *et al*. 2019). This is in line with Mattijssen (2022), who states that integrating the efforts of active citizens and local governments in nature management relies on available resources, shared discourse and rules of the game, and that establishing and sustaining these demands trust. Trust is crucial for thriving long-term collaborations that contribute to co-creation and co-management of natural areas, but also emerges from these collaborations (Mumaw and Raymond 2021; Helena Michel *et al*. 2022; Jones *et al*. 2022), and may therefore be self-reinforcing, i.e. trust increases during the process (Möllering and Sydow 2019).

High levels of dispositional trust can be beneficial for the willingness of citizens to engage in collaboration with governmental actors. By definition, this type of trust does not depend on the type of governance in a specific project but is a general disposition to trust/distrust another entity in a specific context (Stern and Coleman 2015). The design of the mosaic governance collaboration will especially influence the institutional, rational and affinitive trust of its participants. Institutional trust has an influence on the positive outcomes of collaborations in natural resource management (McGinlay, Holtvoeth, *et al*. 2023; de Vries *et al*. 2019), and is often based upon former positive experiences that influence the willingness to participate and belief that doing so will have a positive outcome (rational trust) (de Vries *et al*. 2019). Opening-up decision-making procedures, co-learning between citizens and municipalities and allowing volunteers to work on municipal land are clear signs of institutional flexibility and openness, which facilitates institutional trust (Jones *et al*. 2022; de Vries *et al*. 2019). Finally, highly institutionalized forms of mosaic governance, for example when formalized organizations act as "scale-crossing brokers" between local residents and the municipality or housing agency can provide a positive context for institutional trust, providing stability and responsiveness in relationships (Mumaw and Raymond 2021). Affinitive trust is related to the assessment of the qualities of a potential trustee, e.g. the feeling of social connectedness. As it entails building personal relationships, it highlights the critical dimension of time. Only prolonged and repeated collaborations, such as in a mosaic governance context, create the conditions for affinitive trust to develop (Emborg, Daniels, and Walker 2020; de Vries *et al*. 2019).

Based on these research studies, we identify two key processes for trust-building in mosaic governance: 1) experiencing true interest and willingness from institutions to change strengthens institutional trust, and 2) positive and repeated experiences in collaborations build rational and affinitive trust via social learning. Eventually, these processes can lead to positive feedback and a self-reinforcing relationship between building trust and enhancing collaboration. This makes trust an important prerequisite for scaling-out and institutionalizing collaborations, as this depends on empowered actors, inclusive framing, socio-spatial links between landscapes and people and shared resources (Mumaw and Raymond 2021).

4. Study aims and research questions

The literature on mosaic governance recognizes trust as important but also challenging for successful cross-sector, cross-scale collaboration. In this paper, we focus on trust and how it plays out in the engagement of green volunteers and the practical unfolding

of mosaic governance in the Danish nature management context. Our study is based on qualitative case studies with both municipal planners and green volunteers in three municipalities in Denmark. We address the following research questions:

- How can volunteering be understood through the lens of mosaic governance?
- What role does trust play in mosaic governance? Are different forms of trust associated with different aspects of collaboration between municipalities and volunteers?

5. Methods

5.1. Case study description

This study is based on three qualitative case studies conducted in three middle-sized Danish municipalities with the intention of exploring different aspects of trust in green volunteering (see Table 1) within the mosaic governance framework. Danish municipalities operate in a governance context wherein mandates for environmental policy are set at the national level and municipalities must work with a host of actors to realize objectives. There are ninety-eight Danish municipalities, each tasked with interpreting and implementing national policy on environmental planning and management from biodiverse sensitive areas to climate adaptation and mitigation. The nested green governance found in a Danish context, building from multi-form partnerships at the municipal level that include green volunteers, can be approached as a form of mosaic governance.

Municipalities were chosen based on their participation in a nationwide survey of volunteerism in nature management and their willingness to participate in in-depth interviews with municipal officials and volunteers. Selection was further narrowed based on comparative aspects of mosaic governance, such as approach to volunteerism in nature management and experience with green volunteering over time (Gentin *et al.* 2022). Finally, case studies were selected to facilitate comparison through similarity in population size (as a metric of municipal resources), their strong green place brands which also link to their municipal strategies, and finally their capacity to engage volunteers (Seawright and Gerring 2008). Selected cases are municipalities with a strong capacity for working with citizen volunteers and a demonstrated ability to link green volunteering to broader municipal environmental governance.

5.2. Data collection and analysis

Data were collected in three phases over a two-year period from June 2019 to August 2021 (see Appendix for a detailed description of data collection, and Table 2 for an overview). In each case study site, data were collected in collaboration with municipal officers working with green volunteers and with the volunteers themselves. The main focus of this analysis is the third phase of data collection, the filmed interviews, in which we collected in-depth information on green volunteerism and its relationship to trust and trust-building in each municipality.

The first phase (February to June 2019) consisted of interviews ($n = 11$) conducted with the aim of establishing a baseline understanding of how volunteers are engaged in the case study municipalities, including insights into the opportunities and challenges that municipal officers face when working with volunteers. Interviews lasted

Table 1. Overview of case areas.

	Holbæk	Silkeborg	Middelfart
Most-similar cross-case characteristics			
Population	72.000[A]	97.000[A]	40.000[A]
Area (approximate)	578 km^2	865 km^2	300 km^2
Population density	125/km^2 [B]	112/km^2 [B]	132/km^2 [B]
Green brand	"Sustainable Municipality" where climate adaptation, nature and biodiversity policies are used to brand the municipality and attract new residents	"Denmark's outdoor capital"[C] where access to nature, stewardship of nature, and green activities such as upcycling are in focus.	"European Destination of Excellence"[D] with strong focus on coastal nature experiences and the Naturpark Lillebælt.
Number of employees dedicated to volunteer engagement	2	1-2	3
Most-different cross-case characteristics			
Geographic location	Island of Zealand, active shoreline	Jutland, highest elevation in Denmark	Island of Funen, active shoreline
Approach to green volunteering	Volunteers fill a service gap. Contracts steer volunteers and the municipality provides gear to fulfill volunteer tasks.	Long-term relationships with local farmers, with agreements for nature management on public and private lands.	Support of active citizenship is a political priority. Collaboration is often based on concrete areas and activities.
Municipal approach to governance	Top-down steering of volunteers.	Facilitation, with a strong bottom-up approach.	Co-governance provides an open opportunity for volunteers to manage a local forest.

Note: A + B Statistik Denmark; Population size in Danish Towns https://www.statistikbanken.dk/BY1.
C Visit Aarhus "Welcome to Silkeborg" available at: https://www.visitaarhus.com/areas-and-cities/lake-district/silkeborg.
D Visit Middelfart "Welcome to Middelfart" available at: https://www.visitmiddelfart.dk.

from 30–90 min and were recorded with participant consent. Interview questions were organized using a grounded approach (Corbin and Strauss 2008), meaning that questions were semi-structured and interviews were open, exploratory, and in-depth in character. Interview information was triangulated with a desktop policy analysis of green volunteerism and green space/nature management at the municipal level in each case study to establish broad categories representing baseline approaches to green volunteerism with a focus on management, governance, trust, collaboration, organization etc. Results from this phase defined themes for the phase 2 workshops.

The second phase of data collection (June 2019 to October 2019) included two workshops in each case study site to qualify and further explore motivations and

Table 2. Overview of interviewees in the three case areas, for further elaboration see Appendix.

	Municipality		
	Holbæk	Silkeborg	Middelfart
Phase 1: Baseline understanding	Managers in municipal nature and environment department ($n=3$)	Managers in municipal nature and environment department ($n=1$), external consultant ($n=1$), volunteers ($n=3$)	Managers in municipal nature and environment department ($n=3$)
Phase 2. Workshops	Volunteers and municipal planners (WS1 app. 25 volunteers, 1 mun.plan// WS2 app 15 municipal planners)	Volunteers and muncipal planners (WS 1 and 2 app. 20 volunteers, 1 mun.plan.)	Volunteers and muncipal planners (WS 1 and 2, app. 20 volunteers, 4 mun.plan)
Phase 3: Films	Volunteers ($n=6$) and municipal planners ($n=2$)	Volunteers ($n=7$) and muncipal planner ($n=1$); department leader ($n=1$)	Volunteers ($n=4$) and muncipal planner ($n=3$); mayor

challenges of working with green volunteerism. Participants interviewed in phase 1 were invited, in addition to key stakeholders, as identified in the first round of interviews. In the workshops, key topics such as power, influence, storytelling, problems, and solutions were discussed through 1) actor mapping exercises around power, influence, problems and solutions; 2) identification of strong narratives around green volunteering and links to management strategies; and 3) practices of green stewardship in the community. Workshop 1 was focused on municipal objectives whereas Workshop 2 was focused on the needs and visions of the volunteers. These results were discussed in Workshop 3 to further identify and co-create strategies to better support municipalities in engaging and working with green volunteers over time.

The final phase of data collection (June-August 2021) was a round of video interviews ($n=24$) conducted to better understand the drivers and barriers to green volunteerism, now and in the future. Special emphasis was placed on identifying characteristics of trust, bridge-building, alliances, and multiform partnerships from the individual to the operational and strategic. Specifically, interview questions were focused on the unfolding of mosaic governance and trust through various practical examples. Interviews were conducted in the natural areas where volunteers were active and filmed for the purpose of conducting in-depth discourse analysis (for an overview of interviewees see Table 2).

All interviews were transcribed verbatim and coded deductively based on the concepts within Mosaic Governance (Buijs et al. 2019) as well as the four different types of trust (Stern and Coleman 2015) – institutional trust, dispositional trust, rational trust and affinitive trust. While Stern and Coleman (2015) use the term "procedural trust", we find the term "institutional trust" more applicable in a Danish context. Coding in a subset of interviews was initially discussed by all members of the research team to

assess intercoder reliability. The qualitative coding was completed using the coding software Nvivo (ver. 13). Coding was an iterative process involving reading and re-reading the transcripts, forming initial and subsequent indices of themes. The results of the coding were verified by the author team. Where authors disagreed, disagreements were discussed and changes made accordingly when necessary.

6.   Results

In the following, we present our findings regarding the unfolding of mosaic governance and its relationship to trust. First, we describe the case of Holbæk and second the case of Silkeborg – both exemplified through grazing of commons in the municipalities. The last case is the Municipality of Middelfart, where we present the case of collaboration in establishing a masterplan for a municipal forest. Each of the cases is presented with the following structure: First, we present the unfolding of mosaic governance in the cases; second we focus on the trust emerging within the collaborations. Finally, we present concluding remarks for each case.

6.1.   *Grazing in Holbæk municipality*

Green volunteering has not always had the best conditions in Holbæk municipality. There has been a strong distrust from some municipal employees towards the capabilities of green volunteers, while other employees have held strong trust in them. This led primarily to internal conflicts within the municipality, but also to frustration among the volunteers, because they felt that some municipal planners were rather keen to involve citizens, while others were not. Distrust was shown e.g. by forcing the green volunteers to sign binding contracts relating to the tasks, leading to a decreasing willingness to engage. However, by improving their organizational understanding of volunteerism and the roles of volunteers, and focusing on the benefits of volunteering, the municipality has turned rational and dispositional distrust into trust. Now, Holbæk Municipality entrusts green volunteers with looking after cattle on municipal commons and facilitates green volunteers' initiatives by providing access to professional-level nature management equipment.

The new **discourse** of the municipality regarding volunteers is emphasized by the planner: *"In many nature areas it is essential that we are collaborating with volunteers, who will look after the cattle for the farmer, as he often lives far away from the areas, and needs to drive a long way in order to look after his cattle […] so we are dependent on the volunteers."* Tasks given to green volunteers can, in these collaborations, range from counting the number of cattle, removing grass under the electric fences, checking whether the fence is leading enough power and checking if the water supply for the cattle is sufficient. To further support citizens' contribution, the municipality owns a so-called "equipment trailer" with professional nature management equipment. The volunteers can borrow the trailer if and when they want to contribute – a purposeful act of trust on the part of the municipality to enable volunteers to engage in tasks agreed upon by all parties. A volunteer who used the flail-mower to ensure volunteers' access to a cattle grazing area puts it this way: "[earlier] it was expected that the municipality did [this job] but they don't have the money for this [mowing the grass to ensure accessibility]. Instead of complaining we are doing it ourselves, as we get the benefit, as we are living so close to this area, and can look at the cattle. It's a

privilege. Accordingly, I will do the work, I don't have anything against it." The task described by the green volunteer is one of the municipality's "optional tasks" (e.g. providing access around recreational green areas), and not one of the "mandatory nature management tasks" (e.g. removing shrubs in protected areas). While this quote shows volunteers' understanding that they are a **resource** for the municipality, citizens view this positively because they have the opportunity to contribute and enhance biodiversity and appreciate how being entrusted with these tasks gives them a sense of responsibility and attachment to the area. These benefits also provide an opportunity for **scaling out**. The municipal planner emphasizes: "we talk about how the active citizens can enhance their sense of community in their area, by for example trails, or [by building] other outdoor facilities. Then I establish contact with colleagues who can help with their expertise, or I contact the local farmer whose land the trail could cross… This is how new or other collaborations start." In other words, while volunteers are not considered an essential resource, there is recognition in the municipality that entrusting volunteers with tasks can bring added benefit to conservation and the community.

The strong discourse around "being needed as a volunteer" also reflects the **rules of the game**, which in this case relate to the value and nature of volunteering. The municipal planner emphasizes: "it's not me for whom these activities should create value – the activities should create value for the citizens." This also links to **resources** within the municipality, as doing so requires not only trust in volunteers to do the work, but a flexible approach to the municipal planners' working day, as she cannot always plan ahead. "They call if they want to borrow the equipment trailer – and if they cannot pick it up themselves, I'll do it for them. And if necessary, I will also move some of my other appointments in order to help the volunteers." Flexibility is also required when meeting with volunteers out in the field to discuss new ideas or other issues, as they are volunteering in the late afternoon or evenings, when the municipal planner's "official working day" is over. This flexible approach requires **resources,** which, according to the municipal planner, is recognized by leadership as she has dedicated working time to help the volunteers, especially during summertime, when she uses up to four days/week "to drive the trailer back and forth – to fill up petrol or to maintain the machinery". This investment in planners' time and flexibility makes citizens' experience of volunteering easy and positive, as do the **resources** dedicated to high quality machinery: "it means a lot that there is proper machinery we are working with… it would be a nuisance, if the machinery would be old and not working, then the fun of it disappears."

As the perception of green volunteers and the value of engagement has shifted within the municipality, distrust between the municipality and volunteers has turned into trust. The collaboration around the equipment trailer exemplifies this shift and contributes to the development of both **dispositional and rational trust**: "for us as a municipality, this established community around the equipment trailer gives us the opportunity to collaborate further with this group of people, as they already trust us as the municipality." The green volunteers explain: "their [the municipality's] understanding for volunteers is good. They think about us as people, and they meet us as people themselves, not as an authority." The municipal planner emphasizes that she meets the volunteers as a "normal person" and not as a public authority, and thus meetings in the field become an important tool to build relationships and **affinitive trust**. "Something happens when you are out there and talking. Everything stays on the

ground – you talk and point, and this gives energy, a common energy, it gives you a feeling of togetherness, which has something to do with the relationship we are building between us." Volunteers also acknowledge this feeling, which ultimately supports **institutional trust.** As the municipal officer explains, her point of departure is finding solutions that work for the citizens but are also within the bounds of municipal possibilities. This gives the most sustainable solutions, creating sustained trust in the process and between the municipality and active citizens. The perceived mental distance to the town hall is minimized and institutional and rational trust is built. Dispositional and affinitive trust are influenced too, as collaboration gives the citizens a different understanding of the municipality. "As an active citizen I get a good understanding of what is at stake in the municipality … volunteering efficiently breaks down the distance to the municipality, everything is solved easier, when we talk to each other."

Our results show that distrust can be turned into trust – both from the perspective of the green volunteers and from the perspective of the municipality. This was done through internal workshops and seminars at the municipality, which took a point of departure in how the distrust and formalization through strict contracts influenced the green volunteers. Shifting away from this seemingly necessary "control system" required an open dialogue and reflexive approach, as well as a focus from leadership on accepting the risks that volunteers may fail to do the work and choosing to entrust them anyway. This shift also came with a recognition of the volunteers as a **resource** – both in terms of getting things done, but also in relation to fostering more widespread trust in the municipality. Therefore, by improving the municipality's internal understanding of green volunteerism and the roles of volunteers, and focusing on the benefits of volunteering, the municipality has turned rational and dispositional distrust into trust.

6.2. Grazing in Silkeborg municipality

Silkeborg has a long tradition of involving citizens in many different kinds of nature resource management. Here we focus on both grazing and scythe guilds. Most of the aspects of a very well-functioning mosaic governance and its relationship to trust among green volunteers and the municipality are evident in Silkeborg. Here, there is a strong focus on **scaling out** due to the positive **discourse** around collaboration with active citizens in natural resource management. The planner is always looking to establish new collaborations, as illustrated in the following quote: "He [the planner] drove by and asked us if we were willing to use our cattle/goats/sheep to graze natural areas nearby […]" and further: "we [the active citizens] also asked for more areas [to graze with their animals], and now we are grazing about 500 ha with our animals [mainly cattle]." The value of the contributions by the active citizens is also acknowledged by the leader of the planning and environment department, saying "citizens are included in the work of the municipality. Hereby citizens get some responsibility, and [that] is good." Responsibility gives, according to the department leader and the planner, an understanding of nature and natural processes, as well as place attachment, and is an important indicator of the trust placed in volunteers by the municipality. The municipal planner believes citizens are capable of looking after nature, and the citizens feel that their efforts in and for natural areas align with their values, as stated here by a grazing guild member: " … we have an interest in animals, we love animals. Furthermore, we really love being outdoors – it's a fantastic nature [we have here]. To have our

animals, to look after them in nature – this harmonizes with who we are." According to the planner in Silkeborg, grazing guilds are the most **resource**-intensive strategy to support needs for electric fencing and water for the animals. Nevertheless, the municipality believes this effort comes back manifold through increased place attachment, local cohesion, and commitment to the task. The department leader states: "we shouldn't make everything up economically. It's a small amount of money out of the total budget of the municipality and we get so much value out of the money we put in here." Moreover, volunteers also commit their own (time) resources: "We have to look after the animals, measure electricity in the fence, walk around the fence, and remove fallen branches or overgrown grass." When the guild needs further support from the municipality, however, they are only a phone call or email away. The green volunteers report that the municipality responds immediately, illustrating how **rules of the game** operate in Silkeborg. There is a shared understanding of how communication is supposed to happen, which also emerges internally through an understanding by the leadership of differences among public officials. Working tasks must fit with how employees like to work: "I am the leader of 46 different people. Some sit at their desk, some are out in the field, because that's what they like … everyone looks after their work, it's not a problem."

Acknowledging that it is a competence to talk effectively with citizens highlights the role of **trust**: "[the municipality] needs people like XX, who is able to talk to people […] it's a competence to be able to talk to people, who can let go and doesn't control the volunteers." Both active citizens and the department leader mention the planner's personality as crucial for the success of their collaborations and agreements, underscoring the reliance on high levels of both **affinitive and dispositional trust.** The department leader emphasizes " … you need to be able to let go. I also let go of my employees when they engage volunteers. There is no control of the volunteers, [when they engage] things are done differently, compared to if we had done it." In other words, the municipality must trust volunteers to solve the task to natures' benefit, even if it is not how they would do it. Guild members, on the other hand, develop both **rational and institutional trust** when their demands are met and they feel understood. "We meet with XX, and we have some demands … If our demands are met, we sign a contract". Here, experience is key: "it is important that the public official understands us as farmers, and if he/she doesn't the person should draw upon others' experience. [you need to have] understanding for the farmer in terms of water for the animals, power for the fences, accessibility in terms of monitoring the animals, etc."

We did not observe any challenging collaborations or long-term conflicts between volunteers and the municipal planner in the municipality of Silkeborg, as the municipality is very responsive. For example, volunteers in a scythe guild state: "we were really upset by the mowing with heavy machinery on this area. Some [of us] were even aggressive towards the municipality," but the municipal planner met with the citizens, listened to their complaints, and understood that the volunteers envisioned manual mowing with scythes, as this is gentler to the vegetation. The municipal planner agreed and organized a "scythe guild day," providing food and beverages. This support reflects department leaders' vision for volunteerism: "the matching of expectations between the citizens and the public administration is important – the citizens are taking responsibility for nature here […] so two plus two equals five [as nature and the areas' vegetation benefit from the gentler mowing]." Here, citizens' belief that nature was taken care of properly could have led to distrust in the municipality; however, the

actions of the municipal planner turned the situation into one where rational trust was built.

6.3. *Staurby Forest masterplan in Middelfart Municipality*

In 2017, Middelfart Municipality bought an urban forest on the outskirts of town to provide more recreational opportunities for citizens within the boundaries of the municipality. The masterplan of the forest was designed and written in close collaboration between citizens, municipal planners and politicians, in a process characterized as very successful by all participants.

The mayor emphasizes the municipalities' **discourse** around citizen involvement as one of the central elements of this success: "We don't have any strict guidelines for how to involve citizens, we have a political understanding of how we ought to work in our Municipality – it should make sense and give value to the citizens." Municipal planners also experience this in their everyday work: "the leadership agrees […] that we, as employees, have the time needed to involve citizens and that we are flexible." The citizens who participated in the planning process sensed this flexibility and room for engagement: "the municipality took a step back to see, do we succeed. Some of it was a success, some of it not – but in the end we had a masterplan for Staurby Forest." This discourse of citizen involvement relates to the **rules of the game**. Again, the mayor emphasizes: "employees must have the freedom to do whatever is needed in the process. Then we, as politicians, must have the employees' backs." A public official put it this way: "it's the collaboration that makes the difference … you [the citizens] give some input – we [the managers] give some input … We have had politicians, volunteers, the users and managers – a whole lot of people who have given input, that makes the difference out there [in Staurby Forest]." These norms regarding supporting employees and gathering wide input indicate the importance of reflexivity among municipal planners and politicians, who must know when to step forward and when to step back and give room for citizen input. Ultimately, the strong collaboration between municipality and citizens in developing the Staurby Forest masterplan (Middelfart Kommune 2017) illustrates **scaling up** in the mosaic governance framework. As a citizen describes, "this is local democracy – you [as a citizen] get tied up in the public officials' work, because they also participate in the process. […] then the politicians can sell our ideas to the city council, who in the end will approve the Master Plan of the forest."

The positive focus on co-creation of the masterplan has influenced the **resources** available in Staurby Forest, which range from sufficient time for meetings in the planning phase to resources for building mountain bike trails to seeing volunteers themselves as resources. The mayor reports: "In general, we believe that we get better results compared to if we hadn't involved the volunteers. Some see engagement of volunteers as a result of budget cuts, we don't. If we can get better results without volunteers, then we do it without them. If the results are better – we involve them." According to the mayor and the municipal planners, while co-creation takes more time, involving citizens brings more energy to the planning process. It also reduces time spent resolving conflicts later, as everyone involved gains an understanding of different user perspectives. Citizens like the mountain bike trail builders recognize the resources invested by the municipality, from the initial construction of trails with heavy machinery to the continued supply of gravel for the trails, wood for

construction, and food and beverages after trail workdays. These green volunteers are part of the municipality's vision of **scaling out**, which includes establishing grazing guilds in areas with high-value nature. This vision is being challenged, however, as these areas are often far from where citizens live and do not accommodate their need for tasks to be in nearby nature for easy participation.

Citizens, public officials, and the mayor all emphasize trust as crucial for their successful collaboration. The mayor emphasizes **dispositional trust** and its importance for the municipality and collaboration between public officials and active citizens: "We, as politicians, must not look for mistakes made by our staff – if we don't make mistakes, we might have been sitting on our hands too long. Instead, we must focus on having a culture in which it is OK to make mistakes, and at least we tried." The trust in staff and willingness to make mistakes relates to **institutional trust** by supporting a culture of openness and a willingness to learn and enhancing the opportunities for municipal planners to engage citizens. This contributes to the development of **affinitive trust** between citizens and the municipality: "the municipality got a face. It is always important to talk to someone you know, you feel you have been heard and you get a closer path to the decisions." Moreover, the process of giving input to the municipality allowed different user groups to learn about each other and develop trust among themselves: "all of a sudden you get an insight into what it really is [different user groups] are looking for, what it is [they] really want […] all those things you suddenly get some insight into." In the end, engagement, and the trust it built resulted in a strong sense of mutual benefit and collective ownership: "it gives you the feeling that it's not only Middelfart municipality's forest, but it is our forest, and then you also get a feeling of responsibility", which further supports mosaic governance. For example, active citizens are now the municipality's "ears" in the field, meeting the forest visitors more often than the public officials do: "I need the volunteers – I am confident in this group of people […] it's a tremendous help for the municipality."

During our research, we did not observe distrust between the municipality and volunteers. Everyone acknowledged the important role citizens play as green volunteers and agreed that they need as much support as they can get. We believe this relates to the mayor's vision for how to engage citizens: "We have guidelines within the municipality in which it is stated that we work … **with** the citizens and not **for** the citizens." Municipal planners also mention this memorandum of expectations: "We have political support for our work with the volunteers. The mayor wants the effort by the volunteers. There is trust in us [the municipal planners] in our daily work with the volunteers, and there is positive attention and curiosity both from politicians and from our department leaders." And volunteers notice this: "the collaboration between politicians, municipal planners and us as volunteers is valuable, and we [the volunteers] are recognized as having valuable skills." Thus, while engaging volunteers is a time-costly task, it is acknowledged by both politicians and department leaders as important and in line with administrative procedures.

7.   Discussion

In this paper, we have focused on trust and its role in the engagement of green volunteers and practical unfolding of mosaic governance in the Danish nature management context. Through qualitative case studies, with both municipal planners and green volunteers in three Danish municipalities, we have investigated what roles trust plays in

Table 3. Overview of results in the three municipalities.

		Holbæk	Silkeborg	Middelfart
Mosaic Governance				
Actors			See Table 2	
Discourses		Volunteers are necessary for completing non-essential tasks	Citizens offer valuable contributions and benefit from engagement	Political understanding that citizen involvement ought to happen
Resources		Volunteers, planner's flexibility, equipment trailer	Electric fencing, water, volunteers' time	Time for meetings, trail-building equipment, volunteers
Rules of the Game		Value should be created for volunteers	Quick, responsive communication and flexible work arrangements	Freedom to do what is necessary and support of institutions to do it
Trust	Dispositional	Expressed through municipality's understanding of volunteers	Expressed through municipality's understanding of farmers	Expressed through work culture where it is okay to make mistakes
	Rational	Volunteers' response to municipal efforts at engagement	Through meeting volunteers' demands	Not observed
	Affinitive	Built through experience working together	Fostered by planners' personality	Municipality has a face and citizens feel close to decisions
	Institutional	Result of sustained positive interaction	Supported by municipality's hands-off approach	Fostered by municipality being open and willing to learn
Scaling Out		Contact colleagues to help facilitate volunteer initiatives	Proactive approach to collaboration	Vision to establish more volunteer initiatives
Scaling Up		Not observed	Not observed	Collaboration between citizens and municipality for masterplan

mosaic governance and how trust contributes to multi-scale and multi-actor collaborations. Our findings reveal that trust is crucial for successful collaboration between municipalities and green volunteers, and hence the successful unfolding of mosaic governance. While trust is contextual, we identify it as the lubricant of mosaic governance, facilitating co-creation between diverse actors in diverse governance contexts. Ultimately, trust does not occur in a vacuum, but demands caring and responsive collaboration to support social learning. In Table 3 our results are briefly summarized.

7.1.   The unfolding of mosaic governance

The cases show how mosaic governance is an emergent and reflexive process, developing within the institutional context and motivations of each municipality. All cases show an organic process linking small-scale collaborations between the municipality and green volunteers to more institutionalized networks, often expanding to additional groups and locales. Therefore, our cases illustrate how mosaic governance develops through the interrelationships between i) supportive governance contexts, ii) trust, iii) awareness on formal and informal network creation, and iv) reflexiveness in landscape management contexts. Some of these features may exist from the beginning, while others develop during collaboration and institutionalization. It should be noted here that, while we discuss each factor individually, all four factors are interrelated, mutually supportive and reinforcing (e.g. supportive governance contexts and reflexiveness, etc.).

7.1.1.   Supportive government context

Institutions and discourses around local democracy, planning cultures and the capacity of local residents have a strong impact on whether mosaic governance emerges and how it evolves (Kiss *et al.* 2022). Our study shows that recognition of citizen contributions to nature management is rooted in municipalities' strong belief that "2 + 2 gives 5" and a dialogue-based planning tradition in Denmark (Kristensen, Primdahl, and Vejre 2015). Moreover, levels of trust are high in Denmark (Halman *et al.* 2022), particularly institutional trust (Sønderskov and Dinesen 2016), which positively influences willingness to participate in mosaic governance and perceived outcomes of collaboration. Mosaic governance often starts with community initiatives; however, all collaborations in our cases were initiated by the municipalities. This top-down initiation plays out differently in each case: 1) in the beginning of volunteering projects, as we have seen in the case of Holbæk; 2) in Silkeborg, where the municipal planner is always looking for new collaborations; and 3) in Middelfart, where we found a strong political discourse around citizen involvement in bigger nature management projects such as the master plan for Staurby Forest. This supportive governance context, wherein the natural landscape is framed as local *commons* with co-creation and dialogue-based approaches to planning as the normative ideal, contrasts with other international cities' experiences (Colding *et al.* 2013; Gopalakrishnan and Chong 2020).

7.1.2.   Trust as the lubricant

Our study shows that trust plays a key role in the unfolding of mosaic governance and is the lubricant that makes mosaic governance work in practice and at different scales. This is illustrated in Figure 1, where the arrows indicate which kinds of trust are in
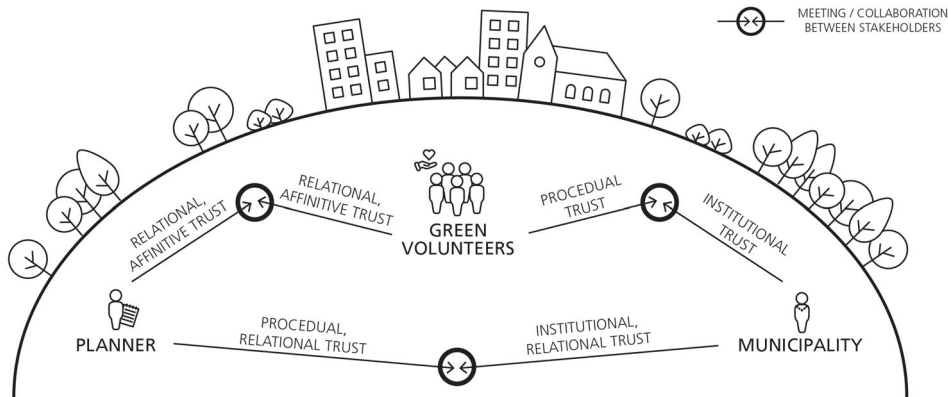
Figure 1. The unfolding of mosaic governance and its relation to the different forms of trust at stake between the stakeholders.

play between different stakeholders in the mosaic governance framework. These results tap into growing research (see e.g. Dietsch *et al.* 2021; Stern and Coleman 2015; Toman, Curtis, and Shindler 2021; Emborg, Daniels, and Walker 2020) that finds trust central to successful collaborative natural resource management. Our findings go further, showing that different forms of trust come into play at different places within mosaic governance. We find **institutional, rational and affinitive trust** play a key role in "rules of the game" and "discourses", as these three forms relate to the possibility of collaborating with active citizens. Toman, Curtis, and Shindler (2021) emphasize that agency leaders play a key role in developing an organizational culture (discourse and rules of the game) in which trustworthy characteristics are valued and promoted (affinitive trust, rational trust). Further, personnel should value public engagement efforts "simply not as means to an end but as providing meaningful contributions in and of themselves" (Toman, Curtis, and Shindler 2021, 3). In our research this appears as affinitive trust – often exemplified as the planners' ability to talk to citizens and farmers – and relates to opportunities to **scale out**. **Institutional trust** is also apparent when **scaling out** – exemplified by the municipal planner in Middelfart stating: "We have political support for our work with the volunteers – the mayor wants the effort by the volunteers." In Holbæk the municipal planners have been challenged by rational distrust from green volunteers and institutional distrust between the municipalities' politicians and some municipal planners. This has hindered the unfolding of mosaic governance; however, the personality and charisma of the municipal planner working with volunteers supports a strong relationship based on affinitive trust. This was further supported by the willingness of the municipality to change their practice for engaging green volunteers, as described in the results section. Thus, we observe rational distrust transforming to rational trust between volunteers and the municipality in Holbæk. This aligns with the study by Emborg, Daniels, and Walker (2020), who emphasize that distrust is not just the opposite of trust, but that distrust can be turned into trust by understanding the history of the involved parties, their conflicts, and taking this as the point of departure for future collaborations.

Other studies also place emphasis on how distrust may inhibit the positive outcomes of collaborations in natural resource management (Dietsch *et al*. 2021), but also that distrust is "an essential component of political accountability in a participatory democracy" (Poortinga and Pidgeon 2003), which can complicate the accomplishment

of conservation goals (Dietsch *et al.* 2021). This aligns with the findings of Toman, Curtis, and Shindler (2021) who concluded that collaborations where trust is strong are also more efficient. Nevertheless, the relatively narrow kinds of trust at work in Holbæk, when compared to Silkeborg and Middelfart, have implications for the success of these projects. The more diverse the types of trust at play in natural resource management collaborations, the more resilient the collaborations are found to be at institutional level (Stern and Baird 2015). This is corroborated in our research, as both Silkeborg and Middelfart offer examples of strong mosaic governance, while we see a more reluctant approach in Holbæk.

7.1.3. Awareness on formal and informal network creation

Trust, however, is not the only prerequisite for successfully unfolding mosaic governance; the development of informal and formal networks is also essential (Frantzeskaki 2019; Kiss *et al.* 2022). These co-develop in an organic process of formal and informal contact, getting to know each other, building trust and overcoming (rational) distrust. Importantly, trust appears to be multi-scalar in the development of formal and informal networks. The ability of local managers to collaborate and earn trust among communities depends on the trust placed in them by institutions and the accompanying freedom to flexibly respond to local values and needs when co-developing nature-based solutions. Once established, these networks improve mutual understanding and align or cultivate shared discourses and practices, which contributes to enhanced trust between municipalities (planners) and local citizens (Chambers *et al.* 2021). We observe this especially in Holbæk, where the outcomes of collaboration shifted initial rational distrust to rational trust because municipal planners repeatedly discussed local solutions and included citizens in nature management tasks.

7.1.4. Reflexiveness in landscape management contexts

Our results indicate that reflexivity plays a key role in fostering and sustaining trust within volunteer-based natural resource management, for example, through the process of matching expectations between the municipality and green volunteers (van der Jagt *et al.* 2021). We identify three kinds of reflexivity in the work of Danish natural resource managers: (1) identifying and understanding the different skills and competencies of staff; (2) considering how value is assessed and recognizing non-economic value and the importance of process; and (3) learning from mistakes, responding to criticism, and knowing when to step back.

We have argued that the personality of planners plays an important role in fostering trust and making mosaic governance work and is particularly acknowledged in the cases of Silkeborg and Holbæk. Therefore, a key task in engaging volunteers for natural resource management is being aware of planners and municipal workers' different skills and competencies (Dietsch *et al.* 2021). This is related to considerations about how municipalities work and assess value, specifically recognizing the non-monetary value of volunteers (Silkeborg) and sustaining discourses of citizen engagement as a shared value (Middelfart). Our findings suggest that this approach is effective for establishing and sustaining trust and mosaic governance – Silkeborg and Middelfart have comparatively more elaborated mosaic governance compared to Holbæk, which also relies on a more formalized and less values-driven process. Finally, reflexivity regarding processes and outcomes has the added benefit of providing an opportunity to

learn from mistakes and respond to criticism, as expressed in both Silkeborg and Middelfart, where mistakes did not necessarily result in mistrust but an opportunity to learn and engage in new ways, and Holbæk, where initial mistakes and distrust eventually inspired new ways of engaging. This accords with established strategies for more effective volunteer engagement and natural resource management (Talley, Schneider, and Lindquist 2016).

7.1.5. *Implications for management*

Trust is, as argued, largely established and sustained in reflexive and empathetic relations. For management, this can be sustained through concrete practices (Gentin *et al*. 2022). **First**, time is of crucial importance. Time to listen, time to meet, to share ideas and to establish common values, as we have seen in all three cases. This will, first and foremost, help the development of both affinitive and dispositional trust (Stern and Coleman 2015; Dietsch *et al*. 2021; Gentin *et al*. 2022). **Second,** acknowledge the volunteers' needs and perspectives. Volunteers are a valuable resource within mosaic governance (Buijs *et al*. 2019); therefore managers should meet with green volunteers in the natural areas where they work and let them present their needs and perspectives. It is also important to credit their contributions, not only regarding time and effort but also quality of work. **Third,** listen and take the green volunteers' perspectives seriously. Meeting the volunteers with humility, curiosity and a sincere understanding of why it makes sense to listen and learn from them is crucial (Staddon *et al*. 2023; Worthington and Bodie 2024). All these efforts can contribute to building all forms of trust and enhance the unfolding of mosaic governance.

8.   Critical reflections on mosaic governance

The distribution of power between municipalities and stakeholders remains a critical issue in mosaic governance approaches. The agency of citizen groups to change policies or management through co-creation and participation processes is often limited (Kiss *et al*. 2022; Toxopeus *et al*. 2020; Turnhout *et al*. 2020; Remme and Haarstad 2022). This is the case in Holbæk, where engagement of green volunteers is often only possible in areas where further nature management would be nice but is not needed, for example, when local citizens cut down branches or mow grass along trails for better accessibility. All are tasks contributing to the recreational possibilities, but not "really" contributing to higher nature values. However, in two of our three cases, mosaic governance did contribute to re-distributions of power (Wamsler *et al*. 2020). In Middelfart, and to a lesser extent Silkeborg, a strong collaborative planning discourse, reflexivity on outcomes and mutual trust resulted in re-distributed power to the community. Such redistributions of power and strong collaborative planning discourses are necessary for e.g. just climate adaptation in cities (Yazar and York 2023), and addressing uneven distributions of urban nature-based solutions (Remme and Haarstad 2022).

It has been argued that the involvement of active citizens in nature management is yet another example of the roll-back of the welfare state via neo-liberal policies (Blanco, Griggs, and Sullivan 2014), where green spaces and other natural areas are maintained by citizens instead of the municipalities/state to compensate for budget cutbacks and funding deficiencies (Henninger 2018; Rosol 2012). Our results show that volunteering in two of the three case municipalities (Silkeborg and Middelfart) is not a

result of neoliberal policies. Instead, we have argued that these municipalities, through their reflexive approach and willingness to learn from the citizens, co-create discourses and practices resulting in better solutions. However, the case of the equipment trailer in Holbæk municipality is a result of budget cutbacks, as the municipality here only carries out nature management without involvement of volunteers in areas where they are legally obliged to do so (e.g. NATURA 2000 areas, or areas protected in accordance with the Danish Nature Protection Act). Through the equipment trailer, the municipality gives citizens the opportunity to engage in tasks which are "nice" but not needed in terms of legally obligated nature management. Nevertheless, we argue that these citizens also contribute to better solutions, as mentioned above, and that these contributions rest on the development of trust within processes of governance and natural resource management.

9. Limitations and future perspectives

These Danish case studies have shown how mosaic governance relates to trust, and how trust is the lubricant for unfolding mosaic governance in natural resource management and volunteerism. Denmark has, according to Halman *et al*. (2022), high levels of trust, and our findings are not necessarily applicable in countries with lower trust levels. To further investigate the role of trust in mosaic governance, especially dispositional and rational trust, we argue that future studies should include countries with lower levels of trust. Further, our starting point was the perspective of the municipal planner (Gentin *et al*. 2022), as the initial case selection was based upon planners' descriptions of well-functioning collaborations between planners and volunteers. Future studies should focus on cases characterized by challenging collaboration between managers and green volunteers, to understand the role of distrust in relation to mosaic governance. These studies should also include the perspective of active citizens, as they have valuable insights into the reasons for trust and distrust between planners and volunteers. These additional perspectives could give further insights for planners and managers working in the field of nature management and volunteerism. Despite these limitations, we believe the results of our study address some of the most important aspects of the unfolding of mosaic governance in nature management.

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Appendix

	Holbæk	Silkeborg	Middelfart
Data collection Interviews	During May and June 2019, researchers conducted semi-structured interviews with managers. The interviews dealt with both internal organization, collaboration, trust, and methods regarding green volunteers. Outputs include a baseline summery of the case study. This summary provided background information for the workshops as well as framing our interpretation of future data.	Between April and September 2019, we conducted semi-structured interviews. Interviews were conducted with a nature manager and an external consultant as well as an employee from the planning department. In addition, we met with local residents who run a street organization as well as representatives of a cattle grazing club. Outputs include detailed reports from the semi-structured interviews and notes from the more informal dialogues.	Semi-structured interviews were conducted with three managers in May 2019. The interviews addressed how volunteering started in the municipality, how volunteering is currently organized including aspects of trust and concrete examples on where and how volunteers were engaged in the municipality. Outputs include data from these interviews such as notes, and a general summary of the case study.
	In our initial interviews, we meticulously examined various facets of governance, encompassing elements like management, trust, collaboration, organization, and structural considerations, among others. During this stage of our research, we employed an abductive approach, where the survey results served as a foundation for formulating hypotheses. Subsequently, we refined these hypotheses through in-depth, open-ended interviews, focusing on comprehending the nuances and unique dynamics surrounding management, governance, relationship-building, and trust. Although the preliminary interviews played a limited role in our analysis, they nonetheless influenced the themes and focal points in our subsequent workshops and films.		
Data collection Workshops	Two workshops took place during the summer of 2019. The first workshop combined a nature walk with an interactive session, situated in one of the natural areas with a nearby grassing guild. It was an inclusive event where participants were encouraged to actively engage. During both the nature walk and the subsequent workshop, researchers engaged in dialogue with the participants. Approximately 25 volunteers and	Two workshops were conducted during the summer of 2019. Based on insights gathered from preliminary interviews, it became apparent that the management in Silkeborg harbored ambitions to foster a more "co-creative" approach when collaborating with the local community in smaller towns. This approach was particularly focused on the utilization of available areas for the development of green initiatives. Each workshop welcomed approximately 20 local individuals with innovative ideas,	Two workshops took place in early autumn 2019. Both workshops were centered around the volunteer culture and community, with the overarching goal of fostering collaboration between the "veteran" volunteers at Hindsgavl and the "newcomer" volunteers in Staurby. The second workshop commenced with a scenic walk in Staurby Skov. We encouraged the participation of volunteers from both groups, along

(Continued).

Holbæk	Silkeborg	Middelfart
one municipal planner participated. Data from Workshop 1 includes posters summarizing key insights and notes compiled by researchers. In the second workshop, the participants were employees, and the focus was primarily on trust and collaboration, based on prior interviews with the "fælles-skaber" (community builder). Researchers conducted presentations and facilitated the workshop without direct interaction. Approximately 15 municipal planners attended. The research primarily centered around managers' perspectives on collaboration, governance, and trust-related issues, which we later delved into through the production of films and subsequent analysis. Participants for both workshops were selected by their respective leaders and represented various departments within the city management. The data collected from Workshops 1 and 2 has been instrumental in gaining a deeper understanding of the case, shaping the questions explored in the films.	and participation was open to everyone. The first workshop began with a nature walk to a nearby grassing guild, while the second workshop featured a presentation by a "wild on purpose" consultant from the Danish biodiversity initiative. One manager, representing the city, distributed blueprints and images of various areas that were considered "up for grabs," and the ensuing discussion was driven by dialogue and engagement. The data collected from these two workshops consists of comprehensive notes. Our research primarily centered on exploring collaboration, trust-building, and governance principles. We were particularly interested in observing the outcomes when a significant degree of decision-making authority was entrusted to volunteers. As a result of these workshops, several initiatives were generated, one of which was later presented at a citizens' meeting in the relevant town, with our attendance. All these activities collectively contributed to our enhanced understanding of how to foster trust and collaboration in Silkeborg. This understanding, in turn, guided the formulation of themes and objectives for our subsequent film projects.	with employees from various backgrounds and departments who were asked to collaborate. While some participants were common to both workshops, others took part in only one of the two sessions. In total, approximately 20 different volunteers and 4 employees participated. Our research objectives revolved around studying collaboration, management, governance, and trust, with a specific focus on interactions between volunteers and managers and between the two volunteer groups. The data collected from these workshops consists of detailed notes, which have significantly contributed to our deeper understanding of the nature of volunteering within the municipality. Moreover, insights gleaned from both workshops have played a crucial role in shaping the interview guides used in our subsequent film projects (as outlined below).

Data Collection	
Workshop	Before embarking on the production of our films, we took crucial steps to share and refine our research findings. In November 2019, we organized a comprehensive workshop that brought together all municipal planners from the three case municipalities. During this gathering, we presented the results derived from our initial survey, shedding light on various facets. We also unveiled our preliminary findings concerning trust, interpersonal relationships, and their direct impact on volunteer motivation. We delved into how these factors influenced the quality of collaboration between management and volunteers, ultimately impacting the preservation and development of our natural surroundings. Valuable responses and feedback were gathered from the workshop participants. A subsequent common workshop was convened in September 2020, with a more extensive array of participants encompassing individuals from NGOs, Nature Agencies, and various municipalities actively engaged with green volunteers. During this session, we presented the practical recommendations stemming from the extensive case work conducted in three municipalities. In return, we received invaluable feedback and insights from the managerial perspective.
	These two workshops, along with all the other data collected throughout our research, played a pivotal role in shaping the direction and content of our films. They informed our choices, ensuring that our cinematic endeavors were well-informed and aligned with the insights gained from these collaborative discussions.
Data collection	
Films	The films were crafted within the natural areas where the volunteers actively participated and were deeply involved. Our participants comprised both volunteers and municipal planners, and you can find a detailed list of participants below. These films were constructed using semi-structured interviews as their foundation, with a primary focus on exploring volunteering, motives behind it, the dynamics of collaboration, and the pivotal element of trust. The films maintain an unedited duration spanning from 30 to 60 min, providing a comprehensive and unfiltered view of the insights shared during the interviews. As detailed in the methods section, we have meticulously coded these films. These codes serve as the fundamental building blocks of our analysis, allowing us to extract meaningful patterns and insights from the rich tapestry of information captured in the interviews.