The Social Dynamics of Collaboration in Environmental Governance and Management

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2022

Dissertation

THE SOCIAL DYNAMICS OF COLLABORATION IN ENVIRONMENTAL GOVERNANCE AND MANAGEMENT

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Submitted in fulfillment of the requirements for the doctorate degree

Doktorin der Philosophie (Dr. phil.)

at the Faculty of Cultural and Social Sciences

Osnabrück University, Germany

June 2022

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Acknowledgements

Writing a PhD thesis sometimes felt very lonely and isolated, but many people accompanied me on this journey, motivating and inspiring me to follow this path. Here I would like to thank them.

First, a big thank you goes to my two PhD mums, my supervisors and mentors, Claudia Pahl-Wostl and Christina Prell. Thank you for the excellent guidance you gave me, the insights you shared and your support and belief in me and my research. Claudia – thanks for your critical yet caring approach and the freedom you gave me to develop a research profile on my own. Christina – thank you for joining the journey halfway and your invaluable feedback. I learned such a lot from you both. I hope the collaboration with the two of you does not end here.

Second, a huge thanks to my close colleague and the person I worked with the most: Philipp Gorris, my PhD uncle. ☺ The collaboration with you was and continues to be amazing! We share the same interests and complement each other on so many things, so working with you always felt easy and fruitful. I particularly enjoyed the inspiring conversations with you, from which I had so many 'a-ha!' moments and inspirations to undertake this kind of research. I hope we can continue this work in the future, as we have many unresolved questions still ahead of us. I look forward to collaborating with you!

Outstanding academic support and encouragement through discussions, workshops, and exchanges came from numerous colleagues and critical friends from all over the world. I thank my girls gang Laura Herzog, Evelyn Lukat, Raissa Ulbrich and Caroline Lumosi for being great colleagues and friends. Heartfelt thanks also go to Caroline van Bers for all the fun times we had while co-managing and planning the transformative learning project and summer school. Thank you to all my colleagues from the IUSF and the Profillinie Mensch-Umwelt-Netzwerke. Special thanks also goes to Susanne Schlünder and Philip Hillebrand for the very helpful discussions on narratives and making me understand perspectives from the humanities. Unfortunately, Covid-19 curtailed our personal meetings in your office, Susanne.

Furthermore, this research would not have been possible without the case study and my participants from the regional cooperation body. Thank you all for your willingness to participate in this study, for telling me your stories over hours of conversation and for inviting me into your homes. Your narratives made this research particularly rich and valuable. Big thanks also go to the regional managers for enabling me to accompany the networks for two and a half years and for sharing your experiences and perspectives during this time. It has been a wonderful experience to immerse myself in your perspectives, knowledge and context, which taught me a lot.

Finally, I would like to thank someone who set me on this path in the first place and supported me from the beginning. Thank you Martin Kowarsch for your interest and your great support. You were definitely an important person along the road and I hope to see you now more often in Berlin!

Summary

Doing justice to local knowledge and contexts in sustainability transformations requires multi-actor collaboration and broad stakeholder participation in environmental governance and management. Assumptions from network and collaborative governance have therefore led to the rise of co-management, in which decision-making power and management responsibility are shared among state and non-state actors interacting in knowledge partnerships. Yet despite normative claims, key challenges for many co-management approaches – especially in the environmental realm – remain to (1) navigate through tensions over meaning and competing narratives, (2) deal with blurred roles of authority and responsibilities due to decentralization, and (3) manage socio-historical pasts, where cooperation and conflict are entangled in actor relationships. Over the years, scientific communities debating the suitability of these collaborative processes have warned about viewing collaborative approaches as a magic bullet for targeting environmental problems. This thesis seeks to contribute to the debate and adds a complementary perspective on collaborative governance and co-management arrangements by examining the context-dependent social dynamics that arise when a group of actors involved in collaborative approaches negotiate and implement environmental governance and management measures. It therefore asks: How do the social dynamics between actors shape governance networks and influence collaborative governance arrangements?

The first part of this thesis addresses the social dynamics of movements toward sustainable futures and related narratives of vision and identity. It argues that narratives regarding vision and identity accompany sustainability transitions and collective behavior change and that these influence and reflect social dynamics on a broader scale. Yet narratives are often reduced to a shorthand – an abbreviated (though affective) narrative expression such as a slogan, song, dance or image, which is memorable and readily communicable across the community and beyond. These abbreviated forms are referred to as concise affective narrative expressions (CANEs), which consist of a characteristic piece extracted from the complete narrative for a memorable, easily communicable, and affective verbal or visual representation of a core message.

Furthermore, the challenges of collaboration described above became evident in the case study. The case study describes a regional cooperation consisting of different state actors and stakeholders from agriculture, forestry, water management and hunting. These actors discuss how to implement the Natura 2000 regulation in current land and forest management. The social dynamics of collaboration in the case were investigated by means of an interdisciplinary conceptual framework based on narrative and social network theory called the relational narrative approach. This framework is built on the assumption that the social relational structure between actors, and the stories they tell, is a co-production of narratives and dynamics at the

group level. The mechanisms that influence emerging dynamics are (1) the interplay between collaborative relationships and narrative congruence between individual actors, (2) the characteristics of actors, and (3) the actors' embeddedness in the wider social structure (which will be detailed in Paper II, presented as part of this thesis).

The idea of narrative congruence is detailed in Paper III with the aim of exploring the phenomenon of a common narrative and to examine which social drivers shape the emergence of a common narrative among diverse actors involved in co-management. The argument in this part suggests that frequent interaction between two actors and a trusted leader with many reciprocal ties of trust are significant drivers that support the emergence of narrative congruence.

Despite regular interaction between participants in the regional cooperation, the findings set out in Paper IV imply that these actors are unable to co-create a common narrative that would break the patterns of conflict and antagonistic perceptions of identity. Instead of a common narrative that would presumably facilitate the development of collaborative ties between agents, two opposing narratives are reproduced that vie with each other over power and competencies when it comes to appropriate management planning in the Natura 2000 areas – thus generating an "us versus them" dynamic. This polarization into two opposing sub-groups is however not transferred to the relationships that participants of this particular regional cooperation initiative have with one another. On the contrary, the regional cooperation is a network "supported by many shoulders", the actors involved are familiar with each other and several coordinators and mediators among the actors ensure that a great deal of exchange occurs among participants.

This thesis concludes by discussing three insights gleaned from this research undertaking. First, social dynamics are ubiquitous and intangible phenomena whose mechanisms influence multi-actor interaction in collaborative governance and management. Second, these intangible forces can be studied, explained and made manifest by way of the narratives that actors tell and the social relations and societal embeddedness of actors. Third, common narratives evolve around a trusted leader with many ties of trust to other actors and require frequent encounters and long-term nurturing in order to arise from multi-actor collaborations.

Zusammenfassung

Um einem lokalen Wissen und den lokalen Kontexten bei der Nachhaltigkeitstransformation gerecht zu werden, ist eine Zusammenarbeit mehrerer Akteure und eine breite Beteiligung von Interessengruppen an der Umweltgovernance und -management erforderlich. Forschungsergebnisse zu Netzwerken und „collaborative governance“ haben daher zu einer breiten Anwendung von Co-Managementansätzen geführt, bei denen Entscheidungsbefugnisse und Managementverantwortung zwischen staatlichen und nichtstaatlichen Akteuren geteilt werden, die in Wissenspartnerschaften zusammenarbeiten. Doch trotz der normativen Ansprüche stehen viele Co-Managementansätze - vor allem im Umweltbereich - weiterhin vor der Herausforderung, (1) Spannungen in Bezug auf Bedeutungen, Sinnhaftigkeit und konkurrierende Narrative zu überwinden, (2) mit unscharfen Autoritäts- und Verantwortungsrollen aufgrund von Dezentralisierung umzugehen und (3) mit sozio-historischen Vergangenheiten zurechtzukommen, bei denen Kooperation und Konflikt in den Beziehungen der Akteure verwoben sind. Im Laufe der Jahre haben Wissenschaftler, die sich mit der Eignung dieser Kooperationsprozesse befassen, davor gewarnt, kollaborative Ansätze als Allheilmittel zur Lösung von Umweltproblemen zu betrachten. Die vorliegende Arbeit möchte einen Beitrag zu dieser Debatte leisten und eine ergänzende Perspektive zu kooperativen Governance- und Co-Management-Vereinbarungen einbringen, indem sie die kontextabhängige soziale Dynamik untersucht, die entsteht, wenn eine Gruppe von Akteuren, die an kooperativen Ansätzen beteiligt sind, Umweltgovernance und Managementmaßnahmen aushandelt und umsetzt. Die zentrale Frage dieser Arbeit lautet daher: Wie beeinflussen die sozialen Dynamiken zwischen Akteuren Governance-Netzwerke und kollaborative Governancevereinbarungen?

Der erste Beitrag in dieser Dissertation befasst sich mit den sozialen Dynamiken innerhalb sozialer Bewegungen für eine nachhaltige Zukunft und den damit verbundenen Visionen und Identitätsnarrativen. Es wird festgestellt, dass Visionen und Identitätsnarrative Nachhaltigkeitstransformationen und kollektive Verhaltensänderungen begleiten und gesellschaftliche Dynamiken auf einer höheren Ebene beeinflussen und widerspiegeln. Dabei werden Narrative oft auf eine verkürzte, aber stark affektive Ausdrucksform reduziert, wie z. B. einen Slogan, ein Lied, einen Tanz oder ein Bild, die einprägsam und leicht in der Gemeinschaft und darüber hinaus zu kommunizieren sind. Diese verkürzten Formen werden als „concise affective narrative expressions“ (CANEs) bezeichnet. Sie bestehen aus einem charakteristischen Teil, der aus der vollständigen Erzählung extrahiert wird und eine einprägsame, leicht zu kommunizieren und affektive verbale oder visuelle Darstellung der Kernbotschaft darstellt.

Darüber hinaus werden die oben beschriebenen Herausforderungen von Zusammenarbeit in der zugrundeliegenden Fallstudie deutlich. Die Fallstudie

beleuchtet eine regionale Gebietskooperation, die verschiedene staatliche Akteure und Stakeholder aus der Land- und Forstwirtschaft, der Wasserwirtschaft und der Jagd zusammenbringt. Diese Akteure diskutieren darüber, wie die Natura-2000-Verordnung in der aktuellen Land- und Waldbewirtschaftung umgesetzt werden kann. Die soziale Dynamik der Zusammenarbeit in diesem Fall wurde mit Hilfe eines interdisziplinären konzeptionellen Rahmens untersucht, der auf der Theorie der Erzählungen und sozialen Netzwerke basiert und als relationaler narrativer Ansatz bezeichnet wird. Dieser Rahmen basiert auf der Annahme, dass die soziale Beziehungsstruktur zwischen Akteuren und die Geschichten, die sie erzählen, eine Koproduktion von Erzählungen und Dynamiken auf Gruppenebene sind. Die Mechanismen, die die entstehende Dynamik beeinflussen, sind (1) das Zusammenspiel zwischen kollaborativen Beziehungen und narrativer Kongruenz zwischen den einzelnen Akteuren, (2) die Eigenschaften der Akteure und (3) die Einbettung der Akteure in die breitere soziale Struktur (die in Paper II, das im Rahmen dieser Arbeit vorgelegt wird, näher erläutert wird).

Die Idee der narrativen Kongruenz wurde in Papier III aufgegriffen und weiter operationalisiert, um das Vorhandensein eines gemeinsamen Narrativs zu erforschen und zu verstehen, welche sozialen Kräfte das Entstehen eines gemeinsamen Narrativs unter den verschiedenen beteiligten Akteuren beeinflussen. Es zeigte sich, dass häufige Interaktionen zwischen zwei Akteuren und eine vertrauenswürdige Führungsperson mit vielen gegenseitigen Vertrauensbeziehungen wichtige Faktoren sind, die das Entstehen von narrativen Kongruenzbeziehungen, und somit eines gemeinsamen Narrativs, unterstützen.

Trotz regelmäßiger Interaktion zwischen den Akteuren in der Gebietskooperation deuten die in Papier IV dargelegten Ergebnisse darauf hin, dass diese Akteure nicht in der Lage sind, ein gemeinsames Narrativ zu schaffen, das die Muster von Konflikten und antagonistischen Identitätswahrnehmungen durchbrechen würde. Anstelle eines gemeinsamen Narrativs, das vermutlich die Entwicklung von Kooperationsbeziehungen erleichtern würde, werden zwei gegensätzliche Narrative reproduziert, die miteinander um Macht und Kompetenz bei der Festlegung einer angemessenen Managementplanung in den Natura 2000-Gebieten konkurrieren - und so eine "Wir-gegen-sie"-Dynamik erzeugen. Diese Polarisierung in zwei gegensätzliche Untergruppen überträgt sich jedoch nicht auf die Beziehungen, die die Teilnehmer dieser speziellen regionalen Kooperationsinitiative zueinander haben. Im Gegenteil: Die regionale Kooperation ist ein "auf vielen Schultern getragenes" Netzwerk, die beteiligten Akteure sind miteinander vertraut und mehrere Koordinatoren und Vermittler unter den Akteuren sorgen für einen regen Austausch unter den Beteiligten.

Diese Arbeit schließt mit der Erörterung von drei Erkenntnissen, die aus diesem Forschungsvorhaben gewonnen wurden. Erstens sind soziale Dynamiken allgegenwärtige und nicht greifbare Phänomene, deren Mechanismen die Interaktion zwischen mehreren Akteuren in der kollaborativen Governance und im Management beeinflussen. Zweitens können diese nicht greifbaren Kräfte anhand der von den

Akteuren erzählten Narrative sowie der sozialen Beziehungen und der gesellschaftlichen Einbettung der Akteure untersucht, erklärt und manifestiert werden. Drittens entwickeln sich gemeinsame Narrative um eine vertrauenswürdige Führungspersönlichkeit mit vielen Vertrauensbeziehungen zu anderen Akteuren und erfordern häufige Begegnungen und langfristige Pflege, um aus der Zusammenarbeit mehrerer Akteure zu entstehen.

List of papers

This dissertation is based on the work included in the following papers, referred to by Roman numerals in the text:

Paper I Chabay, I., Koch, L., Martinez, G. and Scholz, G. (2019). Influence of narratives of vision and identity on collective behavior change. *Sustainability 11*(20), 5680.

Paper II Koch, L., Gorris, P. and Pahl-Wostl, C. (2021). Narratives, narrations and social structure in environmental governance. *Global Environmental Change 69*, 102317.

Paper III Koch, L., Gorris, P., Prell, C. and Pahl-Wostl, C. (under review). Communication, trust and leadership in co-managing biodiversity: A network analysis to understand social drivers shaping a common narrative. *People & Nature.*

Paper IV Koch, L. Us versus them mentalities in Natura 2000 forest management: Identities, narratives and a culture of conflict. [Manuscript prepared for submission]

Contribution to papers

Paper I: This paper is the outcome of the second KLASICA symposium that took place in Taipei in September 2018, in which I had participated and became acquainted with the co-authors. I designed the study in collaboration with the co-authors, jointly undertook the literature review on narrative expressions and identity with the first author and wrote the original manuscript in collaboration with the co-authors. I revised the manuscript jointly with the first author for publication. The paper was published in the journal *Sustainability* (see Annex 1) and was peer-reviewed by two independent reviewers in a double-blind peer-review process.

Paper II: I designed the conceptual framework in collaboration with the second co-author, undertook the literature review on the topic of narrative theory and social network studies, integrated both approaches and wrote the original manuscript together with the second co-author. I then discussed the integrated approach and drew conclusions. We received feedback from the third co-author to develop the manuscript for submission. The paper was published in the journal *Global Environmental Change* (see Annex 2) and was peer-reviewed by four independent reviewers in a double-blind peer-review process.

Paper III: I designed the case study, accompanied the case for two and a half years, collected network and narrative interview data, prepared the data for analysis and performed the qualitative analysis. I also conducted parts of the quantitative analysis, while the second co-author led the design and analysis of the social network model (ERGM). I wrote the original manuscript, discussed the findings and drew conclusions with the help of contributions from all co-authors. This paper is currently under review at the journal *People & Nature* (see Annex 3).

Paper IV: Based on the case study and data collected, I wrote this paper as the sole author, designed the research approach and carried out the data analysis (see Annex 4). The paper has been accepted for a presentation at the ECPR 2022 conference in Innsbruck.

Related peer-reviewed work outside the thesis

Garard, J., Koch, L. and Kowarsch, M. (2018). Elements of success in multi-stakeholder deliberation platforms. *Palgrave Communications*, *4*(1), 1-16.

Schenuit, F., Koch, L. and Jakob, M. (2020). Markets for public attention at the interface of climate science and policy making. *Environmental Communication*, *14*(1), 1-5.

Pahl-Wostl, C., Gorris, P., Jager, N., Koch, L., Lebel, L., Stein, C., Venghaus, S. and Withanachchi, S. (2021). Scale-related governance challenges in the water–energy–food nexus: toward a diagnostic approach. *Sustainability Science*, *16*(2), 615-629.

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Abbreviations

BfN	Bundesamt für Naturschutz (Federal Agency for Nature Conservation)
CANE	Concise affective narrative expression
CBD	Convention on Biological Diversity
EGE	Environmental governance entity
EU	European Union
HD	Habitats Directive
NLWKN	Lower Saxony State Agency for Water Management, Coastal and Nature Conservation
NPA	Nature Protection Authority
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

Photo 2. A young beech tree in the Teutoburger forest on a sunny autumn morning

Chapter 1 | General Introduction

1.1 Background and research context

Nature's contributions to people – better known as ecosystem services – are at risk because our planet's nature and diversity is in an alarming state (IPBES 2019). An increasing number of protected areas have been proclaimed worldwide and ample evidence suggests that protected areas can achieve biodiversity conservation and deliver vital ecosystem services in future as long as they are well managed (Watson et al. 2014). Recent research, however, argues for broad system transformation challenging the root causes of persistent deterioration of the services and resources that ecosystems provide and to avoid further aggravating global environmental change as a driver of this (Díaz et al. 2019; Hughes et al. 2017). Besides the establishment of new protected areas, this calls for us to learn new practices in the way we interact with nature, to develop novel structures in our current economic and social systems with an emphasis on protecting natural resources, and to come up with new ways to shift away from accommodating environmental change and toward deliberately contesting it and creating real alternatives (O'Brien 2012). For a deliberate sustainability transformation this means, in the eyes of Abson et al. (2017), activating leverage points to intervene in our current socio-economic system, namely a *re-structuring* of the institutions and systems that guide our activities, a *re-connecting* between people and nature, and a *re-thinking* of how knowledge is produced and used.

In this regard, new forms of framing, discourses and narratives circulate in sustainability debates and are mobilized to shape the way humanity ought to proceed or what is thought possible (Patterson et al. 2021; Koch, Gorris, and Pahl-Wostl 2021). The spectrum of ideas and innovations for a sustainability transformation is vast and ranges from incremental improvements to established routines to deep transformative change (Pahl-Wostl 2009). There is talk of decarbonization and decoupling (Rockström et al. 2017), green growth (Hickel and Kallis 2020), degrowth (Sekulova et al. 2013), technological transformations in different sectors (Gibbins and Chalmers 2008; Campbell et al. 2018), payments for ecosystem services (Jack, Kousky, and Sims 2008), a transition to a bioeconomy (Aguilar, Twardowski, and Wohlgemuth 2019) and much more that compete on the sustainability agenda for legitimate and

accepted ways to transform the current socio-economic system. Yet the most effective paths for a sustainability transformation remain unclear, because the complexity and interdependencies among the biophysical and social components underlying ecosystem deterioration need steering approaches that take into account this complexity – not to mention those environmental shocks and crises of the future that will require swift and adaptive approaches along far-reaching transformation pathways (Olsson, Folke, and Berkes 2004; Scheffer et al. 2001).

On this stage, various environmental governance and management approaches are key. Environmental governance broadly aims to create the conditions for rules-based management, collective action and the putting into place of structures and steering processes by which people come together to address persistent environmental problems like biodiversity loss (Folke et al. 2005, 444). So-called environmental governance is characterized as "the set of regulatory processes, mechanisms and organizations through which political actors influence environmental actions and outcomes" (Lemos and Agrawal 2006, 298). Environmental governance also sets the rules for environmental management, which Pahl-Wostl et al. (2012, 25) refer to as "the activities of analyzing and monitoring, developing and implementing measures to keep the state of a resource within desirable bounds". Recent studies have argued that environmental governance and management approaches need to be both purposeful and flexible in order to lead to common objectives and tangible solutions but also to allow for self-organization and emergence (Pahl-Wostl 2009, 2015; Folke et al. 2005; Olsson et al. 2006).

Reversing nature's continuing decline and addressing growing societal inequalities at the same time requires sustainable transformation – and related to this a system of environmental governance and management – that do justice to local needs and contexts (Biermann et al. 2016; O'Brien 2012; Díaz et al. 2019). Governance for transformation toward sustainability requires involving an array of stakeholders, approaches and development pathways (Biermann et al. 2016; Chambers et al. 2021) and including multiple forms of knowledge, norms, ethics and values (Tengö et al. 2014; Kowarsch et al. 2017; Patterson et al. 2017). Extensive research has shown that environmental governance and management bodies are more likely to respond to and cope with complexity, uncertainty and surprise when they are designed along the lines

of flexible, horizontal and vertical coordination between cross-agency governing entities that tap into a range of knowledge and policy instruments operating under different rationales (Vollan and Ostrom 2010; Biggs et al. 2012; Lemos and Agrawal 2006). Pahl-Wostl (2019) refers to these different logics as governance modes and differentiates between hierarchical, market and network modes. She argues that hybrid governance systems are designed with links between these modes whose interplay enables complex environmental challenges and sustainability transformations to be addressed more effectively (Pahl-Wostl 2019). Hybrid forms in this view are blended forms of governance operating between the conventionally recognized social roles that markets, states and networks play (Lemos and Agrawal 2006). Hierarchical governance ensures the conditions that help to steer collective action toward a common goal, with market-oriented instruments acting as compasses pointing toward desired outcomes through compensation and incentive structures, while network governance adds context-dependent information and allows for participation, flexibility and adaptability in addressing possible problems as they arise (Patterson et al. 2017; Pahl-Wostl 2019).

Unlike the classic state-centered view regarding the design, implementing and enforcing of laws and regulations, a hybrid governance perspective includes elements of co-design, self-regulation, scaling and innovation in decentralized governance systems that have been portrayed as multiple coordinating networks governing on many levels (Ostrom 1999, 2010; Biggs et al. 2012; Steffen et al. 2018; Pahl-Wostl 2015; Berardo and Lubell 2016). The phenomenon of networks has been the subject of much attention in recent literature on environmental governance, whereby network perspectives on governance processes have gone beyond mere descriptions and the metaphorical ‘network society’ (Barnes et al. 2016; Berdej and Armitage 2016; Bodin, Crona, and Ernstson 2006; Gorris et al. 2019; Groce et al. 2019; Prell, Hubacek, and Reed 2009). It is now a vibrant research field that examines coordination and collaboration between individuals, communities and organizations (Bodin 2017; Borgatti et al. 2009). One feature ascribed to the idea of network governance is the presumption of interdependencies between state and non-state actors that are obliged to collaborate in pursuing (common or differing) goals and interests.

Over the years, extensive research has been carried out in an attempt to examine the value of networks when it comes to environmental governance and management (Newig, Günther, and Pahl-Wostl 2010; Newig et al. 2017; Kochskämper et al. 2016; Plummer et al. 2017; Armitage et al. 2011; Berkes 2009; Bodin 2017; Emerson, Nabatchi, and Balogh 2012). The study of collaborative governance and co-management has become a key field in biodiversity conservation. As well as their growing presence as a topic of research in the social sciences, network approaches and their merits have also reached the ears of local administrators, who increasingly rely on participatory methods to help them implement environment- and sustainability-oriented policies, as in the case study presented in this thesis. However, network researchers as well as scholars from adjacent fields caution against the idea of collaboration as a panacea. Bodin (2017, 1) points out that: "The capacity of collaborative governance to deliver sustainable solutions for any given environmental problem ranges from highly effective to essentially worthless." This suggests the need for a more nuanced understanding of how and under which conditions collaborative governance and governance networks operate effectively, and how to navigate tensions as they arise. Yet assessing the effectiveness of collaborative governance presents an ongoing challenge to social scientists (Robins, Bates, and Pattison 2011; Bodin 2017; Schoon et al. 2021). Complex social and ecological conditions lead to uncertain and unpredictable dynamics that make it hard to design environmental co-management initiatives and to carry out research in this field (Berkes, Colding, and Folke 2003; Folke et al. 2002).

This thesis aims to add to this literature and to offer a complementary perspective on the effectiveness of collaborative governance and co-management arrangements from the bottom up. It studies the contextualized social dynamics that emerge and develop when a group of actors involved in collaborative approaches negotiate and implement environmental governance and management measures that aim to resolve environmental problems, adapt to the impacts of environmental change or transform existing practices and behavior (Koch, Gorris, and Pahl-Wostl 2021). Previous research in the field of co-management has typically studied the dynamics of inter-agency and individual interactions under the umbrella of 'social' learning and the co-production of knowledge (Rodela 2011; Diduck et al. 2005; Cundill and Rodela 2012; Tengö et al. 2014; Armitage et al. 2011). However, important issues regarding the discursive and

relational tensions that emerge in these processes and how to steer these toward common agendas remain unclear (Chambers et al. 2022; Koch, Gorris, and Pahl-Wostl 2021).

This thesis extends the study of social dynamics in governance networks and applies a *relational narrative approach* that views communication, framing and narrative processes as key variables that influence interactions and interrelationships between actors. I combine narrative theory with social network research to advance theoretical and practical knowledge of the phenomena that shape the social dynamics among diverse collaborators as they strive to create effective environmental governance and management structures to achieve transformations toward sustainability. Against this backdrop, I will briefly review the field of network governance as well as defining and describing collaborative governance and co-management, before then outlining the social dynamics of collaboration and the objectives of this thesis in more detail.

1.2 Network governance and governance networks

Whether referred to as network governance (Torfing 2005; Robins, Bates, and Pattison 2011), collaborative governance (Bodin, 2017), interactive governance (Torfing et al. 2012) or participatory governance (Turnhout, Van Bommel, and Aarts 2010; Newig et al. 2017), these terms all include the normative assumption to a) be better suited for governing sustainability transformations, b) more effectively address the complexity of environmental problems, and c) eliminate failures of state- or market-driven policy instruments (Pahl-Wostl 2015). These assumptions have been integrated into the concept of co-management (collaborative management) of natural resources, a people-centered governance approach in which decision-making power and management responsibility are shared among state and non-state actors and stakeholders, whose livelihoods are affected by these management decisions, interacting in so-called knowledge partnerships (Berkes 2009; Cinner et al. 2012). Co-management approaches come in many different arrangements and vary according to the degree of power sharing and inclusiveness as well as their institutional setting and the historical context in which they are embedded (Berkes, 2009; Plummer et al., 2017; Reed et al., 2018).

Biodiversity conservation specifically has built on decentralized co-management arrangements to reduce local costs, to distribute benefits equally among local communities and to engage and empower stakeholders in recurring learning and trust-building processes (Ward, Stringer, and Holmes 2018; Berkes 2007; Alexander, Andrachuk, and Armitage 2016). Partnerships between different actors are conceptualized and observed on the one hand to evolve and self-organize in informal interaction between protagonists, forming so-called shadow networks (Olsson et al. 2006), or they result from a conscious decision to set up goal-directed networks and develop as formally mandated arrangements led by state actors (Kochskämper et al. 2016). In the following, I use collaborative governance in the formulation of Ansell and Gash (2008, p. 544) who define collaborative governance as

> "A governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets."

This definition is limited to formal or mandated collaborative arrangements from the state that aim to involve and interact with non-state actors, though it reflects the iterative nature of co-design and communication processes, whereby the actors involved have to agree on a shared understanding of problems and collaboratively discuss how to tackle them.

Over the last two decades, network scholars have shifted away from the study of collaborative governance and toward the study of governing collaborations. The first generation of collaborative governance research concentrated on the emergence of governance networks, on specific differences from more top-down forms of governance and on their contributions to effective and efficient governance (Torfing and Sørensen 2014; Torfing 2005). This first generation is now being superseded. Instead of simply assuming collaborative governance as the answer to frequently encountered problems of hierarchy and market-style governance modes, governance network scholarship has started to look at how to govern collaborations by focusing on actors' behaviors and interrelationships (Bodin & Crona, 2009; Kenis, 2016). This development is related to the critiques of previous normative assumptions and to skepticism regarding whether collaborative governance genuinely supports more

sustainable and effective environmental policies (Newig and Fritsch 2009; Wesselink et al. 2011; Gorris 2019).

In light of this criticism, numerous studies have shown correlations between types of actor relationships, actor embeddedness, and structural patterns and how these relate to environmental governance processes and outcomes (M. Barnes et al. 2016; Bodin 2017; Gorris and Glaser 2021; Jasny et al. 2021; Sayles et al. 2019; Teodoro and Prell 2022). Scholars in adjacent research fields have also pointed to the importance of knowledge co-production approaches that engage and integrate a diversity of sources (Armitage et al. 2011; Raymond et al. 2010). In governance, adaptation and transformation research, networks have been associated with more efficient and quicker information and knowledge exchange (Crona and Bodin 2006; Prell, Hubacek, and Reed 2009), increased mutual understanding and learning (Teodoro and Prell 2022; Pahl-Wostl 2009), a strengthening of trust and social capital (Barnes-Mauthe, Gray, et al. 2015) and bridging between different scales or non-interacting sub-groups (Gorris et al. 2019; Berdej and Armitage 2016). Quantitative and qualitative network analysis tools have been advanced and have improved researchers' perspectives by depicting, visualizing and analyzing social relations among actors, clarifying the sorts of ties that connect them and teasing out how actor characteristics influence the phenotypes of networks (for detailed reviews see Bodin & Crona, 2009; Bodin & Prell, 2011; Groce et al., 2019; Kluger et al., 2020). Social network analyses have also shone a light on (sometimes hidden) power asymmetries, fragmentation into disconnected sub-groups or imbalances between strong (bonding) and weak (bridging) ties between actors in a collaboration (Di Gregorio et al. 2019). Altogether, network scholars have emphasized the vital contributions made by collaborative governance as well as research into governance networks by evaluating their social components. But does this imply a guarantee that these actors will be able to address complex and interdependent environmental problems – such as biodiversity loss and ecosystem deterioration – more effectively in future?

1.3 The social dynamics of collaboration

The realities of collaborative governance and management are diverse and hard to capture with research based solely on quantitative social science methods. Robins et

al. (2011, 1295) argue that "an assessment of a network governance arrangement is not just a matter of considering the formal structures, but – more importantly – the informal network connections through which the system actually operates." Thus, besides investigating the type and quality of relationships that actors in a governance network share with one another, we should also consider what is transmitted through these relationships and the contexts in which these collaborations occur. For collaborative approaches to environmental problems, tensions between protagonists with varying interests, ideologies or framings of a problem are the rule rather than the exception (Bodin et al., 2020; Gray & Wondolleck, 2013; Yasmi et al., 2006). In many environmental problem-solving contexts, "difficulties arise because of multi-level regulatory jurisdictions (e.g. local, regional and national governments), stakeholders' differential knowledge and experience, value clashes, historical mistrust, and frequent uncertainty about the viability of the proposed outcomes" (Gray 2004, 166). Differences can be overcome by sustained interaction and facilitated deliberation among the actors involved by way of learning "about complex issues in an inherently conflictual environment" (Cundill and Rodela 2012, 10; Garard, Koch, and Kowarsch 2018). Conflicts should not be regarded as a bad thing for governance networks and for sustainability transformation, because tensions between actors can trigger a rethinking of prevailing beliefs and opinions.

However, in persistent controversies, divides between adversaries can become so wide that groups may start to work against rather than collaborate with each other. These dysfunctional conflicts (Colvin, Witt, and Lacey 2015; Yasmi, Schanz, and Salim 2006) can become so entrenched over time that governance networks could end up being worthless (Bodin 2017), because the costs associated with finding common ground between antagonists are too high and time-consuming. Collaborative governance and governance networks are then in danger of becoming mere slogans.

Viewed through a qualitative research lens, and a discourse perspective in particular, tensions and conflicts over the *meaning* of environmental problems and solutions are, on the contrary, an essential part of collaborative governance (Feindt and Oels 2005). Many studies have highlighted the influence of frames and the power of narratives on the success or failure of collaboration (Gray 2004; Dewulf et al. 2009; Dewulf and Bouwen 2012; van der Stoep 2014; Krauß and Bremer 2020; Ingram, Ingram, and

Lejano 2019). Meaning refers to the social constructions and interpretation of reality of actors, who communicate a perceived or experienced reality to each other. Actors present to one another differing knowledge, viewpoints, narrations, symbols or practices in interactions. In this way, meaning in governance networks is constructed from interpersonal expectations embodied in social relationships, the roles and identities of actors, and the culture of a collaborative governance arrangement manifesting itself in narratives and symbols (Fuhse, 2009). These types of construal do not imply that the environmental problem being discussed is not real, only that there is no single authoritative interpretation but, rather, multiple contested interpretations that actors in a governance network need to negotiate (Feindt and Oels 2005). This negotiation is inherently dynamic and affects the behavior of actors and hence how a governance network matures and takes form.

I therefore need to slightly adjust my definition of collaborative governance from Ansell and Gash (2008), with a discursive perspective derived from Turnbull (2016):

> Collaborative governance refers to an intersubjective and relational world where one or more public agencies directly engage non-state stakeholders in a collective decision-making space, in which many different meanings and narratives circulate and compete in a formal, consensus-oriented, and deliberative process that aims to make or implement public policy or manage public programs or assets.

This decentralized form of network governance adds to the complex dynamic that occurs among actors in collaborative arrangements. Role identities, power and responsibilities become blurred and jurisdictional or ideological boundaries must be overcome to increase the capacity of the actors to find and agree on appropriate answers to an environmental problem, for instance (Schneider et al. 2003). Ansell and Gash (2008) characterize this phase of the collaborative process as the development of a shared understanding, which they and others consider part of a broader learning process (Pahl-Wostl 2009; Sol, Beers, and Wals 2013).

Traditionally, state actors have tended to take on a formal leadership role and control over these processes, as they are in theory being held responsible by their electors for implementing environmental policy and initiating collaboration. Stakeholders are to be informed about a decision's outcomes or at best consulted when the quality of

decision-making needs to be improved (Reed, 2008). This is quite different for collaborative governance or co-management approaches. Attempts to engage diverse stakeholders and foster more cooperative attitudes among actors tend to be more successful when all actors accept the seriousness of a problem and have opportunities to influence the process and its outcomes (Garard, Koch, and Kowarsch 2018; De Pourcq et al. 2015). As a final remark, separating problem-solving and decision-making into cooperation and conflict-driven collaborations is no longer so straightforward, because cooperation and conflict often go hand in hand when heterogeneous actors engage in discussions and when different viewpoints and beliefs come together (Bodin, Garcia, and Robins 2020).

In sum, dynamics in collaborative arrangements arise due to competing meaning and narratives in discourses, the blurring of roles of authority and responsibilities due to decentralization, and an entangling of cooperation and conflict relationships between actors. In this thesis, I therefore focus on relational as well as discursive aspects of dynamic processes and offer this hypothesis:

> *Social dynamics in actor collaborations are mechanisms in the actor network that alter discursive meaning-making of actors or the relational structure between actors.*

The thesis hence aims to contribute to the field of collaborative governance and management research by examining the social dynamics in governance networks via the interplay of narratives, the narrations that actors tell, and the social structure that underlies and to some extent governs actors' interrelationships which, taken together, influence the phenotype of the governance network.

1.4 Research objectives and questions

In light of recent research on collaborative governance and management and co-management for biodiversity conservation, the goal of this thesis is to investigate the social dynamics between actors involved in governance networks from a discursive as well as a relational perspective. This work also aims to assess, by using a mixed-method enquiry, how these dynamics influence the effectiveness of collaborative governance

arrangements. I approached this objective from a conceptual perspective (Paper II) as well as by undertaking an empirical case investigation into environmental policy implementation and environmental management (Papers III and IV). As part of this, but relying on different empirical data, I furthermore examine how affective narrative expressions influence collective behavior change (Paper I).

I addressed the main research objective by pursuing four secondary objectives. I divided each objective into specific research questions that guided the research conducted in the respective paper, which make up the main results of this thesis. The secondary objectives of the research were to:

A. **Explore social dynamics and collective behavior change through a narrative approach** (Paper I)
    - How do affective narrative expressions influence transitions to more sustainable collective behaviors?
B. **Conceptualize the mechanisms underlying the social dynamics of local and regional environmental governance and management** (Paper II)
    - How do narrations influence the social structure, and vice versa, between diverse actors involved in collaborative approaches in local and regional environmental governance and management?
C. **Investigate relational drivers shaping the emergence of a common narrative in a local co-management arrangement in Germany** (Paper III)
    - Which types of ties correlate with high narrative congruence?
    - Which leadership roles correlate with high narrative congruence?
    - How does context influence the emergence of a common narrative?
D. **Explore the influence of narratives and identity construction on the social dynamics between actors involved in collaborative governance and management** (Paper IV)
    - How do narratives and identity constructions shape the dynamics between actors involved in the collaboration examined in the case study?

1.5 Research approach, personal stance and positioning

I would like to outline broadly the research approach taken and my position as a researcher, which I will describe in more detail in Chapter 3. I used mixed-method case study research to investigate the social dynamics between actors involved in collaborative governance and management. This design was grounded in a qualitative and relational narrative approach and drew on insights from quantitative research and theories of social networks to guide the overall research approach. The mixed-method approach combines qualitative and quantitative research methods – integrates, in other words, methods for data collection and analysis – to overcome each other's limitations and to be able to address contemporary, more complex objects of research (Kuckartz 2014). In applying this mixed-method approach, I moved beyond disciplinary boundaries and traditions in an attempt to combine both types of methods and data – qualitative and quantitative – in a sensible and meaningful way. Conducting narrative research and reconciling both approaches sometimes proved challenging, which I will discuss in Chapter 5.

Undertaking qualitative research in general and following a narrative approach in particular required me as a researcher to get close to my case study and case participants, because I intended to deeply get to know them as well as to examine how case participants made sense of and explained the world they experienced. My intention was to study and observe the case participants in their natural environments. From a qualitative research point of view, this enabled me to gain profound insights into the motivations and rationales underlying their behavior. Thus, it seemed reasonable to me to become part of the case study by regularly attending meetings over two and a half years, to build knowledge about all members' subjective perspectives and experiences by speaking to them personally. I will go into more detail about this process in Chapter 3. This close relationship to the case and the case participants gave me a perspective on the social dynamics that underlay the collaborative process, but it also had an impact on my subjective viewpoints as my presence to varying degrees also influenced the participants' subjective viewpoints.

It is important for qualitative research to make one's own personal stances and positions transparent and explicit. As an environmental social scientist, a consciously living and consuming person and a lover of nature, I find it challenging to accept

situations when people act out of pure self-enrichment, narrow-minded self-interest and short-term selfish goals when it comes to debating and ameliorating the costs of common welfare and without thinking about others in society, either those in their immediate social environment or future generations. I regard this kind of shortsighted behavior to be one of the reasons why our society currently faces such pressing sustainability challenges. To address these challenges, I find social cohesion and collaboration immensely valuable. At the same time – and this sometimes feels conflicting – I also value inclusiveness, diversity, open-mindedness, tolerance and individual liberty and autonomy. I find it easy to put myself in the position of others and to view the world through their eyes, to gain a sense of how people feel and think, and the motives underlying their behaviors. While I was conducting the narrative interviews, I noticed that my perspective on forestry, nature conservation in forests and the sustainable use of natural resources was changing slightly, becoming more open to other viewpoints because of insights I was gaining into the specific life contexts of the case participants. These are personal positions that I needed to keep at the back of my mind while I engaged and worked closely together with the case participants and when I became active in the case study. Being reflective and reflexive as a researcher is a key principle for pursuing a narrative approach in research (Savin-Baden and Howell Major 2013). Each narration that participants told me is a personal view of what happened grounded in their own worldviews and subjective experiences. Thereby, participants naturally do not only report what exactly happened (insofar as that is ever possible) but rather perform the role of a storyteller to convey their perspective on meaning, relevance and importance. To ensure quality, I needed to carefully weigh what was told, what was kept a secret, what was at stake for the participant (why it was being told), and to compare this to what others had told me and to my own position. My hope for this project was that my research could contribute to enhancing collaboration between diverse stakeholders in the case study. I wanted to help case participants to see and take account of the “other side”, hence helping them to transcend relational or mental boundaries and to become open-minded and inclusive in order to move away from an “us versus them” stance and toward a collective feeling of “we”.

1.6 Outline of the thesis

This general introduction provided an overview of the research context, collaborative governance, the meaning of the social dynamics of collaboration and the problem addressed in this thesis. It also outlined my research objectives and questions that guided the dissertation. In the next section, Chapter 2, I introduce the case study and the project context and area. I first introduce the EU Habitat Directive and its policy instrument Natura 2000. I next turn to the German forestry sector and then describe the case, embedding it in the local context and history. Chapter 3 describes in detail the research approach and conceptual foundation that guided this thesis and presents the methods used for the empirical investigation. In Chapter 4, I present Papers I to IV and summarize the key insights I have drawn that add to the overall goal of the thesis. In particular, Paper II describes the details of the conceptual framework for this thesis, hence I deliberately decided against a separate conceptual chapter for this framework document. In the last part of this thesis, Chapter 5, I aggregate the research and the key insights gained by synthesizing the empirical findings, reflecting on the experience of applying a mixed-method single case study approach, and concluding with reflections and recommendations for further research and future practice.

Photo 3. Clear-cutting in the Teutoburger forest: Foresters have had to cut down dying European spruce stands after droughts in 2018 and 2019

Chapter 2 | The Case study: Natura 2000 and the Regional Cooperation

I base this thesis and related empirical investigation on a case study, which I present and put into context in this chapter. By means of a narrative interview method and a long period of fieldwork that I explain in more detail in subchapter 3.2, I gained in-depth and contextualized knowledge about the case, the case study region and the background developments related to Natura 2000 and about forest management in general. In the following case description, I will thus sometimes use excerpts from the narrative interviews to support explanations of the development of the regional cooperation for illustrative purposes and to give a voice to my case study participants.

2.1 Biodiversity Conservation, the EU Habitat Directive and Natura 2000

For millennia, humanity and human activities have derived precious benefit from but have also influenced ecosystems, their resources and biodiversity on Earth (BfN 2021a; Ellis et al. 2021). According to current knowledge, however, during the past five decades, biodiversity has been declining at an alarming pace on a global scale and some experts are warning of a sixth mass extinction event (Ceballos et al. 2015; Díaz et al. 2019; Steffen et al. 2015). The reasons underlying the loss of biodiversity are manifold and complex. Direct drivers are related to rapid land use change, especially due to expanding agricultural activities and intensified animal husbandry, followed by overexploitation and overuse of ecosystems services, climate change, continuing pollution of air, water and soil and a high incidence of invasive alien species that enter and stress sensitive and already damaged ecosystems even more (IPBES 2019). Current research is still seeking to elucidate the uncertainties arising from these complexities and interdependencies. But one thing is certain. Unprecedented species loss and ecosystem deterioration will have a negative impact on human livelihoods and human cultural identities for a long time to come (Pecl et al. 2017; MEA 2005).

None of this was discovered yesterday. Environmentalists and ecologists have been pointing out these developments for at least three decades and it was already recognized in the 1980s and early 1990s that nature and biodiversity conservation cannot be solved by nations alone, but that global governance strategies are needed.

Large-scale and ambitious environmental policies were adopted after the Bern Convention in 1979 and after the United Nations Conference on Environment and Development in Rio de Janeiro in 1992. The Convention on Biological Diversity (CBD) was born, which is a treaty under international law between sovereign states for the protection and sustainable use of nature (BfN 2021b). Crucial environmental policies were also being enacted in Europe at the time. Out of the Bern Convention in 1979, two major environmental policies were introduced in the European Union – the Birds Directive (formally 79/409/EEC) and the Habitats Directive (formally 92/43/EEC) – to establish a Europe-wide coherent network of protected areas across all European member states to conserve the continent's biodiversity and natural heritage. This network of protected areas is also known as Natura 2000 and currently represents Europe's flagship policy for biodiversity protection and green infrastructure development (Fig. 1).

2.1.1 The Natura 2000 regulation

Protected areas play an important role in fighting global biodiversity loss and conserving natural or cultural resources. Thus, the introduction of Natura 2000 was viewed as a highly positive step for the protection of the environment at that time. However, protected areas must nowadays respond to even more demands than just nature protection, such as providing environmental contributions like mitigation of and adaptation to climate change, or societal contributions like supporting local livelihoods and economies through tourism and other sectors (Watson et al. 2014). The designation and securement of protected areas had also been a key step in the implementation of the EU Habitats Directive (HD) – referred to as special areas of conservation in the regulation . So far, approximately 27,000 Natura 2000 areas have been designated by EU member states on 18.5% of the EU's terrestrial and maritime area (BfN 2021; European Commission 2008). Germany has around 4,500 Natura 2000 terrestrial areas, which corresponds to 9.3% of its total land area. Designating and safeguarding Natura 2000 sites has however been a

Figure 1. The Natura 2000 logo that appears on all signs of areas across Europe that became protected under the Natura 2000 regulation

cumbersome and overly bureaucratic process across all European member states – especially in Germany, where in some places the safeguarding procedure remains uncompleted after almost 30 years (BfN 2021; Ferranti, Beunen, and Speranza 2010). Many of the designated Natura 2000 sites are located on semi-natural, populated and privately owned territories, where human activities cannot be simply disregarded. In principle, the HD does not exclude human use of ecosystems in Natura 2000-protected areas. On the contrary, it advocates integration of nature protection and economic and cultural activity.

Before I describe this tension underscoring the Natura 2000 regulation, I will briefly address the aims and the implementation procedure of the Natura 2000 areas. EU Directives are binding legislative acts setting out a goal or minimum standard that EU member states have to fulfill (usually within two years), though countries are free to decide on the forms and methods used for their incorporation of a directive into their particular national legal frameworks.[1] The EU Habitat Directive consists of several annexes that were drawn up by conservation experts before its adoption in 1992 and which set out the habitat types and endangered species that are of special conservation interest. These annexes also determine the aims and criteria governing what needs to be conserved when a particular area is designated as a Natura 2000 area (BfN 2021). The basic aim of any Natura 2000-protected area is then to maintain or restore "good ecological status" according to what is specified in the annexes. In Germany, the implementation of the HD was transferred to the governments of the *Länder*, which then had to decide how the protection of Natura 2000 sites should be legally safeguarded (for example, as nature reserves, landscape conservation areas or national parks). The *Länder* governments further transferred the designation and implementation to local Nature Protection Authorities at the district level, whose task is to propose necessary conservation and development measures through site-specific management plans in order to achieve the aim of maintaining or restoring this good ecological status. Natura 2000 management plans include specific, locally based measures to meet the basic aim of Natura 2000, and these are generally put into practice through nature conservation, agri-environmental programs and biotope maintenance measures. The *Länder*, in contrast, stipulate and follow different

[1] Definition of "Directive" from https://eur-lex.europa.eu/summary/glossary/directive.html, accessed on 2022-01-14.

approaches and measures in the management plans to safeguard Natura 2000 areas, taking a more legal, administrative or contract-oriented route, known as contractual nature conservation (Rosenkranz, Wippel, and Seintsch 2012).

The EU's HD imposes strict protection measures in designated Natura 2000-protected areas, which bans the capture, killing, collection or sale of Natura 2000 plant or animal species, unless for specific and formally recognized reasons such as public health concerns. The directive also regulates other activities in these ecosystems and the services they provide – such as hunting, fishing, foraging or forest maintenance – to ensure they remain sustainable (European Commission 2008). At the same time, the EU Commission advocates that tangible conservation measures set out in management plans need to consider economic, social and cultural requirements as well as the regional and local characteristics of an area (European Commission 2008). Nevertheless, during the designation process, a conservation rationale had underpinned the designation and allocation of Natura 2000 areas, while political expediency, economic or infrastructural interests played only a minor role, when they were considered at all (Winkel et al. 2015; Ferranti et al. 2014). Therefore, a legislative and regulatory planning approach governed the implementation of the EU HD at first. This approach led to problems and disputes during implementation in many European regions – whose negative consequences and tensions are still being felt today (Borrass 2014; Bryan 2012; Paavola 2004). Furthermore, the EU HD and Natura 2000 proved to be relatively inflexible instruments as there have been no adaptations to its terms of reference since its adoption in 1992 (Fartmann 2020, personal communication, 29 July). Over time, decision-makers have started to recognize that the success of Natura 2000 measures to protect species and habitats depends largely on the acceptance of inhabitants and cooperation with landowners and users, the local population and cross-sectoral associations (Ferranti et al. 2014; Winkel et al. 2015; Bouwma et al. 2015).

Although Natura 2000 has now been in existence for almost 30 years and has been put into place in many areas despite the problems, the state of nature and the issue of biodiversity has not improved and has sometimes even deteriorated. Every six years, each signatory state must monitor the status of Natura 2000 sites and report this back to the EU Commission. In Germany, this monitoring report was last prepared in 2019

and painted a gloomy conservation picture of German habitat types (30% favorable, 32% inadequate and 37% unfavorable/bad conservation status) and species (with 63% of Natura 2000 species having an inadequate or unfavorable conservation status) (BMU 2019). However, due to the strict evaluation criteria and the inflexible way in which protection measures have been defined and against which habitats and biodiversity are measured, it is also difficult to obtain a satisfactory rating for a Natura 2000-protected area (A – best, B – inadequate, C – bad) (Fartmann 2020, personal communication, 29 July).

2.1.2 Forests and Natura 2000

Forests are of immense global importance, as they carry out many functions for the natural world and its human and non-human denizens, most notably as a habitat for most terrestrial plants, animals and micro-organisms, from which humans also benefit, while forests are also crucial for mitigating climate change in their role as carbon sinks (IPBES 2019). Yet forest ecosystems have been coming under increasing stress in the past decades, with around 13 million hectares a year disappearing worldwide (UNEP, FAO, and UNFF 2009). Again, drivers for forest degradation and deforestation are myriad, complex and interwoven, but can be directly linked to human activities like land conversion and a growing exploitation of arboreal resources like timber (Díaz et al. 2019).

Forests also play a pivotal role in the EU HD for biodiversity conservation as well as for the development of a green network and, in the HD annexes, the Commission had declared 79 forest habitat types in Europe under urgent protection (Barbati et al. 2014). The good news is that from 1990 to 2005, forests in Europe were afforested at a rate of approximately one million hectares per year (UNEP, FAO, and UNFF 2009). Forests currently cover around 43% of land in Europe (around 182 million hectares), of which roughly 10% belongs to the Natura 2000 network. But the bad news is that less than 15% of Natura 2000 forest areas have a favorable conservation status.[2] There is thus a significant need for action and improved forest management in Natura 2000 forest areas for protecting biodiversity in Europe.

[2] See https://www.eea.europa.eu/themes/biodiversity/state-of-nature-in-the-eu/habitats-and-species-latest-status, accessed on 2022-01-17.

In a European comparison, Germany is one of the countries with the largest total areas under forest. Forests cover approximately a third of Germany's surface area, which corresponds to 11.4 million hectares and, of this, 1.8 million hectares (about 16%) have been designated as Natura 2000 areas (BMEL 2018). Germany is a "Waldvolk" or forest populace (Depenheuer and Möhring 2010). It is well known for its creation of the science of forestry and for its pioneer Hans Carl von Carlowitz, the father of modern sustainable forestry principles and sustainability in general.[3] The most common Natura 2000 habitat types in German forests are the "9110 Hainsimsen-Buchenwälder" and "9130 Waldmeister-Buchenwälder", and hence beech trees constitute the main native tree types in German Natura 2000 areas.[4] Overall, four tree species characterize the forest in Germany: Norway spruce, pine, beech, and oak with different geographical spreads (BMEL 2018). Comparable to the European level, many Natura 2000 forest areas in Germany have an inadequate conservation status (Rosenkranz, Wippel, and Seintsch 2012). However, German foresters and forest owners currently have other worries: after heavy storms and severe drought years in 2018 and 2019, forest stands in Germany, in particular Norway spruce stands – the main tree for timber production – have been severely affected. Climate change and bark beetles do not spare a seemingly sustainably managed forest and a fierce debate among foresters has arisen over the definition and practice of good and sustainable forest management (Popkin 2021). There are two opposing camps in this debate. One group of foresters, surrounding the forester Peter Wohlleben, demand a complete shutdown of economic-oriented forestry and plea for nature's self-regeneration and the establishing of forest nature reserves without human interference. But another group of foresters and ecologists advocate for managed forests, as even native trees will not survive the growing pressures of climate change and the costs of losing more forested areas would be too great (Popkin 2021). The German forestry sector is under great pressure and faces huge challenges in the coming years. Given the difficult situation,

[3] Report of German forest policy based on sustainable principles https://www.bmel.de/DE/themen/wald/wald-in-deutschland/carlowitz-jahr.html, accessed on 2022-01-18.

[4] Description and management of habitat type 9110 *Luzulo-Fagetum* beech forests (Hainsimsen-Buchenwälder) https://ec.europa.eu/environment/nature/natura2000/management/habitats/pdf/9110_Luzulo-fagetum_beech_forests.pdf, accessed on 2022-01-18.

the German government has decided to support and fund afforestation programs to the tune of around €550 million.

Photo 4. Habitat trees in the Natura 2000 area "Gehn"; from top left to bottom right: (A) Standing deadwood with rot holes, (B) Furrowed trunk with hole, (C) Standing and lying deadwood, (D) Birch tree with rot hole

While most foresters and forest owners are facing difficult or uncertain questions about what trees to select in future or how to manage their forests now, matters are perhaps clearer and more straightforward in Natura 2000 forest areas. The regulation prescribes afforestation with native, habitat-typical wood species (in most cases beech), mixed with other local ecotypes and rare tree species, and to maintain heterogeneous structures and tree-related microhabitats such as rot holes and horizontal and vertical deadwood (Larrieu et al. 2018).[4] Foresters in Germany often refer to these microhabitats or mega-trees as habitat trees (see photo 4). This extensive forest management, of course, contrasts and competes with an economic-oriented use and with what foresters from the case study have experienced in the last few years. Selecting the right tree species in Natura 2000 areas is a highly contested issue in the implementing of the regulation. One interviewee explains:

> *"We really don't know yet whether we'll have only two dry summers and whether it will be completely different now, or whether we'll have the third drought, as there are already forecasts. And maybe we'll really get it ten years in a row now? Nobody knows. So we said it makes no sense to limit ourselves in the tree species selection, but in the end it's about, I'd say, the overall points of the forest to maintain, and to consider how we get tree species established, which on the one hand can cope with major drought periods and on the other hand also maintain the soil, that they offer erosion protection and, of course, will also grow timber at some point in the future. These are all functions that we also need in the forestry sector on a sustainable basis. For this, we wanted – I don't want to claim for myself that I know better – but for this there are simply scientific studies and findings. And we would be guided by these, and I think it would be right to take a broader view. But this doesn't find its way into the hearing, because then one simply says, "No, this is a beech habitat type." That was the case a hundred years ago and that's quite nice."* [Int18, translated to English].

Which assessment concerning what trees to select for forest regeneration is now more valid – the guidelines of the HD or the perspectives of forest owners? It is a difficult task to decide which are "more right", which Joa et al. (2018, 528) also discuss in their review of the value of local ecological knowledge (LEK) for forest regeneration and conservation:

> "the perceptions of LEK holders currently range from a transfigured, eco-romantic image of the 'noble savage' whose knowledge and practices are

> idealized to a much more pessimistic view of LEK as backward and outdated. Advocates of the latter promote a scientific-rational perspective, dismissing practical knowledge as static and anecdotal, and denying that LEK holders can innovate, adapt and transfer knowledge."

This competition over valid knowledge between conservationists and foresters is an important fuel for conflict in the regional cooperation examined in this thesis.

2.1.3 Natura 2000 in the case study region

The case study is located in Osnabrück district, a German rural region where agriculture has always been a major pillar of the economy and one that has increasingly specialized in animal husbandry during the past fifty years (Franz, Schlitz, and Schumacher 2018). Ecological diversity in the landscape is high. Small villages, low mountain ranges, arable land and grassland, small to medium-sized forest areas, and streams and rivers thread the landscape. Human activity has radically reshaped the former moorland region over the last millennium, transforming a natural into a cultural landscape. In total, there are 23 Natura 2000 areas covering 84km^2 in the district of Osnabrück (Fig. 2).[5] One of the dominant landscape elements shaping the regional nature and landscape is the Teutoburger forest, one of the largest Natura 2000 areas in the region. It nestles among low mountain ranges and the Niedersächsisches Bergland and stretches for about 100 kilometers from west to east. Most of the Teutoburger forest is located in a nature park, called TERRA.vita.[6]

Land is immensely valuable in the Osnabrück district and the wider region because of pressures on land from the animal husbandry industry, which was estimated to intensify during the last decade (Lassen and Busch 2009). So it is unsurprising that the aim of the EU Habitat Directive and Natura 2000 to transform arable land into a green network of protected areas represents a controversial intervention with a long history and disputes between the local government, the Nature Protection Authority (NPA) and local stakeholders, in particular farmers and foresters. With the Directive's adoption in 1992, private landowners and users formed alliances partly to slow down the implementation, and later on – when they realized this path was a dead end – to influence regional authorities' decision-making regarding the safeguarding process for

[5] Detailed description of Natura 2000 in Osnabrück district and case study project website https://terra-natura2000.de/natura-2000-und-ffh/, accessed on 2022-01-18.
[6] The UN Geo nature park TERRA.vita covers 1550 km^2; see https://www.geopark-terravita.de/, accessed on 2022-01-18.

Natura 2000.[7] Government officials across all levels and the local NPA responded with accommodating offers, information campaigns and official guidelines to facilitate Natura 2000 implementation in the region. Yet local politicians have consistently neglected the directive for years and regularly postponed the implementation of Natura 2000. Resentment of the Natura 2000 regulation among affected landowners grew. One interviewee from an association recalled state actors making "*false excuses and lame compromises*", continuing: "*And so we held major information events at that time with the Higher Nature Conservation Authority of the district government. And we were assured there that there were no requirements for the private forest, that there were no restrictions. That* [governmental decrees are] *all just a fulfillment of duty in the direction of Brussels. The owners and the farmers will have no impediments whatsoever."* [Int18]. For a long time, affected stakeholders believed the promises of decision-makers and assumed that no restrictions would arise from the Natura 2000 regulation.

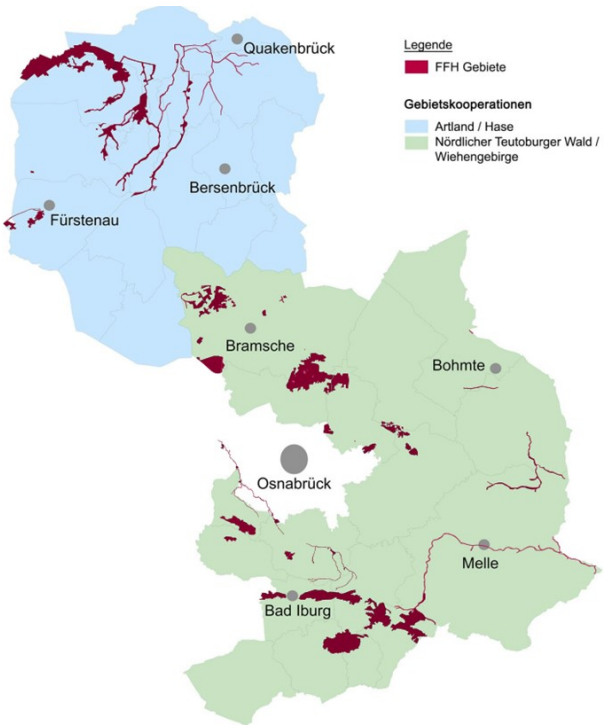

Figure 2. The district of Osnabrück has 23 Natura 2000 areas (marked in red) and the implementation of these areas is facilitated by two regional cooperation partnerships bringing together actors from the northern (blue shaded) and southern (green shaded) parts of the district (from https://terra-natura2000.de/gebiete/, status as of September 2019)

[7] The non-profit association "Kulturlandschaft Osnabrücker Land e.V." was set up by local landowners. More information on https://kulturlandschaft-os.de/, accessed on 2022-01-19.

Over the years, however, a series of infringement proceedings brought against Germany by the EU Commission changed political realities on the ground and local government officials could not continue their former courses of action and promises (Borrass 2014).[8] The Natura 2000 regulation has led to disruption in the region, leaving deep divides between environmentalists, landowners and users. On the one hand, the local NPA has come under increasing pressure from higher political levels to implement the directive while, on the other, NPA administrators face the problem of regaining the trust of private landowners and users that was lost in the past, but which would be vital for a smoother implementation in the future.

2.2 The creation of the regional cooperation

Due to the challenges of the past, the head of the NPA in Osnabrück district, who is also the director of TERRA.vita, decided to create a platform between local government agencies and affected local stakeholders from Osnabrück to improve communication and collaboration and to facilitate the long-term implementation of Natura 2000 in the district. He said, "*The platform should then rather take on a serving or secondary function, meaning that, on the one hand we make the regulations, i.e. the hard regulation business. And on the other hand, alongside this, a structure that has a facilitating effect and also represents a voice for those affected, usually landowners, land users, and so on*." The requirement of the Natura 2000 regulation to take into account specific local economic, social and cultural aspects in the management planning of designated protected areas, as well as to preserve the multifunctional use of landscapes and forests, meant that local authorities were consequently dependent on cooperation with local land users and landowners – foresters in the case of the Teutoburger forest. Local land and forest owners are in the end the ones who need to be convinced to put into place the Natura 2000 measures in their daily forest management practices. Additionally, private forest owners have in-depth knowledge of their property and have their own management objectives (Joa and Schraml 2020), which need to be aligned to the Natura 2000 measurements of the management

[8] For the latest announcement of the European Commission from 18 February 2021 to refer Germany to the European court of Justice, see https://ec.europa.eu/commission/presscorner/detail/en/IP_21_412, accessed on 2022-01-18.

planning. Gaining forest owners' trust and goodwill was therefore necessary and recognized by the NPA in Osnabrück.

In March 2017, two regional cooperations were created and two regional managers employed as facilitators. One cooperation focuses on the Natura 2000 areas in the northern part of Osnabrück district that are more related to agriculture and habitats at watercourses. The second regional cooperation, which forms this case study, focuses on the Natura 2000 areas in the south and addresses forestry and forest habitats (Fig. 2 above). The two regional cooperations both represent networks between stakeholders from forestry, agriculture, water management, hunting and nature conservation, who jointly and on a voluntary basis develop and implement projects to improve Natura 2000 areas (Tab. 1). Additionally, the actors involved advise the Nature Conservation Authority on specific measures for the management plans. Thus, the regional cooperation is a mandated collaborative arrangement initiated and led by actors from the NPA. However, financing of the project runs through TERRA.vita as an executing agency, so that the NPA government actors can contribute to the discussions as participants and not as initiators in the regional cooperation. Every three months, the actors involved in the regional cooperation meet to discuss project ideas, the work status of relevant projects as well as other current topics related to events in the Osnabrück district.

Table 1. Actor groups and number of actors in the regional cooperation South (this case study)

Regional cooperation South (N=22)	
State actors	
Lower Nature Protection Authority (NPA)	3
Chamber of Agriculture	1
Forestry Office	1
Office for Regional Development	1
Stakeholders	
Local Nature Park	1
State-owned forestry	4
Private forest owner association	5
Agriculture	2
Water management	2
Local hunting associations	2

Before setting out (in Chapter 3) the research approach and methodology taken to analyze the case study described here, I will touch on another aspect of forests that are important in the German context. There are two special features that characterize forest property in Germany. Additionally, since the Romantic period, the forest has shaped the relationship between people and nature and over time has become an important national symbol of Germany (Depenheuer and Möhring 2010).

2.3 Special features of forest property

For many Germans, forests represent a place of longing, a view that was largely shaped during the Romantic period beginning in the early 19th century. This romanticized view of the German forest characterizes forests as places for natural peace and untouched nature. This image still partly determines how we perceive and use our forests today. Although forests are seemingly a public good that anyone is allowed to use or to access in Germany, private interests own much of the country's forested areas. In fact, 48% is private forest, 29% is owned by the federal states (the *Länder*) and managed by federal state forestry agencies, 19% is owned by corporations and 4% owned by the federal government, the *Bund*. (BMEL 2018). Private forest in Germany is mostly small in area and fragmented. About half of the private owners own less than 20 hectares and most of them came into forest ownership through inheritance (Depenheuer and Möhring 2010). The number of small-scale private forest owners is estimated at about two million (BMEL 2018).

In the Teutoburger forest in the district of Osnabrück, the ownership pattern corresponds to the German national average. Here, about 3,500 private forest owners own two-thirds of the forest area, with a third belonging to the federal state of Lower Saxony, which is managed and administered by the Lower Saxony State Forestry (Stockmann 2019, personal communication, 17 October). Accordingly, many small-scale private forest owners in the Teutoburger forest own on average two to three hectares. One member of the regional cooperation said, "*We also have many forest owners who have inherited their forest land. They have not been in the stand for 20 years*." [Int12]. Thus, some small-scale owners of the Teutoburger forest live in urban areas away from their trees and hire district foresters to take care of forest-related management on a regular basis.

Private forest property is characterized culturally by two special features. First, it is durable and resilient. Forests symbolize a seemingly boundless space. They are tangible, can be accessed and experienced by humans and are characterized by longevity and stability. They hence stand in stark contrast to the frantic (and often virtual) human world. Words with a strong connection to forest ownership and influence over how forests are managed are longevity, stability, orientation, responsibility, and sustainability. Since freshly planted trees need a long time before they can be harvested, forest owners think in terms of alternation periods of between 80 and 250 years. This way of thinking is incompatible with a high-speed, fast-moving economy, where the slogan 'time is money' shapes human actions and decision-making, and a policy system where some representatives call for urgent radical change (Depenheuer 2010). Forests and management practices do not allow for overnight turnarounds and are designed for the long term without any alternatives. There are thus natural limits to changes in management practices. And the decision for a course of action may only be reversed with great difficulty and at high cost (Popkin 2021). More or less all forest owners are united by this common vision and narrative of "sustainable and multifunctional forestry".

This vision is legally anchored in the region by the Lower Saxony Forest and State Order Act:

> "The person owning the forest has to manage his [or her] forest properly, in particular sustainably, and at the same time take into account the protective and recreational function of the forest (proper forestry). Proper forestry is forest management that uses, rejuvenates, maintains and protects the forest according to the established knowledge of science and the proven rules of practice."[9]

Additionally, forest owners generally have a special relationship to their forest and to nature in particular and this emotionally binding force is the second aspect that characterizes forest ownership. For many private forest owners, their forest is something "familiar" that can be "relied upon". For many, it means a part of one's

[9] The full content of this act can be found here: https://www.voris.niedersachsen.de/jportal/portal/page/bsvorisprod.psml?pid=Dokumentanzeige&showdoccase=1&js_peid=Trefferliste&fromdoctodoc=yes&doc.id=jlr-WaldLGNDpP11, accessed on 2022-01-19.

home that can be accessed and experienced. Furthermore, in Germany, the forest is a national cultural asset that has been constantly given new facets in myths, stories and fairy tales – sometimes the forest is dark and dangerous, as in Little Red Riding Hood; in other instances, it offers safety and protection as in the legend of Robin Hood. For forest owners, "their" forest becomes part of their own life story or family history through inheritance.

Forests harbor many vital ecosystem services to which different human activities are tied. Many interests accumulate when it comes to the forest environment, and the management of forests thus represents a field of tension that has to be balanced on an ongoing basis. Forests are regarded and exploited as a cultural asset and arena for human recreation. Furthermore, forests are an important economic source and are used for timber production. In Germany, the timber industry is an important economic sector that employs around 1.1 million (BMEL 2018). Thirdly, forest ecosystems provide a diversity of ecological resources and represent a nature reserve. Forests also contribute to a secure drinking water supply and function as carbon sinks. Finally, forests harbor habitats for many native flora and fauna and contribute to conserving an area's biodiversity (BMEL 2021). With increasing environmental and climate change, the pressures on and challenges to these habitats are rising and this leads to greater tension among various rights-holders over the use of forest resources. The private interests of forest owners and forest managers meet the public interests of society and form a broad field of tension based on unavoidable disturbances of perception and communication due to different mentalities and temporal dimensions. This thesis will later highlight some of these public–private tensions, which also arose in the regional cooperation and that are reconstructed in the narrations that participants shared with me during interviews.

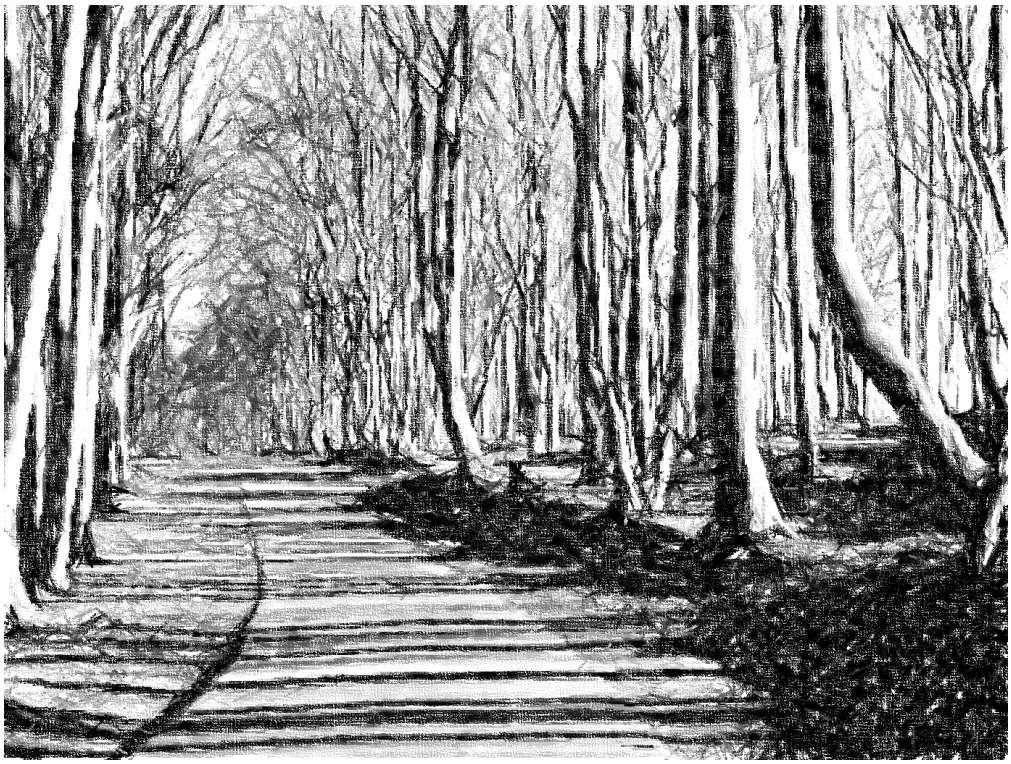

Photo 5. Hiking and bicycle path through the "Freeden", a Natura 2000 protected area in the Teutoburger forest

Chapter 3 | Research Approach, Conceptual Foundation and Methods

In this chapter, I outline the approach and methods I used in my research to study the regional cooperation that I introduced in the previous one. The thesis uses a mixed-method single case study design in order to conceptualize and empirically study the mechanisms underlying social dynamics in actor collaborations for environmental governance and management. I ground myself in symbolic interactionism as a primary school of thought and base this research more specifically on a relational narrative approach that guides theoretical assumptions embedded in the research design and subsequent data collection and analysis. In this chapter, I will also highlight some aspects of the conceptual framework that are set out in Paper II.

3.1 Research Design

3.1.1 Philosophical perspective

Social science research needs to be grounded in philosophical perspectives that provide broad frameworks or paradigms, in Thomas Kuhn's conception, as a belief system for thinking about the social world (Guba and Lincoln 1994). In a broad sense, as a social scientist I approach the social world as construed differently by each individual, who makes sense of it using different words and descriptions and I thereby assign a range of rationales for their behavior. My research thus aims to shed light on these different meaning-makings of reality to investigate individuals' behavior and relies on an inductive approach to knowledge acquisition in order to assess the particular and the detailed. This aim stems from a theory of interpretivism and symbolic interactionism and draws on the ideas of George Herbert Mead, the founding father of symbolic interactionism and social psychology (Fig. 3; Griffin, 2009, pp. 59–68; Thomas, 2013). Core assumptions that arise from a symbolic interactionist perspective and that underlie this thesis are, first, the belief that people act in relation to others based on the meanings the former assign to the latter. The second assumption is that this meaning-making arises from social interaction, so this perspective emphasizes the importance of the social and interactional nature of reality, particularly manifest in talk or other language use between people and, thirdly,

that people are usually conscious of their role in interaction and can alter their behavior accordingly (Griffin 2009; Moon and Blackman 2014; Savin-Baden and Howell Major 2013, 25). In short, the symbolic interactionist school of thought concentrates on the reciprocal relationship between self and society, whereby shared meanings, built up in interaction with others, influence social behavior (Serpe, Stryker, and Powell 2020, 2). When circumstances demand cooperation with others, "cooperation is based on taking the attitude or role of the other to anticipate responses […] enabled by communication that rests on the development in interaction of common meanings among those engaged in the on-going social process that constitutes society" (Stryker 2008, 17).

In contrast to an objectivist epistemology that assumes "facts" can be observed, measured and defined, qualitative research from a symbolic interactionist perspective aims to focus on people and situations to explain reality and concentrates on revealing the subjective experiences of people in their interactions with others. Thus, a typical research question from this perspective – posed in this research study – is '*How do different narrations (subjective experiences) of individuals affect the social structure between diverse actors involved in collaborative approaches in local and regional environmental governance and management?*' In order to come closer to people's subjective experiences, I took a relational narrative approach that I now explain in more detail.

3.1.1 A relational narrative approach

This approach assisted me in exploring and explaining the mechanisms that shape the social dynamics in actor collaborations (Fig. 3). A narrative approach in research aims to study human experience (Savin-Baden and Howell Major 2013) and thus attempts to uncover what events happened in the past, or to reveal expectations in the form of what might happen in the future. Researchers who follow a narrative approach in their enquiries look in particular at the meanings in stories, arguing that people are storytellers – described as *homo narrans* (Fisher 1985) – and create themselves and their realities through narrative (Fisher 1989; Jones, McBeth, and Shanahan 2014; Krauß and Bremer 2020). Narrative research approaches originated in the fields of theology, history and the humanities and are based on a hermeneutic way of thinking about and interpreting ancient texts (Savin-Baden and Howell Major 2013). Narrative

approaches have evolved into a vibrant domain of social science research in the last 50 years and today a wide range of researchers from anthropology, linguistics, psychology, cultural studies, political science, education research, and communication studies make use of a variety of narrative approaches (McBeth and Jones 2010; Fisher 1989; Ingram, Ingram, and Lejano 2014; Winkel 2014; Marschütz et al. 2020). The notion connecting all these various narrative approaches is the assumption that narratives allow insights into the social and cultural contexts as well as into people's meaning-making; this is what researchers also mean when they talk about narrative theory (Erll and Roggendorf 2002). The heart of this theory is the "importance of the storied-ness of lives: the idea that individuals live lives and construct meaning with, in and through stories" (Savin-Baden and Howell Major 2013, 241; Wiessner 2014).

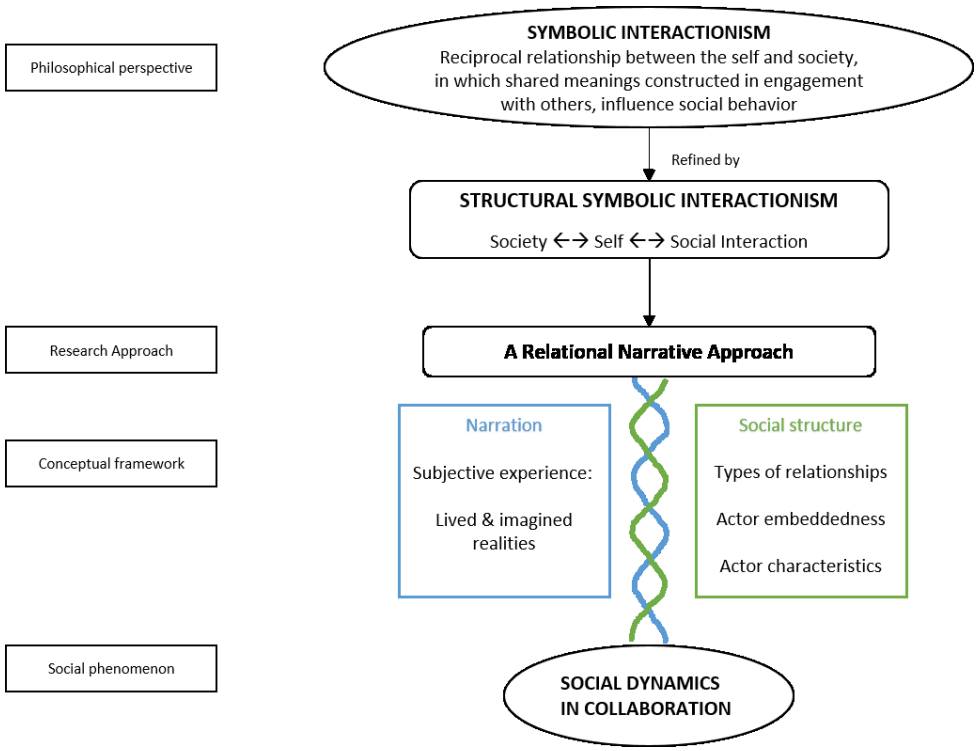

Figure 3. Overview of the philosophical perspective, the research approach and related concepts that guided this thesis in conceptualizing social dynamics in collaborations

A narrative approach encompasses theory, process, data and product in one distinct research process (Savin-Baden and Howell Major 2013). Using a narrative approach in my research enabled me to move away from a monolithic view of reality and to accept that multiple realities exist as the mental constructions of individuals. Instead of one single reality that can be studied, understood or experienced as "truth", which positivists argue exists independent of human experience, I view reality as relative according to what an individual experiences at any given time and place (Moon and Blackman 2014). Therefore, I place myself and this research in the realm of a bounded relativism that views reality as subjective and constructed by individuals or groups within cultural, moral or cognitive boundaries[10] (Savin-Baden and Howell Major 2013; Moon and Blackman 2014). A bounded relativist research approach begins with a detailed investigation of context and is typically person-centered; hence, contexts need to be approached on the basis of individuals' perspectives before the researcher is able to interpret the phenomenon studied – in this thesis, social dynamics. The guiding principle is to "embrace the complexity of the system rather than attempting to disaggregate it" (Moon and Blackman 2014, 5). I used narrative in this project as a research tool that helped me to explore the social dynamics – based on each member's interpretations of a situation – among participants of the regional cooperation in my case study. By listening to the participants' stories, I was able to take a larger view and gain contextual insights by retrospectively interpreting participants' individual experiences in the collaboration. This further enabled me to explore the participants' emotions and cultural backgrounds, which are key precursors for complex, context-dependent and unpredictable behaviors (Evely et al. 2008). As well as focusing, as central elements in the investigation, on the structure of narratives and the issue of what narrative characteristics constitute a "good" story, I also used narrative data as a way to make sense of the performative and communicative acts of individuals in their interaction and discourse with others (Savin-Baden and Howell Major 2013). These ontological and epistemological assumptions have implications regarding the conceptual framework that underpins this research.

[10] Baghramian, Maria and J. Adam Carter (2021). Relativism. *The Stanford Encyclopedia of Philosophy,* https://plato.stanford.edu/entries/relativism/#MorRel, accessed on 2022-01-17.

The conceptualization of narratives and narrations in this approach

Narratives are part of human communication and perform two functions, touched upon above, which underpin my argument that my approach is typically relational. First, it is through narratives that people interpret a perceived reality and upon which people build meanings and their sense of self. Narratives thus act as socio-cognitive (mental) structures that feature a particular narrative pattern or plot a mental map that helps people apprehend their world (Koch, Gorris, and Pahl-Wostl 2021). This paradigm of structural symbolic interactionism suggests that before reality emerges from social interaction, organized society exists as a supporting structure for patterned interactions that are durable, resistant to change and able to reproduce themselves (Stryker 2008). The French literary critic and structuralist Roland Barthes, for instance, defined narratives as pervasive in every age, every place and every society; they are countless and coexist with our lives in an infinity of forms, whether in written or oral texts, myths, tales, legends, history, artworks or conversations. Narratives are ubiquitous in societies and make an essential contribution to the interpretation and creation of meaning in a particular culture (Erll and Roggendorf 2002; Lejano, Ingram, and Ingram 2013). There are common plot lines to be observed in Western culture, such as "the hero's tale, the rags-to-riches tale, the fall from grace, the effects of villainy, the growth to maturity, the Golden Age lost, the pioneer's tale, the stranger comes to town, and, the young man leaves home in order to find himself/make his place in the world/escape from the provincial straitjacket" (Sandercock 2003, 13). These plot lines operate as a decoding scheme – a structural, self-reproducing pattern in society as a structural symbolic interactionist would argue – and help people to organize experiences and meaning and to recognize and categorize individual narrations from others. I thus conceptualize narratives as being cultural artifacts that are always in the process of joint construction, while at the same time they are emerging cultural products created, transmitted and transformed through individual narrating activities (Koch, Gorris, and Pahl-Wostl 2021).

Secondly, storytelling functions as a sharing tool and as a means to generate social influence. It is an act of intervening deliberately in one's direct social environment to influence the perceptions and behaviors of others, including effects on the social relations that people have or on the roles that people engage in during social

interactions. A good story can be powerful and persuasive (Perloff 2014). Hence, the manner of telling and the content of a narration elicit different reactions in the listener – for example, a certain delivery can produce anger, fear or joy, which the narrator can exploit intentionally as a way of changing a listener's behavior (Koch, Gorris, and Pahl-Wostl 2021; Shanahan et al. 2019). A narration is thus a verbal reconstruction of an individual's lived experiences (the subjectively constructed reality of "what happened") and an individual's imagined reality (the subjectively constructed imagination of "what would happen if…") (Koch, Gorris, and Pahl-Wostl 2021). People encode their interpretations of reality and social interaction into a narration sometimes referred to as "emplotment" (Lejano, Ingram, and Ingram 2013; Viehöver 2001). Emplotment is a mental process that encompasses categorization and identification, the positioning of the narrator in relation to others, and a weaving of events and objects into a plot with a distinct logical flow. In line with assumptions from the paradigm of structural symbolic interactionism, emplotment often entails binding actors, their actions, objects and events in a way that aggregates and associates these with an established narrative pattern on a meta level (Koch, Gorris, and Pahl-Wostl 2021). Narrators thus generate interactional meanings by means of the content of their narrations and the context of the social structure by connecting to or antagonizing the people around them. Depending on and accompanying the narrative as a structural pattern on a meta level, this emplotment reproduces dominant and existing, or creates novel and emerging, societal structures and is therefore resistant to change to a greater or lesser degree, while social interaction appears as sometimes cooperative and sometimes conflicting (Serpe, Stryker, and Powell 2020; Chabay et al. 2019). Altogether, these constitute highly dynamic social processes when a diverse cast of actors comes together.

The relational aspect of this approach

From the above remarks, it follows that communication in interaction is not only an instrument for exchanging information and knowledge, it is also predominantly a relational phenomenon (Condit 2006). Communication does not just take place between people; it affects the type of connections they have and therefore the structures within which they act (Fuhse, 2009; Griffin, 2009). In this regard, structural symbolic interactionism argues for putting greater emphasis on the impact of social

structures on interaction (Stryker 2008). Besides, people are not just rationalists who make decisions on the basis of effective arguments presented to them, but are individuals embedded in historic, cultural, geographic and social contexts that influence their perceptions and awareness of reality and consequently their behavior and roles as they interact (Emirbayer 1997; Leeuwis and Aarts 2011; Crossley and Edwards 2016). These arguments suggest that analyzing social dynamics by focusing on the subjective meanings generated by people in their interactions is not enough – we should also account for and integrate the social relational structure in which these actors are embedded to holistically investigate the social dynamics in collaborations. As I set out in Paper II, the core of my conceptualization of collaborative networks is that the social relations between people involved in a collaboration, in combination with the narrations they tell, **co-produce** social dynamics and narratives at the group level. The ensuing narratives and group dynamics then influence the appearance and functioning of the collaboration they are embedded in and influence its capacity to deal with environmental problems in hand. The interdependent relationship between group dynamics and existent narratives in turn influences the social relationships between the actors involved and their narrations. This means that narratives which link to this contextualized embedding of the individual serve as symbolic bonds between individuals in a community, implying that the more socially accepted a narrative is in terms of its plot, the more likely others will be to apprehend and agree on its meaning (Müller-Funk 2008; Koch, Gorris, and Pahl-Wostl 2021). But in some instances, narratives can also add to incomprehension and the emergence and reproduction of problems and conflicts and therefore fail to bind actors via these mental structures.

Altogether, I conclude from these conceptual considerations – which are dealt with in greater detail in Paper II – that meaning and social structure are closely entangled (Fig. 3). Their combining forms the backbone of social dynamics – the forces that influence interpersonal processes within or between groups over time. To gather information about people's subjective experiences, I cannot disregard their social embeddedness in structure, while to investigate actor networks and their impacts on environmental governance and management I cannot ignore the actors' subjective experiences. Therefore, I decided to work at the interdisciplinary overlap of a narrative approach and social network research and to integrate narrative theory with insights on group

dynamics grounded in social network analysis. For this interdisciplinary union, I turned to a mixed-method research design for pragmatic guidance.

3.1.2 Toward a definition for mixed-method research

In workshops and conferences, I have sometimes heard other (often more senior) researchers say that effective interdisciplinary research collaboration can only happen between researchers with excellent methodological skills which would indicate they had put down robust roots in their respective disciplines. I agree that scientific and methodological excellence are the cornerstones of good scientific practice. Moreover, in some cases, triangulating methodologies can advance our understanding of complex social-ecological phenomena such as the social dynamics of collaboration in contexts where multiple actors strive to address an environmental problem. Particularly for a case study like the one featured in this thesis, looking at a phenomenon from different angles is the essence of good scientific practice (Thomas 2016). I took this to heart and decided to reconcile methods conceptually and empirically from two different scientific 'cultures': the combination of a qualitative narrative approach with quantitative social network data and analysis. As outlined in the introduction and in the conceptualization, this combination is needed to help us make sense of the social dynamics in collaborative governance and management arrangements and suggests an answer to the main question of the thesis: *How do the social dynamics between actors shape governance networks and influence the collaborative governance arrangement?*

Mixing methods is the result of applying both quantitative and qualitative research methods to a problem (Kuckartz 2014). In the 1960s and '70s, empirical social research in Germany was mainly conducted according to standardized quantitative research approaches, which was then gradually expanded in the 1980s by qualitative research approaches and methods. Disagreements arose between the "quanties" and the "qualies", within disciplines and research fields and a quantitative versus qualitative debate is still ongoing (Kuckartz 2014, 27ff). However, other researchers started to combine or triangulate the two approaches rather than contrasting them, in order to benefit from the insights and advantages of both approaches. This paved the way for a new scientific practice: mixed-method research, or mixed research (Johnson,

Onwuegbuzie, and Turner 2007). But what does this term mean and what research practices does it entail?

Johnson et al. (2007) interviewed experts in the field and asked them to define the term 'mixed-method research'. Four quotes from the experts I found particularly helpful for my own definition (Johnson, Onwuegbuzie, and Turner 2007, 119ff).

> **John Creswell**: Mixed methods research is a research design (or methodology) in which the researcher collects, analyzes, and mixes (integrates or connects) both quantitative and qualitative data in a single study or a multiphase program of inquiry.
>
> **Jennifer Greene**: Mixed method inquiry is an approach to investigating the social world that ideally involves more than one methodological tradition and thus more than one way of knowing, along with more than one kind of technique for gathering, analyzing, and representing human phenomena, all for the purpose of better understanding.
>
> **Udo Kelle**: Mixed methods means the combination of different qualitative and quantitative methods of data collection and data analysis in one empirical research project. This combination can serve two different purposes: it can help to discover and to handle threats to validity arising from the use of qualitative or quantitative research by applying methods from the alternative methodological tradition and can thus ensure good scientific practice by enhancing the validity of methods and research findings. Or it can be used to gain a fuller picture and deeper understanding of the investigated phenomenon by relating complementary findings to each other which result from the use of methods from the different methodological traditions of qualitative and quantitative research.
>
> **Hallie Preskill**: Mixed-method research refers to the use of data collection methods that collect both quantitative and qualitative data. Mixed-method research acknowledges that all methods have inherent biases and weaknesses; that using a mixed-method approach increases the likelihood that the sum of the data collected will be richer, more meaningful, and ultimately more useful in answering research questions.

A common thread running through these four descriptions is that mixing implies the combination of quantitative and qualitative research. This is not limited to mixing methods only, but also includes a mixing of theoretical perspectives, ontological and epistemological approaches. Mixing research is based on the key idea that research

requires some form of integration and is a commonly accepted part of pragmatist philosophy (Savin-Baden and Howell Major 2013). Another aspect agreed on by many experts is the validation or triangulation of different research approaches in order to make more nuanced interpretations of a subject under investigation. Especially in the field of environmental change and sustainability studies, inter- and transdisciplinarity in research is on the rise and in high demand, as the insights and normative perspectives of a diversity of various knowledge systems are needed to address pressing and global environmental issues such as climate change and biodiversity loss (Cornell et al. 2013; Bercht 2021). "Opening up knowledge systems" (Cornell et al. 2013, 60) means contesting the boundaries of research fields traditionally organized into "disciplines" and embracing the complexity of environmental challenges with an array of research traditions and methods and a combination of the two. This reasoning motivated me to conduct research following this "third paradigm" (Johnson, Onwuegbuzie, and Turner 2007, 112) or relatively novel (at least in Germany) research culture. Hence, I define in the context of this thesis

> Mixed-method research as a research design that integrates qualitative and quantitative research approaches, cultures and methods in the same research project to gain insights from both for acquiring a more complete, holistic and contextualized knowledge of a real-world social phenomenon in the context of sustainability challenges.

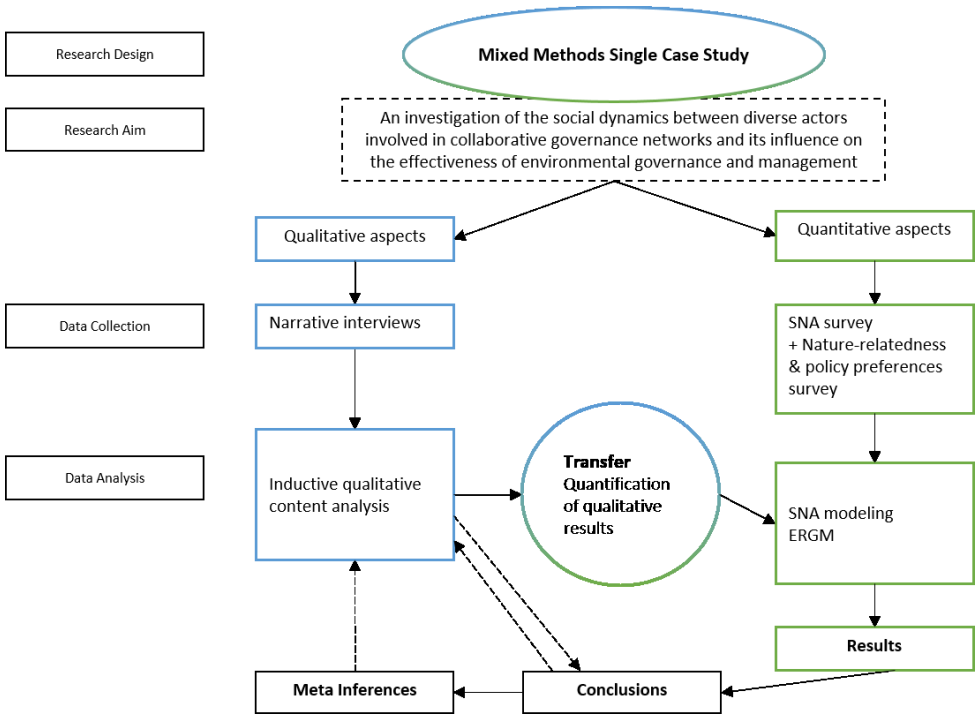

Figure 4. Overview of the research design including data collection and data analysis that underlies this thesis

3.1.3 A mixed-method single case study

Alongside a mixed-method approach, I concentrated on the regional cooperation as a single local case study (unit of analysis) to advance knowledge about the mechanisms underlying social dynamics (Fig. 4). In case study designs, comprehension of the case as a whole is pursued in order to arrive at fuller and more nuanced explanations (de Vaus 2001). Thus, mixed methods and case study research go hand in hand, because cases consists of several elements and levels for which different methods should be sought (Thomas 2016). In particular, with a detailed analysis of the regional cooperation based on a combined approach relying on narrative and social network analysis, I aimed to examine the social dynamics that manifest themselves in the regional cooperation, how these dynamics shape the governance network and how they influence the effectiveness of the regional cooperation as a whole. The regional cooperation is therefore the holistic subject of analysis, while the actors involved in the regional cooperation represent the embedded subjects of analysis. I described the

context of the case study in more detail in Chapter 2, and would now like to explain why I chose this case.

To investigate the underlying mechanisms of the social dynamics between the actors involved in the regional cooperation, the relational narrative approach explained earlier inspired me to "enter the site" and observe it from the inside. I therefore planned to study and observe the collaboration and the collaborating actors, firstly in their natural setting and, second, over a longer period of time. I planned to regularly attend official meetings and to gain insights into all members' subjective perspectives and experiences by speaking to them personally in a collaborative way. Moreover, I also aimed to study the social, economic and political contexts in which these actors were embedded. Lastly, cultural knowledge and a common language were variables governing my choice of a regional case. From these reasons it becomes evident that the case study needed to be easy accessible – that is, in the region where I lived and worked – otherwise I would not have been able to gain access to this richness and depth of data.

Additionally, since the purpose of this research was to study collaborative environmental governance and management, the collaboration needed to have an environmental focus and to be tasked with working together on an environmental topic. As explained in Chapter 2, the regional cooperation was set up to facilitate the implementation of the Natura 2000 legislation, which is part of the EU Habitat Directive and is Europe's flagship policy to protect biodiversity, habitats and particular flora and fauna. In April 2019, I contacted the head of the Nature Protection Authority of the district municipality in Osnabrück. We had a meeting in person where, after I had presented the aims and approach of my PhD research, we agreed to cooperate on the investigation of the regional cooperation project. This led to the project to investigate the social dynamics of the regional cooperation in the Osnabrück district. To explore the social dynamics of collaboration, I used the relational narrative approach that I outlined previously to guide me through data collection and data analysis.

3.1.4 Ethical considerations before entering the field

Ethical considerations are fundamental to the conduct of social science research and are nowadays demanded by scientific journals as part of a sensitive research process

that acknowledges and respects the rights and well-being of participants (Savin-Baden and Howell Major 2013). However, from my own experience I know that it is unfortunately still not common practice in qualitative social science research or in my discipline to think about ethical principles or even to consider undergoing an advance review by an ethical committee that governs how to deal with research participants and the data that have been collected and analyzed. For me, and for conducting narrative research in general, it was important to show respect to my participants and take into account their rights, privacy and confidentiality before and while I was in the field. Therefore, I used written consent forms for the interviews with all participants to inform them about the purposes of the research, how their input would be used and what their participation would involve. Additionally, I informed them that their participation was voluntary and free from coercion, and that they had the right to withdraw at any time. Finally, my informed consent form set out how I would use the collected data and that I would respect participants' privacy by not publishing any information that could lead to them being identified (see Annex 5: Informed consent form). Before each interview, I went through and discussed the consent form with every participant, who needed to sign and agree to the written terms.

3.2 Data collection

Even though thematically related to the investigation of social dynamics, Paper I is a standalone paper, as it is not based on the mixed-method singly case study approach that I outlined previously. The paper aimed to explore social dynamics and collective behavior change by applying a narrative approach and therefore poses the research question: *How do affective narrative expressions influence transitions to more sustainable collective behaviors?* As mentioned earlier, this paper stems from the work of an interdisciplinary group of researchers who met in September 2018 during a one-week expert symposium in Taiwan and uses case narratives from three international case locations (see subchapter 4.1). During group discussions, the authors shared experiences from their research and empirical findings from their respective case studies.

For the remaining papers II-IV, which attempt to advance understanding of the social dynamics in a particular local case – the regional cooperation – I started gathering data

in August 2019 with a presentation to inform participants in the regional cooperation about the topic of my PhD research, its aims and scope, and the procedure of data collection and analysis. I also used this opportunity to sound out how the participants would react to such a request. The head of the local Nature Protection Authority also explained to everyone present that he would regard this research project as useful for the project to review the current state of the regional cooperation and to use it for a future evaluation by the relevant funding bodies and the Lower Saxony State Agency for Water Management, Coastal and Nature Conservation (NLWKN). The participants approved of such a research endeavor and everyone agreed to its implementation and to their participation in the study. Consequently, with the approval of all participants, I was in the field and participated actively in meetings and excursions over a period of two and a half years, from August 2019 to December 2021, while I made unstructured observations, took field notes and gained access to written minutes of prior meetings. Since the beginning of this research study, I had also been in regular contact with the regional manager of the cooperation and have discussed different developments in this initiative.

From September 2019 to February 2020, I collected research data – in most situations, I visited the participants in their own homes – using two different methods of data collection (Fig. 4).

Narrative interviews

First, to obtain information from the participants concerning their subjective perspectives on and personal experience with the Natura 2000 legislation and the regional cooperation development, I conducted and recorded narrative interviews with them (N=19) that lasted between 30 and 120 minutes. According to the narrative interview method, I posed a very broad and open narrative-stimulating question that encouraged participants to tell an impromptu, retrospective story about their lived experiences in direct interactions (Küsters 2006). For narrative interviews in general, it is important always to start the interview in the same way with every participant according to a prepared interview protocol (see Annex 6). I started with a short guidance on the subsequent procedure and continued the interview with a narrative-stimulating question to invoke storytelling in participants: "*I would like you to tell me how the regional cooperation started for you and how it then continued until today. I*

would like your own personal experience to become clear to me. Therefore, I'm asking you to elaborate on any experiences that come to your mind and seem relevant. You can take as much time as you need. I will not interrupt you for now, just take some notes on questions, which I will then go into later." No respondents were given the chance to prepare for this question, which meant that they had to reproduce their perceptions of the chain of events in a meaningful way and reconstruct personal interpretations and meanings of these situations in order to allow the listener (the researcher) to partake in their experience (Küsters 2006). As such, a narrative interview does not so much pursue the generating of information, but rather contributes to the social practice of constructing personal experience and cultural understandings and therefore meanings to get access to people's cognitive sense-making to understand their lived experiences (Bremer et al. 2017; Küsters 2006). According to the narrative interview method, I refrained from intervening and let respondents narrate as freely and spontaneously as possible. Probing narrative questions depending on the contexts of experience described in the interviews were asked after long narrative monologues to obtain a clearer picture of the respondents' lived experiences and perspectives (e.g. "*You mentioned earlier how you* [situation X]*; could you tell me about this situation in detail?*" or "*Can you tell me a little more about the time* [passage from the narrative monologue]*?*"). At the end, I had two additional questions prepared to get more information on the personal background of the participant, and I always drew the interview to a close with the same question: "*What do you think is worth being conserved in the region?*". Overall, the narrative interview followed an open and unstructured format, in which I relied on spontaneously generating questions that arose from the context and participant's narrative.

Network survey

A questionnaire given to each participant complemented the narrative interview in order to gather information on the social relationships between participants and the social structure of the regional cooperation. In September 2019, I received a participant list from the regional manager of the regional cooperation with participant names, organization that they belonged to and their contact details. I relied on a nominalist approach in defining the network boundary and decided to include all actors on the list and who actively participated in the regional cooperation at that time

(Prell 2012). The questionnaire featured a series of social relational questions to generate network data using a stakeholder roster that contained all actors involved in the regional cooperation (see Annex 7). First, I asked the participants about the type of exchange via the following statement: "I talk to [person from the collaboration] about …" with several answer options ranging from 1 = 'Discussion of ideas/aims', 2 = 'project planning', 3 = 'Implementation of projects', 4 = 'Advice and knowledge exchange' and 5 = 'Discussion of political issues', while participants could choose several possibilities at a time. This data have not yet been used, however, for data analysis in any paper and therefore were not further entered into an N*N actor matrix.

Second, I asked participants about the frequency of interaction via the following statement: "I have cooperated with [person from the collaboration] regarding biodiversity protection since the beginning of my membership in the regional collaboration". Answer options for this item ranged from 1 ('daily') to 9 ('less than once a year'). The values for these data were entered into an N*N actor matrix in Microsoft Excel to produce the network data. Finally, I operationalized trust relationships between actors in the network and asked each respondent "Who do you turn to when you want to discuss an important, relevant topic in confidence?". Participants could either make a cross or left this answer blank in the survey. Relational data were organized in N*N matrices to store the directed binary network data. Other relevant information on the actors was also collected through the survey and stored in a so-called 'list of actor attributes' in Microsoft Excel, of which I used the respondents' core beliefs based on the Nature Relatedness scale (Nisbet, Zelenski, and Murphy 2009), type of actor (state or non-state actors) and size of organization.

3.3 Synthesized Data Analysis

This subchapter briefly lays out the different data analysis techniques used in the empirical papers for this thesis. For Papers III and IV, qualitative data from the narrative interviews was manually transcribed and later analyzed in MaxQDA 2020 (VERBI Software 2019). Quantitative data from the network survey were entered into Microsoft Excel in N*N matrices and later transferred to Gephi, an open source software for network visualization, for conducting further network measurements (Bastian, Heymann, and Jacomy 2009).

For **Paper I**, we worked with case narratives and used a set of five analytic categories that was proposed during the discussions among workshop participants as a starting point for qualitative analysis of the affective narrative expressions in the three different cases. The analysis for this exploratory comparative case study was primarily based on expert opinion from researchers who have worked in these locations for years, familiar with the literature and having an in-depth knowledge of the empirical case studies.

In **Paper III**, I followed the mixed-method single case study approach presented in Figure 4, where I combined qualitative with quantitative data analysis. I used data-driven thematic analysis to identify and evaluate patterns in the data (Braun and Clarke 2006). I inductively created six themes and 30 sub-categories from the material with which I re-coded all narrative interviews in a second coding iteration (See Annex Paper III for more detail). In a second step, this rich qualitative text data was converted into binary relational information for inferential network analyses in order to quantitatively test the hypotheses to advance understanding of what relational structures allow narrative congruence ties to emerge between each pair of actors (see subchapter 4.3). In a third step, the second co-author used the quantified qualitative data as input for inferential network analysis based on exponential random graph modeling (ERGM) techniques. The ERGM is a cross-sectional model where binary network ties (called edges) between actors (called nodes) are the outcome of interest. Specifically, an ERGM treats the presence (or absence) of a relationship between two actors as the dependent variable (see Annex Paper III for more detail).

In **Paper IV**, I concentrated mainly on the qualitative data from the transcribed narrative interviews and by using thematic analysis I was able to identify two contrasting narratives in the regional cooperation. Thematic analysis is a flexible tool for identifying and reporting patterns (themes) within data without compromising their complexity (Braun and Clarke 2006). I created a mind map with keywords that recurred in the narrative interviews and used this as a scheme to govern analysis of the qualitative material. Through rereading the interviews, I became familiar with the data and generated an initial set of categories by means of which I coded all interview material in a first round of coding. I then searched for overarching themes for the initial categories, and then reviewed the coding and pre-defined themes iteratively. After

reviewing, I defined and renamed the themes and re-coded the interview material in a second round of coding. Following this technique, I analyzed and distinguished between two narrative themes in the regional cooperation. I also applied this technique to explore identity constructions that participants used in the narrative interviews to describe what they felt to be typical in-group and out-group behavior. However, I relied for this part of the analysis on previously defined categories to code the interview material. I used the categorization by Wondolleck et al. (2003) to make a distinction between *unifying* and *distinguishing* characterization frames and combined them with *hero*, *villain* and *victim* characterizations from narrative theory to assess how participants from the regional cooperation perceive other members and to investigate how this influenced the social dynamics and social structure between actors in the regional cooperation (see subchapter 4.4 and Annex 4 for more details).

Photo 5. The Düte river in the Teutoburger forest, a designated Natura 2000 area

Chapter 4 | Summary of Papers I-IV

In this forth chapter, I will present and summarize the four papers underlying this thesis and the findings that address the research questions I presented at the beginning of the thesis. The full manuscripts can be found in the annexes. All papers contribute to answering the general research question: *How do the social dynamics between actors shape governance networks and how do these dynamics influence the effectiveness of collaborative governance arrangements?* These investigations allowed me to gain key insights into the phenomenon of concern, namely the *social dynamics of collaboration in environmental governance and management*. After restating the research question and objective underlying the respective paper, I then present and summarize the core parts of the paper and conclude by highlighting some key findings that resulted from the analyses.

4.1 Paper I

Published as: Chabay, I., Koch, L., Martinez, G. and Scholz, G. (2019). Influence of narratives of vision and identity on collective behavior change. *Sustainability 11*(20), 5680

Research question: How do affective narrative expressions influence transitions to more sustainable collective behaviors?

This first paper contributes to the general objective of the thesis but is a standalone paper, since it is not based on the case study outlined in Chapter 2 or on the research approach outlined in Chapter 3. With this paper, the authors aim to explore the dynamics of sustainability transformations and collective behavior change by means of a narrative approach. Societal transformations and collective behavior change are vital for embarking on paths toward sustainable futures in ways that are both globally coherent and locally appropriate to culture and context. However, a key challenge is to examine the influence of narratives on the dynamics of collective behavior change when it comes to sustainable practices as they have occurred and to anticipate how these might happen in different global contexts and cultures. This paper focuses on

narratives that express visions of desirable futures and narratives that reflect individual and social identities, on the cultures and contexts in which they are embedded, exchanged and modified, and through which they influence the dynamics of social change toward sustainability. The paper aims to investigate societal dynamics in diverse communities by focusing on narrative expressions of vision and identity and to explore how characteristics of affective narrative expressions influence transitions to more sustainable collective behaviors. We created five analytical categories to qualitatively evaluate so-called concise affective narrative expressions (CANEs) identified in three international case studies, these being a) associative plausibility, b) framing, c) normative affirmation, d) emotional identification, and e) motivational incentives.

The first case is located in the Caribbean islands of Guadeloupe and Martinique (part of the French Antilles) and relates to food security and sustainable agricultural production in the face of climate change. Before colonization, the population of the French Antilles mainly grew agricultural products for self-sufficiency in small gardens or on privately owned patches of land in so-called 'creole gardens'. Over the course of their lands' colonization by France, local communities were deprived of their autonomy and agricultural production was converted to the export of sugar cane, which has made the population dependent on imports of foodstuffs from France. But local communities have recently started to contest French hegemony over the national food sector, which is still entirely dependent on France, and have begun to call for a transition toward a more sustainable and self-sufficient agricultural sector and away from current monoculture methods. The narrative in this case relates to people's collective memories of creole gardens where communities engage in peasant agriculture and produce crops for their own consumption, which in turn sustains services that support the region's ecosystems. Their hope is for a future of sovereign agricultural production coupled with a strong cultural identity on the part of the creole community.

The second case is located in Tamil, a municipality of Yap State in Micronesia, and deals with sustainable management and consumption of marine resources. Community members have traditionally managed their fish and animal stock in areas designated for each family. Over time however, people found that their resources were shrinking,

which made it harder to secure their livelihoods. A conservation group called Tamil Resources Conservation Trust (TRCT) was formed in consultation with the community's elders and members, and this was formally designated as an NGO by the Yap State's government in 2013 before swiftly adopting its first environmental management plan. The TRCT management plan is connected to and reconstructs the narrative about the local identity of fisherfolk, the role of families, about management practices and traditional methods of conservation. It recognized the need for an integrated management approach that acknowledges the connections between terrestrial and marine resources and their conservation, and has fostered an approach to a healthy natural heritage for the well-being of the future Tamil populace.

The third case also deals with sustainable management of fish resources, in this instance in the Salima region in Malawi, and illustrates the historic evolution of a seasonal fishing ban put in place to safeguard the livelihoods of fisherfolk in the face of thunderstorms that occur during the rainy season, a ban that was later institutionalized. The narratives range from experiences of risk to the everyday lives of fisherfolk, and looks at how the ban has contributed to a more sustainable management of fish stock resources. The research findings affirmed locals' pride in their fish stocks and draws links with the villagers' traditional values and social structures, with many narratives focusing on the preservation of local customs.

Narratives of vision and identity were found in the case studies to accompany sustainability transitions, to foster changes in collective behavior, and to influence and reflect the social underpinnings of people's hopes and moves toward a more sustainable future way of life. We discuss how the characterization of narratives can be used to construct models of social dynamics, for example in agent-based models. Narratives can arguably inspire new approaches to modeling societal dynamics by exploiting previously underused or intermittently unavailable knowledge to design and specify model assumptions. Besides approaching people's stories as an invaluable source of qualitative data for developing our own model, it seems clear that building and testing models can offer a way to discuss, specify, and experiment with theoretical considerations regarding narratives and their motivating and transformative power for sustainability movements.

We derived four key findings from this research:

- Narratives of vision and identity are often reduced to an abbreviated, but strongly affective narrative expression, such as a slogan, song, dance or image, which is memorable and readily communicable across the community and beyond.
- These abbreviated forms can be characterized as concise affective narrative expressions (CANEs), which consist of an excerpt from the complete narrative to serve as a memorable, easily communicable, and affective verbal or visual representation of the core message.
- CANEs are received or rejected by individuals in a community depending on whether the CANE accords with the five characteristics devised by the researchers and to what degree those characteristics match the receptivity of the individual.
- The researchers propose to construct and test social dynamics models grounded in qualitative narrative expressions of vision and identity to enhance our view of the dynamics of social movements with respect to the case study communities' moves toward more sustainable futures.

4.2 Paper II

Published as: Koch, L., Gorris, P. and Pahl-Wostl, C. (2021). Narratives, narrations and social structure in environmental governance. *Global Environmental Change 69*, 102317

Research question: How do narrations influence the social structure, and vice versa, between diverse actors involved in collaborative approaches in local and regional environmental governance and management?

This paper outlines the conceptual foundations on which I base the study of the social dynamics between actors involved in collaborative governance and management arrangements. In the paper, I call these arrangements environmental governance entities (EGEs). These refer to a group of actors involved in collaborative approaches to develop, negotiate and implement environmental governance measures that aim to resolve environmental problems, adapt to the impacts of environmental change or

transform existing practices and behavior. An EGE comprises organizational entities, such as co-management arrangements, as well as less formally constituted bodies such as loose networks coming together around an issue, communities of practice, associations, civic movements and other groupings.

In Chapter 1 of this thesis, I defined social dynamics as the mechanisms in an actor network that alter the relational structure between actors or the discursive meaning-making of actors. Therefore, I combine narrative theory and network theory to paint a more detailed picture of the social dynamics involved. The conceptual framework highlights three key mechanisms that influence social dynamics and the emergence of narratives in EGEs: (1) The interplay between narrative congruence and collaborative relationships between individual actors, (2) the characteristics of actors, and (3) the actors' embeddedness in the wider social structure. Figure 5 illustrates these dynamics. The social relations between actors in EGEs in combination with the stories these actors tell are viewed in terms of a co-producing of narratives and social dynamics (Fig. 5 refers to group dynamics) at the group level. The ensuing narratives and social dynamics influence the effectiveness and image of the EGE and affect the EGE's capacity to deal with the problem in hand. The interdependent relationship between social dynamics and existing narratives in turn influences the social relationship between two actors and their narrations (Fig. 5). Thus, the concept narratives/narrations and the notion of actor relationships/social structure become key in investigating the social dynamics of collaboration.

In this framework, narratives are distinguished from narrations based on a scale dimension, i.e. group level versus direct social relationship, and a temporal dimension, i.e. enduring cultural artifacts versus ephemeral individual interpretation. Thus, narratives are viewed as shared cultural artifacts that are always in the process of being jointly constructed while they also constitute emerging cultural products created, transmitted and transformed through individual narrating activities. Narrations on the other hand are seen as individual experiences or perceptions of reality by way of emplotment, i.e. the active process of categorization and identification, the positioning of the narrator in relation to other people, and the weaving of events and themes into an established narrative pattern (plot) with a distinct logical flow. With the help of this narrative approach, the specific life context

of an individual actor can be studied – for example, how an actor perceives collaboration with the local Nature Protection Authority (NPA) and which past events have decisively influenced the present situation.

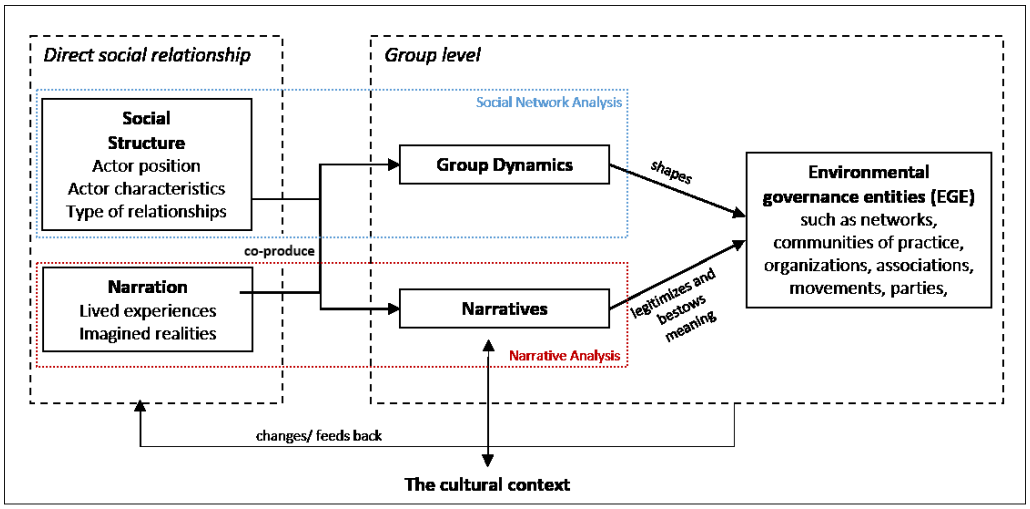

Figure 5. A conceptual framework to study the mechanisms that shape dynamics and the formation of narratives based on the interplay between narrating and the social relational structure of actors involved in environmental governance entities

Furthermore, the framework focuses on social structures generated by actors in EGEs and identifies two types of relation that connect the actors involved in an EGE. The first type of relation is based on the notion of narrative congruence and represents the similarity between two narrations. The degree of similarity then determines the strength of the tie (high, medium or low). Hence, narrative congruence as used in this framework is a non-directionally valued tie. The second type of relation between two actors in the framework represents a cooperative and affective relationship that forms the basis for collaboration in EGEs. The degree of affection, for instance, based on the judgement of one actor toward another (and vice versa), determines the strength of the narrative congruence tie (low, medium or high). This can be operationalized as either a directionally or a non-directionally valued tie based, for instance, on the average value of the two directional ties between the actors. Based on this combination, seven hypotheses were suggested in this paper to illuminate the phenomena that influence the social dynamics and the emergence of narratives in EGEs.

This integrated framework has the potential to offer a complementary perspective on dynamic processes from the bottom-up by including and studying specific life contexts of individuals embedded in varying social and ecological systems. This can involve dynamic processes related to environmental governance, transformation or adaptation to environmental change. Previous research has shown that social circumstances and cognitive constructs exert impacts on adaptive behavior, although the mechanisms that underpin these phenomena are not fully understood. An added narrative approach in such research may offer additional value by providing insights into the opportunities and potential hurdles faced by actors and may provide an indication of how these could be overcome. Moreover, combining narrative and network research allows us to trace the antecedents of social structure and why and how actors relate to each other in EGEs. Transformations are often attributed, for instance, to leaders with the ability to build relationships of trust, who can offer new ideas and forums and who can create and communicate a vision. Combining investigation of narratives with research on social relations allows us to holistically investigate the characteristics of specific roles in actor networks, allowing us to look, for example, at what it takes to be a leader who coordinates other actors in an EGE. Altogether, this framework helps in examining environmental governance processes

from an interdisciplinary angle by applying a systematic yet context-sensitive approach.

The following key findings highlight the most important assumptions addressed in this paper:

- Narrative congruence – the similarity between two narrations – is viewed as a social tie between two actors and can be low, middle or high.
- Actors aspire to co-create meaning with one another and this influences the strength of the affective ties between them over time.
- Narrative congruence depends not only on the content of narrations but on the rhetorical skills of a narrator; these affect degrees of congruence and are influenced by the characteristics of the actors involved.
- Narratives are viewed as serving to bridge boundaries between members of an EGE, even in cases when two actors might not interact with each other but who are indirectly linked through their relationships and interactions with others.

4.3 Paper III

Submitted as: Koch, L., Gorris, P., Prell, C. and Pahl-Wostl, C. (in review). Communication, trust and leadership in co-managing biodiversity: A network analysis to understand social drivers shaping a common narrative. *People & Nature.*

Research questions: Which types of ties correlate with high narrative congruence? Which leadership roles correlate with high narrative congruence? How does context influence the emergence of a common narrative?

This third paper investigates the relational drivers that shape the emergence of a common narrative. It starts by outlining that the conservation of biodiversity has increasingly built on decentralized co-management approaches aiming to develop a learning environment for governments and resource users on how to address and deal with biodiversity loss on the ground. Communication – the creation, interpretation and transmission of meaning in a social context – lies at the heart of every co-management

process and represents the exchange of information as well as a relational process. Narratives are part of human communication to organize meaning, and narrating is a crucial tool for making sense of personal experiences and sharing them with others. Especially in contested environmental and development contexts, narrating and narratives play an essential part in arriving at a consensus, and a shared vision for future action is regarded as a pivotal form of guidance for the evolving process. Nevertheless, research to date has not yet determined what social configurations in a co-management context drive the emergence of a common narrative. Building on the conceptual framework presented in Paper II, this third paper examines which social drivers shape the emergence of a common narrative in co-management arrangements.

We explore the existence of a common narrative with the help of narrative congruence, which relates to similar features in the narrations people tell. Narrative congruence – or the degree of similarity between two (or more) narrations – embodies the resemblance of meaning-making and cognitive representation expressed in verbal communication. The degree of similarity between two narrations can be pictured on a scale of low to high narrative congruence. Our overall assumption motivating this article is that we expect that *(i)* the type of social relations between actors (frequent interaction and reciprocated trust), as well as *(ii)* the specific leadership roles of an actor embedded in a network (popular, trusted or connecting leader) correlates with the degree of narrative congruence between two actors – to investigate these propositions more closely, we pose and test five hypotheses.

We follow the methodology outlined in Chapter 3 and apply it to the case study described in Chapter 2 of this thesis. We find that frequent interaction between two actors and a trusted leader with many reciprocal ties of trust are significant drivers that support the emergence of narrative congruence ties. The control variables furthermore suggest that common narratives tend to occur in sub-groups of the regional cooperation, and that these sub-groups with common narratives are not necessarily composed of actors sharing similar nature-related beliefs and values, nor are the actors in these groups of the same kind in terms of state vs. non-state actors. Against our expectations, connecting leaders, i.e. actors in brokering positions, show a statistically significant negative correlation with narrative congruence ties. Taken

together, the quantitative results suggest that common narratives tend to emerge in sub-groups around a highly trusted leader, where actors talk frequently to each other.

We substantiate the quantitative ERGM results with findings from the qualitative data which draw links to subjective perceptions of participants that we elicited in the narrative interviews. Overall, the qualitative empirical data analysis shows that actors in the regional cooperation assigned very different meanings to biodiversity, good cooperation and environmental management or the rationale for nature conservation, and showed little willingness to seek alignment between various experiences to translate these into shared objective realities – a common reality in Natura 2000-related policies. Consequently, there were tensions and stigmas held about the "other side" being untrustworthy and unfair, not listening and not valuing the speaker's own viewpoints and dismissing other ways of approaching an issue. These "us versus them" dynamics have been toxic for the collaborative atmosphere of the regional co-management process so far. These dynamics are however exemplary for many environmental governance processes that involve diverse groups in contested negotiations, and especially in the context of Natura 2000 management planning. We argue instead that the existence of a common narrative can serve as a glue for collaborative dynamics to overcome unspoken boundaries and to consider potential trade-offs of collaboration to bundle capacities for joint action.

The following key findings highlight the most important points for the following synthesis of research papers:

- The analysis of the case study suggests that common narratives emerge in heterogeneous sub-groups connected through a highly trusted leader, and where actors talk frequently to one another.
- No significant correlation was found between trust relationships and narrative congruence ties, which suggests that trust was less of a determinant in the emergence of a common narrative in the case study.
- We reflect on the role of a brokering leader and can support previous findings that actors, who are embedded in bow-type structures (brokering across cliques), will find it difficult to conform to the norms and expectations of the varying cliques. This conclusion relates to the finding that the regional manager in our case study was trapped in an in-between position where he

had to make concessions to both sides, yet through whom neither side approached the other.

- We found the mixed-method approach a particular strength of the study in retrospect, as the rich qualitative information not only provided a host of opportunities to contextualize the results, but especially the interplay between quantitative and qualitative approaches necessary for applying this innovative research method gave an advantage in developing and testing succinct hypotheses.

4.4 Paper IV

Koch, L. "Us versus them" mentalities in Natura 2000 forest management: Narratives, identity construction and a culture of conflict. [Manuscript]

Research question: How do narratives and identity constructions shape the dynamics between actors involved in collaborative governance and management arrangements?

As a follow-up to paper III, I deal in this paper in more detail with the "us versus them" dynamic between actors involved in the regional cooperation tasked with facilitating Natura 2000 implementation in local forest management (see Chapter 2 of this thesis). Since this legislation was adopted in 1992, disputes and controversies between the perspectives of retention versus economic use of forest resources have accompanied the implementation of Natura 2000. Local administrators have started to recognize that the success of Natura 2000 depends largely on the acceptance of and cooperation with private forest owners and have therefore initiated many collaborative partnerships with other state actors and affected stakeholders on different scales to facilitate implementation at a local level. Applying a collaborative approach to Natura 2000 implementation is however no panacea for smooth processes and broadly accepted ways of putting policies in place. On the contrary, collaborative governance arrangements tend to be dynamic, contingent processes characterized by struggles over meaning and competing narratives, blurring of roles and responsibilities due to decentralization, and an entangling of cooperation and conflict in actor relationships. Research to date has not yet fully identified the phenomena underlying the social

dynamics in collaborative governance arrangements and how to navigate these to generate more effective collaboration.

This paper aims to explore the influence of narratives and identity constructions on the social dynamics between the participants involved in the regional cooperation. I relied in this paper on the method of narrative interviews as well as on social relational data from questionnaires. Narratives are an important communicative tool and carrier of meaning that actors use in order to simplify complex issues, create legitimating missions and to navigate high levels of uncertainty, complexity and polarization. Ascribing actors in a narrative certain roles is a powerful tool for allocating responsibility and blame and to justify reasons for a certain action. How actors view and characterize themselves and others is a key component of these social dynamics as well. People tend to favor others whom they perceive as more similar and consider them part of the in-group, while they tend to reject people they perceive to be different and therefore belonging to an out-group. Positive characterization frames often arise to emphasize a connection with others (prototyping), while negative characterization frames stress a protagonist's perceived differences from these individuals or groups (stereotyping). Positive and negative characterizations promote social cohesion with members of the in-group or tension with and exclusion of members of the perceived out-group, and fosters "us versus them" mentalities. These characterizations will play a pivotal role in the constructions of identities, in the intractability or resolvability of a conflict and will eventually influence the social dynamics of actor collaborations.

Through thematic analysis, I argued that the narrative of **social responsibility of private property** of NPA representatives competed with the narrative of **imposed restrictions and losses** of affected stakeholders over power and competency in determining proper management planning in the Natura 2000 areas. The manifold problems associated with collaboration in the regional cooperation coincided with antagonistic characterization frames, highlighting "the others" as villains, that over time led participants to develop an "us versus them" mentality and an institutionalized 'culture of conflict' dynamic in the regional cooperation. The qualitative analysis of the interview material suggested the presence of deeply entrenched divides between NPA

representatives, other state actors and stakeholders that even a regional manager, hired specifically to mediate between these groups, could not bridge.

From the qualitative analysis, I suggest the existence of a so-called bow-type structure in the regional cooperation. This is a polarized structure, where one bridging actor connects two enclosed sub-groups of the network. The polarization that manifests in the two opposing narratives and negative identity constructions of participants is however not reflected in the relational structure that I gleaned from the social network analysis of the questionnaires. On the contrary, the reported relations point to a network structure where regular exchange between heterogeneous sub-groups takes place and several central actors coordinate the activities of the regional cooperation. This highlights an inconsistency between the structural and mental mechanisms underlying the social dynamics in the regional cooperation. Participants of the regional cooperation have thus seemingly managed to develop structural capacity via regular exchange ties. Nevertheless, they have so far failed to develop the cognitive tools – referred to in paper III as a common narrative – needed to achieve their set objectives and to come to a consensus around the design of Natura 2000 forest management plans. This suggests that the regional cooperation as a governance network plays a vital part in sustaining recurring interactions between adversaries despite the fact that the actors involved have so far been unable to resolve internecine conflicts and to transform a provocative into a peaceful atmosphere. Although some collaborative arrangements seem to be continually undermined by intractable conflicts that even the best trained facilitators cannot mediate, the findings from this paper suggest that co-managing forests for conserving local biodiversity is a vain endeavor and that the process still needs nudging to overcome mental barriers and to move from “us versus them” toward “us and them” attitudes and ways of working.

The paper contributes four key messages to the study of social dynamics between actors in environmental co-management:

- The contested nature of Natura 2000 legislation is reconstructed between participants of the regional cooperation in two competing narratives that fuel conflicts between state actors and affected stakeholders.

- All actors engage in blaming and shaming patterns, with mistrust and suspicion overruling deliberative processes in the regional cooperation, which over time has become an accepted and institutionalized “culture of conflict”.
- This polarization is however not transferred into the relational structure of the regional cooperation which, looking at the results of the questionnaires, is seen as a network “supported by many shoulders”, where the actors involved are familiar with one another and several coordinators and mediators among the actors ensure extensive exchange between the participants.
- This highlights an important inconsistency between the structural and mental mechanisms underlying the social dynamics in the regional cooperation.

Photo 7. Small mosaic structures characterize the cultural landscape in the district of Osnabrück

Chapter 5 | Synthesis, Reflections and Recommendations

This concluding chapter focuses on synthesizing the research findings and critically reflecting on the research approach. First, I come back to the research questions that I posed in Chapter 1 and addressed in Chapter 4 by highlighting and combining key insights from my findings. I then reflect on the research approach, including the conceptual framework and methodology, and on limitations underlying the relational narrative approach. I end this dissertation with recommendations for further research possibilities and for policies regarding the design of potential collaborative management initiatives with stakeholders that may help enhance the implementation of Natura 2000.

5.1 Three key insights for the study of social dynamics

A central topic and aim of this thesis has been the study of the social dynamics of collaboration in environmental governance and management. I defined collaborative environmental governance as an "intersubjective and relational world, where one or more public agencies directly engage non-state stakeholders in a collective decision-making space, in which many different meanings and narratives circulate and compete in a formal, consensus-oriented and deliberative process that aims to make or implement public policy or manage programs or assets." Governance networks are depicted as important for these forms of governance in their capacity to exchange knowledge and to learn from each other (Pahl-Wostl 2009; Teodoro, Prell, and Sun 2021), for strengthening trust and social capital between heterogeneous actors (Barnes-Mauthe, Oleson, et al. 2015) and for bridging between scales and disconnected sub-groups (Gorris et al. 2019).

However, I have argued in the introduction that the social dynamics between actors involved in governance networks are not yet fully understood. These social dynamics need to be examined more closely because they influence the quality of interactions among involved actors and therefore determine how effective governance networks are in addressing environmental problems or in steering their policies toward sustainability transformations. This thesis therefore attempts to address this gap. The

social dynamics in actor collaborations are defined here as the mechanisms in an actor network that alter the discursive meaning-making of actors or the relational structure between actors. Tensions over meaning and competing narratives in discourses (Koch, Gorris, and Pahl-Wostl 2021; Chambers et al. 2022), the blurring of roles of authority and responsibilities due to decentralization (Schneider et al. 2003) and an entangling of cooperation and conflict in actor relationships (Bodin, Garcia, and Robins 2020) underlie the mechanisms influencing the social dynamics of collaboration. Hence, I argued that a more nuanced understanding of these mechanisms calls for interdisciplinary research approaches and a multiple network perspective in social network analyses.

This thesis made use of a mixed-method case study that integrates a qualitative narrative approach with notions taken from quantitative social network theory and its associated methodology. I referred to this research design as the relational narrative approach, grounded in the theory of symbolic interactionism that highlights the entanglement of meaning found in the stories people tell and which is manifested in the social structures of collaborative governance arrangements. The results of this cumulative thesis were presented in four research papers. Paper I is a standalone paper and dealt with the interdependency between narratives and social dynamics in three different international contexts. It investigated how concise affective narrative expressions (CANEs) of visions and identity accompany social movements or societal transitions and drew on three international case studies, which differ from the case study described in Chapter 2. The framework developed in Paper II presented the conceptual foundation for the relational narrative approach on which I built the subsequent empirical Papers III and IV. These papers highlight insights and points for discussion that should be worth discussing and researching further. However, I decided to focus here on three key insights I learned from conducting this research in the following synthesizing discussion.

5.1.1 Key insight 1

THE SOCIAL DYNAMICS OF COLLABORATION ARE OMNIPRESENT, INTANGIBLE FORCES WHOSE MECHANISMS INFLUENCE MULTI-ACTOR INTERACTION IN COLLABORATIVE GOVERNANCE AND MANAGEMENT.

Despite much of the literature on stakeholder participation, collaborative governance, knowledge co-production and social learning emphasizing the struggles between influence and control versus empowerment, the scientific debate usually concentrates on the normative claims and merits of collaboration while aiming for best practices and 'lessons learnt' guidelines, without adequately reflecting the efficacy or failures of collaboration or the influence of politics on the social dynamics of collaboration (Turnhout et al. 2020; Wyborn et al. 2019). Certainly, there are ingredients of success to take account of before and during any process of multi-stakeholder collaboration to ensure its quality or reflect on trade-offs of participation methods (Garard, Koch, and Kowarsch 2018; Reed et al. 2017; Cockburn et al. 2020). However, unexpected incidents can positively and negatively influence interactions among the actors involved and affect collaborative ways of working and their outcomes. Hence, processes of collaboration are shaped by emergent relational features deeply entwined with the context, the struggles and the discourses of the collaborative process, e.g. the changed roles and responsibilities, new trust relations, new dislikes, altered positions of power or changing perspectives of actors (Wittmer, Rauschmayer, and Klauer 2006). These emergent features make collaboration an inherently dynamic process, which is difficult to anticipate and to steer toward pre-defined objectives. A lesson that emerges from this thesis is that collaborative governance and governance networks require the initiator of the process to follow an adaptive, "go with the flow" attitude instead of a rigid planning approach to ensure effectiveness. Past research has however shown that this is sometimes difficult for people from public authorities, who often play a leading role in policy implementation and operate and communicate according to a linear planning logic, resulting in problems between state and non-state actors occurring that hinder their collaboration with one another (van Herzele and Aarts 2013; Van Herzele, Aarts, and Casaer 2015; van der Stoep, Aarts, and van den Brink 2017).

The case study underlying this thesis clearly highlights, for example, that the Nature Protection Authority (NPA) and the representatives of the private forest in particular find it hard to work together, because both parties reproduce narratives based on perceptions of the other group as not being collaborative, leading to a perception of "sides" in constant disagreement with each other. Members of both groups concentrate in the narratives they tell on the differences between the groups rather than spending time and effort on seeking common ground or accepting their differences and moving on from previous conflicts. For instance, when talking about objectives for the regional cooperation, NPA representatives state what their agenda is, why they think the implementation of Natura 2000 is important and how private forest owners have hindered the implementation. Additionally, some interviewees stressed how much pressure the NPA is under from higher policy levels regarding the slow implementation process of Natura 2000. Sometimes NPA actors also add how private forest owners can adapt to suit the Natura 2000 agenda. On the other side, private forest owners often view themselves as victims of a bureaucratic state, because Natura 2000 policy has been imposed on them and they have to foot the bill for a social good such as nature conservation. To cite Chambers et al. (2022) in their meta study on knowledge co-production processes, for the regional cooperation I conclude there is "too much time [spent on] debating which agenda for change is best, and too little time considering how to facilitate better interactions among different agendas" (*ibid*, p. 13). This on-going conflict may partly be due to the fact that the cooperation between the various parties is not open-ended, but rather that the goals and pathways for nature protection are largely determined from the outset at higher policy levels and are consequently seen by some as a 'top-down' imposition. As mentioned in Paper 3, I sometimes observed a tendency in the regional cooperation meetings to close down debates quickly, presumably because of the worry that discussions could quickly turn into emotional debates over who is the villain and the victim, as had previously happened. As Paper I argued, deliberation about how differences in perspectives and visions could be integrated in a commonly agreed-upon narrative could settle historical conflicts between participants of the regional cooperation. However, for now, participants of the regional cooperation have tended to engage in power struggles over the validity of various viewpoints and their differing

perceptions of Natura 2000 management, which has left little room for co-creating common agendas or objectives.

This is why the NPA employed a regional manager when the regional cooperation was first set up, to mediate between the sides. Facilitative leadership is essential for nudging social dynamics toward empowering and constructive dialogues to generate a positive and productive atmosphere between the actors involved (Olsson, Folke, and Hahn 2004; Ansell et al. 2020; Sjölander-Lindqvist, Johansson, and Sandström 2015). However, as I argued in Paper III, the performance of the regional manager as a mediator and facilitator between state and non-state actors has not fulfilled expectations in this regard. The regional manager was unable to achieve a willingness to cooperate on the part of either sub-group, NPA state actors and private forest owners. This willingness is dependent on the participants' openness and trust toward the regional manager, which is hard to predict and take into account before the process starts. Much time, effort and resources can be spent on mediating between adversaries, but in the end the influence of a brokering actor is limited if these adversaries cannot find a common ground and always feel misunderstood by each other, because interactions are oriented along binary mental poles of "opportunity/threat" or "us/them" (Paper IV; Van Herzele et al., 2015). The recruitment of a broker, in this case the regional manager in the regional cooperation, would in theory help communication and trust to develop only if there were a willingness to cooperate between the actors, who still seem starkly polarized in their attitudes and positions.

In terms of this extreme polarization between NPA actors and private forest owners, Paper IV suggested that all the actors were engaged in blaming and shaming communication patterns during the regional cooperation meetings. Mistrust and suspicion outweighed deliberative processes in the regional cooperation, which over time became an accepted, institutionalized 'culture of conflict' despite the NPA's opposing aim to develop a constructive dialogue with private stakeholders. It would be advisable not to neglect these hostile dynamics in collaborative governance arrangements for long, as this could mean risking the process becoming a "dialogue of the deaf" where no one listens to what the others have to say and thus a consensus in the form of a common narrative can never emerge. Furthermore, the range of possible

management strategies for Natura 2000 areas in forests was constrained by the hostile and mistrustful relationships between the actors in the regional cooperation. Making these dynamics visible through research that digs deep for qualitative data regarding what lies beneath the surface of collaborative governance arrangements gives us a closer insight into these phenomena of trust, conflict and (mis)communication, and may help us devise strategies for how to manage tensions that emerge during interactions between differing actors and for how to navigate these tensions in order to find common visions for sustainable transformation.

5.1.2 Key insight 2

INTANGIBLE SOCIAL DYNAMICS CAN BE RESEARCHED AND OBSERVED THROUGH THE INVESTIGATION OF NARRATIONS TOLD BY AND RELATIONAL STRUCTURES BETWEEN THE ACTORS INVOLVED.

First, it is a challenging endeavor to study the intangible social dynamics between actors involved in collaborative governance and management. Secondly, understanding the mechanisms underlying the social dynamics in governance networks poses a challenge for traditional disciplinary approaches. This difficulty is related to the fact that the social dynamics are influenced by context-sensitive phenomena and events, which arise partly as a result of historical and cultural contexts and partly due to the broader societal discourse in which the governance network is situated, the characteristics, personalities and experiences of actors, and the recursive interactions between these actors. The applied relational narrative approach enabled me to gather ample evidence to describe the social dynamics of collaboration in the regional cooperation. This evidence helped me in developing a contextualized view of the intangible dynamic forces operating in collaborative arrangements such as the regional cooperation.

On the one hand, research into discursive dynamics by means of a narrative approach embraces and reveals much of the complex meaning that is reconstructed by individual participants and which circulates in a governance network. Narrations from individual actors are carriers of a construed meaning based on past experiences, attitudes, norms, identities, worldviews and sense-makings on the part of each actor (Bietti,

Tilston, and Bangerter 2018). Narratives are patterns of thought and interpretation that an individual applies to the surrounding world in order to explain it. The merit of a narrative approach in these contexts is that it enables researchers to collect the single puzzle pieces (the subjective meaning-makings from individuals) from all participants and then put them together into a complete picture of the collaboration as a whole (the collective meaning-making). Furthermore, analyzing narrations of individual actors enabled me to identify patterns in the communicative actions of participants from the regional cooperation that continuously reproduced conflict instead of cooperation and which hence had a decisive impact on the implementation of Natura 2000 management plans in the case study area.

On the other hand, research on the structural configurations between the actors involved reveals the type, frequency and "sense of quality" of the relationships actors have with one another. This "sense of quality" is substantiated by the rich qualitative data of the narrative material that situates the relationships in their context. Paper I, for instance, deals with narratives circulating in a community and emphasizes that groups create narratives to reinforce their own culture and coherence as a community by accessing past and present experiences to shape an idealized future. Moreover, the results of Paper IV, for example, highlight an inconsistency between the structural configurations of the relations that participants have with each other and the polarized conflicts that are discursively reconstructed and which shape the social dynamics in the regional cooperation. The institutionalized conflict that participants from the regional cooperation regularly reproduce in the stories they tell does not resonate with the type and structure of relationships that actors share. Relational research furthermore identifies structural patterns that can be systematically compared with collaborative arrangements in other contexts. Lastly, it helps in focusing on a few key hypotheses and in deriving general rules from observations of the social dynamics of collaboration from a complex data set. In sum, the relational narrative approach provides a systematic yet context-sensitive approach to studying the social dynamics of collaboration.

5.1.3 Key insight 3

COMMON NARRATIVES EVOLVE AROUND A TRUSTED LEADER AND NEED FREQUENT ENCOUNTERS AND TIME TO EMERGE FROM THE COLLABORATIVE PROCESS.

I have emphasized and discussed the importance of a shared narrative several times in the papers and in this thesis. Other collaborative governance frameworks, social learning models, transition management frameworks and co-design approaches share the assumption that a common understanding of a problem is essential if collective action is to happen (Hvitsand et al. 2022; Heikkila and Gerlak 2013; C. Ansell and Gash 2008). However, discourse theory has contributed the notion that this common understanding is limited by the interplay of language, identity and power. Narratives, when approached as patterns of thought and interpretation that people use to explain their surrounding world, provide a framework for how to define the possibilities and how to frame the problems perceived as well as shaping the presentation of solutions to a problem and context (Viehöver 2001). Hence, narratives influence which priorities are set and which courses of action are taken into account, which Pahl-Wostl (2009, 357) refers to as "cultural-cognitive institutions that can be identified with […] system understanding, how boundaries are delineated, the search space for problems and solutions".

In light of these ideas, I assume in this thesis that any collaborative approach that involves diverse actors needs a common narrative as a uniting social and cognitive construct in order for an explanation of reality to be adequate. This means various actors reconciling differences and helping to co-create future visions and paths for collective action toward an acceptable future. In the conceptual framework in Paper II, I described this as the meaning embodied in a narrative evolving as the symbolic glue for the governance network and as legitimating collective action. Furthermore, the results of Paper I add the observation that actors interacting in collaborations rarely communicate a narrative in its complete form, but often reduce it to an abbreviated, but strongly affective, narrative expression that is memorable and readily communicable across the community and beyond. These were termed concise affective narrative expressions (CANEs) in the paper. Thus, another lesson in this thesis is that CANEs might be quite powerful in some collaborations and contested contexts, as they allow the receiver a broader interpretative freedom and for higher

"plurivocity" of actors (Lejano, Ingram, and Ingram 2013) – in other words, a greater chance for multiple voices to express themselves and be heard. Individuals tell stories according to what fits the specific contexts of their lives, but these narrations are integrated into the larger context of legitimating narratives, whereby people relate to narratives by adopting and concretizing them, by reinterpreting and thereby changing them, or by consciously rejecting them, distancing themselves from them and/or developing new narratives (Koch, Gorris, and Pahl-Wostl 2021). However, as discussed in the introduction, arriving at this common ground in the form of an agreed narrative presents a challenge for the participants of many collaborative processes who are often involved in struggles for power and reconstruction.

In this thesis, and from a relational perspective, I therefore investigated the social relational drivers that shape the emergence of a common narrative in the context of the regional cooperation. Although I argued that participants of the regional cooperation have not yet managed to agree on such a common narrative, the ERGM results in Paper III suggested that common narratives emerge in heterogeneous sub-groups connected through a highly trusted leader, and where actors talk frequently to each other. The results in Paper III support many previous studies on adaptive co-management, stakeholder participation and social learning, which especially point to regular interaction and discussion as key determinants of successful collaborative processes (Reed 2008; Heikkila and Gerlak 2013; Newig et al. 2017; Cundill and Rodela 2012). Nevertheless, insights from Paper III point to something more than just process-related factors. Paper III highlights and confirms previous results on the importance of leaders in governance networks, namely that they are central players in the collaboration with many shared ties of trust with other actors, who are able to co-create common narratives (Olsson, Folke, and Hahn 2004). The results of Paper III suggest that this is not the case for actors who merely share frequent interaction ties with many other actors. This suggests that before a common narrative can emerge out of interaction, these central actors in leadership positions need to create a safe space characterized by an open, equal and trusting environment in which actors are encouraged to speak out, share their narration and their own ideas for change and innovation toward sustainability, and perhaps even to challenge old ideas and ways of thinking and to refute their own assumptions. A perceived shared identity grounded in a common narrative (for example, emphasizing that "We're all in the same boat")

can help to ensure these kinds of safe space, and Paper IV argues that a superordinate "we" identity built on inclusiveness and common grounds or in relation to a more broader topic of concern can help to overcome differences and divides (Colvin, Witt, and Lacey 2015). Eventually, regarding the emergence of common narratives, it comes down to how easy it is to influence or persuade another actor in the governance network, and this social influence can be greatly facilitated by a trustful and charismatic person (Paper III). Thus, struggles over power in collaborations can be resolved by the emergence of a perceived common social identity that leads to trustful safe spaces that iteratively help in the co-design of common narratives.

Lastly, the case of the regional cooperation is just one example that shows how it takes time and effort to collaborate on developing grounds for a common narrative. The regional cooperation and the regional manager started their work in March 2017 and, five years on, the participants have still not managed to approach each other's positions on important decisions for the management planning of Natura 2000 areas and to co-create joint intersections. Thus, it becomes clear that diverse actors need time to develop a common narrative. The "engineering" or deliberate creation of a new narrative for a group is difficult, because narratives are products of social processes and thus are an interactively socially generated product that shapes the group in concert. If a newer narrative does not find broad resonance in the group, it will not be taken up and developed into a common narrative.

5.2 Reflections on the research approach

In chapters one and three, I set forth my conceptualizations about the social dynamics of collaboration, as well as the methodologies and approaches I used. In this section, I reflect on these conceptualizations, methodologies and approaches, highlighting the advantageous and disadvantageous aspects of the relational narrative approach.

Conceptualization of social dynamics

As already mentioned, social dynamics is an abstract concept that is difficult to operationalize because it can be studied and interpreted in many different ways (depending also on the disciplinary background a researcher has). Therefore, the social dynamics underlying interaction in collaborations are hard to grasp empirically. The

large field of group dynamics research has relied on various methods in the past to overcome inherent methodological flaws in single approaches (Forsyth, 2019). Additionally, empirical studies of social dynamics in the context of environmental governance and management are spread across various disciplines, but mostly addressed by scholars who approach social dynamics as (social) learning processes (Heikkila and Gerlak 2013; Wenger 1999). This is because social learning is viewed as itself a dynamic process that occurs between various actors, who first need to change prior assumptions in order to reach a consensus as a basis for collective action to happen (Pahl-Wostl and Hare 2004; Reed et al. 2010). I did not completely disregard social learning processes in my conceptualizing of social dynamics, focusing instead on the communicative and relational processes between individuals in interaction, which can lead to social learning between various actors involved. I therefore paid particular attention to the narrations that individuals tell because these play a central role in interpersonal communication and are a key carrier of the meanings and the mental models that actors make in order to simplify complex issues, create legitimating missions and to navigate high levels of uncertainty, complexity and polarization (Roe 1994; Koch, Gorris, and Pahl-Wostl 2021; Scholz, Dewulf, and Pahl-Wostl 2014). Studying narrations and narratives moreover helped me interpret the kinds of "cognitive filter" that participants in the regional cooperation use to make sense of the statements and actions of others. I also evaluated social structure by means of social network analysis to examine the dynamic phenomenon of relationships changing between actors. Even though I disregarded the concept of social learning at first, the relational narrative approach can still be smoothly integrated into an analysis of social learning processes between actors and could make an important contribution to the study of emergent learning in actor networks and the opportunities and challenges relating to sustainability transformations. Some scholars working on social learning processes divide the concept of learning into cognitive and relational dimensions and therefore links to this area of research can easily be found (Rodela 2011; Lumosi, Pahl-Wostl, and Scholz 2019; Newig, Günther, and Pahl-Wostl 2010).

Flexible research design and bounded relativist paradigm

As described in the previous chapters, I decided to follow an exploratory mixed-method research design to explore the complex aspects of the social dynamics of

collaboration in environmental governance and management. I also followed this more exploratory route because it was initially difficult to anticipate interesting and relevant research questions from an integration of narrative research social network analysis. Additionally, weaving two strands of research that are grounded in two different research paradigms – qualitative and quantitative – and then integrating conceptualizations and analyses from both strands proved to be a major challenge.

Mixed-method research designs commonly base their approaches on a pragmatic research paradigm to integrate methodologies from various fields and disciplines in a meaningful way because pragmatism claims to disregard traditional notions of ontology and epistemology, instead emphasizing the importance of different methods in addressing a research problem. However, I chose to work with a bounded relativist research paradigm – as a guiding principle underlying the narrative approach in particular – to acknowledge that the thoughts people have about the world are subjective, constructed and negotiated in interaction with others (symbolic interactionism). But because I did not make a detailed research design beforehand, as I wanted to keep the approach open for inquiry and discovery, I sometimes slipped into a pragmatist approach that I notice now in retrospect. For example, adhering to a bounded relativist research paradigm and including hypothesis testing is in a way contradictory, but this approach helped me to examine the relationship between language and social structure, and this will presumably be an interesting field of study in the future. The way I have applied the relational narrative approach to the case study is perhaps much more influenced by pragmatism than I would have preferred at first and, in future, I need to further reflect on how best to situate the approach in combined philosophical perspectives.

Data collection

One challenging aspect for studying social dynamics is to recognize and comprehend intangible, “hidden” dynamic forces between different collaborating actors from an outside perspective without becoming part of the process oneself. To a certain extent, there is a biased account of which types of social dynamics have been at play in the regional cooperation. Every participant perceives and interprets the behavior of other actors and collaborates with others in the regional cooperation from their own point of view. This subjective bias poses great difficulty for a researcher (normally coming

from the outside) investigating governance networks and their dynamics, namely to be able to separate subjective from objective explanations of certain group phenomena. To examine what social dynamics were occurring between the participants of the regional cooperation, it was definitely helpful for me to adopt an ethnographic approach and attitude toward my case study. I have been able to spend two and a half years in the field and to become involved in the regional cooperation as an active observer to make sense of disputes and tensions and of actor relationships in general. Additionally, validation of research results was also undertaken with the help of the regional manager, who knew the context and cooperation members well. Furthermore, as someone invited to the regional cooperation to carry out an evaluation, I was accorded respect and trust from the participants, which I needed in the narrative interviews so that participants would be more likely to open up during the conversation. It also took time and effort to learn about the specific life contexts of the individual actors involved in the regional cooperation, while it also took a long time to compare the collected data.

Nonetheless, the narrative interviews provided an excellent technique for me as a researcher to partake in the experiences of participants of the regional cooperation. The narrative interviews revealed very different subjective experiences from participants and I learned about many aspects of the regional cooperation, forest management and the life contexts of the participants that led to unexpected research findings that I had not envisaged at the start of the project – for example, discrepancies between social identity constructions and the social and relational patterns occurring in the regional cooperation.

The narrative interview method was also sometimes difficult in practice. First, for my participants, it was problematic as I had the feeling that they expected me to ask questions that they would then answer. But narrative interviews are undertaken and structured quite differently. The interviewee is put in a central position and has most of the talking time, and the interviewer (researcher) takes a listening role and does not interrupt the interviewee, but only speaks when the interviewee has finished speaking. I sometimes had the impression that my participants felt uncomfortable in this position and became tight-lipped rather than opening up. I would also argue that narrative interviews are less an interview than a conversation that you have with your

interlocutors. Although an interview protocol needs to be prepared, you still have to be spontaneous and adaptive to the specific reactions and contents of the conversation. Besides, if subjects do not open up during the conversation, maybe because they find it difficult to talk about themselves or because they do not find a question stimulating, it can be difficult to get this narrative conversation started in a non-leading or non-manipulative way.

For the researcher applying this narrative method, it can also be quite challenging. For example, I needed to restrain myself from interrupting participants, when they told me something relevant to the research questions in which I was initially interested. Returning to these details afterwards proved sometimes to be difficult, because these small but pertinent details can also become lost during the conversation as a great deal of information can be conveyed in these narrative conversations. I would therefore argue that the narrative interview is no instrument for beginners in interviewing. Being a good listener, being confident and ready to sit through silent moments in the interview, reacting spontaneously to remarks while also observing the storyteller's body language and gestures and taking notes for subsequent narrative-stimulating questions during long monologues, are complex interviewing skills that a researcher needs to have learnt in other interviews, preferably those guided by protocols (structured or semi-structured interviews). Otherwise, the researcher risks what is being told slipping too quickly into argumentation rather than narration.

Data analysis

When I started the conceptual and empirical work on integrating a narrative research approach with social network analysis, I was particularly inspired by the book 'The Power of Narrative in Environmental Networks' by Lejano, Ingram, and Ingram (2013). However, I was soon convinced that its social network analysis has not received the attention and appreciation it merits because interpreting people's behavior needs to be built on both cognitive and relational foundations, as our behavior is always influenced by intrinsic motivations and convictions *and* by the interactions and relationships that one has with others. Thus, it made no sense to favor one approach over the other, but instead to combine both approaches. This dissertation results from this interdisciplinary combination.

The interdisciplinary work was made easier by a close collaboration with my colleague Dr. Philipp Gorris, who contributed in-depth knowledge and experiences about statistical analyses and exponential random graph modeling in social network studies. As a social scientist trained in carrying out qualitative and interpretative research, it was impossible for me to become quickly familiar with and trained in statistical analyses of social networks. The collaboration with Dr. Gorris however helped me understand what kind of input the statistical analyses needed from the qualitative data and more particularly how I needed to prepare contextual qualitative analyses for the quantification of qualitative results. This was by no means an easy task and I would recommend other researchers to work in interdisciplinary teams with backgrounds in qualitative and quantitative data analysis to follow this approach if they can.

Doing social network analysis research well means determining a focus and question deduced from a theory before gathering the data in a structured survey to systematically look for answers to the research question. A narrative research approach is the opposite of structured and systematic: it is iterative and sometimes ambiguous, and open to uncovering meanings that can be gleaned from the data. Due to the openness and unstructured nature of narrative interviews, it was sometimes difficult to force the qualitative data into inductively created categories. I sometimes felt the urge to present the complete text passage from the transcript instead of reducing what the interviewee had told me in order to do justice to the richness and complexity of the narrations. Nevertheless, I found the mixed-method approach that combined narrative research and social network analysis a particular strength in retrospect, as the rich qualitative information not only provided opportunities to contextualize the results, but especially the interplay between quantitative and qualitative thinking necessary for applying this innovative research method was a great advantage in developing and testing my hypotheses.

5.3 Recommendations for science and policy

Finally, I would like to provide an overview of how the approach followed here could be applied in future research. The conceptual framework developed in this thesis – the relational narrative approach – is an interdisciplinary framework that is well embedded in both narrative and social network theories. The aim in producing this framework

was not to substitute one theory or approach by the other, but to merge the best aspects of both fields and research designs in one integrated and encompassing framework to advance the study of dynamic social processes in multi-actor collaborations. It can therefore be applied to many different research problems, questions and contexts, for example to study power dynamics and asymmetries or actors' discursive and relational behavior in and across echo chambers or discourse coalitions (Malkamäki et al. 2019; c.f. Leipprand, Flachsland, and Pahle 2017; Thompson 2018). It can furthermore contribute to the study of knowledge co-production and other social learning and framing processes (c.f. Lumosi, Pahl-Wostl, and Scholz 2019; Raymond et al. 2010), leadership (c.f. Olsson, Folke, and Hahn 2004) or horizontal and vertical coordination in polycentric governance networks, and much more. Additionally, this framework is transferrable to other governance systems, societal problems and/or policy implementation settings other than nature conservation or biodiversity protection, such as regional climate change adaptation, rural development or integrated landscape planning. Moreover, the framework can also help in analyzing current societal rifts, polarizations and conflicts, for example recent polarization in neoliberal versus communitarian attitudes and values or societal divides in groups of left-liberal cosmopolitans versus tradition-conscious nationalists. Hence, in short, this framework can be applied to a variety of research questions and can address an important conceptual gap between the discursive and relational aspects at play in collaborative approaches for a range of governance and management settings.

As I also discussed in Paper II, the relational narrative approach would be a well-suited companion to other social-ecological systems research to include a cultural, historical and experiential (cognitive) dimension in current explanations for adapted or transformed human behavior in sustainability transformations. A companion study applying a relational narrative approach could for example determine how narratives as socio-cognitive constructs have shaped people's behaviors and practices and how individuals or communities have dealt with ecological challenges in the past. It could investigate the role of pioneers and leaders in transformative processes and how they shape collaborative practice in a multi-level governance system. Researchers could examine the antecedents and emergence of social networks by including a discursive perspective to determine those narratives that have accompanied their development

and which have attracted further members. They could also look at which elements make a narrative powerful as a way of building strong ties between actors. The empirical study of narratives in face-to-face communication is a research area in progress and there is still room for further investigations.

The first step toward advancing the relational narrative approach would be to conduct empirical studies that test the hypotheses formulated in Paper II and, for this, panel data from at least two time points should be collected. In addition to this, more case studies and further applications of this framework in diverse contexts are needed to address limitations of this thesis and to advance our understanding of the interplay between narratives and social structures, and the social dynamics in participatory approaches. Case studies are particularly useful when exploring correlations with multiple methods, as this work has attempted here, but cases are always context-specific and findings cannot be generalized from just one. This is unfortunately the situation for many qualitative social science studies, for example case studies on knowledge co-production, participatory or social learning processes, and therefore a deepening of knowledge about certain phenomena is necessary by means of more comparative case study analyses. Another research idea for investigating links between, for instance, narrative congruence and tie strength would be to design lab experiments with small groups and to study the effects of narrating on the popularity or trustworthiness of a particular actor as perceived by others.

This conceptual framework and the empirical analyses in the case studies could furthermore be improved by including the notion of power dynamics into their assumptions. So far, this concept remained in the background and was only lightly touched on in the results and discussion in Paper IV, but in future this should be made more explicit. For example, the categorization by Partzsch (2015) into ‘power to’ (empowerment), ‘power over’ (manipulation) and ‘power with’ (as in collaboration and learning) would be a valuable supplement to the study of social dynamics. It would be interesting to identify narratives that emphasize one or more of these power dimensions while investigating their effects on the social dynamics of a collaboration.

Finally, I would like to discuss briefly how the key lessons from this thesis could be applied in policy and practice to enhance the quality of collaboration among diverse actors. Of course, it is hardly possible to make general statements for all collaborative

approaches, because these generally depend on the people involved, the problem, the context and its historical development – hence, I will limit this to the context of the regional collaboration. First, I would like to recommend to members of the local Lower Nature Protection Authority that they endeavor to provide transparent communication about the Natura 2000 regulations and management planning. Co-design of these in terms of co-designing the problem definition and ways to tackle this problem should be a priority for successful collaboration between state and non-state actors to ensure that participants feel a sense of ownership of the process. But, in the case of the Natura 2000 regulation, the process is no longer transparent, where 'top-down' decisions around integrating nature conservation objectives into existing land use practices have been determined on a higher political level and with participation of stakeholders off the table for a long time. The authority responsible for implementing and collaborating with stakeholders should clearly communicate what influence can be exerted on which political or consultative processes and what types of outcome(s) are being sought and when. This sort of communication would help in managing ever-evolving processes and in dealing with participants' expectations regarding their potential impact or influence on the process, and would strengthen collaboration and mutual trust.

During the narrative interviews, I noticed that participants had very different expectations of the regional cooperation, which led some participants to be upset about unfulfilled hopes and the uncertainties these gave rise to. This further led to emotional sensitivities that often got in the way of a constructive discussion of the Natura 2000 issue and led to conflicts between and inappropriate conduct by some participants. However, the work and facilitation of the regional manager proved to be a major advantage in the regional cooperation to avoid worsening conflicts between staff of the Lower Nature Protection Authority and private forest owners. The regional manager built relationships of trust with forestry and agriculture stakeholders, so that over time other actors followed this example and trusted him. At the point of data collection, most of the stakeholders felt understood and valued by the regional manager. Building mutual understanding and appreciation are two essential factors that influence the success of collaborative approaches to environmental management, and were linked to aspects of effective collaboration by the majority of members. Unfortunately, the regional manager saw himself as not trusted by his colleagues from

the Nature Protection Authority and regularly had to fight for the right to perform his duties as he saw fit. Working with regional managers in practice is highly recommended, as they can be the bridge between authority and stakeholder or in transdisciplinary research projects between the scientific and the public realm. Regional managers should be carefully selected and stakeholders should have a say in this selection process to ensure that all sides can trust the regional manager to act for the common good and not as a mere spokesperson for vested interests. With the help of a regional manager, a safe collaboration space can be generated where stakeholders engage in dialogue and express their views in order to reach a state of mutual understanding and respect.

After I had spent almost two and half years with the regional cooperation, I ended my activities in the cooperation with a presentation in December 2021, where I presented my findings to the participants of the regional cooperation. A few months later, I happened to meet a member of the cooperation who told me that the funding for the regional cooperation had now ended, but that they had successfully applied for a second funding period with the help of my thesis results. This regional cooperation will operate under a new name as an ecological station in the area around Osnabrück. Through the “Niedersächsische Weg” (“Lower Saxony Path”) a window of opportunity (to borrow a phrase from Kingdon) for a joint agreement opened up in 2021, in which all stakeholders from politics, nature conservation and agriculture committed themselves to making greater efforts in nature and species conservation, biodiversity and managing the landscape as a resource. Through this policy novelty, collaborative approaches are to become the rule in Lower Saxony in future and are expected to make strides in bringing nature and economy into harmony. There is hope on all fronts that this will give the protection of nature a push. Whether these collaborative processes will indeed lead to greater harmony between these groups remains a question for the future. I hope that the participants of the newly created ecological station will manage to overcome past conflicts and create a common narrative so that they can finally move toward a deliberate sustainability transformation.

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Annex 1: Paper I

Influence of Narratives of Vision and Identity on Collective Behavior Change

Ilan Chabay, Larissa Koch, Grit Martinez and Geeske Scholz

Published as:
Chabay, I., Koch, L., Martinez, G., & Scholz, G. (2019). Influence of narratives of vision and identity on collective behavior change. *Sustainability*, *11*(20), 5680.

Abstract

Profound societal transformations are needed to move society from unsustainability to greater sustainability under continually changing social and environmental conditions. A key challenge is to understand the influences on and the dynamics of collective behavior change toward sustainability. In this paper we describe our approach to (1) understanding how affective narrative expressions influence transitions to more sustainable collective behaviors and (2) how that understanding, as well as the potential for using narrative expressions in modeling of social movements, can become a basis for improving community responses to change in a rapidly changing world. Our focus is on narratives that express visions of desirable futures and narratives that reflect individual and social identities, on the cultures and contexts in which they are embedded, exchanged, and modified, and through which they influence the dynamics of social movements toward sustainability. Using an analytical categorization of narrative expressions of case studies in the Caribbean, Micronesia, and Africa, we describe insights derived from the narratives of vision and social identities in diverse communities. Finally, we suggest that narrative expressions may provide a basis for agent-based modeling to expand thinking about potential development pathways of social movements for sustainable futures.

Keywords: affective narrative expressions; narratives of vision and identity; dynamics of social movements; agent-based models; sustainable development goals (UN SDGs); knowledge; learning; and societal change alliance (KLASICA)

1. Introduction

Ensuring the well-being of societies from the present into the future over many generations requires that humanity finds, chooses, and moves on pathways toward sustainable futures in ways that are both globally coherent and locally appropriate to culture and context. The biological, ecological, geological, and physical resource limitations of Earth have been articulated in the planetary boundaries argument [1,2], while a complex set of global aspirations and targets for policies and actions that would allow for just, equitable, and sustainable futures for all within the planetary boundaries were framed in the UN "2030 agenda for sustainable development" (the sustainable development goals or SDGs) [3]. The rapid and accelerating rate of change of socioeconomic and Earth system trends [4] points to the urgency with which society must respond if the patterns of change are to be altered and moderated to move to more sustainable pathways.

These calls, along with the accumulated evidence supporting them, highlight the critical and urgent need for profound societal transformations to move society from its current patterns of unsustainability to emerging patterns of greater sustainability in the midst of continually changing social and environmental conditions. Thus, a key challenge is understanding the influences on and the dynamics of collective behavior change, whether as accumulated incremental shifts or radical societal transformations, to sustainable practices as they have occurred and anticipating how they might occur in different contexts and cultures of the world. The aim of this paper is to present an approach for developing a greater understanding of societal dynamics in diverse communities in regard to sustainability through narrative expressions of vision and identity. The approach described here is intended to (1) better understand how characteristics of affective narrative expressions influence transitions to more sustainable collective behaviors and (2) consider how that understanding, as well as the potential for using affective narrative expressions in modeling of social movements, can become a basis for improving community responses to rapid and profound change at multiple spatial scales.

In this paper, our focus is on how narratives expressed in various forms that resonate strongly in the culture and context where change is desired (and often contested) can be used as a window into the dynamics of societal movements seeking sustainable

futures. We begin with the reasons for and significance of our attention to narratives and, particularly, their affective expressions. The narratives of particular interest are those expressing visions of desirable futures in terms relevant for the community and those which reflect individual and social identities [5–7]. Narratives do not exist in a social vacuum, but are embedded, exchanged, and modified by the contexts and communities in which they exist and through which they may influence the dynamics of social movements toward sustainability.

To exemplify these ideas, we draw upon three case studies using a basic analytical categorization of narrative expressions that was developed by the Knowledge, Learning, and Societal Change Alliance (KLASICA https://www.iass-potsdam.de/en/research/knowledge-learning-and-societalchange-alliance-klasica).
The subsequent section describes how insights can be derived from qualitative analysis of narratives of vision and of social identities in communities seeking more sustainable outcomes. In the conclusion, we suggest how the narratives may provide a basis for modeling of social dynamics that can be used to enhance creative thinking about the potential development pathways and pitfalls for nascent or established social movements toward sustainable futures.

2. Concepts and Approach

2.1 Narrative Expressions of Vision and Identity

Narratives have been described in a variety of ways, for example, as a story structured according to different sequential happenings, combined as a plot that portrays and connects certain climax and turning points with symbolic expressions and archetypal characters [8,9]. Narratives circulate in societies and portray a sequence of events and characters that act in and on a scene or environment, which might include other characters, groups, and animate or inanimate objects. Ever since people have lived together, interacting with their environment, they have constructed stories and with them, purposeful narratives in verbal, musical, and figural forms. As homo narrans [10,11], humans assign and reproduce meaning and significance from the constant flow of perceptions and experiences to which they are exposed. Through storytelling, humans make sense of their surrounding world and reinforce their own culture and coherence as a community [12]. Humans also use their past and present experiences to shape an imagined future.

In expressing imagined futures, narratives of vision are calls to action to achieve the aspirations for the future of the community, thereby providing a direction, goal, and incentive for joining in the community response to the vision. The narrative, in general, is not a plan or roadmap to be executed to reach the imagined future, but rather a rationale and call for change. We, therefore, more specifically conceptualize narrative content as being embedded within a recognizable culture and context and containing either fictional or non-fictional accounts, which often serve to communicate visions looking toward the future or to reflect on individual or community experiences and identity. Through this, they help to establish and maintain culture, as is evident in the wide range of sources and histories of myths and epic tales.

People use narratives not only to reflect society or to imagine a future, but also to intervene in the world and try to actively shape reality as they know it. The visions and reflections may, thus, also act to catalyze change [13,14] in regard to sustainability through narratives for actions and narratives that relate stories of actions [15]. People sometimes tell particular stories to create a discursive fundament and often an emotional connection on which their reasoning, action, and arguments for or against something can be built. In policy and decision-making contexts for example, policymakers may intentionally design stories [16–19] to justify and support their policy choices. In this way, narratives can be instrumental mechanisms with performative elements to persuade or mobilize other actors to become active. In addition to narratives of vision as an emergent phenomenon that developed through collective interactions of co-creation and learning, individuals or communities can also purposefully design specific narratives as a means to achieve their ends.

Whether emergent or purposefully designed, eventually, it comes down to how actors, actions, and events are emplotted in the narratives—in other words how they are logically connected – and what moral is expressed or implied. The process of emplotment refers to the understanding and uptake of narrative structures into one's own communicative practices or, in other words, how the narrative expression is scaffolded on the receiver's cognitive and affective structure and makes it possible to shift or transform prior ideas of knowledge and norms, as well as practices [9].

Emplotment is comparable to what Pahl-Wostl [20,21] describes as double-loop learning or reframing the existing frame of reference, that is, a reflection on goals,

problem framings, and assumptions of how goals can be achieved. Situational events and constellations are incorporated into an existing narrative pattern, thus opening up opportunities for reinterpretations (i.e., allowing for collective learning processes) [22]. Emplotment is thereby completely open to which narrative pattern is used and how complex the narrative is, as long as it makes sense to the audience. Sommer [23] for instance states that narratives, which constitute social identities, follow rather antagonistic plot structures separating the own from the foreign and revalue or devalue it. On the other hand, polarization into ”us versus them” does not necessarily have to be the case in every narrative. There are examples of narratives that do not function through the separation from the other, but through the creation of an inclusive sense of togetherness (ibid).

However, it is not always a narrative as an extended discourse that circulates and has influence in a community. It often takes the form of an abbreviated, but strongly affective narrative expression, such as slogan, song, dance, or image, which is memorable and readily communicable across the community and beyond. Whereas narratives comprise an extended and more complete sequence of events with all the important elements thereof, a concise affective narrative expression (CANE) consists of a characteristic piece extracted from the complete narrative as a memorable, easily communicable, and affective verbal or visual representation of the core message. For example, the repeated phrase in Martin Luther King’s speech “I have a dream”, delivered in 1963 to civil rights marchers in Washington D.C. [24], became a rallying cry for the civil rights movement, even when the entire powerful speech was not heard or remembered. Visual art, sculpture, dance, and music also may evoke the central message of extended narratives or they may be an affective narrative expression in their own right. A nonverbal example from the arts is Picasso’s 1937 mural “Guernica” that had a significant widespread impact on people who saw in it a powerful, disturbing representation of a new and terrible form of war [25,26] or the intense lobbying effort to pass laws, successfully in the two US states, Kansas and Alabama [27], declaring that Agenda 21 (the voluntary sustainability guidelines passed in the Rio +20 conference in 2012) [28] was illegal in those states. The campaign against Agenda 21 evoked American exceptionalism, rather than a response to sustainability per se. Another quite striking comparison can be made between two CANEs used by two US presidents. The phrase “Yes we can” has become a courageous slogan around the world for

Barrack Obama's commitment to strengthen democratic values when he held his inaugural presidential speech "Hope of a better day", in 2008. Obama used the sense-making and emotional power of narration to exemplify abstract democratic values and, at the same time, the unity of American society across ethnic borders. He succeeded in producing a new narrative from the story of a 106 year old black woman that equally appealed to and motivated all sections of the American population without even differentiating from the "other", but stressing inclusiveness so as other nations across the globe understood the message as an offer for cross-border cooperation [23]. In contrast, President Donald Trump's "America First" strategy (for example, President Donald Trump's speech on the National Security Strategy on 18 December 2017) and presidential campaign slogan "Make America Great Again", which also traveled around the world as a condensed expression for what he preaches causing astounding sensation, plays with narratives of high antagonistic structures that completely shut down transcultural and cross-border cooperation and concentrates on national egocentricity instead.

We have introduced the term "CANEs" because of two advantages of recognizing these distillations or shorthand for more detailed and extended narrative discourses. First, the CANE represents the narrative pared down to make transmission easy and reinforce existing perceptions, rather than being a form of argumentation. Hence, CANEs are evidence of ideas being promoted by individuals or groups to enlist and retain people to the intent or vision of the group. These CANEs are received or rejected by individuals in a community depending on whether the CANE has certain characteristics (see Section 2.4 for the analytical categories that we used in this paper) and to what degree those characteristics match the receptivity of the individual. Second, it often proves to be difficult, if not impossible, to reconstruct the complete narrative in some case studies in which there exist different versions of it in circulation in the community. It is, therefore, often easier to describe the case by condensed versions of the narrative and then to exemplify its salience in specific instances. We are particularly interested in the following two broad types of narratives: one that is anchored in "visions of a more desirable and more sustainable imaginary future state" of some or all of the society [29]. The second type consists of narratives that reflect "individual and social identities", which influence motivation of individuals to act with

the intention of realizing the imagined future (or to oppose it) if it does not interfere with or violate the social identities of the individual [30].

Before we describe our perspective on the relationship between narratives and identities, we would like to briefly address the role of context and culture.

2.2 Context and Culture

We regard context and culture as especially important in the localized development and reinforcement of both extended narratives and CANEs in communities. The social environment is the context in which people form and reform malleable narratives of their personal and social identities. Their social identities are derived from and are deeply embedded in social relationships. With these identities and the recounting of them to themselves and others, they demarcate themselves from or relate to others [31], including people, other species, and the environment. In terms of social identity, the capability of a narrative to elicit empathy, by fostering identification with the characters and learning from them to make sense of complex signals, is crucial. According to the Merriam Webster dictionary, context is “the part of a discourse that surrounds a word or a passage and can throw light on its meaning” as well as the “interrelated conditions in which something exists or occurs”. Related to narratives and meaning making, we use context in the sense of “lifeworld”, as Jürgen Habermas called the shared understandings and values that are established in a societal group that allows interaction and communication [32]. Culture is paramount for the development of the “lifeworld” of a given society, group or an individual. Culture, in the form of patterns (e.g., beliefs and values, behaviors, materials, and social organization), as well as ideational systems [33–35] provide an important basis for the enunciation, type of message, and values expressed amongst members of a group and through the narratives they share. Enriched with knowledge drawn from education, language, literature, customs, politics, law, and others, and through shared interests, meaning making of a narrative amongst a social group occurs. Biases and constraints, such as gender issues, type of resources and degree of resource access, and political conditions can affect the acceptance of a narrative. Hence, understanding the context in which a given narrative has been evoked and spread is necessary for understanding the narrative, as well as its potential for transferability and impact.

2.3 Narrative and Identity

From the above and the three case studies described in this paper, we suggest that narratives fulfill three crucial functions. We illustrate these in the following section on case studies:

1) They structure, prioritize, and ascribe meaning to experiences and beliefs. Narratives are effective and efficient in communicating core norms and values, thereby tending to reinforce or question the structure and coherence of the society.
2) They provide orientation for facing uncertain and unfamiliar contexts through their general structure and, by example, from the actions of characters. The normatively right or safe course of action cannot always be anticipated in new or unfamiliar circumstances, yet making critical decisions very quickly may be essential. Narratives can provide orientation in situations where people need guidance, because often norms and expectations in specific contexts and cultures can be inferred from the narrative. This function is particularly significant in regard to the current trajectories of societies moving into unprecedented conditions and continual change.
3) They facilitate sense making and decision making in highly complex social–ecological systems by representing core values and ideas with a reduced set of dimensions (degrees of freedom) of complexity in comparison to the vastly more comprehensive actual context [36]. By telling a tale in which only a few specific properties of characters and their environment are emphasized, thus becoming more memorable or iconic, the narrative focuses on a limited set of dimensions of the complex entirety. This allows processing of ideas and information within the stringent limitations of humans' short-term memory and better enables dealing with ambiguity and uncertainty. However, decision making is not only a cognitive process of weighing epistemological content. Social and political allegiances and affective elements enter strongly, sometimes completely overwhelming cognitive content processing. Therefore, the affective value and impact of narratives and context must also be considered to understand the decisionmaking processes.

We regard these three functions as important when we want to bring narratives and identities together. Identity can be viewed from various angles, including: personal identity, situated identity, and collective identity [37]. In this paper, we assume that individuals have identities as an individual with a particular history of experiences and potentially several social identities that are based on the individual's relationship to one or more social, political, religious, professional, or recreational communities. The identity or identities are embedded in the individual's perceptions of his or her actual membership in or imagined relationship to a group. "A collective identity may have been first constructed by outsiders, (…) who may still enforce it, but it depends on some acceptance by those to whom it is applied. Collective identities are expressed in cultural materials—names, narratives, symbols, verbal styles, rituals, clothing, and so on—but not all cultural materials express collective identities. Collective identity does not imply the rational calculus for evaluating choices that 'interest' does. And unlike ideology, collective identity carries with it positive feelings for other members of the group" [38]. Each individual and each group, and community, is embedded in one (or across several) cultural environment(s) and operates in a physical, biological, political, and historical context. Collective identity pertains to making sense of one's relationship to others in the community and also potentially some elements of the environment, thus, building a feeling of belonging in the network and environment.

Communities and individuals refer to and express their narrative(s) of social identity sometimes explicitly and at other times or contexts, in implicit forms. As mentioned earlier, inclusion or "othering" as affirmation and acceptance as one of "our own" or denigration and rejection of individuals or groups as "others" may be evident directly in public statements or may be implicit from context (e.g., Trump's "massive invasion of migrants" coming from central America to the USMexican border) or inferred from "coded" phrases or images, which are indeed CANEs.

Margaret Somers [30] articulated ideas about narratives that offer insight into the significance of identity in social contexts, specifically in her assertion that "Whereas an interest approach assumes people act on the basis of rational means-ends preferences or by internalizing a set of values, a narrative identity approach assumes people act in particular ways because not to do so would fundamentally violate their sense of being at that particular time and place." (ibid, p. 624).

In this regard, it is helpful to bring in Wenger's community of practice (CoP) approach [39]. In CoPs, as a special kind of group of people, individuals share practices and concerns to establish meaningful social bonds to learn from and with each other. This enables actors to create, maintain, or change their self-identity. In general, the CoP would define its social identity via the practice, for example, pupils regularly meet after school to collect garbage as a contribution to sustainability. Through frequent interactions, the community exhibits a particular influence on its individual members' identities. On the one hand, the collective wants to give as much freedom, autonomy, and agency to the individual member as possible in order for members to develop their own potential and to fulfil certain roles. On the other hand, the collective wants to treat members equally and decrease social complexity by minimizing their distinctiveness [31]. Hence, the other community members encourage the individual to contribute to the development of a shared repertoire of resources consisting of experiences, stories, tools, etc. This leads to increased levels of diversity and helps in times when another member seeks experience or knowledge on an issue and makes them less dependent on externals. At the same time, too much diversity in narratives and identities decreases the opportunity for coordination and combined collective action. Therefore, this search for identity induces tension or ambivalence between the individual and collective identity creating a dynamic source of energy that influences the various stages of narrative reproduction.

Through creating and expressing narratives about themselves in relation to their experiences and social environment, individuals create and recreate their own social identities. An examination through writings and interviews of individual community members can provide evidence of social identities in play and improve our understanding of the processes at work in forging a collective identity and how that plays a role in initiating or sustaining collective action. Narratives may help individuals in a network find balance between their own idiosyncratic vision and identity and the social identity of the network. This may happen when a narrative character is seen as a role model capable of successfully negotiating the balance between individual and community.

2.4 Approach

The purpose of the second biannual KLASICA symposium in Taipei in September 2018, was to collect and characterize narrative expressions of vision and identity from

communities seeking ways to become more sustainable with regard to the challenges pertinent to that community. Thirty-five participants from twelve countries were engaged throughout the intense three day workshop (not the traditional symposium of sequential or parallel presentations) held at the Risk Society and Policy Research Centre (RSPRC) at National Taiwan University. The participants contributed more than twenty case studies from communities in Asia, Micronesia, India, West Indies, Africa, the US, and Europe.

A set of five categories was proposed [40] as a starting point for qualitative analysis of the narrative expressions identified in a subset of twelve of the contributed case studies. The participants met repeatedly in six groups of about six people each to examine the fit between the categories and the narrative expressions. Each group considered at least two cases and each case was discussed independently by at least two groups. The reports from each group were presented and discussed in plenary. Through this process, participants reached agreement on the usefulness of the five categories listed below. It is important to note that this is only an initial application of these categories, which should remain open to further testing and change or refinement.

In Section 3 the authors chose three case studies that serve to illustrate the applicability of the five analytical categories, which are:

1) Associative plausibility: Do the recipients of narrative have information or experiences that are sufficiently related to the argument of the narrative to lend plausibility to the narrative in their eyes?
2) Framing: Does the narrative reflect significant aspect(s) of the context and connections to group or network identity that give it relevance for the recipients?
3) Normative affirmation: Is the narrative consistent with existing norms of the target group?
4) Emotional identification: Does the narrative resonate with or stimulate emotional associations that lead to positive emotional responses to the group's intentions?

5) Motivational incentives: Does the narrative relate to individual or group identities in a way that provides a rationale and motivation for the recipients to subscribe to the message of the narrative?

3. Results

3.1 Case Study 1: Creole Garden, French West Indies

Focus: SDG 13 (food security)

Context of case study in which the narrative is embedded: The French West Indies are considered the fifth worldwide hot spot of biodiversity. The islands are very vulnerable to climatic changes. Similar to other Caribbean islands, agriculture is an important sector, which needs to contribute to mitigating the effects of climate change by adapting ways of production and crops being produced. Today, agriculture production is dominated by sugar cane and bananas, which are mainly exported to France. The prominence of these crops is a legacy of the colonial era.

The population of Guadeloupe and Martinique is mostly composed of people of African descent with a smaller part composed of European and Asian (Indian and Chinese). During 300 years of colonization, approximately 80% of the population were slaves. In comparison to the Spanish colonialization, the French colonialism was very inclusive. Caribbean intellectuals and cultural elites centred on ideas from Paris and the motherland with the effect that socio-culturally speaking the French West Indies mimicked French conventions. After World War II, in 1946, Guadeloupe and Martinique received the status of French overseas departments, which meant that they became an integral part of France. Nevertheless, the agro-export status quo is based on the concentration of production in the hands of land oligarchies. These benefit from agreements that protect their interests through quotas or rights of access to the French market. This economic model also results in a low diversification of production and a high degree of extroversion. Food staples produced in the French West Indies only contribute to 25% of what is needed for local consumption. Accordingly, most of the groceries consumed at the islands are imported from France. This includes products like milk, potatoes, onions, tomatoes, beetroots, etc. Due to the higher costs of importing products into the island, the prices of basic commodities and food staples in Guadeloupe are much higher than in metropolitan France, while the

average salary in Guadeloupe is lower than in mainland France, except for officials working for the French government who receive significantly higher salaries to offset the higher costs of living on the island. Unemployment and poverty rates are double those found in France. From 2006 to 2007, several riots protesting against high food prices have shaken the island. In 2009, the tensions cumulated in a social crisis addressing the unequal social and economic treatment of the mostly creole population compared to the citizens in mainland France. During this time an NGO with the Creole name ”lyannai kont pwofisayn” (LKP) was founded to protest against this unequal condition of the residents of Guadeloupe. The word “lyannai”, used in the name of the NGO, means “conviviality”. Martinique writer Édouard Glissant (1928–2011), an important author of the French-speaking Caribbean and intellectual mentor to questions of post-colonial identity and cultural theory, had used the term “conviviality” as a synonym for creating joint forms of knowledge to overcome distance and separation from one’s own culture [41]. The NGO used the codeword “conviviality” to mobilize feelings of social and cultural identity coupled with the narrative of the“creole garden” (Figure 1) for a movement to fight post-colonial structures expressed amongst others through food dependencies from mainland France and social injustice. “Lyannai” became the CANE that circulated in Martinique as a shorthand that combined the social identity of local people with their familiarity with the value of a Creole garden.

Coincidentally, in 2009, the pollution of the eco-systems of the islands by the highly toxic organochlorate molecule chlordecone became public. Chlordecone had been used as a pesticide in the banana plantations of the islands from 1972 to 1993, which has led to long-lasting contamination of soils and bodies of water. Its deleterious impact on public health has been documented through manifold diseases on the islands. For this reason, chlordecone was banned from use in mainland France since the 1980s, but its use was continued in Guadeloupe and Martinique under the influence of the colonial power structures.

Vision and social identity: The vision expressed in the narrative of the “creole garden” (Fig. 1) relates to a future of sovereign agricultural production coupled with a strong cultural identity of the creole community. Before colonization, the population of the French West Indies mainly grew agricultural products for self-sufficiency. Because of

the movement, in 2009, for three months no food imports from France could enter the islands.

Against this background, government support for an agro-ecological transition of productions on the islands of Guadeloupe and Martinique has emerged in the last decade. For example, a new legislative framework (Economic Development Scheme of the Regional Communities) underlines the ambitions for a green economy by proposing the vision expressed in the narrative of the "creole garden" for a shift away from the current monoculture (i.e., sugarcane (for rum production) and banana, mainly exported to the French market) to the production of crops and vegetables for local consumption and food sovereignty. In addition, grassroots initiatives promoting small scale farming and urban gardening are currently spreading over the islands. In 2017, one of the authors (G.M.) spoke with an expert working for the National Institute of Agronomical Research (INRA), who shared the narrative with her. Born in Martinique, he is responsible for agricultural research and implementation of innovations in the French West Indies.

The narrative in this case relates to the collective memory of a so-called "creole garden" where community members produce crops for their own consumption and soils are used in a sustainable manner. Meanwhile, the vision of the narrative has been depicted in an official report [42] focusing on small-scale family farming as a possible vector for agricultural development in the light of the challenges of the 21st century, such as adaptation to climate change, food sovereignty, agro-ecological and bio-economic transitions. This vision is now mainly shared with the Caribbean neighbors, especially the Small Island Developing States (SIDS) of the Organization of Eastern Caribbean States and forms the basis of the research project "Cambio-Net". It is hoped that through committing to the agro-ecological transition from mainly large commercial-scale monoculture to a better balance with more diverse and sustainable farming for local use.

Five analytical categories for case study 1:

1) Associative plausibility: Common experiences of suppression of the creole community in the French West Indies;
2) Framing: Acting to change food dependency and toward empowerment of creole community;

3) Normative affirmation: Protest of unequal treatment/norms for creole community;
4) Emotional identification: Shared experiences of “Lyannai” and cultural identity, e.g., undertaken through joined/small-scale farming;
5) Motivational incentives: Better future for creole community, i.e., by achieving environmental and social justice, end of post-colonial structures in general (e.g., food dependencies, unequal wages, and social standards).

3.2 Case Study 2: Tamil Resources Conservation Trust (TRCT), Yap, Micronesia

Focus: SDG 14 (life below water), SDG 15 (life on land), SDG 3 (good health and well-being), SDG 6 (clean water and sanitation), SDG 11 (sustainable communities), SDG 12 (responsible consumption and production), and SDG 2 (zero hunger).

The narrative is intentionally constructed as a collective activity of the community and expresses both a vision toward the future and an identity. That identity is emphasized in reference to traditional stewardship.

Context in which the narrative is embedded: In Tamil, a municipality of Yap State in Micronesia, community members traditionally managed their fish and other livestock in areas designated for each family. Over time, people found that their resources diminished, and thus it became harder to secure livelihoods. Elders of the community tried to understand the cause of their shrinking resources. First, they spoke to the community members collecting their impressions while trying to find answers from the community on how to adapt to the new circumstances. Secondly, the two elders attended a seminar outside the community where knowledge was shared from other regions and amongst different stakeholders. After their return, the elders decided, in collaboration with the community members, to form a conservation group called Tamil Resources Conservation Trust (TRCT). In 2011, they decided to seek a way to sustain their marine resources by paying better attention to their traditional stewardship. After two years, in 2013, TRCT was chartered as an NGO by the Yap State Government and wrote and adopted its first management plan.

Vision and social identity: At the beginning of the process of forming the TRCT, a ”shared vision” was developed and written down. “We, the people of Tamil, mindful

that our present practices are contributing to the depletion of our natural resources, both in the waters and on the land, have now decided to use the wisdom of our custom and tradition to conserve and manage the natural resources in our municipality in order to be able to provide for ourselves and our families in a sustainable manner and leave behind a healthy natural heritage for our children and future generations." (https://trct.fm/category/about/). The vision was included in the Tamil Municipality Marine Management Plan and repeatedly orally expressed when the people in charge of the NGO went around to village gatherings to explain what the TRCT aims to do. The TRCT set up various proposals and projects, which involved all residents in one way or another, to conserve the marine resources in various ways, and also to nurture the land environment. They also conducted joint efforts with Ecoplus, an NGO, to filter waste water and to reduce garbage produced from households. Setting up a "no-take zone", which bans fishing in a designated area, contributed to improving the number of marine creatures in the area. The residents in Tamil learned and became more aware of conservation practices and, consequently, now use less chemical detergent and produce less non-biodegradable waste. The TRCT is an example of collective behavior change.

The TRCT was founded because of the highly unsustainable situation caused by a number of unsustainable practices. The TRCT is also connected to the very local identity of fishermen and their families about traditional management practices and the traditional conservation ethic, a positive vision, and a desirable future condition, as clearly stated in their written statement.

In their document, TRCT claims that while Yap's traditional marine stewardship has supported resource management, "this respect for traditional stewardship and traditional culture is weakening as Yap progressively enters the cash economy". TRCT's long-term goal is to move towards a more integrated management approach that acknowledges the intimate connections between land and sea, which is consistent with Yapese traditional management principles. Their management approach encourages traditional stewardship within the community, and states "activities associated with this theme include strengthening traditional management practices and the traditional conservation ethic and actively exploring opportunities to incorporate these principles into modern management".

Their vision statement refers to ”our children and future generations” in a way that they are ensured their necessities in a sustainable manner and have a healthy natural heritage. The narrative is intended to raise everyone’s awareness that the situation is critical, and to unite the whole area based on its inhabitants’ equally critical culture and tradition. This statement has played a significant role in shaping the attitudes and actions of the community and its members. TRCT became the CANE that circulated in Tamil as a shorthand that combined the social identity of local people with their familiarity with the value of sustainable and shared resources.

Five analytical categories for case study 2:

1) Associative plausibility: Not explicit, but may be assumed from the awareness of people in Yap that the situation was not adequately addressed with regard to land and sea conditions;
2) Framing: Returning to traditional practices to ensure future well-being;
3) Normative affirmation: Traditional management practices and the traditional conservation ethic;
4) Emotional identification: A healthy natural heritage;
5) Motivational incentives: Supporting better conditions for the community.

3.3 Case Study 3: Malawi Community-Driven Fisheries Resource Management in the Salima Region

Focus: SDG 14 (life below water) and SDG 3 (good health and well-being)

Context in which the narrative is embedded: The original narrative stems from the 1950s, when Chief Makanjira of a village at Mbenji Island in Malawi banned fishing during thunderstorm seasons. He focused on the safety of fishermen from frequent thunderstorms during rainy season. Later, the narrative was transformed through interactions with government regulations in the 1990s, to emphasize fisheries resource management and an elaborate system of enforcement of local rules regarding fishing was added to the narrative.

Vision and identity: Narratives by community leaders to secure the safety of fishermen from frequent thunderstorms during the rainy season led to the establishment of a seasonal fishing ban system. This, in turn, contributed to a sustainable fisheries’ resource management as a by-product of the measures to protect the lives of

fishermen. The narratives of the traditional leaders of a local village on the coast of Lake Malawi regarding a seasonal ban of fishing around Mbenji Island have been supporting collective behavior change (CBC) since the 1950s across three generations of traditional authorities. The narrative contains the meaning and importance of the seasonal ban and detailed procedures of enforcement of local rules. The narrative was spoken by the traditional leader and his management team at the opening and closing ceremonies, as well as at various opportunities taken to introduce their practices to the people outside their villages, including government officials and researchers.

Initially, this narrative was specific to the village and Mbenji Island. The example became wellknown in the country of Malawi through the words of Chief Makanjira, especially through the radio program in which the Chief participated. Government officials and international aid agencies played the role of knowledge translator.

The most effective forms of diffusion of the message seems to be the traditional ceremonies of closure and opening of fishing around Mbenji Island (December and April, respectively) inviting a broad range of stakeholders including traditional chiefs from fishing villages with fishers operating around the island.

The actual CBC was connected to the safety of fishermen by avoiding fishing in the rainy season, and sustainability of fisheries resources by stopping fishing in the rainy season, which was the breading season of the target fish group.

Five analytical categories for case study 3:

1) Associative plausibility: Based on experience with risk to lives of fishers and health of fish populations;
2) Framing: Risk avoidance with fisheries management as an accompanying benefit;
3) Normative affirmation: Pride in fish stocks and reinforcement by chiefs each season;
4) Emotional identification: Connection to traditional village hierarchy and safety of community members;
5) Motivational incentives: Better fishing conditions and preserving a way of life.

4. Discussion

The descriptions of the three cases provide an initial coarse characterization of the narratives that were in play in the contexts of these communities. The narratives of vision and identity in each case address issues relevant in the context of the community. In all these cases, the narratives served, in different degrees, to bring the issue into focus and to garner support for collective actions.

With these few case studies as a starting point, we can begin to explore how the characterization of narrative expressions, as well as information on the community and context of a larger set of case studies, can be used to understand more about social movements toward sustainability. In particular, we suggest that narrative expressions could be used to construct models of social dynamics related to sustainability concerns, especially agent-based models (ABMs), as well as system dynamics (SD) models, and how such models can help us to think about and better understand societal dynamics and their consequences.

An influential, although very simple agent-based model, that illustrates a type of social modeling is the early work of Thomas Schelling on tipping points in housing segregation [43,44]. The model is based on an individual's preference for number of nearest neighbors of the same color in a simple randomly occupied two-dimensional matrix. Note, that the individuals are not seeking segregation. If the number of nearest neighbors exceeds the maximum comfort level for that individual (agent), the individual moves to another location with more favorable neighbors. This is the rule that governs the behavior of each agent. What is particularly important about the model is that it shows that by changing from individuals wanting at least one third same color neighbors to all wanting 50% similar neighbors, the overall matrix shows the formation of dramatically segregated domains of one color, even though that was not the intent of the individuals. This is an example of a social tipping point and is what Schelling referred to as micro-motives and macro-behaviors [45]. It also illustrates that ABMs may bring out the potential for unexpected macro-behaviors emerging from micro-behaviors (rules for individual agents) that could not have been written a priori as mathematical descriptions of dynamics programmed into a model.

In more specific terms, agent-based modeling is a method in which (heterogeneous) elements (e.g., individuals) and their interactions can be simulated [46]. Following

Woolridge, an agent is a “computer system that is situated in some environment, and that is capable of autonomous action in this environment in order to meet its design objectives.” (Wooldridge 1999, p. 29, adapted from [47]). Such agents can model abstract representations of human beings. Thus, ABMs allow for the formulation of assumptions about human behavior(s) in a specific context (the agents’ environment). During a simulation run, the consequences that these assumptions have for the specific situation modeled are displayed as a consequence of the agents’ interactions with each other and their (virtual) environment. Consequences of agents’ interactions can be observed on the individual, as well as on the collective level, and have an influence on subsequent interactions within one simulation run. By displaying the consequences of our conceptual choices, ABMs can help expand theoretical considerations with computer experiments, thereby dynamically producing and testing theoretical constructs. To explore an ABM, one can design experiments to test out different assumptions about parameters, rules, or structural aspects [48].

Narratives can inspire new approaches to modeling of societal dynamics by exploiting hitherto underutilized or unavailable knowledge to design and specify model assumptions [49,50]. Besides the use of narratives for providing a valuable source of qualitative data for model development, building and testing models can offer a way to talk about, specify, and experiment with theoretical considerations about narratives and their motivating and transformative power for sustainability movements. With agent-based modeling it is possible to simulate diverse elements (e.g., individuals with differing goals, motivations, and incentives) and their interactions. By displaying the consequences of our conceptual choices, models can help us to “think through” and explore theoretical considerations with computer experiments. The discussion of the role of narratives could gain from the variation of model assumptions and the observations of the effects of these variations in exploratory ABMs. Furthermore, the process of developing an ABM can help to make missing details more apparent, and thus point toward questions to address in empirical research or theoretical thinking. Hence, we will begin model development in parallel with a case study comparison using a larger set of relevant case studies.

5. Conclusions

Through the KLASICA research alliance, we are collecting, characterizing, and employing narrative expressions of vision and identity to understand influences on and hindrances to collective behavior change toward sustainable futures. On the one hand, narrative expressions of visions of sustainable futures provide insights into how a desirable future is envisioned and expressed by individuals and collectives as targets and incentives for reaching a more desirable future. On the other hand, the motivations of individuals and groups for acting in support of, or opposition to, the expressions of vision are strongly influenced and may be inferred from narrative expressions of identity, culture, and contexts. These insights from narrative expressions of vision and identity can provide a basis for building models of social dynamics in communities moving toward sustainability. The models are important as a way to (1) open up creative thinking about potential emergent pathways for change and conditions under which bifurcations might occur in societal patterns of behavior, (2) integrate a wider range of sources of knowledge about rationales for decision making by individuals and collectives, and (3) lead toward new frameworks in conceptualizing societal transformations.

As we have discussed in this paper, we sought and found evidence in case studies that narratives of vision and identities influence and reflect social dynamics of movements toward sustainable futures. The qualitative analytical categories applied to case studies described in this paper indicate the value of using the approach we describe in this paper. To better understand dynamics of social movements toward sustainable futures, we consider what would be needed to construct and test social dynamics models grounded in qualitative narrative expressions of vision and identity. With agent-based and other models, we intend to explore how narratives of vision (e.g., of better futures) and identity (motivation for support of the in-group) influence group dynamics toward social movements for sustainability, and to compare emergent patterns that can be observed in a model with those observed in diverse community case studies. Our next steps will be to collect and analyze further case studies and use the resulting data in constructing models in order to test their usefulness and validity for understanding dynamics of social movements toward sustainable futures.

Author Contributions: Conceptualization, I.C.; methodology, I.C. and G.S.; writing—original draft, L.K. and G.M.; writing—review and editing, I.C., L.K., G.M., and G.S.

Funding: This research received no external funding.

Acknowledgments: The authors are very grateful for the productive collaboration with the Risk Society and Policy Research Center (RSPRC) led by Kuei Tien CHOU and the excellent contributions and support of the RSPRC group at the National Taiwan University. RSPRC has generously hosted and supported the KLASICA Taipei symposia in November 2016 and September 2018. The authors sincerely thank all the participants in the KLASICA Taipei Symposium 2018 for their many contributions to the fruitful discussions that led to this paper and that the authors hope will lead to subsequent collaborative investigations. We also wish to thank and acknowledge the following participants for their sharing of specific case studies cited in this paper: Grit Martinez, Ecologic Institute, Berlin, Germany in collaboration with Harry Ozier Lafontaine (INRA Antilles Guyane) for the case study on the Creole garden, French West Indies; Tetsu Sato, the Ehime University, Japan for the case study on Malawi fishers; Takako Takano, the School of Culture, Media and Society at Waseda University, Japan for sharing the case study about the Tamil community. I.C. is very grateful to Sander van der Leeuw (Arizona State University and former Senior Fellow at IASS) for valuable insights on narratives and complexity and to Sherry Towers (Arizona State University and currently also Senior Fellow at IASS) for several enlightening conversations on modeling of social system dynamics.

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

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Annex 2: Paper II

Narrations, narratives and social structures in environmental governance

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Published as:
Koch, L., Gorris, P., & Pahl-Wostl, C. (2021). Narratives, narrations and social structure in environmental governance. *Global Environmental Change*, *69*, 102317.

Abstract

Avoiding further aggravation of the consequences of global environmental change remains a complex governance challenge. Social relational structure among actors plays a key role for enhancing the capacity of collaborative approaches to environmental governance. We present an encompassing conceptual framework to advance understanding of the mechanisms that shape dynamics in environmental governance entities. Narrative theory is integrated with insights on group dynamics grounded in social network theory to contextualize local social complexities in governance processes. We assume that social relational structure between actors, and narrations they tell, co-produce narratives and dynamics at the group level. Three important mechanisms that influence dynamics are described: (1) the interplay between collaborative relationships and narrative congruence between individual actors, (2) the characteristics of actors, and (3) the actors' embeddedness in the wider social structure. A set of testable hypotheses on the interplay between narration, narratives and social relational structure in environmental governance processes is presented. We conclude by discussing why we regard this framework useful to study local and regional governance entities in the context of addressing global environmental change.

Key words: Group dynamics, Social network analysis, Collaborative governance, Environmental Management, Transformation

1. Introduction

Avoiding further aggravation of the consequences of global environmental change, such as biodiversity loss or climate change, requires profound change in human behavior to enter more sustainable pathways (O'Brien, 2012). Such transformations greatly depend on communities worldwide that face specific local challenges (Barnes et al., 2020) about which they construct very different narratives rooted in their local culture, identity and affection to place (Brown et al., 2019; van Oosten, 2013). These narratives act as vehicles for reasoning and meaning-making, for example to determine the origin of environmental change, to navigate through social-ecological complexity, or to provide a way forward for counteraction, and in some cases to reframe the existing narration leading to learning and experimenting with new practices and adapting individual behaviors (Chabay et al., 2019; Pahl-Wostl, 2009). Many scholars thus promote knowledge co-production approaches that engage and integrate a diversity of sources (Armitage et al., 2011; Berkes, 2009; Raymond et al., 2010). However, implementing such approaches does not automatically lead to the emergence of effective environmental governance (Berkes, 2007; Schlager and Ostrom, 1999).

Social relations among actors are key to facilitate much needed collective action for supporting transformative change in environmental governance (Barnes et al., 2020; Ostrom, 1999; Westley et al., 2013). Actors engage with each other in collaborative approaches of environmental governance to negotiate, exchange ideas and perspectives, and ultimately learn from each other how to resolve existing problems (Mische, 2003; Newig et al., 2010; Olsson et al., 2006; Pahl-Wostl et al., 2007). In such approaches, actors encounter each other with quite diverging perspectives or practices and negotiate these in face-to-face interaction. They interactively and iteratively (re-)construct a subjective reality that is affected by past and continuing personal experiences, expectations and social encounters (Fuhse, 2009). This continuous interaction and communication drives dynamic social processes that affect, on the one hand, how an environmental governance entity matures and takes form, and on the other hand, whether the governance entity successfully enhances its capacity to reach its goals (Ingram et al., 2019). In particular, narrations as a mode of expressing personal experiences and formulating expectations play an essential role when actors engage with each other (Ryan, 2007). The individual narrations told by

actors produce narratives that can either support or obstruct incremental shifts or radical transformations, because they legitimize or abate behavioral and policy change.

Understanding of how and why actors relate to other actors, and which effects these relations have on the dynamics in environmental governance entities is pivotal to effectively deal with the multifaceted nature of environmental problems (Bodin et al., 2019; Bodin, 2017; Groce et al., 2019). We present a conceptual framework that combines narrative research with insights from research on social structure and group dynamics to increase understanding of the mechanisms underlying dynamics of local and regional environmental governance. We specifically focus on reciprocal mechanisms through which narrations, narratives and social structure mutually influence each other. We first outline the general assumptions of the framework in the next section before we describe the foundations of narrative theory. The latter is important to understand the quality and content of direct social relationships and dynamics observed in environmental governance, as described in section 3. In section 4, we combine our developed conceptualization of narratives with findings of social network research.

The article provides an innovative approach that contributes to explaining why some environmental governance processes are successful in achieving transformative change whilst others remain unable to address interdependent cross-sectoral environmental problems. A set of testable hypotheses is developed to provide conceptual guidance for studying local and regional collaborative approaches aiming to resolve environmental problems. The article's insights are also relevant for transnational and global environmental or climate governance as well as for governance in other policy domains characterized by high uncertainty, contested negotiations and conflicting interpretations of incomplete knowledge (e.g. infrastructure development). We refer to methods for data collection and analysis techniques where we deem appropriate. This serves to suggest possible options to test the hypotheses empirically. However, it is important to note that this article offers a conceptual framework, not a methodological toolkit. There may be a range of qualitative, quantitative and especially mixed-methods suitable to apply the

framework beyond the ones referred to in this article. The selection of the methods depends on the case to be studied and the involved researchers' expertise.

2. Narration and social structure in local environmental governance entities

Narrating is a form of communication and plays a key role for consolidating social bonds and facilitating social cohesion in environmental governance (Dunbar, 2014; Wiessner, 2014). Whether in self-organized or mandated forms of governance, actors establish and maintain direct social relationships to others through communication and exchange of ideas, discuss environmental problems and possible solutions and, in some instances, contribute to developing policy instruments to address these problems (Mische, 2003; Newig et al., 2010; Olsson et al., 2004; Pahl-Wostl et al., 2007). A large number of actors are commonly affected by, and engage in resolving interdependent environmental problems through complex governance processes (Pahl-Wostl, 2019). It is thus usually impossible (and often also not necessary) for the individual actor to develop strong social relationships with all possibly relevant actors (Bodin et al., 2016; Lubell, 2013). In fact, the specific relationships formed between actors shape distinct social structural patterns as a result of the actors' decisive or subconscious partner selection behavior (cf. Rudnick et al., 2019). These distinct social structures between actors enable or constrain their ability to effectively deal with environmental problems (Bodin et al., 2016; Gorris et al., 2019).

A growing body of research investigates social relational structure in local and regional collaborative environmental governance and has contributed important insights (for recent reviews see e.g. Bodin, 2017; Kluger et al., 2020). However, the interplay between qualities and contents of social relationships, herein referred to as meaning (Fuhse and Mützel, 2011), and social relational structure among actors has received surprisingly little attention. We argue that meaning in collaborative environmental governance plays a key role to understand why and how actors interact and develop relationships to each other, which ultimately determines how successful any more or less formalized collaborative governance approach is in resolving environmental problems through collective action.

Meaning refers to the quality and content of social relationships within the cultural and political contexts they take place (Stein et al., 2018). Meaning is derived from

interpersonal expectations embodied in direct social relationships, the roles and identities of actors, and the culture of an organizational entity materializing in narratives and symbols (Fuhse, 2009). Actors present one another differing knowledge, viewpoints, narrations, symbols or practices in interactions. This affects the behavior of actors and hence how an organizational entity matures and takes form. Especially in local and regional governance contexts, actors often share a sedimented history of interaction with each other at the point of inquiry and including this acknowledges the dynamic, evolving nature of relationships (Crossley, 2010).

Consequently, collaborative governance approaches to resolve local environmental problems constitute, as Turnbell notes, "(…) an intersubjective and relational world constituted by many different actors, meanings and arguments" (2016, p. 381). Narrations play an important role as a vehicle for meaning in this context (Ryan, 2007) because actors interpret reality and deliberately create meaning in a social context through narration. Dominant and existing or novel and emerging narratives of vision are thus created to provide orientation in situations where actors in governance processes need guidance (Chabay et al., 2019). Besides being metaphorically the glue that binds the members in a collaborative governance process, a narration connects events, actors as characters, and their actions into a temporal and logical order (Fuhse, 2009; Ingram et al., 2014). External circumstances may sometimes oblige actors to work on a common task over which they do not necessarily agree on how to solve and where individual narrations clash until a glue has been found after various encounters. However, despite all efforts, actors in environmental governance can also fail in finding a glue and they will continue to struggle with creating a common meaning leading to hardened positions. As such, narrations constitute not only a phenomenon to observe and to study empirically, but examining and understanding narrations also serve as a tool to grasp the emergence and continuing dynamics in collaborative approaches to local and regional environmental governance. Recent studies have shown the important contribution narrative research can make on different topics and domains of governance, such as nexus narratives (Lebel and Lebel, 2018), outbreak narratives in epidemics governance (Leach et al., 2010), resilience narratives in urban planning (Borie et al., 2019; Goldstein et al., 2015), narratives in the German energy transition (Leipprand et al., 2017), narratives of the Anthropocene (Dürbeck, 2018) or social

movement narratives to preserve the Stockholm National Urban Park (Ernstson and Sörlin, 2009).

The conceptual framework presented here is focused on mechanisms that shape dynamics based on the interplay between narrating and social relational structure of actors involved in collaborative forms of local and regional environmental governance. We use the term environmental governance entity (EGE) throughout the paper to refer to a collection of actors involved in collaborative approaches to develop, negotiate and implement environmental governance measures that aim to resolve environmental problems, adapt to the impacts of environmental change or transform existing practices and behavior. In that sense, an EGE includes formalized organizational entities, such as co-management arrangements, as well as informal entities such as loose issue networks, communities of practice, associations, movements and others.

The social relations between the actors in EGEs, in combination with the narrations they tell, co-produce narratives and dynamics at the group level. The ensuing narratives and group dynamics then influence the appearance and functioning of the EGE they are embedded in and influences the EGE's capacity to deal with environmental problems at stake. The interdependent relationship between group dynamics and existent narratives, in turn, influence direct social relationships between the involved actors and their narrations (Fig. 1). The subsequent chapters describe the framework in detail and specify testable hypotheses about the impacts of narrations and narratives on the social structure and group dynamics in EGEs.

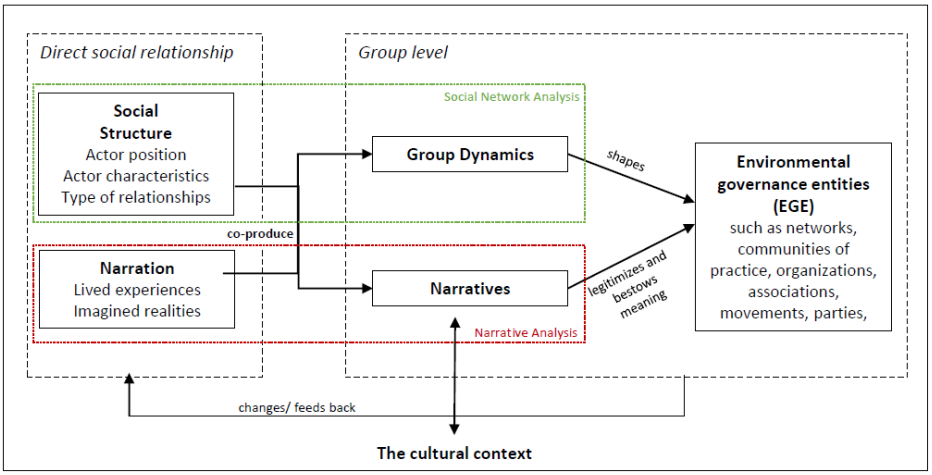

Figure 5. Conceptual framework to understand the mechanisms that shape dynamics based on the interplay between narrating and social relational structure of actors involved in EGEs

3. Narrative theory

Narrations form a central part of human language and narrating is a deeply rooted human practice (Bietti et al., 2018; Dunbar, 2014; Somers, 1994). Since people have lived together and interacted with the natural environment, they constructed narrations to help them understand the ever changing surrounding social and natural environment, express their reasoning and constitute their identity (Bruner, 1987; Somers, 1994). In this sense, narrations are understood as central cultural expressions that make an essential contribution to the interpretation and creation of meaning in a particular culture (Erll and Roggendorf, 2002, p. 77). Unlike the invented stories in novels, art or plays that the humanities deal with, we focus on narratives and narrations that refer directly to a concrete reality and make statements with a specific claim to validity (factual narratives, cf. Klein and Martinez, 2009).

Narratives have a dual social functionality in communication. First, narrators interpret a perceived reality when telling a story and try to infer meaning from it. Stories told are then the vehicle for articulating problems, conflicts, interpersonal relationships, human experience and a temporal dimension of existence (Ryan, 2007); thus function as sense-making device for the social and natural environment (Bietti et al., 2018). Second, telling a story also functions as a social influence device and is an act to intervene deliberately in the direct social environment. Hence, the manner of telling and the content of a narration elicit different reactions in the listener, for example, it can raise rage, fear or joy, which the narrator can exploit intentionally as a motivation for listener's behavior change. Specific utterances in a narration describe or prescribe orientation by beginning with a specific setting at a particular time and ending at a specific later point to provide an explanation to listeners about 'what happened' or 'what can happen if' (Viehöver, 2001). Lastly, the narrator tries to reduce a complex reality to coordinate different perceptions thereof by simulating insights in order to convey a meaningful and prescriptive interpretation of a certain situation to induce a particular behavior in others.

3.1 Similarities and differences to other concepts typically studied in environmental governance research

Nowadays, scholars use the term narrative increasingly for all sorts of explanations and often place it on the same shelf with similar concepts typically studied in environmental governance research. This bears the risk that the narrative concept is

an ‘all-rounder’: by speaking of narrative, one may disregard all other concepts. In the following paragraph and chapters, we would like to clarify what narratives are and can do, but also what they are not. A rigorous, systematic comparison between concepts is still lacking. For the sake of this paper, we will only touch lightly upon a comparison without attempting to review or even summarize the vast literature in these areas.

We follow Maio et al. (2003) by taking beliefs, feelings and past behavior accumulated in experience as the fundamental elements to attitudes (Dunlap et al., 2000; Stern et al., 1995), values (Dietz et al., 2005), norms (Bicchieri and Xiao, 2009) and worldviews (Koltko-Rivera, 2004). Attitudes, values, norms and worldviews develop from those elements and are the focus of interest when studying why people behave in a certain way (for a short overview of definitions from seminal papers see Table 1 in Supp. Mat.). From our perspective, here lies the main conceptual similarity between the concepts mentioned above and narratives. They all aim to provide answers about what shapes or influences human behavior and decision-making. Scholars commonly conceptualize attitudes, values, norms, worldviews and narratives as guiding principles for human behavior, some being more enduring than others (e.g. value vs. attitude). Furthermore, they all are (1) evaluative by expressing positivity or negativity towards something; (2) subjective referring to how one person perceives the world and not a generalizable true representation of how the world actually is; (3) at a conscious as well as unconscious cognitive level, that is in some situations one may be more aware of them than in other situations; and (4) not in isolation but influence each other (Dietz et al., 2005; Maio et al., 2003).

However, a narration is not a value; a narration can be about a value that one person holds. It is neither a worldview; it can describe a set of beliefs that are considered belonging to a certain worldview. Therefore, a narration is a communicative act and belongs to the world of language and communication, not to the world of social psychological states of mind. We see thus attitudes, values, worldviews, ideologies, cognitive frames and so forth as “hidden” traits that characterize and differentiate humans from each other. In comparison, we regard a narration as a linguistic materialization of those hidden traits that become visible to other people when they speak of them. If we want to study why some people are more environmentally concerned than others, for example, why do some people prefer to cycle over driving

a car, we can better rely on long established and refined scientific methods (e.g. the Schwartz Value survey) to understand the various reasons underlying this question. With the help of narrative research though, we can study why one particular individual has become environmentally concerned (e.g. started to prefer cycling over driving a car), what has led him or her to think differently, who was involved, which events in life have had radical changes on the preferences and behavior and so forth. We are thus able to better acknowledge the specific life context in which an individual is situated and get a detailed picture of personal motives for action. In the following chapters, we will go into this in more detail and clarify the concept of narrative and narration.

3.2 Approaching the concepts narrative and narration

Narratives and narrations have in common that they represent action and events in a chronological order, yet refer to different concepts. The concept narration denotes a more everyday activity to communicate in the form of stories; narrations being the product of storytelling (Bietti et al., 2018; van der Stoep, 2014). Storytelling plays an important role in spreading meaning and knowledge as well as personal experiences with institutions and social norms (Lejano et al., 2013; Wiessner, 2014). While narrating, people describe a subjective perception of reality (Brown, 2017), they typify imagined cultural scenarios and practices that guide their reasoning and behavior, or people use narrations (mostly in the form of personal experiences) as a medium to intervene in situations, to convince others, and to shape novel imaginations of alternative futures (Davis, 2002; Sandercock, 2003; Veland et al., 2018).

In contrast to narration, the concept narrative implies something slightly more than just a personal experience. It encompasses a particular narrative pattern on a meta level that has reached societal acceptance to some extent. The French literary critic and structuralist Roland Barthes defined narratives as pervasive in every age, every place and every society; they are countless and coexist with human life in infinite different forms be it in written or oral texts, myths, tales, legends, history, artworks and conversations. Although narratives are thus ubiquitous, there are common plot lines to be observed. Sandercock (2003, p. 13) for instance enumerates "(…) the hero's tale, the rags-to-riches tale, the fall from grace, the effects of villainy, the growth to maturity, the Golden Age lost, the pioneer's tale, the stranger comes to town, and, the young man leaves home in order to find himself/ make his place in the world/escape

from the provincial straightjacket." Such general plot lines work like a decoding scheme and help people to recognize and categorize individual narrations.

3.3 Drawing analytical lines between narrative and narration

For the purpose of this conceptual framework, we differentiate between the concepts narrative and narration for analytic reasons. Our distinction is marked by a cultural theoretical perspective that uses the concept narrative to emphasize the abstract formal and serial character of the phenomenon. In contrast, narration refers to individual storytelling, or the corresponding speech act (Müller-Funk, 2010). Although narratives and narrations may have the same content or structure, we want to distinguish narrative from narration based on a scale dimension, i.e. group level versus direct social relationship, and a temporal dimension, i.e. enduring cultural artefact versus ephemeral individual interpretation.

We conceptualize narratives as shared and located at the group level. They are constantly in flux through the retelling by a multitude of actors. We see narratives as being cultural artefacts that are always in the process of being jointly constructed, while at the same time they are emerging cultural products created, transmitted and transformed through individual narrating activities (Bietti et al., 2018; De Fina and Georgakopoulou, 2008). Even though constantly in flux, we assume that a narrative does not lose its general plot line unless an external event forces actors to reason differently. Thus, some narratives create 'enough space' to unite a multitude of actors to tell their own story.

Furthermore, a narrative bears resemblance to a shared cognition and subsequent coordination for beliefs, attitudes and worldviews about normative assumptions – a moral in narrative terms (Cannon-Bowers and Salas, 2001; Roe, 1994; Thompson and Fine, 2005), i.e. "A friend in need is a friend indeed" as an underlying lesson at the end. We do not want to substitute the concept shared cognition, neither do we want to dissolve the concept narrative, but we seek to draw general parallels between different disciplines. There are myriads of small paradigmatic beliefs that pervade the social system, together form a culture and become inter alia manifested in shared and legitimated narratives that transcend time and space and are passed onto the next generation (Müller-Funk, 2010). We understand culture as the generic definition of a system of shared meanings, or webs of significance (Geertz, 1973). Narratives function

as means for transportation of knowledge, shared meanings and ideas (Viehöver, 2001; White, 1980). Among other structural elements, they involve a normative-prescriptive element playing with various moral world understandings and thus providing a common sense of what ought to be and how to behave (Braddock and Dillard, 2016; McBeth and Jones, 2010; Rein and Schön, 1996; Ryan, 2007). All these understandings carried through narratives have an influence on what is formally allowed or not in society, what is right and wrong and what one ought to do, and what is thinkable or unthinkable that essentially structures our social environment and lead to the development of tradition that is passed on (Meadows, 1999; Müller-Funk, 2010; Pahl-Wostl, 2009; Wiessner, 2014).

However, narratives contain no intrinsic meaning, as they are abstract sequences including words and symbols. People associate with particular narrative patterns to intervene in reality, to cognitively pick up others and make them see the world as they do, and actively create meaning with the narrations they instrumentally or affectionately tell in a specific social context (Ogden and Richards, 1946). The listeners of narrations learn what words and symbols mean through communication and culture as Hall (1997, p. 2) states "Primarily, culture is concerned with the production and exchange of meaning – 'the giving and taking of meaning' – between the members of a society or group. To say that two people belong to the same culture is to say that they interpret the world in roughly the same ways (…), their thoughts and feelings about the world that will be understood by each other." In this respect, culture is the symbolic bond for a community (Müller-Funk, 2008) and the more socially accepted a narrative is in terms of its plot, the better others can understand and bond to its meaning. Hence, a powerful narrative as a jointly constructed cultural product has the capacity to carry the shared meaning of a collective entity, therefore bond diverse actors together. Vice versa, a powerful cohesive entity is able to construct a shared meaning expressed in a multitude of narrations where every member feels connected and understood by others.

An individual narration has an experiential component that motivates only this particular individual – something Bruner (1987) calls the autobiographical understanding of one's self. It informs us about the specific life context of an individual. From our own work on EGEs, for example, we studied why conflicts between

landowners and the local nature protection agency in the implementation of regional biodiversity protection measures persistently continued. Different narrations were told in the interviews about when, how and which conflicts emerged. For example, one private forest owner told about personal frustrations how state agents engaged with him before the cooperation had started, and compared past memories with experiences in the present collaboration and what he would expect from the future. People encode their interpretations of life context into a narration, which is a process often referred to as emplotment (Lejano et al., 2013; Viehöver, 2001). Emplotment encompasses the active process of categorization and identification, the positioning of the narrator in relation to other persons, and weaving events and objects into a plot with a distinct logical flow. Narrators thus create meaning with the content of their narration and social structure by connecting or antagonizing with the people around them. The private forest owner was frustrated about the management restrictions planned by the nature protection agency. Therefore, he fears a symbolic expropriation of his inherited forest by the state (meaning) and expresses solidarity and trust with other like-minded landowners while antagonizing with opponents who think differently (social structure). Emplotment often entails binding actors, their actions, objects and events in a way to associate with an established narrative pattern (e.g. A Golden-Age-lost narrative) to make even novel narrations comprehensible to others. As the local nature protection agency aimed to increase soil quality in nature-protected areas, they constantly blamed the harvesters as “big bad machines”, thus challenging technological innovation in forestry as environmentally unfriendly and as the source for soil damages. Instead, they suggested to forest owners to transport wood with horses, a traditional practice, which would benefit forest biodiversity and revive traditional local practices. In the course of conversation, the narrator’s self-understanding and the subjectively created reality can be stable or variable depending on how others perceive the narration. Finally, it means that an individual tries to position in a collective narrative through emplotment. “We become part of something [a narrative] when it becomes an essential part of the story of who we are” (Lejano et al., 2013). Thus, in essence, narrations describe the individual’s lived experiences (i.e. the subjectively constructed reality of “what happened”), and the individual’s imagined realities (i.e. the subjectively constructed imagination of “what would happen if”). The narrative then represents a shared emplotment legitimated by a

group of actors in EGEs, and is deeply embedded in, and continuously shapes, the cultural context that again (re-)structures the multitude of different narrations.

4. Narrations, Narratives and the Shape of Social Structure in Environmental Governance Entities

Any interactive processes to collaboratively find local and regional solutions to address environmental change, or for dealing with its impacts, forms more or less formally organized environmental governance entities (EGE) based on the relationships between actors (Bodin, 2017). These relationships developed between the involved actors shape distinct social relational patterns as a result of their intentional or subconscious partner selection behavior (*cf.* Rudnick et al., 2019). The structural pattern creates social order and constitutes the arrangement of relations among autonomous members linking them together (Forsyth, 2019), which ultimately impact the capacity of EGEs to successfully deal with environmental problems (Bodin et al., 2016; Gorris et al., 2019).

In this section, we combine narrative theory with research on group dynamics grounded in social network theory for specifying a set of testable hypotheses to advance understanding of the interplay between narration, narratives and social relational structure in EGEs. The framework is conceptualized and illustrated based on network analysis terminology, because it offers a universal tool to visualize and analyze relational structures and processes (Borgatti et al., 2009). The elements of interest are represented as nodes (also called vertices or actors) and the relationship(s) between them as links (also called edges, ties or arcs; see Figure 2). In the context of our framework, the actors that are part of an EGE are represented as nodes, whereas a relationship between them represents a link. A link can be a binary relationship (present vis-à-vis absent) or may be valued based on a predefined measure (e.g. strong relationship versus weak relationship, called tie strength). Our framework focuses on two types of relations between these actors (for visualization see Figure 2).

While narrations represent flows between two actors (narrator and listener) for interpreting reality as well as to express their own expectations and experiences, and would be intuitively understood as directed dyadic relationships between actors, we use the notion of *narrative congruence* for the first type of tie. Narrative congruence

in our framework represents the similarity, or overlap, between two narrations, and in this sense different levels of agreement (or disagreement) on the content of the other's narration. Similarity of narration relevant for resolving environmental problems may be related to, for example, causal relationships in terms of who is responsible for individually experienced environmental change, how this can be solved, or (dis-)agreement on the different roles in a governance process. Narrative congruence may also be assessed by examining the content of the narration, for instance, according to its episodic structure (Viehöver, 2001). The more single episodes, such as a description of problem, consequences or solutions, match insofar as actors, events and actions sequentially related in the narration overlap, the higher is the narrative congruence. The degree of difference or similarities between two narrations manifest in what we call low to high narrative congruence. In that sense, the narrative congruence tie is of non-directional nature because it relates to the degree of similarity of two narrations, not the speech act itself. The degree of similarity then determines the strength of the tie (e.g. high, medium, low). Hence, narrative congruence as used in this framework is a non-directional valued tie. To test the hypothesis specified below, information is needed for each pair of actors in the EGE and the necessary analysis may be conducted based on established methods and analytical approaches in qualitative narrative research. The results of the assessment may then be entered into an N*N matrix for the narrative congruence relationship between actors.

A second tie between two actors in the framework represents a cooperative and affective relationship that forms the basis for collaboration in EGEs. It is important to note that there are positive (collaborative) as well as negative (conflictive) dyadic relationships. Our focus on affective relationships is not to suggest that negative and maybe hostile dyadic relationships make collaboration completely impossible. Two actors disliking each other can still work together and accomplish shared objectives in many cases. Yet in our case, we only focus on affective positive relationships that we believe, in line with previous studies, facilitate cooperation and build an important foundation of effective partnerships in collaborative approaches to environmental governance grounded on mutual trust (*cf*. Ostrom, 2000; Vollan and Ostrom, 2010). The degree of affection, for instance, based on the judgement of one actor toward the other (and vice-versa), determines the strength of the relationship (e.g. low, medium,

high). This can be either operationalized as a valued directional tie, or as a valued non-directional tie based, for example, on the average of the value of the two directional ties between the actors. The degree of affection between any two actors involved in the EGE may be entered in an N*N matrix.

4.1 From narration to social relationships

Actors interact in EGEs, for instance, to exchange information, to share knowledge and to search for allies to push a common agenda (Weible and Sabatier, 2005). Narrating plays a key role in this as, through narrations, actors interpret reality to express their own expectations and experiences. Narrative research argues in this regard that perceiving another perspective in the form of narration as similar strengthens affection between individuals (Baker, 2015; Jones et al., 2014; van der Stoep, 2014).

Social network studies across different cases and contexts equally demonstrate that actors tend to forge ties with similar others, and become more similar over time (McPherson et al., 2001). This homophily phenomenon is put forward, for instance, as part of the Actor Coalition Framework (ACF) (Sabatier, 1988), a very prominent theory in political science research. The basic idea is that actors, who share ideologies and thematic agendas, are more likely to establish collaboration with the purpose of reinforcing their power in political processes through forming alliances to push joint positions (Jenkins-Smith and Sabatier, 1994). Recent support was found, for instance, in the context of regional planning processes in California (Henry et al., 2011), or Swiss climate policy processes (Ingold, 2011).

We similarly argue that, in essence, narration as the verbal interpretation of a specific topic relevant for environmental governance in a conversation creates either attraction or repulsion. The former is likely to create an affective social relationship in such ways that the two individuals would like to exchange more often on the topic (and potentially others who have made similar experiences too). In contrast, a narration might also hit on unsympathetic ears when the listener disagrees with what the narrator tells or with what the narrator might symbolize and

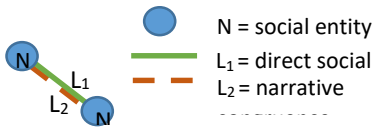

Figure 6. Narrative congruence in dyads. Dyad consisting of two different relationships between two actors. The two actors are represented as the blue circles N1 and N2. The two relations are denoted by the green solid line L1 and the

personify. In such cases, we expect that the social relationship between two actors tends to develop into a conflictive social relationship. We consequently assume that the degree of narrative congruence between two actors leads to a situation, in which the actors either get closer and develop a social relationship with a high degree of affection, or drift apart from each other and enter a conflicting relationship with low degree of affection, because of agreeing or disagreeing on the content of the other's narration.

Specifically, we expect an interdependence between the degree of affection of the social relation and the degree of narrative congruence, hence ties L_1 and L_2 in Fig. 2. The higher the narrative congruence is with a peer node (i.e. the stronger the L_2 tie), the stronger the direct social relationship L_1 in terms of affection and the willingness to collaborate and interact frequently between N_1 and N_2. On the contrary, when N_1 rejects N_2's narration and develops antipathy towards N_2, this weakens L_1 or inhibit the formation of the tie. We thus formulate

Hypothesis 1 (H1): The probability that actors enter into a strong affective social relationship increases with the degree of narrative congruence between them (**Narrative congruence hypothesis**).

Closely related to H1, we expect based on the homophily idea (McPherson et al., 2001) that with the increase in strength of the social relationship in terms of affection and sympathy, the narrations of the actors become more congruent over time. By this we mean that, L_2 has a positive effect on L_1 in terms of increased tie strength, and vice versa, L_1 on L_2 in terms of narrative congruence.

Hypothesis 2 (H2): The degree of narrative congruence and the strength of the social relationship both increase over time (**Re-enforcement hypothesis**).

That actors tend to interact with similar others and become more similar over time is certainly not new in social network studies in general (McPherson et al., 2001; Robins, 2015) as well as in social network research in the context of environmental governance in particular (Bodin, 2017). The main contribution here is that the two hypotheses illuminate an additional mechanism in collaborative approaches to environmental governance, which is related to the actors' aspiration to create meaning. In this respect, the influence of narration on dynamics in EGEs adds another dimension, for

instance compared with the ACF, that complements previous research. The homophily idea in the ACF, i.e. that deeply anchored policy core beliefs drive tie formation between similar others, commonly interpreted from a rational choice point of view, is that actors seek to form powerful alliances in the struggle over whose policy preferences are translated into policy (Leifeld and Schneider, 2012). While we do not argue against this idea, we propose that actors also develop affective strong social relationships in their attempt to (co-)create meaning in a governance process through narration that creates either affection or dislike between actors (*c.f.* H1). This also shapes the intensity of a social relation between actors through (repeated) common subjective interpretations of reality that, in turn, creates increasingly congruent narrations (*c.f.* H2).

In social network terminology, these two hypotheses concern the relationship between ties (i.e. a tie co-variate). While operationalization of specific narrations as node attributes may be possible, the disadvantage in the context of (mostly qualitative) narrative analysis is that narrations would have to be reduced to key words (that e.g. represent positions) for each actor to analyze homophily. Operationalization as narrative congruence between actors, as we outlined in the beginning of chapter 4, offers yet more scope for integrating (qualitative) narrative analysis with network analysis, because it allows to qualitatively assess the relationship between specific narrations based on a systematic analytical scheme and encode the results in a N*N matrix for each pair of actors.

4.2 Influences of actor characteristics on social relational structure

Besides narrative congruence, other factors also influence the development of a new, or the strengthening of an existing relationship. We argue that what makes a narration of one actor powerful is not only being congruent to narrations of others, but also a question of rhetoric abilities or who is telling it, and thus is influenced by the characteristics of the actors involved in narrating. Understanding of why a narration creates affective social relationships as a basis for collaboration in EGEs thus requires considering characteristics of the narrator and the listener. Research on narrative persuasion revealed some interesting findings in this regard. We collected and selected a few factors from previous studies and summarized them in Table 1. These studies point to the importance of considering the characteristics of actors in terms of their (in-)capabilities and talent as narrators and also key characteristics of their

listener counterparts, but bearing in mind that research in this field still needs further development.

For example, Fisher (1989) reflected on principles humans would use to evaluate the quality of a narration and called this ability *narrative rationality* based on *narrative coherence* and *narrative fidelity*. Narrative coherence, in his sense, deals with how probable the story sounds to the listener, thus the logical hanging together of the characters and events that are portrayed. Listeners get skeptical and wary when they feel the narrator left something out on purpose, or when interpretations do not sound plausible, referred to as epistemic vigilance or the ability to assess the quality of information (Sperber et al., 2010). Narrative fidelity refers to the similarity of values embedded in the narration and what the listener regards as truthful and humane. Moreover, Braddock and Dillard (2016) conclude that the exposure to stories can affect listeners' beliefs, attitudes and behavior in the way that they align with viewpoints in narrations. One of the impact mechanism operating is called transportation, defined as the extent to which individuals are absorbed into a story or transported into a narrative world (Green, 2004). It is assumed that the more listeners are transported into a story, a) the less likely they disbelieve or counter argue, b) the more they perceive the story experience as real, and c) the more they create strong feelings toward the character and are likely to align own beliefs, even if characters and events are purely fictitious (Green and Brock, 2000). It is worthwhile to note in this regard, however, that the findings are imprecise to what extent transportation in face-to-face communication really occurs. Furthermore, prior knowledge and past experiences of the listener play a large role (Green, 2004), as well as the extent to which a listener can identify with the portrayed protagonist (Cohen, 2001; Hoeken et al., 2016) or arguably the narrator. Furthermore, Davis (2002) considers a narration powerful that has a certain inaccuracy and openness for giving listeners the liberty to imagine and construct things for themselves allowing them to enter into conversation and filling in the gaps. Narratologists call it the audience's '*narrativity*' defined as the ability to fill in links that are required to make sense of the story (Abbott, 2014). Again, epistemic vigilance plays a role insofar people are more likely to be convinced of the conclusions they drew themselves (Sperber et al., 2010). Consequently, we include the following two hypotheses on the role of actor characteristics for persuasion at the dyadic level.

Hypothesis 3 (H3): An affective social relationship emerges when the narrator has high authority, attractiveness or credibility and/or being a talented narrator despite possibly low narrative congruence (**Perceived persuasive narrator hypothesis**).

The next hypothesis is related, yet is not the reversal of H3. While being a talented narrator is the more obvious case in persuasive communication, characteristics of the listener may be key too. We consequently posit that

Hypothesis 4 (H4): An affective social relationship emerges when the listener has high narrativity and thus becomes immersed by the narration (**Persuaded listener hypothesis**).

Table 1. Rhetoric abilities of narrator and persuasive effects on listener

Attributes assigned in network analysis	**Role**	**Influenced by**
Node attributes	**Narrator (ego)**	**Authority** lends a narrator the power to influence others through compliance (Perloff, 2014, p. 228ff) **Credibility** is a dynamic entity emerging in interaction between narrator and audience and is based on perceived expertise, trustworthiness and goodwill of the narrator (Griffin, 2009) **Attractiveness** of the narrator including likeability, similarity to listener and physical attractiveness **Story tailoring** to audience's needs and interests (Bietti et al., 2018) Making the narration sound plausible and coherent (Fisher, 1989) Describing **characters** in a rich way with specific, complex multifaceted personalities (Lejano et al., 2013) Using **vivid, personalized information** and **intense language** that evoke stronger mental images than abstract (factual) information (Perloff, 2014) **Applying** a **twist** in the narration offers aha-moment and raises attention (Lejano et al., 2013) Making use of a **breach of convention** and **counterintuitive items** makes the narration more memorable (Bietti et al., 2018; Jones et al., 2014, p. 14)
Node attribute	**Listener (alter)**	**Narrative transportation** (Green and Brock, 2000) affected by ○ Identification with characters (Hoeken et al., 2016)

- Prior knowledge and awareness (Green, 2004)
- Story coherence and simulation of salient aspects to the listener's life

Congruence of values and own understanding (Fisher, 1989; McBeth and Jones, 2010)
Epistemic vigilance to assess the quality of information included in narration
The magnitude of a listener's **need for affect** influences to what extent they feel immersed by the narration (Appel and Richter, 2010)

4.3 Group dynamics, brokers and the potential of narratives for improved integration

Any dyadic relationship between actors in EGEs is part of a larger relational structure (Emirbayer and Goodwin, 1994). Social relational structure influences social order based on the relations among autonomous members linking them together to form a single integrated entity.

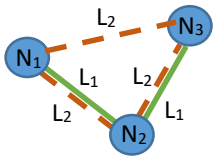

Figure 7. Narrative congruence in triads. Open triad consisting of three actors represented as blue circles N_1, N_2 and N_3. N_2 is connected to N_1 and N_3 by a green solid line L_1 representing an affective social relationship and a red dashed line L_2 that represents high narrative congruence. N_1 and N_3 are not connected via a social relationship (i.e. might not even know each other), but still have high narrative congruence.

At the same time, any EGE develops social norms on how members ought to behave given their position in the entity, i.e. their roles and identity (Forsyth, 2019). Narratives play an equally important role in this, and can be considered what Lejano et al. (2013) describe as "*the steering mechanism of the network* [or EGE]*.*". Hence, through interaction and narration, members of an EGE form a social relational order and create an own culture together based on a joint system of meaning (Geertz, 1973). The narrative functions as a carrier of this system of meaning, and is reconstructed by reconciling the different individual narrations and therefore bridges divides, if there are any, hinting at the previously mentioned metaphorical glue (Dürbeck, 2018; Lejano et al., 2013).

Consequently, a narrative is able to span boundaries between members of an EGE, even in cases where two actors might not be in physical contact with each other, but indirectly linked through others (Fig. 3). Social embeddedness plays an important role in the spread of narratives as well as the diffusion of values and norms (Emirbayer and Goodwin, 1994; Granovetter, 1992; Moody and White, 2006). Specifically, based on the homophily idea that connected actors become more similar over time (incl. their narrations), also actors that are embedded in so called open triads (see Fig. 3), in which two unconnected actors are both linked to a third actor through an affective social relationship, these two unconnected actors are likely to develop a high degree of narrative congruence. Moreover, they are likely to establish an affective social relationship in the near future. Consequently, such group dynamics are an important driver of the development of a macro culture, or a narrative shared across members (Pfeffer and Leblebici, 1973). Thus, emergent relational structures that proved to be useful for accomplishing sub-goals of the EGE start to mature and consolidate with the development of a shared narrative. This leads us to formulate a further hypothesis.

Hypothesis 5 (H5): Disconnected actors develop increasing narrative congruence over time if both are connected to a third actor via strong affective social relationships (**Narrative embeddedness hypothesis**).

Social relational structure as well as narrative congruence in EGEs are not at all static, but rather developing and maturing over time (White, 2008). Studying one or more narrative(s) circulating in an EGE helps to explain this dynamic process. As outlined above, narratives are constantly constructed through the retelling by a multitude of actors and transformed through individual narrating activities. Narrators assign specific roles and identities to themselves or others when talking about interpersonal relations, conflicts, problems or future scenarios (Ryan, 2007).

Different narratives in EGEs are likely to exist in closely linked sub-groups that often have significantly more affective social relationships with each other than to other members of the EGE (Bodin and Crona, 2009). In line with Social Balance theory (Cartwright and Harary, 1956), studies from different social network research contexts report an increased level of “us-versus-them” thinking between these groups (Foster and Borgatti, 2003; Henry et al., 2011), that, so we argue, is again reflected in the language and narrations they tell about each other.

The social relational structure among actors triggers at least two important mechanisms that drive dynamics in an EGE. The first mechanism is tightly linked to a social relational pattern (Fig. 4), in which one actor is in a central position (i.e. has the highest number of ties) and has the shortest path lengths to all other actors (Prell, 2012). People in such a position with many affective social relationships to others have a tendency to be more visible and well informed about what goes on, and therefore are considered as influential over others by having access to valuable information and resources (Bodin and Crona, 2009). The meaning of their narration connects to a narrative pattern that is either widely socially accepted or in ways that other actors would find themselves telling (Lejano et al., 2013). Hence, narrations of adjacent nodes N_2 to N_5 are highly congruent to that of N_1 (Fig. 4, T1, referring to narrative congruence hypothesis). Persuasive effects of narrations and narrator furthermore help the central actor to convince others of seeing the world in the same way. This effect is strengthened, if an actor has many ties to others in terms of both affective social relationships and congruent narrations, because this increases the reputation of this actor as credible or knowledgeable (Fig. 4, from T1 to T2). Given a group with a star-like structure based on (a) affective social relationships in combination with (b) high narrative congruence, it follows that also those actor not linked through a direct social relationship still have a relatively high narrative congruence; i.e. in Fig. 4, if N_1 and N_2 as well as N_1 and N_3 develop increasingly high narrative congruence, then the narrative congruence between N_2 and N_3 increases too. Consequently, this allows actors with many affective social relationships in combination with high narrative congruence with many others to create a group within the wider EGE and shape, or co-create, a powerful common narrative.

Moreover, in combination with H5 (transitive triads - i.e. the tendency of actors to close open triangles), we argue that this star-like multiplex social structural phenotype in environmental governance entities (see Fig. 4, T1) can be an important trigger for the emergence of a cohesive group (or sub-group within a wider entity) over time (Fig. 4, T3), which results from the many open triangles in the affective social relationships pattern and the already existing relatively high narrative congruence among the actors in the group (see Fig. 4, T1 and T2). We put this thought in the following hypothesis.

Hypothesis 6 (H6): The higher the number of social relationships and congruent narrations to others, the more increases an actor's ability to co-create a shared narrative and form cohesive (sub-)groups (**Leadership hypothesis**).

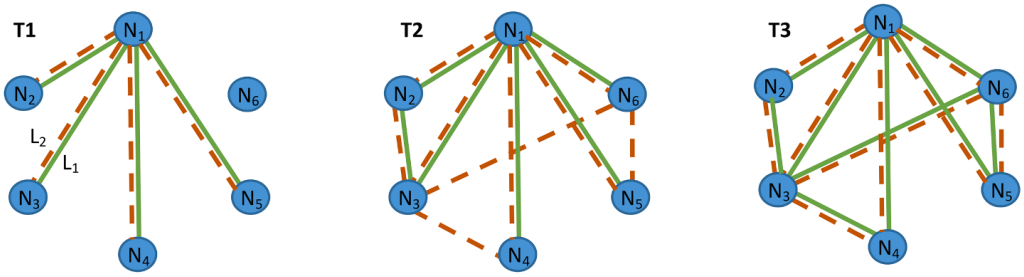

Figure 8. Sub-group structures developing around a central leader over time (T1-T3). (**T1**) Two different relations L_1 (social relation) and L_2 (narrative congruence) connect the actors N_1 – N_5. The relational structure takes a star-like shape in which one central actor (N_1) is connected to four other actors (N_2 – N_5). N_2 – N_5 are only connected to this one central actor (i.e. N_1). (**T2**) Due to a central position and a high reputation of N_1, N_6 begins to interact with N_1, represented by a green solid line. Additionally, persuasive effects of N_1 on N_6 increases narrative congruence between N_1 and N_6, represented by a red dashed line. Thus, N_6 follows the lead of N_1 and the sub-group is enlarged. The tendency for triadic closure (as described in H5) furthermore leads to the establishment of additional narrative congruence and affective ties among the group (e.g. between N_2 and N_3, between N_3 and N_4, and between N_5 and N_6. (**T3**) The other actors N_2 – N_6 start to interact and develop L_1 ties to each other and strengthen L_2 ties. Thus, the centralized network structure in T1 increasingly dissolves into a sub-group structure over time (T3). Through increased interaction, actors shape a distinct common narrative and more strongly align their narrations with each other, i.e. the number of affective ties L_1 among the group rises and the average strength of the L_2, narrative congruence ties increases in the group.

Especially common in environmental governance is that diverging and often contested interpretations of the social and environmental world exist between different actor groups (Armitage et al., 2011). This shapes segregated segments within the wider EGE, i.e. so-called cliques, or cohesive sub-groups (see Fig. 5, *cf.* Prell, 2012). These sub-groups develop different narratives and, in line with the thoughts above, may function as so-called echo-chambers for narratives (Fisher et al., 2013; Malkamäki et al., 2019). In such situations, an important role in EGEs is assumed by a broker that connects two (or more) segregated segments of the entity (*cf.* Berdej and Armitage, 2016).

In Figure 5 (T3), N_7 is an example of a broker and if removed, the social relational structure breaks apart into two segregated groups. Thus, brokers fulfil an important role by connecting sub-groups and holding an EGE together to facilitate collective action and the integration of diverse perspectives (Bodin and Crona, 2009). Brokers can also exert influence on the flow of information or resources while bringing new

perspectives to either one of the sub-groups (Prell et al., 2009). They are seen as important mediators and facilitators for collaboration between different types of actors (Bodin and Crona, 2009), however may also misuse their gatekeeper function for their own benefit (Gorris et al., 2019). In fact, the role of a broker in collaborative approaches to environmental governance is demanding. Especially in competitive settings, the brokering actor can be disadvantaged when spanning across two socially diverse sub-groups with possibly a strong social identity, since brokers may be mistrusted (Barnes et al., 2016). Brokers thus need to have a general entrepreneurial broker personality and distinct skills in order to contribute to a common good and to realize the potential of their brokering position (Landis, 2016). From a narrative point of view, brokers have to search deliberately for meaningful ways to connect to alterity groups (Fig. 5, T2). Meaningfully connecting incorporates that brokers tailor the content of their narration to the needs of the specific sub-groups in order to make it sound plausible, and subsequently maximizing personality traits, i.e. authority, credibility or attractiveness. Moreover, they must be able to effectively encode their interpretations into an integrative narrative with shared emplotment that can be legitimated by different sub-groups in the EGE, and ensure that it is embedded in the cultural context of the multitude of different narrations. This leads us to posit a last hypothesis.

Hypothesis 7 (H7): Actors can effectively bridge sub-groups, if they are capable of reconciling varying narrations by shaping a narrative with shared emplotment (**Broker hypothesis**).

It remains important to note that actor roles in an EGE may change. For instance, less important actors may play minor roles and may be less strongly embedded in the relational structure of the EGE at first. Yet, over time, this can change and new roles or identities can emerge from specific behavior of individuals, e.g. a periphery actor supposedly takes over responsibilities, bonds with others and changes his role towards a more central position in the social relational structure of the EGE, or a broker position (Pahl-Wostl, 2009). This change can occur in several ways. For instance, a person voluntarily engaging in a governing process may be appointed in a more official position (e.g. management board) with an effect on the network position of this person as well as the social relations. In essence, what we want to express is, that the

actions individual members take and the narrations they tell are interdependent and have repercussions on the structural phenotype of an EGE.

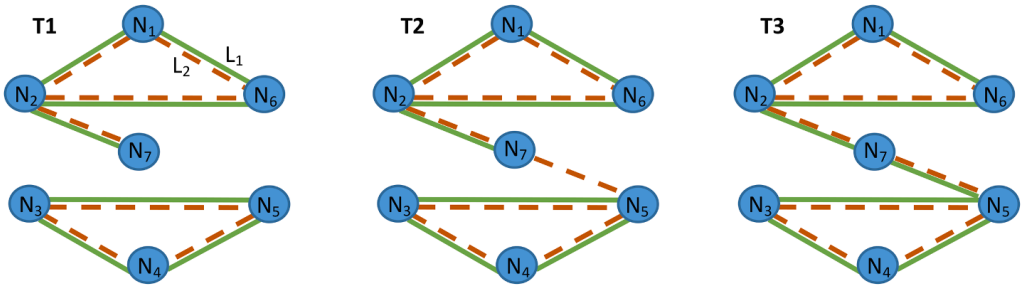

Figure 5. **Modular network developing over time (T1-T3).**. (**T1**) Two different relations L_1 (social relationship) and L_2 (narrative congruence) connect two tightly knit sub-groups ($subgroup_1$=N_1, N_2, N_6, N_7; and $subgroup_2$= N_3, N_4, N_5). **(T2)** N_7 connects successfully to $subgroup_2$ via narrative congruence (L_2) and adopts a brokering role. (**T3**) $Subgroup_1$ and $subgroup_2$ are now connected via N_7 and collaborate with one another.

5. DISCUSSION AND OUTLOOK

We integrated narrative theory with social network research in an encompassing conceptual framework to advance understanding of the mechanisms that shape dynamics in EGEs. In EGEs, a number of actors interact through distinct social relational patterns and narrate subjective interpretations based on lived experiences or imagined realities that collectively create meaning through narratives. The individual narrators associate with a particular narrative pattern on a meta-level and try to influence other actors to bond to the same narrative pattern. The resultant narrative(s) represent a shared emplotment legitimated by the actors of EGEs and are continuously reconstructed by the individual narrations. The framework specifically highlights three important mechanisms that influence social relational dynamics and the emergence of narratives in EGEs: (1) The interplay between narration and social relationships among individual actors, (2) the rhetoric abilities of the narrators and their effect on listeners, and (3) the actors' embeddedness in the wider social structure of the EGE.

Understanding the emergence of narratives in environmental governance processes is crucial, because they have significant influence on what is formally allowed or not in society, what is right and wrong and what one ought to do, and what is thinkable or unthinkable (Meadows, 1999; Müller-Funk, 2010; Pahl-Wostl, 2009; Wiessner, 2014). Global environmental change studies produced prominent narratives travelling on a

meta-level, whose patterns are in some ways competing and in others complementary to gain legitimacy and acceptance (Dürbeck, 2018). These narratives include for example unavoidable futures and disasters with current business-as-usual (Oreskes and Conway, 2013; Steffen et al., 2015), unprecedented species loss (Ceballos et al., 2015), capitalist economies and free-market ideologies threatening the global commons (Klein, 2014), winners and losers of change emphasizing great inequity (O'Brien and Leichenko, 2003), and the Anthropocene as new meta perspective on humanity (Dürbeck, 2018; Steffen et al., 2015). These narratives sound quite alarming, but were effective in raising awareness for the need to change (Herrfahrdt-Pähle et al., 2020; Pahl-Wostl, 2009). Yet, these global narratives and their abstract and general plots have thus far failed to induce societal transformations toward sustainability at the local and regional level in many cases around the world. An explanation might be that *"transformation* [and adaptation] *mean different things to different people or groups, and it is not always clear what exactly needs to be transformed* [*or adapted] and why, whose interest these transformations* [or adaptations] *serve, and what will be the consequences* (O'Brien, 2012, p. 670).

Including narrative research focused at environmental governance processes in local and regional contexts holds strong potential to contribute a complementary perspective on transformation from the bottom-up by including and studying specific life contexts of social-ecological systems in different places. Studying the narrations of individuals helps us to understand what transformation or adaptation mean to people or groups, how they transformed or adapted to a changed environment, what circumstances prevented or enabled them to change or adapt in their respective life contexts and help us build a better understanding of social dynamics of change processes in local and regional collaborative environmental governance. Barnes et al. (2020), for example, studied the adaptive capacity of individuals in a multilevel social-ecological network approach in Papua New Guinea and concluded that socio-cognitive constructs had an influence on adaptive, but not on transformative behavior. An added narrative approach in such research may offer additional value to contribute contextualized insights on the specific barriers (political, social, economic or cultural) that inhibited transformative behavior in the study area and may provide an indication of how they could be overcome. Furthermore, including an understanding of life contexts gained through narrative research into the design of local and regional

environmental governance approaches will contribute to navigate social processes. This will help to develop and implement appropriate measures to connect narratives across levels and reconcile understanding of global environmental change processes and local complexities.

Combining research of narratives and social relational structure is a crucial step to advance knowledge of why and how transformations occur in collaborative environmental governance processes. Humans do not live in isolation, but are connected in groups, communities and networks. Through communication, they influence each other's experiences, values, worldviews, norms and their behavior accordingly. Narrative analysis adds a historical dimension (Müller-Funk, 2010) and thus enables us to interpret dynamic and emergent relational processes such as learning (Pahl-Wostl, 2009), or the development of mutual trust and reciprocity (Bodin and Crona, 2009). In today's multilayered and increasing pluralistic societies, studying EGEs through a combination of narrative and network research provides for a more context-sensitive and differentiated evaluation of the barriers and opportunities to achieve transformations. Importantly, this combination also allows us to critically study the question why certain EGEs are more capable of dealing with local environmental change than others, because the inclusion of important contextual information on specific life contexts of individuals and evolved social structures can be considered.

Moreover, combining narrative and network research allows us to trace the antecedents of social structure and why and how actors relate to each other in collaborative environmental governance efforts. Transformations are often attributed to leaders with the abilities to build trust relations, contribute new ideas and create and communicate a vision (Folke et al., 2005; Herrfahrdt-Pähle et al., 2020). Combining narrative with research on social relations allows us to argue that it takes more than a leader who coordinates other actors in an EGE providing the social glue, but his narration and his characteristics as a narrator make the social glue complete. Considering the mechanisms between narrations and social structure contributes to studying dynamic developments of group cohesiveness and attraction in relation to a group's social identity (Hogg, 1992), an important need to address the challenges of organizing collaborative approaches to environmental governance (Bodin, 2017).

Likewise, our framework is important for the co-creation of knowledge (Armitage et al., 2011; Emerson et al., 2012) and learning within collaborative governance processes, where it is often difficult to capture local, situated and informal knowledge or tacit personal experiences (Raymond et al., 2010). Different from other considerations, we highlight that the narrative of an EGE is created from individual narrations that are not necessarily congruent. Rather, actors bond in EGEs based on distinct social relational structure among actors in combination with a powerful collective narrative that allows them to reconstruct the collective narrative in their own words, which Lejano et al. (2013) refer to as plurivocity, in the sense that a powerful narrative leaves room for the localized interpretation and life experience from others.

Research in the fields of narratives and social networks have both developed a range of tangible data collection and analysis techniques. The conceptual framework presented in this paper can thus draw on a suite of methods developed especially over the last two decades that consistently combine quantitative and qualitative research methods to study networks in environmental governance (Barnes et al., 2020; Bellotti, 2016; Crossley and Edwards, 2016; D'Angelo et al., 2016). Though systematic network surveys allow researchers to handle the size and complexity of social structure and to make explanatory claims about it, qualitative data retrieved through interviews, maps, observations or field notes contribute details and outline complexity enabling the researcher to do a necessary reality check (Crossley, 2010). For example, Ryan et al. (2014) reflect on their combination of network visualization through a target sociogram and in-depth interviews with a network survey taken beforehand, which enabled them to collect rich network data about high skilled migrants. Moreover, Altissimo (2016) gained an insight into the subjective meanings and importance of relationships of international students by applying a Qualitative Structural Analysis (Herz et al., 2014). This approach advances an alternative capture of social networks by combining egocentric network maps and narrative interviews.

Despite these developments in the broader SNA community, and especially considering recent developments towards an improved assessment of social-ecological interdependencies (Barnes et al., 2019; Bodin et al., 2019), there is still room left in the environmental governance literature on social networks to investigate

interdisciplinary conceptualizations and mixed-method analyses. For the purpose of studying the presented hypotheses in detail, the necessary quantitative data could be collected through a classic network survey and qualitative data through letting subjects tell their experiences about the network in form of a narrative interview with an inductively created coding scheme to allow for analyzing narrative congruence. This could be complemented by additional visualization techniques (Altissimo, 2016; Bellotti, 2016). However, we acknowledge that operationalizing a combined approach is certainly ambitious. Particular emphasis on operationalization in empirical studies is needed for the systematic reconstruction of narratives and consistent coding to understand implications of narratives on dynamic processes on collective entities. It is important to note that narratives in our understanding are rather a situational and interactional co-production of narrators, other materials and symbols circulating inside and outside of the collective entity, and what we eventually refer to as the narrative are the collected materials and our interpretation thereof. Furthermore, we recognize as a strength of the paper that our conceptualization of narrative congruence remains relatively open for other scholars to take the hypotheses to their own cases and contexts, develop a research design that reflects their (or the team's) research skills and adapt to the types of narrations and narratives investigated. These types are to study the content of narrative, e.g. narrations about facing local challenges of climate change and the need to adapt and transform, or to use narratives as a tool to study social structure, e.g. network exposure as in analyzing the representation of particular actors and their influence on others (*cf.* Barnes et al., 2020). Depending on the question and context, varying mixed-method research designs may be applied. For scholars who are yet new to qualitative research, in-depth interviews shape and influence the way actors share their experiences and their imaginations of the network with the interviewer. Ryan et al. (2014) thus consider a reflexive approach of the researcher as important to help overcome challenges associated with qualitative research techniques.

This framework is an important step to encourage environmental governance scholars from the fields of social network analysis and narrative analysis to engage in fruitful conversations. Joint efforts offer a tangible way to study a wider range of questions important for improving environmental governance processes, such as how to navigate social processes in environmental governance across scales. What effect does

a collective narrative has on knowledge co-creation and adaptation or transformation processes to environmental challenges? In addition, specific questions could be addressed such as when and why do narrations of specific network members become collective narratives? Or how can brokers increase their effectiveness across scales? Finally, while quantitative social network analyses were somewhat blamed to lack contextualization and complexity (*cf.* Lejano et al., 2013), qualitative studies including narrative analyses may lack systematic approaches and are highly case-specific thus difficult to generalize. The innovative integration and operationalization of network and narrative concepts presented in this paper are a first step toward a more systematic, but context-sensitive approach.

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Annex 3: Paper III

Communication, Trust and Leadership in Co-Managing Biodiversity: A Network Analysis to Understand Social Drivers Shaping a Common Narrative

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Under Review as:
Koch, L., Gorris, P., Prell, C. & Pahl-Wostl, C. Communication, Trust and Leadership in Co-Managing Biodiversity: A Network Analysis to Understand Social Drivers Shaping a Common Narrative. *People & Nature*

Abstract

The aim to motivate collective action to restore global and local biodiversity needs a common narrative including plausible recommended actions to reconcile different individual narrations and bridge diverging beliefs. This paper examines which social drivers shape the emergence of a common narrative among diverse actors involved in co-management. We explore the existence of a common narrative with the help of narrative congruence, which relates to the similarity of narrations that actors tell. We apply a mixed-method case study approach to investigate the effects of the types of ties between two actors as well as specific leadership roles in an Exponential Random Graph Model. We find that frequent interaction between two actors and a trusted leader with many reciprocal trust ties are significant drivers that support the emergence of narrative congruence ties. Connecting leaders, i.e. actors in brokering positions, show a statistically significant negative correlation with narrative congruence ties. These results suggest that common narratives tend to emerge in sub-groups around a highly trusted leader, in which actors talk frequently to each other. A brokering leader, however, seems to face strong difficulties of forming narrative congruence ties with others in our case, although such brokers play central roles in the co-design of common narratives in co-management to form the basis for motivating collective action. Lastly, we illustrate the importance of common narratives and how brokers can better succeed in co-designing these in environmental co-management approaches.

Keywords: Narrating as meaning making; Group dynamics; Environmental management; Local ecological knowledge; Natura 2000 implementation

1. Introduction

The conservation of biodiversity has increasingly built on decentralized co-management approaches aiming to develop a learning environment for governments and resource users on how to address and deal with biodiversity loss on the ground (Berkes, 2009; Cinner et al., 2012). While there are many critical elements determining the success of collaborative management (Armitage et al., 2011; Reed et al., 2018), communication, i.e. the creation and interpretation of meaning in a social context, lies at the heart of every co-management process. Narratives represent one form of communication in which humans organize meaning and narrating represents an important means for making sense of personal experiences and sharing it with others (Cortazzi, 2007; Koch et al., 2021). Many scholars perceive dialogue among heterogeneous stakeholders as the fundament on which collaboration and many subsequent processes rest, such as negotiation over goals and values, trust building and social learning (Ansell and Gash, 2008; Pahl-Wostl et al., 2007). In this context, communication in dialogues is often seen as a means of creating transparency as well as the management of expectations and mediation of conflicts (Garard et al., 2018).

Especially in contested environmental and development contexts, arriving at a common understanding and a shared vision for future action is regarded as pivotal guidance of the evolving process (Ansell and Gash, 2008; Daniels and Walker, 2001; Reed et al., 2018). Stakeholders ideally discuss diverging perspectives or practices in on-going face-to-face dialogues, in which they eventually overcome prior differences. Over time this is expressed in converging narrations as a mode of expressing personal experiences and formulating expectations that play an essential role when actors engage with each other (Jones et al., 2014; Ryan, 2007). However, a truism among communication scholars is that communication is as much an exchange of information as a relational process (Condit, 2006). On the one hand, aligning to different sense making means to build bridges to other actors and approach each other to create a common narrative. On the other hand, the types of relationships between actors influence what one communicates at all. These complex communication processes drive social dynamics and the formation of narratives that feedback and influence communication and structural patterns between actors (Koch et al., 2021).

The focus of this paper is to study the interplay between narration, narratives and social relational structure in diverse actor networks. Building on the framework presented in Koch et al. (Koch et al., 2021), this paper examines which social drivers shape the emergence of a common narrative in co-management arrangements. Social relations and structural patterns among actors have a significant effect on the capacity of the arrangement to deal with biodiversity issues (Bodin, 2017; Bodin and Crona, 2009; Prell et al., 2010). Numerous studies have shown correlations between the kind of actor relationships, actor embeddedness, structural patterns and how these relate to environmental governance processes and outcomes (Barnes et al., 2016; Bodin, 2017; Bodin and Prell, 2011; Gorris and Glaser, 2021; Jasny et al., 2021; Kluger et al., 2020; Sayles et al., 2019). This study uses a mixed-method case study approach to investigate the interplay between narratives and social relations among actors involved in a German regional stakeholder network established to implement the Natura 2000 regulation and to co-design management plans for protected Natura 2000 areas. We combine qualitative data on narrative congruence with quantitative social network data to test the effects of the types of ties, which we conceptualize as narrative congruence, frequent interaction and trust ties between two actors as well as specific leadership roles in an Exponential Random Graph Model (ERGM).

In the following, we introduce communication processes and the theoretical underpinnings that led us to pose five hypotheses in Section 2 and provide information on our methodological approach in Section 3. We then present our results of the model and contextualize this with results from the qualitative assessment in Section 4. We discuss the findings in light of previous research studies in section 5 before we summarize and conclude with claims arguing for a common narrative in Section 6.

2. COMMUNICATION AND SOCIAL STRUCTURE OF CO-MANAGEMENT

Co-management has been developed as knowledge partnerships between government agencies and private stakeholders to jointly deliberate concrete actions, and share power and responsibility in successive cycles of social learning and trust building (Berkes, 2009; Daniels and Walker, 2001; Herzog, 2020). These partnerships evolve on the one hand in informal social spaces, i.e. shadow networks (Olsson et al., 2006; Pahl-Wostl, 2009), or on the other hand develop as formal mandated co-management arrangements led by state actors (Kochskämper et al., 2016). Our study

is carried out in the context of co-management in the latter form consisting of a collaborative arrangement initiated and led by actors from government administration, who engage with other state actors and stakeholders to drive the implementation of the EU Habitat Directive or also known as Natura 2000 (Reed et al., 2018). In Germany, the Nature Protection Authorities (NPA) at district level have specifically been assigned with the implementation of this EU directive. In order to be effective on the district level, NPA actors have to translate broad EU conservation goals into specific, manageable measurements for area-specific management plans that need to be implemented. Yet, hereby NPA actors depend on other public sectors and local landowners and users, as most of the protected Natura 2000 areas are located on privately owned land. Thus, the implementation of Natura 2000 requires collaboration and agreement with landowners on management planning and implementation of protected areas. Consequently, in this paper, collaboration in co-management arrangements refers to a heterogeneous group of actors linked through collaborative ties that have to cultivate a common ground for solving certain issues for a mutual benefit (Bodin et al., 2020).

Narratives legitimize and bestow meaning to a co-management arrangement and help individual actors to decode and categorize other individual narrations (Koch et al., 2021). Narratives as socio-cognitive constructs are able to influence normative beliefs about what ought to be and how to behave, and therefore guide and nurture communication and dialogue (Bremer et al., 2017; Polkinghorne, 2015). A common narrative that guides a co-management process means that actors have developed a common policy reality and a collectively shared system of meaning to reconcile different individual narrations and sense makings and to bridge diverging beliefs. Consequently, the power of narratives resides in a shared, boundary-spanning emplotment legitimated by a group of collaborating actors, whose different narrations match to a large extent and continuously reconstruct the overarching narrative (Koch et al., 2021; Lejano et al., 2013).

Yet, the cultivation of a common and widely shared narrative is easier said than done. Many collaborative processes mandated by governments to facilitate policy implementation struggle to do so and/or often encounter conflicts along the way (Gallo et al., 2018; Kochskämper et al., 2016; Winkel et al., 2015). This can be partly

explained by the fact that the actors involved are socially situated in a relational and historical setting and originate from different social systems, while they discuss different past experiences and values (Leeuwis and Aarts, 2011; van Herzele and Aarts, 2013). In our case study context, actors have to negotiate and reach an agreement on the specific management practices needed for the restoration of habitats and species based on the Natura 2000 regulation. In this discussion, very different viewpoints and beliefs come together.

Narrations as a mode of communicative action play an important role when actors exchange viewpoints, express experiential knowledge and formulate expectations when engaging in face-to-face communication (Koch et al., 2021; Ryan, 2007). Narrations transport meaning that grounds on past experiences, attitudes, norms, worldviews and how the individual makes sense of the surrounding natural and social environment (Bietti et al., 2018). They are a cognitive representation of what an individual thinks and values and of what an actor characterizes him-/herself and others. When confronted with narrations from other actors in conversations, individuals make sense of them in the light of their own knowledge and beliefs and substantiate those conclusions with past personal experiences. It is like a comparison of what one actor thinks and feels, and what other actors say to think or feel, and based on this subjective judgement the individual creates either affection or dislike with other actors involved (Koch et al., 2021; Newell, 2012; van Herzele and Aarts, 2013).

We explore the existence of common narratives with the help of narrative congruence, which relates to the similarity of narrations that actors tell (Koch et al., 2021). Narrative congruence - understood as the similarity between two (or more) narrations – embodies the resemblance of meaning-making and cognitive representation expressed in verbal communication. The degree of similarity between two narrations is then what we call low to high narrative congruence. Our overall assumption motivating this article is that we expect that *(i)* the social relationships between actors (dyads), as well as *(ii)* the social relational position of an actor in a network correlates with the degree of narrative congruence between two actors. Our conceptual framework is summarized in Fig. 1 and we continue to describe our assumptions about

the mechanisms that affect narrative congruence in the following sub-chapters 2.1 and 2.2.

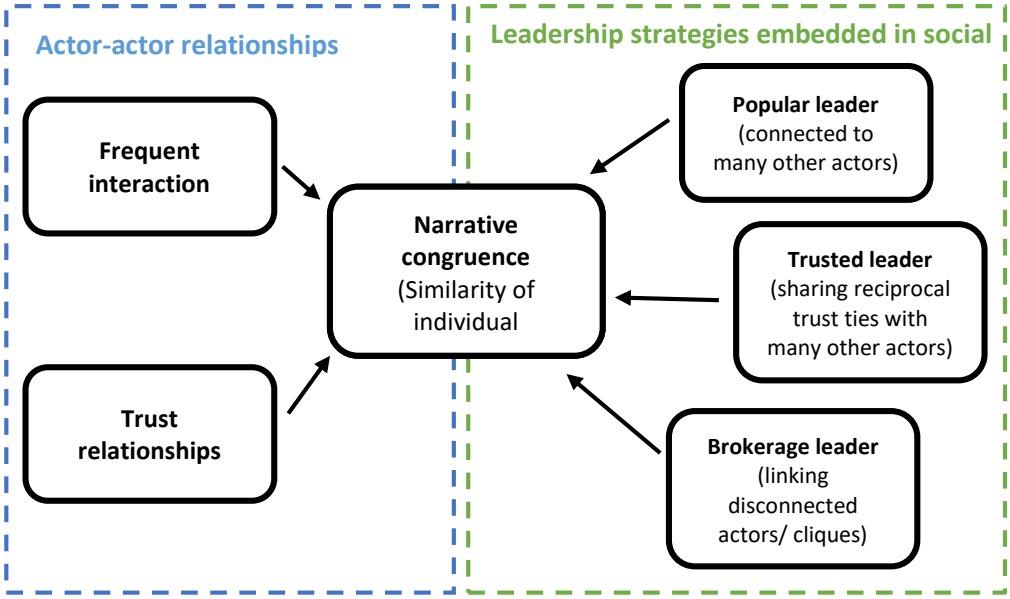


Figure 9. Conceptual considerations for the investigation of relationships between different actor-actor relationships (dyad level; blue rectangular) as well as three specific leadership roles embedded in social relations (ego network level; green rectangular) and the emergence of narrative congruence.

2.1 Actor-actor relationships and narrative congruence

Research on co-management, stakeholder participation and social learning has shown that social relations start to form through knowledge partnerships and based on communication and knowledge exchange (Berkes, 2009; Muro and Jeffrey, 2008; Reed, 2008). One finding that studies have consistently supported is that the frequency of interaction makes a big difference; i.e. if and how much participants communicate with each other to build a mutual understanding of the problem and possible pathways to resolve it (Ansell and Gash, 2008). In fact, most if not all studies assume collaboration to be an on-going process consisting of recurring meetings and encounters that provide actors in several learning cycles the opportunity to analyze and to develop a common understanding to plan together (Daniels and Walker, 2001; Pahl-Wostl, 2006; Suškevičs et al., 2017). Additionally, recurring encounters and meetings might help to discuss conflict legacies or prevent new troubles to stir up between adversary groups of actors (Lumosi et al., 2019) as a frequent exposure to various viewpoints, experiences and expectations of others increases the ability of the

individual to understand the complexity and interdependency of environmental problems (Beierle, 2002). We consider this as an important driver for commitment and narrative congruence between actors. Hence, regular meetings and encounters make a tremendous difference in whether actors come to understand each other and to develop the capacity to act together. We consequently expect that

Hypothesis 1: Frequent interaction between actors increases narrative congruence (Frequent interaction hypothesis).

Previous studies have also shown that actors are more likely to engage in collaboration when having an open attitude, paying respect to and trusting each other (Garard et al., 2018; Mostert et al., 2007; Schusler et al., 2003). The role of interpersonal trust has been viewed as pivotal for collaboration between diverse actors (Ansell and Gash, 2008; Newig et al., 2017; Reed, 2008). Besides trust being normatively desirable in groups to weaken power asymmetries and to foster equality (Reed, 2008), developing trust and a perception of fairness in the process and outcome is related to instrumental goals to increase acceptance and consensus among diverse stakeholders (Wesselink et al., 2011). Nevertheless, trust is a complex, multidimensional concept (Stern and Coleman, 2015) and studies remain divided about whether interpersonal trust precedes the development of a mutual understanding (Ansell and Gash, 2008) or whether it is an outcome of collaborative processes as a whole. Some scholars argue that interpersonal trust is built though repeated interaction between individuals (Lin et al., 2001; Ostrom, 1990). Once actors involved in co-management processes trust each other, these relationships can be considered strong ties in a network and encourage actors to maintain these relationships for mutual benefits including information exchange and to be able to influence others' perspectives and behavior (Teodoro et al., 2021). Accordingly, interpersonal trust facilitates communication and creates a benevolent atmosphere in which stakeholders dare to express their expectations and opinions, and nudges actors to engage in productive and proactive idea implementation (Ashley Fulmer and Gelfand, 2012; Emerson et al., 2012). We thus assume that another consequence of trusting relations between individuals is to engage in the same communicative actions, i.e. joint meaning making leads to a convergence of narrations that actors tell. We thus formulate a second hypothesis

Hypothesis 2: Trust among actors increases the likelihood of actors sharing congruent narrations (Trust hypothesis).

2.2 Leadership and narrative congruence

Any actor-actor relationship is embedded in a larger relational structure, in which actors may occupy specific positions that are attributed to roles in a collaborative process (Emirbayer and Goodwin, 1994). Research highlights the importance of leadership roles in co-management, which are often derived from formal rules equipping particular persons with decision-making rights and responsibility (Heikkila and Gerlak, 2013; Pahl-Wostl, 2015). These actors bring relevant stakeholders together and (attempt to) steer their interaction (Ansell & Gash, 2008; Folke et al., 2005). In policy implementation contexts in particular, state actors most often assume formal leadership, as they are officially responsible for implementing policy and initiating collaborative processes. Given their formal role as initiator and (liaison officer to the) decision-maker, these actors adopt a key role to lead the co-development and joint implementation of environmental policy adapted to the local circumstances through a co-management process.

Formal allocations of power alone, however, are insufficient to develop successful co-management processes. Effective leaders project an image of competency and trustworthiness (Chemers, 2001), build good working relationships to others (Bodin et al., 2006) and strategically shape social relations around them (Bodin, 2017). Advantageous positions in a collaboration allows actors to coordinate activities, pool knowledge, and synthesize others' perspectives and socio-cognitive constructs for common sense making (Ansell and Gash, 2008; Bodin, 2017). Besides networking capacities, good leadership also requires a certain set of soft skills (Westley et al., 2013), especially with regards to communication abilities (e.g. ability to tell compelling narrations) to inspire others for aligning beliefs or behaviors (Koch et al., 2021). Hence, we assume that a successful leader facilitates the (co-)creation of a common narrative in the network as a product of mutual understanding and strategic networking. We distinguish between three different forms of leadership in co-management processes, i.e. popular, trusted and brokerage leaders.

First, there are actors who liaise with many other actors. This strategy maneuvers them in a central relational position in the actor network through which they gain popularity.

They talk to many others and frequently discuss matters, or are often asked for information. Research suggests that, because of many links and frequent communication with many others, this type of leader assists in information and knowledge sharing, facilitates coordination and integrates processes and background operations (Olsson et al., 2006). The most important resource of popular leaders is thus their contacts with many others and, thereby, their potential to influence a large proportion of actors in the collaboration by regularly communicating with them. This permits reconciling different viewpoints and integrating meaning for a common narrative to emerge. We assume that such a leadership strategy unfolds pressure toward group uniformity (Festinger, 1950) and facilitates the emergence of a shared narrative even more. We thus assume that

Hypothesis 3: Actors with higher interaction centrality tend to have more narrative congruence ties to others (Popular leader hypothesis).

A networking strategy that predominantly aims at building trust to other actors, rather than trying to interact with as many other actors as possible, constitutes a second leadership strategy. We refer to these actors as trusted leaders. Particularly, such trusted leaders are able to rely on their strong and durable relationships to create an overall climate of openness, equality and safety for improved communication. Trustworthy leaders strongly benefit from being perceived as benevolent by other stakeholders, who are then more willing to follow. A perception of benevolence relies on assumptions of shared values, feelings of social connectedness, shared positive experiences and a perceived shared identity (Stern and Coleman, 2015). Attractiveness, credibility and empathy traits intensify the impact of the trusted leader even more. Due to these reasons, we posit that trusted leaders will have an easier time to steer towards productive group dynamics, e.g. through initiating productive conflicts without running the risk that this escalates and disrupts the group. In productive conflicts, people start to reflect others' perspectives and opinions and this opens the communicative space for creating synergies that facilitate the formation of a shared narrative. Thus, we propose that

Hypothesis 4: Actors with higher trust centrality tend to have more narrative congruence ties to others (Trusted leader hypothesis).

Although belonging to one co-management group, individual actors usually do not directly communicate with all other actors, but rather a sub-set of the other actors (Lubell, 2013). Actors, who connect two actors, who themselves do not communicate, hold brokerage positions in a network (Bodin and Crona, 2009; Meijerink and Huitema, 2010). Such brokerage positions in communication networks play an important role for the integration of diverse perspectives and different meaning making (Prell et al., 2009), since brokerage positions can enhance an actor's capacity to strategically work on reconciling, and eventually aligning narrations of disconnected actors (Koch et al., 2021). Specifically in value-laden controversial political processes with high potential for conflict, brokerage is an important leadership strategy to seize opportunities that emerge from different subjective realities evident from varying narrations, and to mobilize different meanings for strategically building shared narratives that resonate with many other actors' narrations and converge in multi-stakeholder conservations (Leeuwis and Aarts, 2011; Westley et al., 2013). Thus, we assume that

Hypothesis 5: Actors that tend to occupy broker positions tend to have more narrative congruence ties to others (Brokerage leader hypothesis).

3. METHODS

3.1 Study site and data collection

In order to test these hypotheses, we focused on a mixed-method social network analysis on case study data from a local co-management arrangement between state actors and stakeholders – hereinafter called the "regional cooperation". The case study is located in a German rural region where a cultural landscape has developed over the last centuries. We refrain from denominating the region in order to protect the anonymity of our participants and ensure their privacy (see Suppl. Mat. for more background information). The local Nature Protection Authority (NPA) created the regional cooperation in 2017 in the context of Natura 2000 implementation. It represents a voluntary consortium of actors from agriculture, forestry, water management and hunting (Tab. 1) to bury prior conservation disputes and to collectively work on the design of Natura 2000 management plans. Additionally, a regional manager was employed to facilitate communication and collaboration between state actors and stakeholders and to initiate small collaborative projects. In the past, Natura 2000 has been very disruptive in the region and has left deep divides

between conservationists, landowners and users. Hence, past incidents and former discourses prior to the launch of the regional cooperation still have an impact on the social dynamics in the regional cooperation today (Suppl. Mat. II).

Table 2. Actor groups and number of actors in the regional cooperation

Regional cooperation (N=22)	
State actors	
Lower Nature Protection Authority (NPA)	3
Chamber of Agriculture	1
Forestry Office	1
Office for Regional Development	1
Stakeholders	
Local Nature Park	1
State-owned forestry	4
Private forest owner association	5
Agriculture	2
Water management	2
Local hunting associations	2

To gain a detailed and comprehensive view of the regional cooperation and its setting, data collection was inspired by a pragmatic narrative approach to explore the relationship between structural configurations and participants' communicative action (Savin-Baden and Howell Major, 2013, p. 195; Suppl. Mat. I). Since 2017, the participants of the regional cooperation have met in official meetings four times a year to discuss the development of management plans for protected Natura 2000 areas. Our goal was to study and observe the regional cooperation and its participants in their natural environment by repeatedly taking part in official meetings and to gain a comprehensive understanding of all members' subjective perspectives and experiences by speaking to them personally. With the approval of all participants, the first author participated actively in meetings and excursions, made unstructured observations, took field notes and got access to written minutes of prior meetings. The first author has continued to participate in the meetings ever since and is regularly in contact with the regional manager of the cooperation. Network data and narrations of participants were collected in a period between September 2019 – January 2020.

To obtain information from the participants concerning their subjective perspective and personal experience with the Natura 2000 legislation and the regional cooperation development, we conducted and recorded narrative interviews with them (n=19) that

lasted approx. 30 to 120 minutes. According to the narrative interview method, we posed a very broad and open narrative stimulating question that encouraged the participants to tell an impromptu story about the lived experiences in direct interactions in the retrospective (Küsters, 2006). All narrative interviews were conducted with the first author ensuring narrative interviews were following the same style (Suppl. Mat. III).

A questionnaire complemented the narrative interviews to obtain information on the social structure of the regional cooperation. This questionnaire contained a series of social relational questions to generate network data using a stakeholder roster that contained all actors involved in the regional cooperation. We asked the participants about the frequency of interaction via the following statement: "I cooperated with [person from the collaboration] regarding biodiversity protection since the beginning of my membership in the regional collaboration". Answer options for this item ranged from 1 ('daily') to 9 ('less than once a year'). These valued data was entered into a N*N actor matrix to store the directed valued network data. The data then was symmetrized using the average of the value in the responses of two actors. Subsequently, the data was dichotomized only including interactions with a frequency higher than once a month (1=interaction at least once a month; 0=otherwise) so that it can be used in the ERGM (see Ch. 3.2.2). Data was used as undirected network. For measuring trust relationships between actors in the network, we asked each respondent "Who do you turn to when you want to discuss an important, relevant topic in confidence?". Relational data was organized in an N*N matrices to store the directed binary network data. Only reciprocated trust ties were considered. We thus collected data on interaction frequency (subsequently called "interaction frequency" network) and trust relationships (called "trust" network) between actors. Other relevant information on the actors was also collected through the survey and stored in a so-called 'list of actor attributes', of which we use the respondents' core beliefs based on the Nature Relatedness scale (Nisbet et al., 2009), actors type (state vs. non-state actors) and size of organization.

3.2 Data analysis

3.2.1 Qualitative data analysis and quantification of qualitative data

Qualitative data was manually transcribed and analyzed in MaxQDA 2020 (VERBI Software, 2019). We used thematic analysis to identify and analyze patterns in the data (Braun and Clarke, 2006). We therefore coded the material in two iterations. A first inductive qualitative content analysis of the narrative material allowed us to create a first set of emerging codes that led us to identify six overarching themes recurring throughout all interviews. We then inductively classified for each theme a set of sub-categories (n=30) from all interview material that we took as codes for further qualitative analysis, with which we recoded all narrative interviews in a second coding iteration (Suppl. Mat.). In this way, we could focus on the narrations participants told to interpret past and present settings of the regional cooperation and use this information to explain and contextualize findings from the quantitative analysis. Furthermore, we could capture the richness of qualitative material and use this as a basis to examine narrative congruence between network members and to create a narrative congruence network.

This rich qualitative text data was converted into binary relational information for inferential network analyses in order to quantitatively test the formulated hypotheses to advance understanding what relational structures cause narrative congruence ties to emerge between each pair of actors. We used narrative congruence as a non-directional tie because it relates to the degree of similarity of two narrations, not to the communication flow between two actors (Koch et al., 2021). Thus, after the above-described coding procedure, we counted the codes for each category of a theme in the interview for each actor and compared the codes with each other to analyze for narrative congruence, i.e. the similarity of narrations. This means that we assessed the similarity of narrations for each pair of actors by comparing the coding of the themes and categories. The theme reason for membership, for example, had five categories and if two actors had three overlapping codes out of five in total, they had a sixty per cent narrative congruence for this particular theme. We followed this procedure for all six themes for each pair of actors and finally took the average value of all thematic narrative congruence percentages to get a narrative congruence value of all themes together. We entered the results of the similarity assessment into an actor by actor matrix and converted it into a binary matrix representing low (<50% overlap = 0) and

high (≥50% overlap= 1) narrative similarity (Suppl. Mat.). This we call the "narrative congruence" network.

3.2.2 Quantitative data analysis and specific network measurements

Given that we assumed for this study that an actor's narration is dependent on the narrations of others and further relational variables in governance networks (cf. Koch et al., 2021), the data violates the data independence assumption of standard statistical analyses. Hence, analyses to explain the existence of high narrative congruence ties were performed using inferential network analysis based on Exponential Random Graph Modelling (ERGM) techniques. The ERGM is a cross-sectional model where binary network ties (called edges) between actors (called nodes) are the outcome of interest. Specifically, an ERGM treats the presence (vis-à-vis the absence) of a relationship (i.e. high narrative congruence in our case) between two actors as the dependent variable. Tie structure of a whole network is modelled in a bottom-up fashion by describing the network in terms of endogenous structural properties (e.g. cycles, clustering or density) and covariates. The covariates can take the form of nodal attributes (e. g. actor type) and edge covariates (i.e. other relations). The model is fitted via Markov Chain Monte Carlo Maximum Likelihood Estimation (MCMC MLE) as described by Snijders (2002). The estimated coefficients can be interpreted as in a logit regression model. The dependent variable is the log odds of establishing a network tie. Coefficients are interpreted as log-odds ratios conditional on the rest of the network (see Cranmer et al., 2016 for details and a succinct description of ERGMs, including their strenghts and weaknesses compared to other models). Quantitative analysis was implemented using the "ERGM" suite in the R-environment, a program that implements the MCMCMLE procedure for ERGMs. Network graphs were produced using Gephi software (Bastian et al., 2009).

We summarize the measurements used for analysis and model specification in Table 1 (Suppl. Mat. for full model specification). For testing the **frequent interaction hypothesis (H1)**, we used the "frequent interaction" tie between two actors as an edge covariate in the model, where a positive resulting coefficient indicates that frequent interaction ties tend to correlate with narrative congruence ones. For the **trust hypothesis (H2)**, we used the "reciprocated trust" tie between two actors as an edge

covariate where a positive resulting coefficient indicates that trust ties tend to correlate with narrative congruence ones.

For hypotheses 3-5, we first calculated centrality measures to account for actors' positions in the "frequent interaction" network and the "trust" network. These included degree centrality for the "frequent interaction" network and the "trust" network to test hypotheses 3 & 4. Betweenness centrality for the "frequent interaction" network was calculated to test hypothesis 5 and for the "trust" network to use as a control in model (see below).

Regarding the **networking leadership hypothesis (H3)**, we used the actors' "degree centrality" score on the "interaction network" as nodal covariate in the model. A positive resulting coefficient would indicate that actors with higher interaction centrality tend to have more narrative congruence ties to others. Similarly, for the **trusted leadership hypothesis (H4)**, we use the "degree centrality" value from the "trust network" as nodal covariate to test whether a high degree centrality score of an actor in the trust network has an effect on the presence of a narrative congruence tie. A positive resulting coefficient would indicate a higher likelihood for a narrative congruence tie, if (at least) one of the two actors in a dyad has a high degree centrality score in the trust network (is a highly trusted person). For the **broker hypothesis (H5)**, we use the actors' "betweenness centrality" score in the "interaction network" as nodal covariate. A positive resulting coefficient suggests a higher likelihood for a narrative congruence tie, if (at least) one of the two actors in a dyad has a high betweenness centrality score in the interaction network (i.e. assumes a brokerage position).

We included a number of control variables in the model that we believe help explain the observed narrative network structure, and for isolating the effects stated in the hypotheses on narrative congruence formation. First, we included the "triadic closure", which tests the propensity of a network to contain closed triangles. While this is a commonly found network effect in social networks (e.g. "friends of your friends are my friends too"), in our case – i.e. investigating narrative congruence between actors – this has not been studied. The triadic closure effect in the narrative congruence network is modelled using the ERGM r-term 'geometrically weighted edge wise shared partnership' (gwesp, fixed, decay parameter=0.3). Furthermore, the

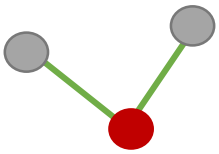
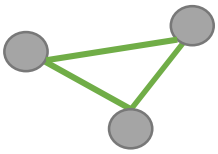
actors' "Betweenness Centrality" score in the trust network is used as a nodal covariate. This way, we not only tested whether a high number of ties in the trust network has an effect on the presence of a narrative congruence tie (see H4), but also whether these other actors are connected by a trust tie, i.e. whether there is a higher likelihood for a narrative congruence tie if (at least) one of the two actors in a dyad has a high betweenness centrality score (i.e. assumes a brokerage function) in the trust network.

We included similarity in core beliefs of actors due to the homophily assumption in social networks (McPherson et al., 2001). Core belief similarity was measured using the "Nature-Relatedness Scale" (NRS) (Nisbet et al., 2009). The NRS contains a list of statements on human-environment relations to which actors agree, or not, using a five-point Likert-Scale. We calculated the actors' NRS mean, included it as nodal covariate and tested the effect of the difference in NRS value on the presence of a high narrative congruence tie (ERGM r-term: 'absdif.'). A positive resulting coefficient suggests a higher likelihood for a narrative congruence tie if the difference in NRS score is high. Second, we expected that actor of the same type may have higher similarity of narrations and thus included a categorical nodal covariate with the three categories "government authorities", "registered associations" and "corporations under public law" in the model. We assume that actors of the same category are more likely to have high narrative congruence and test actor homophily in this regard using the 'nodematch' specification in the ERGM.

A last effect that we included in the model is the impact of the size of the organization on narrative congruence. We assumed that, especially for non-governmental organizations, actors from larger organizations are more powerful in environmental governance than actors from smaller organizations (or even individuals not representing any organization) resulting from the fact that they represent and "speak" for a high(er) number of constituents. Specifically, we assumed that the size of an organization transfers power to influence meaning making in the relationship of two actors. Consequently, we assume that actors from smaller organizations tend to form narrative congruence ties with larger organizations, because larger organizations may take a hegemonic position shaping a dominant narrative and, hereby, influence the narrations of other actors from smaller organizations. The number of members per

organization is included as a numerical nodal covariate to test the effect of the difference in organizational size (ERGM r-term: 'absdif') on the likelihood of two actors forming a high narrative congruence tie.

Table 3. Summary of measurements

Hypothesis	**Measurement & ERGM specification**	**Data**	**Graphical representation** *(dots = actors, green line = narrative congruence, red line = frequent interaction, blue line = trust)*
H1: Frequent Interaction Hypothesis	Presence of a frequent interaction relationship (edge covariate, r-term 'edgecov')	Interaction network data	
H2: Trust Hypothesis	Presence of a trust relationship (edge covariate, r-term 'edgecov')	Trust network data	
H3: Popular Leader Hypothesis	Actors' degree centrality value in the interaction network (nodal covariate, r-term: 'nodecov')	Interaction network data	
H4: Trusted Leader Hypothesis	Actors' degree centrality value in trust network (nodal covariate; r-term: 'nodecov')	Trust network data	
H5: Brokerage Leader Hypothesis	Actors' betweenness centrality value in interaction network (nodal covariate; r-term: 'nodecov')	Interaction network data	
Controls			
Triadic closure	Geometrically-Weighted Edgewise Shared Partnerships (r-term: 'gwesp.fixed.0.3')	Narrative congruence network data	
Brokerage trust network	Actors' betweenness centrality value in the trust network (nodal covariate; r-term: 'nodecov')	Trust network data	
Actor homophily	Believe similarity: Absolute difference between nature relatedness scores (r-term: 'absdiff')	Nature relatedness scores	 *(orange dots = actors with similar nature relatedness score)*
	Actor type (r-term 'nodematch')	Actor type	

			(yellow dots = actors from same organizations)
Size of organization	Number of members of the organization of an actor (r-term: 'absdiff')	Size of organization	 *(size of dots represents the size of organization)*

4. RESULTS

In the following, we present the descriptive statistics of the networks, the findings of the ERGM, and substantiate and contextualize those with results from the ethnographic inquiry and narrative interviews. We begin with presenting the results of what we used as control variables to first offer some contextual insights before turning to describe model results concerning our hypotheses. Figure 2 visualizes the networks, Table 3 summarizes the network statistics, while Table 4 presents a summary of the ERGM results.

As expected, the triadic closure effect in the narrative congruence network is highly statistically significant (Tab. 4). This means that high narrative congruence tends to occur in (sub-)groups in the narrative congruence network. Moreover, the results interestingly show a slight heterophily tendency in that narrative congruence emerges between actors, who score different on the Nature-Relatedness (NR) scale (rather than similar). Likewise, both the non-state actors (i.e. associations) as well as the state actors show a tendency not to have narrative congruence with other non-state actors or other state actors respectively (not significant). Taken together, this means that common narratives tend to occur in sub-groups of the regional cooperation, and that these sub-groups with common narratives are not necessarily composed of actors sharing similar NR beliefs and values, nor are the actors in these groups of the same kind in terms of state vs. non-state actors. Furthermore, we find no evidence that individuals from smaller organizations tend to have high narrative congruence with actors representing larger organizations; i.e. that powerful organizations with a large number of members have a dominant influence on the formation of common narratives.

Table 3. Network statistics

	Narrative Congruence Network	Frequent Interaction Network	Trust network
Edges	78	20	22
Density	0.574	0.141	0.162

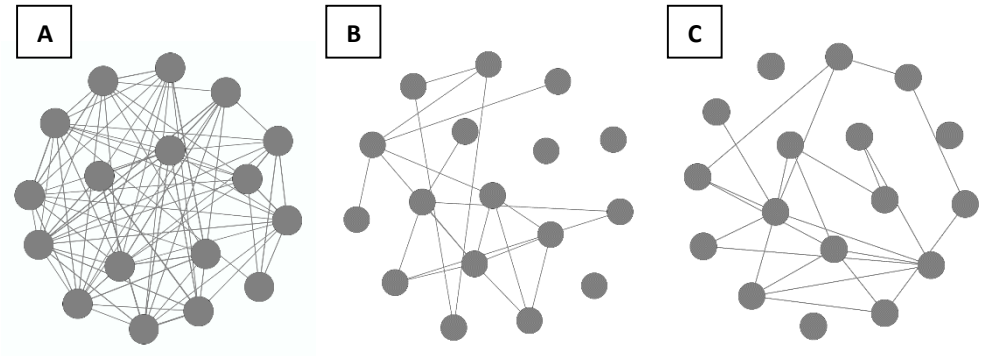


Fig. 2. Network visualizations. Actors in the regional cooperation are represented as nodes. In (A) links represent high narrative congruence, in (B) frequent interaction, and in (C) trust relationships.

This can be explained by the following results from the qualitative investigation. The idea to create a regional cooperation officially originated in the Nature Protection Authority (NPA) and later was passed onto the jurisdiction of a neighboring nature park. NPA actors hence became participants instead of initiators with the ulterior motive to level the playing field for all involved. However, formal decision-making power resided with NPA actors. Interestingly, our conversations with participants, however, made clear that everyone proclaimed a certain ownership in the creation of the regional cooperation. We crystallized different visions what one could "achieve" in the regional cooperation stemming from different instrumental and normative rationales. NPA actors recognized a shared ownership as an important asset and involved stakeholders in key decisions at a very early stage to enhance the legitimacy of the regional cooperation. These beginnings may explain why sub-groups with high

narrative congruence tend to be heterogeneous and why the size of organizations has practically no influence on narrative congruence in the regional cooperation. Despite large differences in perspectives, some key participants pragmatically seized the opportunity in the beginning to partake in important decisions, e.g. to appoint who is filling the manager position or whom to invite to the cooperation.

With regard to our first hypothesis, we observe a highly statistically significant positive correlation between frequency of interaction and high narrative congruence between actors in the regional cooperation. This supports our first hypothesis that the frequency of interaction is highly relevant for narrative congruence between actors (H1); in other words, if actors frequently interact, then their narrations are more likely to be congruent.

This resonates with the findings from qualitative data. We found that communication in regular meetings defused prior conflicts that had been fought bilaterally previously and that this led to increased transparency. Particularly, many participants reported to value the co-management process as a space for communication, coordination and learning. One actor pointed out “I have heard from other colleagues that such a regional cooperation is unique in this way and that many people look on it with envy. For the mere fact that one has tried in the district […] to deal with the topic Natura 2000 as transparently as possible with the landowners. I don't know of any county that is doing that so intensively. So that is certainly a good thing” (Int5). The cooperation thus became something special in the entire region and “outsiders” talked about it. Another participant found “the number of participants is not getting smaller, but has grown continuously, so that we can now almost say that we have all the relevant players on board.” (Int1). Thus, over time, the uniqueness of this consortium has attracted even more volunteers who wanted to belong to and benefit from it which helped enhance interaction frequency among actors.

Table 4. ERGM Results

Hypotheses	Results
Frequent Interaction Hypothesis (H1)	1.39 *** (0.38)
Trust Hypothesis (H2)	0.40 (0.39)
Popular Leader Hypothesis (H3)	0.00 (0.03)
Trusted Leader Hypothesis (H4)	0.21 *** (0.05)
Brokerage Leader Hypothesis (H5)	-64.14 *** (0.60)
Controls	
Triadic closure	48.89 *** (0.71)
Betweenness Centrality Trust network	- 8.76*** (0.10)
Belief similarity	-1.06 (0.72)
Actor type homophily	-0.28 (0.59)
	-0.01 (0.43)
Size of organization	0.00 (0.00)
Edges	-67.14 *** (0.66)
AIC: 174.76 *BIC: 209.72* *Log Likelihood: -75.38* *Standard Error in parenthesis* *Significance codes: *** p < 0.001; ** p < 0.01; * p < 0.05*	

Concerning our second assumption about a positive relationship between trust and narrative congruence between actors, we observe a tendency that actors, who trust each other, also are somewhat more likely to have narrative similarity with each other, yet find no statistically significant effect of trustful relationships on narrative congruence (Tab. 4). This means that the model does not support our second hypothesis. A look towards prior history explains why thus trust in each other is not given such high priority.

Through the narrative interviews, we became aware that, over the years, Natura 2000 had become a symbol representing a long history of complex conflicts, communication failure and fatigue. Many attempts for resolution had been made by the local administration, but growing resentment and mistrust of landowners/ -users overshadowed the implementation of Natura 2000. A regional cooperation thus seemed to be a solution for local NPA actors to increase transparency and acceptance of affected landowners and users and as a last resort to bury conflicts. Yet, landowners/ -users were skeptical about what their participation in the regional cooperation might accomplish. Before the regional cooperation had started, disputes over knowledge and belief claims prevailed and there were few opportunities to adequately resolve them. Additionally, prevalent uncertainty about what would happen, if Natura 2000 would be strictly implemented, had strong negative effects on trust, faith and acceptance of private landowners towards Natura 2000. Specifically, many stakeholders became anxious that land could be taken away from them, as evident from the following exemplary statement of an interviewee: “[…] they punish this family and say you can't go in there [forest] anymore, you can't do that anymore, you can only use it in a restricted way, every habitat tree has to stay. That is the worst form of expropriation we have had.” (Int16). Strong negative emotions have been transmitted into highly emotionally charged discussions about Natura 2000 in the past that led to polarization between nature conservation and forestry. Out of these experiences grew in most participants a pragmatist, almost fatalist attitude toward cooperating in the regional cooperation and they concentrated on technical objectives and questions and different (more objective) expertise around Natura 2000.

Certain issues of Natura 2000 were, however, rarely discussed in the official meetings for fear that emotions would again run high among the representatives of the private forest owners. One representative from agriculture pointed out, “I don't trust anything in the discussion. I want to have the minutes later and [… Some] bring their expertise into it, which is useful. And others bring in a different expertise, also useful. But that they don't argue about things where one has no idea about the knowledge of the other. That's annoying.” (Int10). Thus, while regular communication facilitated a dialogue and the emergence of a common narrative for the protection of biodiversity, as highlighted in Hypothesis 1, the members of the regional cooperation rarely

engaged in truly open dialogue, e.g. topics like climate change, forest resilience and tree species selection, due to prevailing group norms that forbade talking about it.

Furthermore, we tested whether the centrality of actors with regards to frequent interaction and trust relationships in the network explain high vs. low narrative congruence between actors. Contrary to our expectation in Hypothesis 3, we found that actors with many frequent interactions to other actors in the co-management process (i.e. high degree centrality in the interaction network), do not have a higher probability to have many narrative congruence ties (Tab. 4). This shows that the popular leadership role (i.e. interacting with many other actors) does not necessarily mean that the very active networking actors share narratives with many others. Similarly, holding a brokerage position measured through betweenness centrality in the interaction network is not associated with having many high narrative congruence ties as we expected in hypothesis 5. On the contrary, this result shows a strong statistically significant negative relationship between brokerage and narrative congruence suggesting that interacting with others, who themselves do not directly communicate with each other, seems to pose a severe challenge for actors to form narrative congruence ties with others (Tab. 4). In other words, we can expect that those actors that are embedded in subgroups in networks (i.e. part of closed triangles in the interaction network) are much more likely to have high narrative congruence than actors who bridge between groups of actors.

With respect to Hypothesis 4, the results show that being trustworthy is highly important for narrative congruence with other actors; i.e. the more actors are embedded in reciprocal trust ties, the more likely it is that they are connected by narrative congruence ties. This shows that the existence of a high number of reciprocal trust ties seems to be very important for developing narrative congruence (Tab. 4). In other words, interestingly, while a trust relationship between two actors does not necessarily mean that these actors also have a high narrative congruence tie (see results H2), however, accumulating high numbers of reciprocated trust ties (i.e. being a highly trustworthy actor) strongly drives the emergence of narrative congruence ties.

Two important actors in the regional cooperation and the information about them, that we got from the qualitative investigation, explain why actors with many reciprocal trust ties rather than highly interacting or brokering actors support the development

of a common narrative in this case. Obviously, the regional manager, who was hired specifically for the regional cooperation at the beginning, has in many ways improved communication structures or established them, if they were not in place. He has definitely played a major role to mediate between entrenched positions and develop bonds among the cooperation members. The manager “looks ahead and thinks about how to move forward” (Int13). This person has presented a whole range of activities and projects to other participants, some of which they have initiated and implemented together. The regional manager deliberately sought ideas and suggestions from the members in personal conversations or at official events, which he can then implement in joint projects. Through the construction of a common project narrative, that also looks toward the future concerning climate resilient landscapes, the regional manager has won many trustees among private landowners. In the eyes of many private landowners, the regional manager “[…] is completely different. He tries to help us.” (Int12).

However, the regional manager told us that not all participants were easy to take along, especially the NPA with supposedly the highest interest in finding a common ground with private landowners remained hesitant. The regional manager remembered a discussion about a Natura 2000 measurement where he pleaded, “We have to find an exchange there and we have to sit down together. I had been saying that for months […]. We have to talk to the others about it in a cooperation meeting, so that we can find a consensus with them. Otherwise, they'll beat us over the head with it. The NPA didn't want that after all. […] Although we are all officially under one roof, the working atmosphere with this authority has sometimes been extremely awful” (Int2). The regional manager told us that he regularly ran up against barriers because the NPA did not give him enough room for maneuver. According to the regional manager, NPA actors had a big problem transferring parts of their formal power to him.

Another participant, who was initially not on our radar, became more prominent after the quantitative network results that we got. Although this participant is not remarkably active in the regional cooperation, this person shared the most trust relationships with other participants and appeared as a “hidden” trusted leader. As a consultant to private forest owners, he is well acquainted with their problems and

concerns and private forest owners trust his advice. As an employee of the Chamber of Agriculture, and as the head of the forestry office, he enjoys the respect of many governmental cooperation members due to his position and expertise. The participant reflected on the situation in this way: “Many forest owners often regard an authority, perhaps also the Chamber of Agriculture sometimes, as a regulator of their property. And that often happens on an emotional level. And then I think the way to the [Nature Protection] authority, which imposes something on you, to talk to them may be a bit steeper than to call the forester of the Chamber of Agriculture and ask how do you see it.” (Int5). Through a closer examination, we were able to find out that this participant has the capacity to speak “two languages” and mediates for an appropriate balance between local individual liberty and societal conservation values.

5. DISCUSSION

This mixed-method case study investigated relational drivers shaping a common narrative between actors involved in co-management. The qualitative empirical data analysis showed that actors in the regional cooperation assigned very different meaning to biodiversity conservation, good cooperation and environmental management or the rationale for nature protection, and showed little willingness to seek alignment between various experiences to translate these into shared objective realities – a common Natura 2000 policy reality. As a result, there were tensions and stigmas held about the “other side” being untrustworthy and unfair, not listening and not valuing own viewpoints and dismissing other ways of life. These “us versus them” dynamics have been toxic for the collaborative atmosphere of the regional cooperation so far. These dynamics are exemplary for many environmental governance processes that involve diverse actor sets in contested negotiations, and especially in the context of Natura 2000 management planning (Bryan, 2012; Colvin et al., 2015; Gallo et al., 2018; Idrissou et al., 2013; Kovács et al., 2017). We argued instead that the existence of a common narrative can serve as a glue for collaborative dynamics to overcome tacit boundaries and countervail potential trade-offs of collaboration to bundle capacities for joint action. Yet, knowledge about the mechanisms behind the emergence of such common narratives is limited. In this study, we developed and empirically tested hypotheses about the interplay between relational structure and the existence of shared narratives in collaborative

environmental governance processes based on the idea of narrative congruence between individual actors.

Regarding actor-actor relationships, we assumed that both frequent interaction and trust between actors serve as important drivers for narrative congruence. The results suggested that frequent interaction between two actors – rather than a trust relationship between two actors – play a crucial role for shaping common narratives between them. That intense communication is key in co-management resonates with findings of other studies underlining the importance of on-going, frequent interactions between diverse actors to support the formation of commonalities and social learning (Cundill and Rodela, 2012; Pahl-Wostl, 2006) and the successful institutionalization of environmental policy (Gorris et al., 2019). We, however, find no evidence of a relationship between trust and narrative congruence as indirectly suggested by other studies, which emphasize trust to be instrumental for a common understanding (Ansell and Gash, 2008; Emerson et al., 2012). One explanation for this could be that the conflict legacy over the implementation and management of Natura 2000 protected areas is already particularly entrenched in our particular case, but also in many regions of Europe (Gallo et al., 2018; Winkel et al., 2015). This history certainly decreased the overall level of trust and acceptance in the highly contested management planning of Natura 2000 areas. Yet, although actors in such contexts may not enter into strong social relationships based on mutual trust, they still engage in joint meaning making through frequent interaction, which can facilitate the emergence of common subjective realities embodied in highly congruent narrations. Consequently, the results suggest that enabling frequent encounters between actors in contested environmental co-management processes offers a tangible pathway to shape a common narrative.

Furthermore, we distinguished in this study between three forms of leadership in co-management processes based on different networking strategies and tested their impact on the existence of narrative congruence ties. The results showed that trusted leadership – i.e. efforts to accumulate a high number of reciprocal trust relationships with other actors involved in co-management – seemed to have a key impact on building a common narrative. The other two, in contrast, seemed to not strengthen an actor's ability to build narrative congruence ties with others. As of now, to the best of

our knowledge, there is no empirical research dedicated to analyzing the impact of distinct networking strategies on the emergence of narratives. Qualitative data from our case study showed that, even though representatives from the Nature Protection Agency (NPA) formally occupied the leader position, these actors have never enjoyed leadership acknowledgement of the majority of participants in the constellation of the regional cooperation. Despite their engagement in communicating with many others and trying to assume a brokerage function in the network, NPA actors have not been perceived as benevolent and therefore not worth to develop long-term bonding relationships. Thus, it remains important to note in terms of the group dynamics, that where co-producing a common narrative is desirable, navigating into a trusted leader position is a long-term collaborative process based on building collaborative, rather than coercive, partnerships in a goal-oriented, generative process (Forsyth, 2019). Considering though the betweenness results are quite significant in our model (Tab. 4), we would like to discuss this aspect a bit more in detail.

5.1 Reflection on brokering in co-management

While popular or connecting leadership may certainly serve important functions in a co-management process (Berdej and Armitage, 2016; Bodin and Crona, 2009; Westley et al., 2013), the results of our study suggest that they do not contribute to strengthen an actor's ability to establish a common narrative. Instead, our findings suggest that trustworthy leaders have considerably more influence on co-producing shared narratives. However, the model results showed not only no correlation for these tests, but a strong negative correlation value for both Betweenness centrality measures (Tab. 4). We were wondering why and this motivated us to have a closer look on what is going on in our case study. Previously, we reported about the difficult situation in which the regional manager as an intermediary found himself constantly stuck between representatives from the NPA and representatives from forestry or agriculture. Prior studies described three network constellations where brokers are embedded in a) cohesive structures, b) structural holes and c) separated cliques (Flap and Völker, 2001). When we combine and compare our ethnographic insights with the insights from the network inquiry, we observe that the regional manager is indeed part of a structure that is similar to a separated clique or bow-type structure (see Supp. Mat. VIII, cf. Krackhardt, 1999). Similar to what the regional manager in our case study as a broker experienced, Flap and Völker (2001) have suggested that this actor position

will have difficulties to conform to norms and expectations of the different cliques that this actor connects. “Whatever an actor does, he does it wrong and might be sanctioned.” (ibid, p. 301). Thus, this might explain why the regional manager perceived to be confined between different fronts and believed to have no room for maneuver. The following quote based on a personal perception of a participant brings this nicely to the point: “At the end of the day, we almost have a camp formation. On the one hand, there are the people affected by the [Natura 2000] protected area, on the other hand, there is the authority, and then, in between, there is the regional manager, who actually has to try to bring the interests together, to dampen the exaggerated ideas and sometimes also emotions. To anticipate both sides and perhaps also to consider in advance, with a view to the next cooperation meeting, how things can move forward here.” (Int13). Although the regional manager would have had due to his role and many social relations in the network the ability to influence others of approaching towards a common narrative, he was trapped in an in-between position where he had to make concessions to both sides, yet through which no side approached the other. Rather both camps continued to be suspicious of the other and contested issues as well as biases against the other side remained untouched. In order to better address these issues in co-management processes, and to facilitate the emergence of a common narrative, we assume it is useful to have critical bridging ties distributed across different individuals instead of only one broker who connects different sub-groups; yet we deem further research investigation as necessary.

5.2 Reflection on the research design and approach

Applying mixed method research encompasses strengths and weaknesses that we would like to address briefly. First, it was difficult to fully anticipate all advantages and disadvantages of a combined approach before designing the study. For instance, the ethnographic inspired approach had the advantage of allowing for a closer exchange with the regional manager. This allowed the first author to return interim results from the narrative interviews and to reflect on situations together that did not make sense in the first place. In this way, we were able to collect single puzzle pieces from the narrative material and put them together into one complete whole. However, our active involvement with the case study also bared the risk to become too biased in analyzing and interpreting the qualitative data. Obviously, narrative interview data is biased, as it represents storied ways of knowing, subjective individual perception and

personal anecdotes (Cortazzi, 2007). To ensure quality, we needed to carefully weigh what was told, what was kept a secret, what is at stake for the participant (why was it told), and compare this to what others have told. As social scientists with an environmental background, we surely had an impact on what participants told us in the interviews and what not.

Furthermore, this study took quite some time and energy a) to become acquainted with the case study context, the participants and the local history of Natura 2000, b) to gather, prepare and analyze the qualitative as well as quantitative data and c) to transform rich qualitative data into quantitative data, which fit the model's requirements. In retrospective, we found the combination however a particular strength of the approach. Applying an ERGM requires researchers to focus on few core hypotheses about key mechanisms that form the shape of a network – a narrative congruence network in this case. This posed a distinct challenge given that this was the first empirical study applying a social relational approach to this type of data. Yet, the rich qualitative information not only provided great opportunities to contextualize the results, but especially the interplay between quantitative and qualitative thinking necessary for applying this innovative research method was of great advantage to develop and test succinct hypotheses of the drivers that impact and shape narratives and social structures in collaborative arrangements. The study, hereby, yielded interesting results from a new angle, which advanced scientific understanding of the social mechanisms behind common narratives. Moreover, the insights provide an important starting point for future investigations on social relational mechanisms responsible for the emergence of narrative that complements past and ongoing investigations based on purely qualitative analysis. At last, the study provides practical results useful for improved steering of co-management arrangement and environmental governance networks. Importantly, the application of this mixed method approach was a learning process for the whole interdisciplinary researching team, which delivered intriguing results, but everyone from the team had to be willing to make comprises, otherwise it would have not worked.

6. CONCLUSION

This study argued for a common narrative as a valuable resource for environmental co-management arrangements in particular, but also for collaborative governance in

general (Koch et al., 2021). The ideas presented in this research offered an innovative angle supported by empirical results that help advance knowledge about the interplay between narrations, narratives and social structure in diverse environmental governance networks. Based on a case study carried out in the context of a German local actor network, we contributed important insights into the management of social dynamics in co-management approaches that can help to reduce polarization between diverging viewpoints. The importance of this line of research is emphasized when considered in light of the projected loss of biodiversity on a global scale (IPBES, 2019). Common national and international policy frameworks, such as the EU Habitat Directive, that formulate broad political goals on a global scale are key instruments to steer towards sustainable pathways, yet are often difficult to implement on the ground. The envisaged sustainability transformation inherent in these frameworks not only challenges current human actions, but fundamentally questions current social systems, cultures, identities and human-nature relationships. This naturally raises a great deal of societal uncertainty and leads to normative questions, where the risk of conflict, societal polarization and fragmentation runs high. Narratives represent sequenced meaning structures rooted in cultures and identities, and function as a means for transporting knowledge, meaning and ideas about reality and a future. If we imagine a sustainability transformation is a journey, a vision describes the end of this journey, while a narrative is about the journey itself. Following the credo of the United Nations 'no one is left behind', we need common and inclusive narratives that bind us together and motivate us to start the journey together.

7. References

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Annex 4: Paper IV

"Us versus Them" Mentalities in Natura 2000 Forest Management: Narratives, Identity Constructions and a Culture of Conflict

Larissa Koch

Manuscript

Abstract

This paper aims to explore the influence of narratives and identity constructions on the social dynamics in collaborative environmental governance to facilitate Natura 2000 implementation in local forest management. Natura 2000 is a European-wide network of protected areas to protect endangered biodiversity, but its implementation has been loaded with troubles and contestations since its adoption in 1992. Local administrators have therefore increasingly relied on initiating collaborative arrangements with other state actors and affected stakeholders to create acceptance and to facilitate the implementation locally. Applying a collaborative approach to governance and management is however no panacea for smooth processes and accepted policy implementation. Integrating the examination of narratives, identity constructions and social relational structure through means of social network analysis builds the conceptual and methodological foundation in the analysis of the case study to explore the social dynamics between actors involved in the case. Two opposing narratives are identified competing with each other over power and competency in determining proper management planning in the Natura 2000 areas. Furthermore, negative identity constructions and antagonizing with the other side fuels an "Us versus Them" dynamic among the involved actors and over time, a culture of conflict has become institutionalized. Thus, interactions between the involved actors seemingly build on a complex, iterative pattern of disputes that is barely breakable and reversible into cooperative attitudes of affected stakeholders. Interestingly, this culture of conflict does not resonate with the relational structure between actors in the case study as the social network analysis shows. This points to an incongruence between structural and cognitive mechanisms underlying social dynamics in actor collaborations. Collaborative arrangements can be a tangible approach to generate

social bonds in contested political processes and create a rather productive conflict on the long term. Although some collaborative arrangements seem to be shaken by intractable conflicts, these results render hope and are discussed in light of conflict resolution strategies for collaborative governance approaches.

Keywords: social identities, social dynamics, social network analysis, Natura 2000 implementation, environmental co-management

1. Introduction

Since 1992, the EU Habitat Directive (HD) and its instrument Natura 2000 are Europe's flagship policy to protect and restore European biodiversity and develop a green infrastructure of habitats (European Commission, 2008). This legislation turns out now to be more important than ever, since biodiversity is declining at an alarming rate worldwide and conservation experts advocate for rapid transformative changes that address the root drivers underlying biodiversity loss (Díaz et al., 2019, 2018; IPBES, 2019). However, ever since the HD's adoption in 1992, European Member States have struggled to implement Natura 2000 in general and in particular in the forest sector (Borrass et al., 2015; Gibbs et al., 2007; Paavola, 2004; Winkel et al., 2015). A top-down, technocratic and unifying approach has characterized HD conservation planning across Europe that relied on expert knowledge while disregarding local forest knowledge and interests (Ferranti et al., 2014; Winkel et al., 2015). Many of the designated Natura 2000 sites fall on semi-natural, used and privately owned forests though, where forestry and an attachment to place can hardly be simply switched off. Forest owners are bound in their decision-making to Natura 2000 protection measures and afforestation regulations to ensure a favorable conservation status. Yet, the HD does not exclude human use of ecosystems within Natura 2000 protected areas. On the contrary, it advocates the integration of nature protection and human economic and cultural activity (European Commission, 2008). Previous research has however reported a low impact of the Natura 2000 regulation on forest management practices due to vague goal and measurement formulation in the management plans, and consequently restoration goals for favorable conservation statuses have been missed (BMU, 2019; Winter et al., 2014). Significant additional efforts in local forest management are needed to steer toward ecological and economic sustainability in

forests and to maintain the provisional, regulating and cultural functions of forest ecosystems on the long-term.

In this context, engaging local communities and stakeholders in partnerships is a key governance strategy for integrating conservation measures into existing local practices (Berkes, 2007; Van Oosten, 2013). Local administrators have started to recognize the success of Natura 2000 measures defined in site specific management plans depends largely on the acceptance and cooperation with landowners and users and cross-sectoral associations (Bouwma et al., 2015; Ferranti et al., 2014; Winkel et al., 2015). There was also the assumption that previous conflicts could be dispelled. Thus, local administrators have relied more and more on collaborative partnerships, also commonly referred to as collaborative governance arrangements, with other state actors and affected stakeholders to facilitate the implementation locally. Ideally, the actors involved address these management challenges through a collaborative, learning- and consensus-oriented, place-based process (Ansell and Gash, 2008; Plummer et al., 2017). This however requires great care and effort. Applying a collaborative approach to governance and management is no panacea for smooth processes and accepted policy implementation (Bodin, 2017; De Pourcq et al., 2015; Robins et al., 2011). On the contrary, collaborative governance arrangements are rather dynamic, contingent processes characterized by struggles over meaning and competing narratives (Koch et al., 2021), blurring of roles and responsibilities due to decentralization (Schneider et al., 2003) and an entanglement of cooperation and conflict in actor relationships (Bodin et al., 2020).

Research to date has not yet fully understood the mechanisms underlying the social dynamics in collaborative governance arrangements and how to navigate those into productive collaboration. This paper contributes to investigate the social dynamics between actors and challenges related to collaborative governance in a case study located in Germany. I understand social dynamics in actor collaborations as the mechanisms that alter discursive meaning making of actors or the relational structure between actors (Koch et al., 2021). Secondly, how actors in these settings view themselves and others is a key component of the social dynamics as well (Idrissou et al., 2016; Wondolleck et al., 2003). This paper thus concentrates on narratives and identity constructions that circulate in and influence the social dynamics within

collaborative governance arrangements and the intractability or resolvability of a conflict. I use a qualitative case study approach as well as descriptive social network analysis tools to investigate the following question: How do narratives and identity constructions shape the dynamics between actors involved in a collaborative governance arrangement to facilitate the implementation of Natura 2000 in forests? Section 2 of this paper introduces conceptualizations about narratives and identity constructions. Section 3 give an overview of the research design and presents some background on the case study and the methods used. Section 4 to 6 presents and discusses the empirical results on two narratives, identity constructions and the reported relationships between actors. In Section 7, these results are discussed and recommendations for practice to overcome these competitions and conflicts are given. Finally, Section 8 concludes this paper.

2. Narratives and Identity in Collaborative Environmental Governance

2.1 Narratives in actor collaborations

Collaborative governance arrangements are instances where several state actors and different affected stakeholders come together to jointly deliberate and learn how to solve a set of problems which neither can solve individually (Ansell and Gash, 2008; Gray and Purdy, 2018). In some cases of Natura 2000 implementation in local forests in Germany, for instance, administrators have deliberately sought the support of affected forest owners and users to discuss concrete measures for the management plans, which need to be included in current forest management practices to restore a good ecological status. Collaboration in this sense means that these actors have to develop collaborative ties to cultivate a common ground for solving this issue for a mutual benefit (Bodin et al., 2020). Those entities can be defined as governance networks. From an interpretive lens on collaborative governance, struggles and conflicts over the meaning of problems and proper forest management are an essential part of governance networks (Turnbull, 2016). Collaborative governance and policy implementation on the ‘street level’ is a negotiation between bureaucratic executors and affected recipients who reinterpret the meaning of policy and act upon accordingly. It is a widely shared assumption that the language humans use shapes their perception and interpretation of reality that surrounds them (Feindt and Oels, 2005). Thus, the cultivation of a common ground will be more or less difficult

depending on the variability of meaning making that these actors bring to the negotiation.

Narratives are an important communicative tool and carrier of meaning that actors use in order to simplify complex issues, create legitimating missions and to navigate through high levels of uncertainty, complexity and polarization (Koch et al., 2021; Roe, 1994). Narratives thus serve as lenses through which actors interpret reality (Turnbull, 2016). Based on the conceptual framework from Koch et al. (2021), I distinguish between narrative and narration. Narratives as shared socio-cognitive constructs legitimize and bestow meaning to a collaborative arrangement through common normative views, shared assumptions about causal explanations and a boundary-overcoming emplotment legitimated by the group. Narrations on the other hand refer to an individual verbal, cognitive representation of own past experiences, expectations to self and others, values or self-images and characterizations of other actors.

Previous research on policy narratives highlighted the plot as a central structural component of narratives and narrations that arranges events, people and actions in a temporal and causal sequence (McBeth and Jones, 2010; Viehöver, 2001). The beginning usually outlines a problematic situation, followed by an explanation of the roots or consequences of the problem and ends with providing a solution that sometimes takes the form of a so-called pathway (Leach et al., 2010; Viehöver, 2001). Past research has also studied typical plotlines, for instance, “the Golden Age lost” also called “stories of decline” warning of rapid changes or crises, or “the pioneer’s tale” or “stories of rise” that describe how particular action leads out of bad situations and brings benefits (Sandercock, 2003; Stone, 2012). Ascribing actors in a narrative certain roles is a powerful tool to allocate responsibility and blame and to justify reasoning for certain action. When the particular action that leads to widespread benefits is related to a specific person, then this role grows into a hero character. However, if a particular actor or group of actors has brought great doom and intensified the problem situation, the role of a villain is allocated. The role of a victim is ascribed to (a group of) actors who have to suffer from problem consequences or bear the risks of non-action (Jones et al., 2014b; Lebel and Lebel, 2018). Emplotment and inherent characterizations will play a pivotal role in the constructions of identities, in the intractability or resolvability of a conflict and eventually influence the social dynamics of actor collaborations

(Wondolleck et al., 2003). Narrations of actors can on the one hand act as boundary markers, emphasizing the boundary and the insurmountable differences to others in the collaboration, or on the other hand, actors can highlight commonalities, which is why researchers also often associate narratives with identity making (Hajer, 1993; Viehöver, 2001).

2.2 Identity constructions

The demand for transformative change and the complexity underlying social-ecological systems that influence the state of biodiversity and nature requires connecting diverse knowledge systems in governance and management to produce innovative solutions (Armitage et al., 2011; Tengö et al., 2014). Collaborative governance networks in these contexts therefore bring heterogeneous actors together who seldom share commonalities, such as experiences, perspectives, narratives or identities, but actors involved first need to negotiate and develop a common understanding through recurring interactions (Ansell et al., 2017). It is commonly observed in governance networks that those actors, who perceive each other as more alike, will start to interact more and develop stronger bonds to each other, eventually develop denser sub-group structures during the collaborative process (Ingold and Fischer, 2014; McPherson et al., 2001; Stern and Coleman, 2015). Identity here plays an important role and influences how actors perceive themselves and others, for example as benevolent and trustful or as evil doing and suspicious.

The concept identity broadly refers to an internalized set of meaning that provides expectations for individuals in social roles (Wetherell and Mohanty, 2010). More specifically, an individual can have a person identity based on the meaning of specific characteristics making this individual unique. Secondly, an individual has certain group identities based on the meanings linked to the affiliation with groups, e.g. private forest owners or nature conservationists. Role identity constitutes a third basis for identity that is constructed on meanings attributed to locations a person occupies in reciprocal relationships, e.g. parent or employee (Serpe et al., 2020, p. 12). On the one hand, identity theory studies how and why meanings and expectations become attached to specific identities. The social identity approach, on the other hand, studies the mechanisms through which people negotiate and manage their identities in social interaction and includes notions of the social embeddedness, situated and shared group-related characteristics of humans (Hogg, 1992).

The social identity approach consists of two interrelated theories, namely social identity theory (SIT) developed by Tajfel and Turner and self-categorization theory (SCT) later advanced by Turner (see Hornsey, 2008 for a review). The former theory deals with intergroup relations and in-group versus out-group behavior, i.e. “Us versus Them” separations, while the latter studies the transformation in self-perception from personal to social/ human identity and deals with “I and me” versus “We and us” distinctions (acting as an individual versus acting as a group member) (Bercht, 2021; Hornsey, 2008). In order to understand the roots of social dynamics and related cooperation or conflict, we have to begin theoretically with social categorization. Like previously mentioned, humans have a person identity or self-concept, that characterizes them as unique human beings. Yet, at the same time, humans strive to belong to groups, thus an individual’s self-concept takes the form of self-categorizations, which are identical or similar characterizations of a particular category and distinct to characterizations from other categories, e.g. private foresters versus state foresters (Forsyth, 2019; Hogg, 2001). This cognitive categorization also functions the other way around, and decreases much of the daily complexity in human lives, namely when actors encounter other actors classifying those automatically into group specific categories. Once this cognitive process is completed, actors’ perception of these people and the way they treat them are influenced by the beliefs they have about the qualities of people in such groups (Forsyth, 2019, p. 84). This process - also called prototyping or stereotyping in a negative sense – builds on cognitive, motivational or socio-historical complex constructs learned through experience, education or socialization. People tend to favor others whom they perceive as more similar and consider them part of the ingroup, while they tend to reject people they perceive to be different and from the outgroup. Ingroup members are cognitively connected through sharing specific norms, believes, feelings (Hogg and Reid, 2006), which influence what these members communicate and express in the language they use (Koch et al., 2021; Wondolleck et al., 2003). Including social identity assumptions into reflections about collaborative governance networks is thus worthwhile to increase understanding of the drivers for social stasis or dysfunctional conflict in governance networks and why despite all efforts actors sometimes rather prefer to work against each other than engaging in productive collaboration (Colvin et al., 2015).

3. Research Design

3.1 Case study

The case study focuses on a collaborative governance network that is located in Germany and was founded in March 2017 by the local Nature Protection Authority (NPA) of the district municipality. In order to protect the anonymity and privacy of the participants, specifications about the region are avoided. Together with other state actors from the local Agricultural Chamber, the Forestry Office and the state Office for Regional Development, and stakeholders from forestry, agriculture, hunting and water management, the NPA initiated a platform – hereinafter called the regional cooperation – to bury prior conservation disputes and to collectively work on the design of Natura 2000 management plans (Tab. 1). With funding from the federal state, a regional manager could be employed via a local nature park, who facilitated communication and collaboration in official meetings between members of the regional cooperation and to initiate small collaborative projects for forest conservation. The regional cooperation meets quarterly in cooperation sessions. The main topic of discussion during these sessions is to talk about concrete Natura 2000 measures and how private forest owners and state foresters can include these into current forest management practices. Private forest owners have in-depth knowledge of their property, but also have their own management objectives, which need to be aligned to the Natura 2000 measurements in the management planning. Gaining forest owners' trust, acceptance and willingness to cooperate was therefore necessary and recognized by the local NPA.

Table 4. Actor groups and number of actors participating in the regional cooperation and part of this case study

Regional cooperation (N=22)		
State actors		**Member since**
Lower Nature Protection Authority (NPA)	3	Beginning (initiator)
Chamber of Agriculture	1	Beginning
Forestry Office	1	Beginning (part of application)
Office for Regional Development	1	September 2019
Stakeholders		
Local Nature Park	1	March 2017 (Regional manager)
State-owned forestry	4	March 2017
Private forest owner associations	5	Beginning (part of application)
Agriculture	2	Beginning (part of application)

Water management	2	March 2017
Local hunting associations	2	March 2017

3.2 Research approach, data collection and analysis

A relational narrative approach assisted me in exploring and explaining the mechanisms that shape the social dynamics in actor collaborations. A narrative approach pursues the aim to study human experience and in particular looks at the meaning in stories, arguing that people are storytelling animals – depicted as homo narrans (Fisher, 1985) – and create themselves and reality through narrative (Fisher, 1989; Jones et al., 2014a; Krauß and Bremer, 2020). Yet, meaning making and communication does not just take place between humans; it affects the types of their relationships and therefore the structure that binds them (Fuhse, 2009; Griffin, 2009). To investigate the social dynamics in collaborations holistically, I collect and combine data on the subjective meanings from individuals through narrative interviews with data on the social relational structure, in which these actors are embedded through means of social network analysis tools.

With the approval of all participants from the regional cooperation, I was in the field and participated actively in meetings and excursions over a period of two and a half years, from August 2019 to December 2021, while I made unstructured observations, took field notes and got access to written minutes of prior meetings. Since the beginning of this research study, I had also been in regular contact with the regional manager of the cooperation and discussed different developments happening during this period. From September 2019 to February 2020, I collected case study data – mostly I visited the participants at home – through applying a mixed methodology. Before data collection, participants gave informed consent in writing to participate in the study, in which they were also informed about their voluntary participation and their rights to withdraw at any time during the study.

First, I completed with every participant a questionnaire (N=22) to obtain information on the social structure of the regional cooperation. This questionnaire included a series of social relational questions to generate network data using a stakeholder roster, which listed all actors involved in the regional cooperation (c.f. Prell, 2012). I asked participants to indicate if, how often and about what they talk when they interact with this listed cooperation member. Furthermore, I asked them to point out actors that

they trust to talk to in relevant matters. Relational data was organized in an N*N matrices in Microsoft Excel to store the directed binary network data and for further analysis and visualizations.

Afterwards, I conducted and recorded narrative interviews with them (N=17) to obtain information from the participants concerning their subjective perspective and personal experience with forest management, the Natura 2000 legislation and the development of regional cooperation. Following the narrative interview method, outlined in Küsters (2006), I posed a very broad and open narrative stimulating question that encouraged the participants to tell an impromptu story about their lived experiences in direct interactions from the retrospective. I asked the following question: "I would like you to tell me how the regional cooperation has started for you and how it then continued until today. I would like your own personal experience to become clear to me. Therefore, I ask you to elaborate on any experiences that come to your mind and seem relevant. You can take as much time as you need. I will not interrupt you for now, just take some notes on questions, which I will then go into later." All respondents had no prior possibility to prepare for this question, which meant that they had to reproduce the chains of events in a meaningful way and reconstruct personal understandings and meanings of these situations in order to allow the listener (me as researcher) to partake in their experience (Küsters, 2006). As such, a narrative interview less pursues the generation of information, but rather contributes to the social practice of constructing personal experience and cultural understandings and therefore meanings to get access to people's cognitive sense making to understand their lived experiences (Bremer et al., 2017; Küsters, 2006).

Due to the openness of narrative interviews, data analysis can hardly follow a deductive, theory-driven coding scheme. Instead, I applied inductive thematic analysis to analyze the narrative from the lived experiences that the participants told me during the interviews. Thematic analysis is a flexible tool to identify and report patterns (themes) within the data without compromising its complexity (Braun and Clarke, 2006). It follows a certain procedure. Through rereading the interviews, I became familiar with the data and generated an initial set of categories, with which I coded all interview material in a first round of coding exercise. I then searched for overarching themes for the initial categories, and reviewed the coding and pre-defined themes

iteratively. After reviewing, I defined and renamed the themes and re-coded the interview material in a second round of coding. Following this technique, I analyzed and differentiated between two narrative themes in the regional cooperation, which are detailed in the Results section.

I also applied this technique to explore identity constructions that participants used in the narrative interviews to describe ingroup and outgroup typical behavior. However, I relied for this part of the analysis on previous defined categories to code the interview material (Tab. 2). Wondolleck et al. (2003) define identity constructions as characterization frames and argue that they may stem from many factors blending forces such as stereotypes, attributions, contextual influences, aspirations, psychological factors and values. Positive characterization frames often arise to emphasize a connection with others (prototypes), while negative characterization frames stress the differences to these individuals or groups (stereotypes) (Hogg and Reid, 2006). Positive and negative characterizations act as mechanisms that promote social cohesion with members of the ingroup or tension and exclusion with members of the perceived outgroup, and fosters an ingroup/ outgroup dynamic "wherein "outsiders" are stereotyped and motives are attributed to them that are frequently inaccurate but are nonetheless imposed in order to elevate the ingroup's view of themselves." (Wondolleck et al., 2003, p. 208). I used the categorization by Wondolleck et al. (2003) to make a distinction between unifying and distinguishing characterization frames and combined them with hero, villain and victim characterizations from narrative theory to analyze how participants from the regional cooperation perceive other members and to understand how this influenced the social dynamics and social structure between actors in the regional cooperation (Tab. 2).

Table 5. Characterization frames and narrative characterizations and their hypothesized impact on the social dynamics and social structure between actors in the regional cooperation

Characterization frame (Wondolleck et al., 2003)	**"US versus THEM" constructions**	
	Unifying and positive frames Prototyping	**Distinguishing and negative frames** Stereotyping
Emplotment (Koch et al., 2021)	Common narratives	Fragmented narratives
Narrative character (Jones et al., 2014b)	**Hero** or **victim** characterization	**Villain** characterization e.g. "They distrust us because we are not managing our forests like they want" or

	e.g. "We can save our local forests together" or "We foresters suffer from the bureaucracy imposed on us."	"They have never listened to us and think we are driven by extreme ideology"
Intentions	• Showing solidarity and companionship • Demonstrate support, commitment and trust • Being inclusive and emphasize commonalities and equality	• Blaming and shaming • Pointing out a scapegoat for problems and suffering • Discredit others' values and perspectives, knowledge or experiences • Highlight boundaries and intractable differences
Impact on social dynamics	Willingness for interaction, connecting to others, creating comfort and positive emotions	Highlighting conflict, antagonizing with others, creating tensions and negative emotions
Expected impact on social structure between actors (Prell, 2012)	Cohesive group in which a high proportion of the actors share strong, direct, mutual and positive ties	Fragmented groups with no connection at all or only a few direct, weak and possibly negative ties connect single actors or sub-groups

Furthermore, I used the relational data from the questionnaires for visualizing the regional cooperation as a governance network. Weighted relational data was derived based on the frequency of reported interactions between participants of the regional cooperation as well as based on the reported trust that actors had to others. The Gephi software was used for further network analysis and visualization (Bastian et al., 2009).

4. Two divergent narratives circulate in the regional cooperation

This section describes the results of the exploratory case study and analyses of the narratives and identity constructions that circulated in and influenced the social dynamics between the participants of the regional cooperation. The high divisive potential of Natura 2000 has seemingly dug deep trenches between nature conservation and forestry, and over time has become a symbol for the one side as natural justice to be strictly enforced and for the other side as a symbol of threat to private property, economic activities and freedom. After the qualitative analysis of the interview material, I will turn to describe the network data that I got through the questionnaires.

Analysis of the narrative interviews revealed that the conflict in the regional cooperation, and thus the failure of finding a compromise between diverging perspectives for appropriate forest management, co-evolves and is fueled with two

competing narratives. These two narratives are reproduced by two segments of the regional cooperation about what the implementation of the Natura 2000 regulation in current forest management means. Hence, the on-going tension builds on different understandings and a resulting competition and power play over valid knowledge between state actors and private forest owners and both groups perceive this to be unresolvable despite recurring interaction and communication in meetings of the regional cooperation.

The first narrative concerns the "social responsibility of private property" narrative and is reproduced especially by state actors and NPA representatives and derives from an institutional planning perspective. One NPA representative recalled, "*The area cooperation, also certainly important, from the initialization until today, because we have noticed that the process of safeguarding* [Natura 2000 areas]*, where we have talked a lot with individuals, has pretty much gotten out of hand. Therefore, it hasn't achieved the goals that we were pursuing. That was now to some extent our lesson learned that we are trying to steer the topic of Natura 2000 as a whole back on a more planned course.*" (Int3). This quote quite nicely shows what underlying rationale NPA representatives and other state actors have about engaging with the stakeholders in the regional cooperation. It shows namely that NPA representatives are not willing to debate core principles and aims of Natura 2000 with stakeholders during meetings of the regional cooperation – as evident from reading the meeting protocols, there have been many arguments between NPA actors and affected forest owners in the past about this limitation. Instead, NPA representatives and other state actors hope for better cooperating with private forest owners by discussing and designing concreate measures for Natura 2000 in forests and therefore to transform current forest management practices, which NPA actors consider partly responsible for aggravating biodiversity loss. Some state actors even raise hope that private forest owners will accept the regulation one day. As such, they rely on the institutionalized social responsibility narrative of "Eigentum verpflichtet", which acknowledges that the ownership of private property entails certain rights, but also societal obligations that private forest owners have to fulfil. State actors constantly reconstruct this narrative in the interviews by explaining to recognize respective property rights of private forest owners in the designated Natura 2000 protected forest areas, who are allowed to dispose of their land independently. Private forest owners are not obliged to

implement extra measures to restore the good ecological status – the management plans remain and are a voluntary component of the regulation - but every forest owner and forester must comply with the new forest management regulation of the Natura 2000 directive that was decided on EU level. One NPA participant explains,

"*We prescribe* [nature] *conservation by regulation, but development* [toward a good ecological status] *can only be achieved by voluntary measures - in other words, I cannot decree that someone has to do something, I can only decree that something is not done. And that is the very big difference. And the management plans, that's about doing something. We don't order that either, because we're usually on private land, we need the landowner's acceptance."* (Int1). "*Ordering*" concerns in Natura 2000 forest management, for example, practices like leaving certain amount of deadwood on the ground, cultivation of habitat trees, afforestation with native tree species or relocating skid trails. Private forest owners with forest patches in a Natura 2000 designated area must consider and subordinate their decisions for forest management to the orders of the Natura 2000 regulation, which falls under their social responsibility. NPA representatives defend the rigorous approach as they have made enough concessions in the past, and the rules in the regulations are the least amount of environmental conservation that private forest owners must meet.

The underlying purport is: an overriding economic management paradigm in the forestry sector that led to for example large spruce monocultures and the use of big harvesting machinery in forestry has ignored environmental well-being for a long time, while private forest owners have lived off nature's benefits without thinking of the consequences. State actors argued that the only way forward is to learn to accept the enforcement of Natura 2000 regulation and to bear the costs of the pit they dug themselves. Also resonating in this narrative is the criticism of taking private freedom and autonomy for granted and unchallengeable. Forest owners' pride, representing a feeling of superiority, and unwillingness to abandon some of these freedoms block the achievement of more important societal – and political – sustainability goals such as nature and biodiversity protection. Some state actors further criticized in-depth pro and contra discussions of Natura 2000 is a time game that buys private forest owners time to find ways around this policy. Additionally, it steals valuable time and capacity from state agencies that have been mandated to implement Natura 2000 and are

themselves under tremendous pressure from higher state levels due to implementation failures of Natura 2000 in the past.

The second narrative running counter to the first one and mostly reproduced by stakeholders from forestry associations and partly also from agriculture is about “imposed restrictions and losses”. From the moment of the adoption of the EU Habitat Directive, private forest owners have perceived the Natura 2000 regulation as a top-down imposed limitation of their agency, self-efficacy and decision-making power. They feel disempowered by the compulsory, stringent regulation that restrains the freedom of forest owners and foresters to decide what is best for their own patch of forest and what trees they would like to cultivate in future – an autonomy that they and their ancestors have always had. Private forest owners are conscious about and constantly caution against the impacts of climate change and other rapid environmental changes, such as the drought years in 2018 and 2019 and exploding bark beetle populations in Germany. Consequently, they argue free choices in tree selection is needed to be able to experiment and learn what tree species can cope with environmental crises in future.

Here, two special features characterizing forest ownership also come clearly to the fore. First, forest ownership is characterized by long-term durability and resilience. Words with a strong connection to forest ownership and influence on forest management practices are longevity, stability, orientation, responsibility and sustainability. Since freshly planted trees need a long time before they can be harvested, forest owners think in terms of alternation periods between 80 and 250 years. This forestry paradigm is incompatible with a high-speed, fast-moving economy, where the motto 'time is money' shapes behavior and decision-making, and a policy system, where some representatives call for urgent radical changes due to rapid environmental change. Secondly, forest owners generally have a special relationship to their forest and to nature in particular and this emotional binding force is the second aspect that characterizes forest ownership. For many private forest owners, their forest is something “familiar” that can be “relied upon”. Additionally, for many, it means a piece of home that can be entered and experienced. For forest owners, their own forest itself becomes part of their own life story or family history through inheritance. This is also why most private forest and landowners feel not esteemed by

Natura 2000 what ecological value they have added to their forests, and possibly their ancestors in case of inheritance, and what they have managed well in the past. One participant told me about a befriended family,

"*Now you must imagine how such a family feels, which has done everything right for 200 years. They have a wonderful, species-rich forest, which should really have been rewarded [...]. That is an achievement. And what do they do, exactly the opposite, they punish this family and say, you are not allowed to go in there anymore, you are not allowed to do that anymore, you are only allowed to use it in a restricted way, every cave tree has to stay. That is the worst form of expropriation we have had. Apart from what happened in the East after the "Wende"* [note: familiar German expression for the German Reunification in 1990]. *This is a truly unprecedented expropriation of landowners, and in my opinion, it far exceeds social responsibility.*" (Int16). In particular, private forest owners see themselves as protectors of nature, being closely related to nature and their forest patch, as they are spending much time and energy in the forest and on forest management.

At last, they stick to the argument that sustainability stems from forestry and underlies their common guiding economic principle to pursue sustainable and multifunctional forestry. Many private forest owners therefore also regard the Natura 2000 regulation as an unacceptable increase in bureaucratic power that at last lacks the capacity to improve environmental problems in the forest. One representative argues,

"*I have said a hundred times that those who bring bureaucracy into the forest are not protecting the forest, but instead protecting the bureaucracy. And that is exactly what has happened. An infinite number of people are hired, devouring millions. Much more could have been achieved with the money by giving it directly to those who work with nature.*" (Int12). As the bureaucratization of forest through Natura 2000 regulations increases, so do private forest owners' fears of growing bureaucratic inflexibilities that do not give leeway to adapt to projected environmental changes. The fear of imposed restrictions and losses from above often leads to emotional debates between participants of the regional cooperation, who engage in blaming and shaming the other side and highlight differences over commonalities.

5. Social identities and a culture of conflict

Describing the two narratives, it has already become clear how some actors characterize others and how they relate to each other in the regional cooperation. The regional cooperation is a network of diverse actors who struggle to find common ground in many aspects, while conflicts, mistrust and suspicion overrule deliberative processes as previously mentioned. This is also reflected in the characterization frames that actors use to characterize other participants. The narrative interviews reveal that some actors from the regional cooperation have acquired a real "Us against Them" mentality and always talk in shaming and blaming patterns about others and Natura 2000. Particularly, the pattern “Private forest owners versus NPA representatives” and “Forestry versus nature conservation” pervades in many personal experiences and seemingly creates strong bonds and companionship to other private forest owners and other affected stakeholders. For example, one private forest owner directly blames NPA representatives as the villains, “*But they think to give us such requirements. That is the state's distrust of its citizens, that they do not handle their property responsibly*.” (Int12). NPA representatives are seen as the regulator and supervisor for the health of forests, who cannot be trusted, imposing a policy program on private forest owners that allows for no alternatives and flexibility. Hence private forest owners feel being pushed into a corner, which stands in stark contrast to their high independence and value of autonomy, which are characteristics of private forest owners as also indicated in a study by Joa & Schraml (2020). Private forest owners point out that they principally engage in forestry because it is a way of life rather than an economic enterprise. More specifically, as I indicated, they regard themselves as stewards of their forests, because they perceive themselves to be more involved with nature than anyone else is and they fear that their traditional knowledge and practices are being destroyed under the new paradigm of Natura 2000. The pattern “they” – as in NPA representatives – are the villains, who do not listen and disrespect multifunctional forestry and “we” – the private forest owners – are the victims, who have no alternative and suffer from the imposed decisions is present in the interviews with participants as well as during discussions in the cooperation meetings. This pattern has also been reported in previous research stressing that policymakers stereotype private forest owners of being ignorant to forest conservation, while forest owners claim to preserve forest ecosystems for future generations (Feliciano et al., 2017).

Exactly the opposite is seen in the interviews with some state representatives, namely private forest owners are perceived not at all as the victims of Natura 2000, rather they are perceived as part, sometimes root of the problem. Thus, state actors often blame private forest owners to be too stubborn to become aware of this reality and even too old for a paradigm shift, "*You also have to say that most of them are simply old. Of course, shifting is more restricted, although it also spills over somehow with the younger ones, but yes... It's a holding on to things.*" (Int3). Nevertheless, state actors also recognize private forest owners as the affected group of the Natura 2000 regulation calling them "*the affected*" and therefore allow them to be a victim of Natura 2000. Interestingly, some argue in some instances that forest owners themselves have forced this victim role onto them by practicing unsustainable forest management, and now have to deal with the consequences. At last, NPA representatives often shift blame onto higher policy levels, in particular the federal and EU level, and point out to be powerless as well as under tremendous pressure from above to speed up Natura 2000 implementation on the ground to prevent infringement procedures against the German state.

Blaming and shaming between representatives of the NPA and private forest owner associations overshadow collaboration in the regional cooperation. Even the regional manager, whose role is to assist in mediating between the antagonizing groups, faces difficult situations, in which he is not able to facilitate between competing claims and to navigate toward productive social dynamics. He remembers, *"[…] that was also the reason why I was so close to quitting in the first year. The forest owners, that's hard work. They are not easy either. But it's also about their property and I* [as forester by training] *always have a lot of understanding for them. And they're not so ideological. That's the difference to our authority. They are all very ideological. And that's why they get into trouble. If you get in the way, you'll eventually run out of energy, and if you are then supposed to win the trust of the forest owners and to mediate somehow. But if you want to somehow take on this mediating role and the authority keeps telling you 'No, you're not allowed to do that' then at some point you'll get fed up."* (Int2). This quote first shows the difficult role that the regional manager has to fulfil, as being in-between the chairs and neither of the groups trusts him to be transparent and fair. Secondly, it shows how the process is shaped by distinguishing and antagonizing characterization that is also put forward by the regional manager leading to an

institutionalization and polarization of the conflict between the different actor groups, that can be referred to a "culture of conflict" in the regional cooperation (Colvin et al., 2016; Yasmi et al., 2006). Over time, every actor in the regional cooperation got so used to conflicts that this "Us vs Them" mentality continues to strengthen and becoming established as a common and accepted part of the collaboration preventing collaborative ties to develop.

One participant reflected on this situation, "*[…] actually, we almost have a camp formation now. On the one hand, there are the people affected by Natura 2000 safeguarding, on the other hand, there is the authority, and then, in between, there is the regional manager, who actually has to try to bring the interests together, to dampen the exaggerated ideas and sometimes also emotions. To anticipate both sides and perhaps also to consider in advance, with a view to the next cooperation meeting, how things can continue.*" (Int16). From this analysis, I also assumed to find a so-called bow-type structure in the regional cooperation. Based on Krackhardt, this is a structure where two or more densely connected sub-groups, also called cliques, are linked via a few or only one actor (Flap and Völker, 2001). Sub-group actors are more densely connected because in most cases similarity of actors (translated into actor attributes in social network analysis) leads to more interaction or trust to others and therefore bonding (strong) ties link these actors in cohesive sub-groups (Bodin and Crona, 2009). I expected that the regional cooperation would be divided into two densely connected sub-groups, one consisting mainly of NPA and state representatives and the other of private forest owners and other stakeholders, and I expected the regional manager and maybe a few other state actors from the Forestry Office to link these two sub-groups. However, the relational structure between participants of the regional cooperation turns out to be quite different than I had expected and for this, I relied on descriptive social network analysis to explore this.

6. Relational structure in the regional cooperation

The interviews and network surveys suggested that state actors and stakeholders have known each other for a long time and interact much more than just in quarterly cooperation meetings. Some have indicated to meet every week or even every day on office floors or during other kinds of formal and informal meetings. Based on 17 actors (nodes), out of 272 feasible interactions in total, 206 interaction relationships are actually present, resulting in a high network density of 76% (Fig. 1A). Participants from

the regional cooperation are thus embedded in dense relational structures and they know and often interact with each other (Fig. 1B).

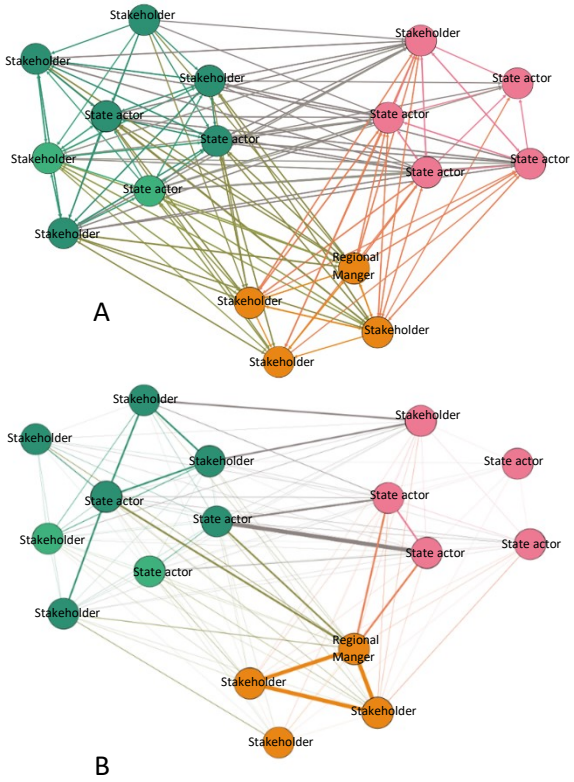

Figure 10. (**A**) Visualization of the regional cooperation presenting actors as nodes and edges as interaction (1=yes, 0=no) and in (**B**) weighted edges as frequency of interaction. Thickness of edge means that actors more often interact with each other (daily, weekly, monthly, quarterly, once in six months or once a year).

Three clusters can be identified where there is more interaction with each other, but overall there are no enclosed groups, which indicates that the exchange and communication between the participants from the regional cooperation is active. NPA representatives, other state actors, and the stakeholders are divided over the three clusters and all three groups have a similar interaction pattern, while they have many relationships to other actors from the two clusters (Fig. 1). There is no one coordinating actor taking a central position in the network, but several coordinators divided over the three clusters, who interact frequently with actors from their cluster and also with other actors outside of their cluster. In the trust network, 83 trust relations were

reported resulting in a density score of 31%, which is a reasonable trust level for governance networks.

Taken together, I conclude that the regional cooperation is a network that is supported by many shoulders, the actors involved are familiar with each other and several coordinators and mediators among the actors ensure a lot of exchange between the participants. The polarization that manifests in the two opposing narratives and negative identity constructions of participants is not reflected in the relational structure from the analysis of the questionnaires. These inconsistencies between actors' perception and actual relational structure in the regional cooperation is a rather unexpected result. Instead of finding fragmented groups that are not connected to each other, I find a network pattern with bonding and bridging ties distributed evenly among the participants, and where every participant talks and interacts with everyone else at least a little and sometimes even more. This strongly suggests that the regional cooperation as a governance network fulfils an important role in sustaining reoccurring interaction between adversaries despite the fact that so far the actors involved could not resolve conflicts they have with each other and turn a provoking into a peaceful atmosphere. It may reduce concerns and renders hope for practitioners in the way that even if the regional cooperation appears as the most ineffective process through the lived experiences told by the participants, the Natura 2000 implementation still benefits from a regular interaction and exchange between participants on the long term. However, as Colvin et al. (2015) had suggested, it also leads me to assume that as long as participants of a governance network are distracted with historical disputes and perceived incompatibilities based upon past experiences, the potential of addressing management challenges through a collaborative learning- and consensus-oriented approach is limited. Therefore, these findings are discussed in light of important implications for future practice of the regional cooperation.

7. Discussion

The aim of the present study was to explore the social dynamics between actors involved in a governance network. The social dynamics were analyzed through investigating the narratives and identity constructions that actors used and the social structure between actors in the context of a Natura 2000 implementation effort in local forest management. The analysis shows that the narrative of "social responsibility of private property" of NPA representatives competed with the narrative of "imposed

restrictions and losses" of private forest owners over power and competency in determining proper management planning in the Natura 2000 areas. The manifold problems associated with collaboration in the regional cooperation coincided with antagonizing characterization frames highlighting the others as villains that over time led participants to develop an "Us versus Them" mentality and an institutionalized 'culture of conflict' dynamic in the regional cooperation. The qualitative analysis of the interview material suggested deep entrenched divides between NPA representatives, other state actors and stakeholders that even a regional manager, hired specifically to mediate between these groups, could not break. The results of this study are consistent to earlier observations, which highlighted the challenges of Natura 2000 implementation in current forest management. Two narratives clash with each other, namely the paradigm of retention versus economic use of forest resources (Cosyns et al., 2020; Joa and Schraml, 2020). Conflicts arise where those different forest management paradigms collide turning into a competition over competencies and power (Popkin, 2021; Winkel et al., 2015).

Interestingly, this however stands in stark contrast to what I found in the actual relational pattern between actors of the regional cooperation through means of social network analysis. The polarization into two adversary groups does not resonate with the reported relationships between the participants. On the contrary, the reported relations point to a network structure where regular exchange between heterogeneous sub-groups happens that is coordinated by several central actors. This highlights an important inconsistency between the structural and mental mechanisms underlying the social dynamics in the regional cooperation, which can be related to the structural, relational and cognitive dimensions of social capital (Nahapiet and Ghoshal, 1998). Mental mechanisms influencing social dynamics build on common understandings in the form of shared language and narratives, shared values and beliefs and shared goals, purposes and visions (Nahapiet and Ghoshal, 1998). Structure is quite essential for governance networks to function (Bodin, 2017; Bodin and Crona, 2009; Bodin and Prell, 2011). Yet, research on collaborative governance has promoted a common understanding as an important mile-stone for the success of collaboration (Ansell and Gash, 2008; Emerson et al., 2012). Participants of the regional cooperation have thus seemingly managed to develop the structural capacity via regular exchange ties. Nevertheless, they have yet failed to develop the mental capacity – what I call a

common narrative (Koch et al., in review) – needed to achieve their set objectives and to come to a shared understanding for the design of Natura 2000 forest management plans. The next question is of course how the regional cooperation can continue in the future and I will briefly address this in the following while also addressing the more general challenges associated with collaborative governance.

Many collaborative governance networks face the problem that they are accompanied by seemingly intractable conflicts that involve toxic "Us versus Them" dynamics, especially in the context of natural resource management and particularly in Natura 2000 management planning (Bryan, 2012; Colvin et al., 2015; Gallo et al., 2018; Idrissou et al., 2013; Kovács et al., 2017). But how to overcome this and unite the "us" and "them" or in other words, how to move from "us versus them" toward "us and them" mentalities? First, it is probably useful to recognize and reframe conflict as a valuable dynamic that, if used productively, can lead to innovative and transformative solutions. Conflict avoidance may become very exhausting in some instances, and then could lead to uncontrollable outbursts that are likely to ruin delicate safe spaces that were previously created for open dialogues between the involved actors. The participants should rather invest energies in developing the structural and mental capacities to find ways for a joint resolution of these conflicts.

Secondly, developing trust in each other and in the process is certainly important, but difficult in contested settings and sometimes not worth it (Garard et al., 2018). Building trust between historical adversaries can sometimes take years and yet, something unforeseen happens and this trust is destroyed in a matter of seconds. Thus, in 'culture of conflict' settings it might be more advisable to disregard trust at first, approach the process with a pragmatic attitude and to focus on a search for a common ground, a common narrative, or a shared vision attached to a shared meaning of place. In this regard, Colvin et al. (2015) suggest the formation of a superordinate We-identity built on inclusiveness and common grounds or in relation to a more broader topic of concern. In the case of Natura 2000 forest management, this could be the question about the forest of the future in Europe in light of dramatic environmental changes (Popkin, 2021) or a broader landscape perspective in which Natura 2000 areas as green infrastructure elements increase the region's resilience next to other key elements (Sayer et al., 2013; Van Oosten, 2013). Making actors aware of what language they use

is furthermore helpful to stimulate reflection a shift in perspective or neutralizing negative characterization of other actors or groups.

Thirdly, non-conventional combinations of qualitative and quantitative research methods, like in this paper, to investigate collaborative governance approaches also proves to be a very useful way to understand underlying, intangible processes happening between the actors and to lift up details that were unseen before. Qualitative research methods furthermore present a significant opportunity to include marginalized 'voices' in the research that are normally left out in scientific or policy discourses (Alexander et al., 2020). In light of rapid biodiversity loss and the urgency to act, understanding how to navigate through complex social dynamics on the ground for better policy implementation becomes a vital part in the design of collaborative governance.

8. Conclusion

Collaborative governance arrangements between local administrators, other state actors and affected stakeholders present an alternative to central top-down and technocratic approaches that have characterized HD conservation planning and implementation across Europe. Co-managing has been advocated to support opening up decision-making spaces to include a diversity of knowledge, interests and perspectives and has therefore been associated with a reduction of the risk of implementation resistance (Ansell et al., 2017). However sometimes, one might think to have opened rather a battlefield of diverging interests than a constructive dialogue with the emphasis on learning from diverse perspectives. Further investigation on these governance challenges and mechanisms underlying social dynamics in collaborative governance arrangements is needed to better anticipate inter-group or interpersonal disputes and navigate those into productive collaboration. Even though the focus on a single case study in Germany reduces the scope of this study, the findings ground on a detailed analysis. The findings point out that competing narratives as well as antagonizing identity constructions and negative frames influence the social dynamics between actors and pose barriers to successful local co-management arrangements. Such insights about the social dynamics of collaboration are important to move from a 'culture of conflict' toward a 'culture of collaboration'.

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Annex 5: Informed Consent Form

Einwilligungserklärung zur Erhebung und Verarbeitung personenbezogener Interviewdaten

Forschungsprojekt **Narrative und Netzwerke im Natur- und Geopark TERRA.vita**

Durchführende Institution Universität Osnabrück

Projektleitung Larissa Koch

Interviewer und Unterschrift _____

Interviewdatum _____

Beschreibung des Forschungsprojekts (zutreffendes bitte ankreuzen):

( ) mündliche Erläuterung ( ) schriftliche Erläuterung

Mir wurde erklärt, dass meine Interviewaussagen im genannten Forschungsprojekt mit einem Aufnahmegerät aufgezeichnet und von den Mitarbeiterinnen und Mitarbeitern des Projekts in Schriftform gebracht werden. Für die weitere wissenschaftliche Auswertung des Interviewtextes werden alle Angaben, die zu meiner Identifizierung führen könnten, verändert oder aus dem Text entfernt. Mir wird versichert, dass meine Interviewaussagen in wissenschaftlichen Veröffentlichungen nur in Ausschnitten zitiert werden. Das bedeutet, dass das gesamte Interview nicht veröffentlicht werden darf. Damit soll erreicht werden, dass ich auch durch die Reihenfolge und Kombination meiner erzählten Ereignisse im gesamten Interview nicht für Dritte erkennbar werde. Mir ist bewusst, dass die Teilnahme am Interview / an mehreren Interviews freiwillig ist und ich mein Einverständnis dazu jederzeit ohne Begründung und ohne Nachteile zurückziehen kann. Ebenso kann ich einer Speicherung meiner Daten jederzeit widersprechen und deren Löschung verlangen.

Ich bin damit einverstanden, im besprochenen Forschungsprojekt ein Interview/mehrere Interviews zu geben.

( ) Ja ( ) Nein

_____ _____

Vorname, Nachname in Druckschrift Ort, Datum, Unterschrift

Annex 6: Narrative Interview Protocol

(conducted in German)

Vorgespräch:

- Eigene Vorstellung und Erklärung Forschungsvorhaben
- Anonymitätswahrung/ Formular
- Tonbandaufnahme → Einschalten!

Eingangsstimulus:

Ich möchte Sie bitten, mir zu erzählen, wie das eigentlich mit der Gebietskooperation *[Nord oder Süd]* angefangen hat und wie das dann bis heute weiterging? Ich möchte, dass mir Ihr eigener, persönlicher Erfahrungszusammenhang klar wird. Deshalb möchte ich Sie bitten, auf alle Erlebnisse, die Ihnen einfallen und relevant erscheinen, einzugehen. Sie können sich dazu so viel Zeit nehmen, wie Sie möchten. Ich werde Sie auch erstmal nicht unterbrechen, mir nur einige Notizen zu Fragen machen, auf die später dann noch eingehen werde.

Nachfragephase: „…einige Fragen, die ich noch habe…"

Immanente Nachfragen:

- Können Sie mir über die Zeit *[Passage aus Haupterzählung]* noch etwas mehr erzählen?
- Sie erwähnten vorhin wie Sie *[… Situation X],* können Sie mir diese Situation einmal genau erzählen?
- Beleg-Erzählung zu einem Argument: Können Sie sich noch an eine Situation erinnern, in der … [Argument aus Haupterzählung:]

Exmanente Nachfragen: Leitfadeninterview

- Woher kommen Sie ursprünglich und wie lange leben Sie schon in der Region?
- Was ist Ihrer Meinung nach in dieser Region schützenswert?
- Wie haben Sie *[Akteur XYZ]* wahrgenommen?
- Wie würden Sie die Zusammenarbeit mit TERRA.vita, dem Gebietsmanager und anderen Akteuren aus der Region beschreiben?

Annex 7: Network survey

Regional cooperation South – Nördlicher Teutoburger Wald/ Wiehengebirge

(conducted in German)

Ort: *Datum:*

Persönliche Daten

Name:

Alter:

Geschlecht:

Organisation:

Eingetragener Verein? □□ Ja □□ Nein

Hauptsitz der Organisation:

Anzahl der Mitglieder der Organisation:

1. Seit wann sind Sie Mitglied in der Gebietskooperation?

---

2. Umwelt und Biodiversität

Es folgen eine Reihe von Aussagen. Diese sollen dazu dienen Ihren Bezug zur Natur abzufragen. Bitte kreuzen Sie entsprechend an.

	Stimme überhaupt nicht zu	Stimme nicht zu	Ich weiß nicht	Stimme zu	Stimme vollkommen zu
a) Einige Arten sind dazu bestimmt, auszusterben und zu verschwinden.	◯	◯	◯	◯	◯
b) Nichts, was ich tue, wird die Probleme an anderen Orten auf dem Planeten ändern.	◯	◯	◯	◯	◯

c)	Wir Menschen haben das Recht, natürliche Ressourcen so zu nutzen, wie wir es wünschen.	◯	◯	◯	◯	◯
d)	Naturschutz ist unnötig, weil die Natur stark genug ist, um sich von jeglichen menschlichen Einflüssen zu erholen.	◯	◯	◯	◯	◯
e)	Ich bin mir der Umweltprobleme sehr bewusst.	◯	◯	◯	◯	◯
f)	Mein idealer Urlaubsort wäre ein abgelegenes, wildes Gebiet.	◯	◯	◯	◯	◯
g)	Ich denke viel über das Leiden der Tiere nach.	◯	◯	◯	◯	◯
h)	Ich sehe mich als ein Teil der Natur.	◯	◯	◯	◯	◯
i)	Ich genieße es, im Freien zu sein, auch bei schlechtem Wetter.	◯	◯	◯	◯	◯
j)	Ich genieße es, in der Erde zu graben, sodass meine Hände schmutzig werden.	◯	◯	◯	◯	◯
k)	Der Zustand der nicht-menschlichen Arten ist ein Indikator für die Zukunft des Menschen.	◯	◯	◯	◯	◯
l)	Der Gedanke, tief im Wald, abseits der Zivilisation zu sein, ist erschreckend.	◯	◯	◯	◯	◯

m) Meine Beziehung zur Natur ist ein wichtiger Teil dessen, was ich bin.	◯	◯	◯	◯	◯
n) Tiere, Vögel und Pflanzen haben weniger Rechte als Menschen.	◯	◯	◯	◯	◯
o) Meine Gefühle für die Natur haben keinen Einfluss darauf, wie ich mein Leben lebe.	◯	◯	◯	◯	◯
p) Ich achte auf meine Umgebung und deren Tierwelt, wo auch immer ich bin.	◯	◯	◯	◯	◯
q) Ich denke immer daran, wie sich meine Handlungen auf die Umwelt auswirken.	◯	◯	◯	◯	◯
r) Ich gehe nicht oft in die Natur.	◯	◯	◯	◯	◯

3. Wer ist verantwortlich Biodiversität zu schützen und entsprechende Maßnahmen einzuführen?

Die Verantwortlichkeit für den Schutz und Erhalt von Biodiversität liegt beim Staat.	◯ Stimme zu	◯ Stimme nicht zu
Jeder einzelne ist verantwortlich Biodiversität zu schützen und sein Handeln entsprechend anzupassen.	◯ Stimme zu	◯ Stimme nicht zu

Der gegenwärtige Schutz und Erhalt von Biodiversität ist ausreichend.	◯ Stimme zu	◯ Stimme nicht zu

4. Naturschutzgebiete sollten… (bitte entsprechend auswählen)

◯ … grundsätzlich nicht von **Bürgern** betreten oder genutzt werden.

◯ … mit strengen Richtlinien von **Bürgern** nur eingeschränkt betreten oder genutzt werden.

◯ … grundsätzlich von **Bürgern** betreten und genutzt werden.

◯ … grundsätzlich nicht vom **Grundeigentümer** betreten oder genutzt werden.

◯ … mit strengen Richtlinien vom **Grundeigentümer** nur eingeschränkt betreten und genutzt werden.

◯ … grundsätzlich vom **Grundeigentümer** betreten oder genutzt werden.

5. Welches Ziel verfolgen Sie durch Ihre Mitgliedschaft in der Gebietskooperation?

6. Mit welchen Personen aus den Gebietskooperationen Nord oder Süd haben Sie bezüglich des Biodiversitätsschutzes im südlichen Teil des TERRA.vita Geoparks seit Beginn ihrer Mitgliedschaft direkt zusammengearbeitet?

Stakeholder (Organisation/ Verband)	**Art des Austausches?** 1 = Besprechung Ideen/ Zielen; 2 = Projektplanung; 3 = Projektumsetzung; 4 = Ratschläge und Wissensvermittlung; 5 = Diskutieren von politischen Themen (mehrere Antwortmöglichkeiten)	**Häufigkeit der Interaktion** 1 = täglich; 2 = mehrmals pro Woche; 3 = 1mal pro Woche; 4 = mehrmals pro Monat; 5 = 1mal pro Monat; 6 = 1mal in 3 Monaten; 7 = 1mal im halben Jahr; 8 = 1mal im Jahr; 9 = weniger als 1mal im Jahr	**An wen wenden Sie sich, wenn Sie wichtige, relevante Themen vertrauensvoll diskutieren möchten?** (Ankreuzen)
Actor 1			
Actor 2			
Actor 3			
…			

Annex 8: Eidesstattliche Erklärung

Erklärung an Eides statt über die Eigenständigkeit der erbrachten wissenschaftlichen Leistung

Ich erkläre hiermit an Eides statt, dass ich die vorliegende Arbeit ohne unzulässige Hilfe Dritter und ohne Benutzung anderer als der angegebenen Hilfsmittel angefertigt habe. Die aus anderen Quellen direkt oder indirekt übernommenen Daten und Konzepte sind unter Angabe der Quelle gekennzeichnet.

Bei der Auswahl und Auswertung folgenden Materials haben mir die nachstehend aufgeführten Personen oder Organisationen in der jeweils beschriebenen Weise entgeltlich/unentgeltlich geholfen.

1. Prof. Dr. Claudia Pahl-Wostl als meine Erstbetreuerin und Co-Autorin

2. Prof. Dr. Christina Prell als meine Zweitbetreuerin und Co-Autorin

3. Dr. Philipp Gorris als Co-Autor bei Paper II und Paper III

4. Dr. Ilan Chabay (IASS), Dr. Grit Martinez (Ecologic Institute) und Dr. Geeske Scholz (IUSF/ The James Hutton Institute) bei Paper I

Weitere Personen oder Organisationen waren an der inhaltlichen materiellen Erstellung der vorliegenden Arbeit nicht beteiligt. Insbesondere habe ich hierfür nicht die entgeltliche Hilfe von Vermittlungs- bzw. Beratungsdiensten, Promotionsberaterinnen oder Promotionsberatern oder anderen Personen in Anspruch genommen.

Die Arbeit wurde bisher weder im In- noch im Ausland in gleicher oder ähnlicher Form einer anderen Prüfungsbehörde vorgelegt.

(Ort, Datum) (Unterschrift)