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Regional forest green infrastructure planning and collaborative governance: A case study from southern Sweden

Anna Karlsson *, Luis Andrés Guillén, Vilis Brukas

Swedish University of Agricultural Sciences, Southern Swedish Forest Research Centre, Sundsvägen 3, 234 56, Alnarp, Sweden

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ABSTRACT

Green Infrastructure (GI) is a strategically planned network delivering and enhancing diverse ecosystem services whilst preventing further biodiversity loss. Although not mandatory for EU members to implement GI, it is increasingly advocated as a tool for landscape planning. In 2016, the Swedish Government mandated the County Administrative Boards (CABs) to design regional GI plans using a collaborative process. This study explored the GI collaborative process in the region of Scania in southern Sweden, focusing on forest as an important component of Swedish landscapes. We interviewed 14 different stakeholders who participated in the process, and analysed the preconditions, inner workings and outcomes of collaborative GI planning. Despite remarkably different expectations, the perceived outcomes were consistent. Most stakeholders perceived the process as mainly informational rather than deliberative and, in general, use of the GI plan was limited. Despite successful finalisation of the plan, collaboration as a long-term process has not been achieved, which may limit the realisation of activities that foster GI. Scania's GI planning illustrates the defects of top-down approaches with insufficient resources, failing to address the stakeholders' trust and positioning. A lack of inclusivity and deliberation undermine the legitimacy of collaborative processes, discrediting the very concept of GI in Sweden. Our analysis indicates that a genuine collaborative process and a long-term commitment to implementing GI is unachievable without sustained and substantial governmental funding, capacity development at the lead agency, thorough consideration of prehistory, and targeted measures to increase trust among stakeholders.

1. Introduction

Landscapes worldwide have become fragmented and degraded by habitat loss (IPBES et al., 2019). Semi-natural and natural forest is one of many important habitats for biodiversity. In Sweden, where forests represent 68 % of the land-use, forest biodiversity has been significantly affected by logging, resulting in threats to species survival and risks in the provision of ecosystem services (Svensson et al., 2019). Sweden hosts a substantial proportion of red-listed species at the European level, necessitating more action to improve their status and survival ability. Despite the possible effects on increased amounts of deadwood and other vital structures (Kyaschenko et al., 2022), Sweden has not been progressing satisfactorily towards its biodiversity objectives in forestry (Karlsson et al., 2022). Biodiversity cannot be secured solely by set-asides and current measures for production forests, so it is necessary to adopt a wider landscape perspective (Angelstam et al., 2020). In response to this situation, the Swedish Government mandated the County Administrative Boards (CABs) to design regional Green Infrastructure (GI) plans for enhancing landscape values. GI is defined as "*a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services. It incorporates green spaces (or blue if aquatic ecosystems are concerned) and other physical features in terrestrial (including coastal) and marine areas.*" (European Commission, 2011).

The inclusion of GI in Sweden's environmental policies is linked to supranational processes. In 2013, the EU Commission published the Green Infrastructure Strategy to create a framework that promotes and facilitates GI projects within existing legal, policy, and financial instruments, and guides the development of GI plans (European Commission, 2013). In Sweden, forest management is relatively deregulated and forest decisions are primarily shaped by soft policy instruments i.e. knowledge transfer and advice (Appelstrand, 2007; Brukas and Sallnäs, 2012; Eriksson and Sandström, 2022). Concurrently, the stipulated GI plans lack ad hoc regulations for their implementation, making collaborative participation crucial for their acceptance and practical application (von Post et al., 2023). Achieving the goals of GI necessitates active

* Corresponding author.
E-mail addresses: anna.m.karlsson@slu.se (A. Karlsson), luis.andres.guillen.alm@slu.se (L.A. Guillén), vilis.brukas@slu.se (V. Brukas).

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involvement of stakeholders in local landscapes (European Commission, 2019). All stakeholders should contribute, and this can only be achieved by a transparent dialogue, gaining from the experiences and opportunities that stakeholders possess (Niss et al., 2020). To create functional GI, it is necessary to expand and connect the fragmented biological values that still exist in the landscape. Areas with high ecological conservation values ('värdetrakter' in Swedish) and core natural areas with high natural values ('värdekärnor' in Swedish), should evolve, expand, and improve with the help of green corridors (Berlin and Niss, 2019) allowing the spread of threatened species (Niss et al., 2020). Broadleaf forests provide habitats with the highest species richness in Scania, with the most red-listed species.

Several studies examined ecological aspects of forest GI in Sweden (e.g. Andersson et al., 2013). A few recent studies analysed policy processes pertaining to GI at national policy level (e.g. von Post et al., 2023; Slätmo et al., 2019) but, to the best of our knowledge, analyses of actual implementation at regional level are lacking. Chatzimentor et al. (2020) examined 147 scientific papers focusing on GI, ranging from urban GI and its components to participation and stakeholders' engagement in GI planning, along with critical evaluations of policy delivery. The primary conclusion drawn from their study was support for further research specifically targeting the social aspects of GI, as the majority of studies focused on physical-geographical aspects, such as urban structures and ecological elements of GI. In the case of Sweden, Brokking et al. (2021) focused on developing GI, emphasising the role of local government (municipalities) in the implementation and the driving forces behind nature-based solutions. Another Swedish study (Bally and Coletti, 2023) took a broader EU perspective, stressing civil society's involvement in the governance of urban GI and showed that, with a mosaic governance, local communities could upscale innovative discourses and practices into formal policies. Complementing these studies, we investigated GI implementation at a regional (county) level, with a focus on rural forested areas. GI can also serve as a groundbreaking instrument for achieving the national environmental goal of "Living forests", reinforcing landscape perspective in Swedish environmental governance and forestry practices, based on collaborative effort by all key stakeholders.

This study analysed the GI planning process in the county of Scania, Sweden. Using an interview study, we assessed whether the development of the GI plan can be considered successful with respect to genuine collaborative governance. To achieve this aim, the analysis was guided by the following research questions: 1) What are the stakeholders' expectations and perceived outcomes of the GI planning process? 2) What factors may have influenced the outcomes of the GI process? and 3) To what extent is the GI plan used by the relevant stakeholders?

2. Theoretical underpinnings

The GI plan, according to its principal definitions, falls under the umbrella of collaborative governance. GI planning is normally arranged by a public authority, highlighting the importance of including stakeholders to achieve the acceptance of its decisions through a consensus-based and deliberative process. Building on a review of numerous cases, Ansell and Gash (2007) developed a comprehensive model along with a specific definition for collaborative governance. This definition emphasises six criteria: 1. The forum is initiated by public agencies or institutions, 2. Participants in the forum include non-state stakeholders, 3. Participants engage directly in decision-making and are not merely ''consulted'' by public agencies, 4. The forum is formally organised and meets collectively, 5. The forum aims to make decisions by consensus (even if consensus is not achieved in practice), 6. The focus of collaboration is on public policy or public management. A collaborative governance takes place when the above criteria are met.

The collaborative process can be analysed by examining its enabling components. Ansell and Gash's (2007) framework is composed of a 'core' collaborative process, that progresses in a feedback loop, and three other main components that set the context and influence the core process i.e. starting conditions, facilitative leadership and institutional design. Numerous scholars in collaborative governance have developed it further. Importantly for our study, this framework has been criticised for its insufficient attention to the outcomes of the collaborative processes. Several follow-up studies developed the framework to measure outcome variables throughout the entire chain of the collaborative process (see Emerson et al., 2012; Thomas and Koontz, 2011; Bally and Coletti, 2023; Koontz et al., 2020; Ulibarri et al., 2023). Despite criticisms, this framework continues to be extensively utilised, underscoring its enduring robustness and relevance. It places emphasis on formal, state-initiated arrangements and the engagement between government and non-governmental stakeholders, aligning it very well with key characteristics of regional GI planning under our investigation.

Fig. 1 represents our framework for analysing the collaborative process for GI in Scania. It is based on Ansell and Gash's (2007) framework with our addition of four variables that detail the outcomes, enabling a more explicit assessment of the extent to which the aims of the collaborative process are achieved in terms of consensus, collective learning, legitimacy, and mutual gains. These, and the other variables, are detailed in Table 1, including examples from recent literature. Given the long-term horizon of GI plans and the commitments of the Swedish authorities to refining the practice of collaborative governance, we added a feedback process to link the outcomes to the institutional design (Reed, 2008).

An ideal collaborative process is hard to accomplish in practice: its outcomes can be contradictory, and may not necessarily meet the initial goals. Collaborative processes have, therefore, been theorised to reach different levels of influence on decision-making (Johansson et al., 2020). Analogous to the well-known Arnstein's (1969) ladder of citizen participation, a collaborative process may transit different stages, where stakeholders gain influence and move from information sharing towards actual decision-making power. Even if collaborative governance emerged as a response to the failures of top-down implementation to provide an alternative to adversarialism (interest groups) and managerialism (experts) in decision-making (Ansell and Gash, 2007), it is still possible that processes branded as collaborative end up replicating these approaches. In managerialism, stakeholders are invited to activities, and consultation and dialogue do occur, yet, either through manipulation, agenda setting, or diverted attention from basic problems, authorities decide on the final outputs (i.e. GI plan) (Klikauer, 2015; Karlsson, 2019; Pettersson et al., 2017). Adversarialism occurs when certain stakeholders enforce their own interests on others through information, persuasion, and power (Futrell, 2003; Ansell and Gash, 2007; Reed et al., 2018). The condescension of experts or lack of expertise can threaten collaboration and the decisions may lead to false assumptions. In conclusion, a collaborative process may sometimes be only symbolic, where communication and dialogue arise, but there is no guarantee that all essential aspects and perceptions are duly considered (Johansson et al., 2020). To achieve effective and legitimate decision-making in public administration, it is important to evaluate the reasons, timing, and methods underlying the necessity and purpose of the participatory process (Hurlbert and Gupta, 2015). GI constitutes a multifaceted endeavour with diverse goals and interests in land-use, making it a wicked problem. Achieving the goals of GI plans requires formal support from various instruments and functional planning documents, with cooperation between stakeholders (Angelstam and Manton, 2021). Accomplishing satisfactory outcomes necessitates building trust between the participants through continuous learning and mutual respect (Ansell and Gash, 2007; Johansson et al., 2020), which requires considering both epistemic and normative perspectives from various interests and finding ways to bridge them (Van der Molen, 2018). In this context, it is additionally important to consider the prehistory of participatory process, including the degree of trust among the participating stakeholders.

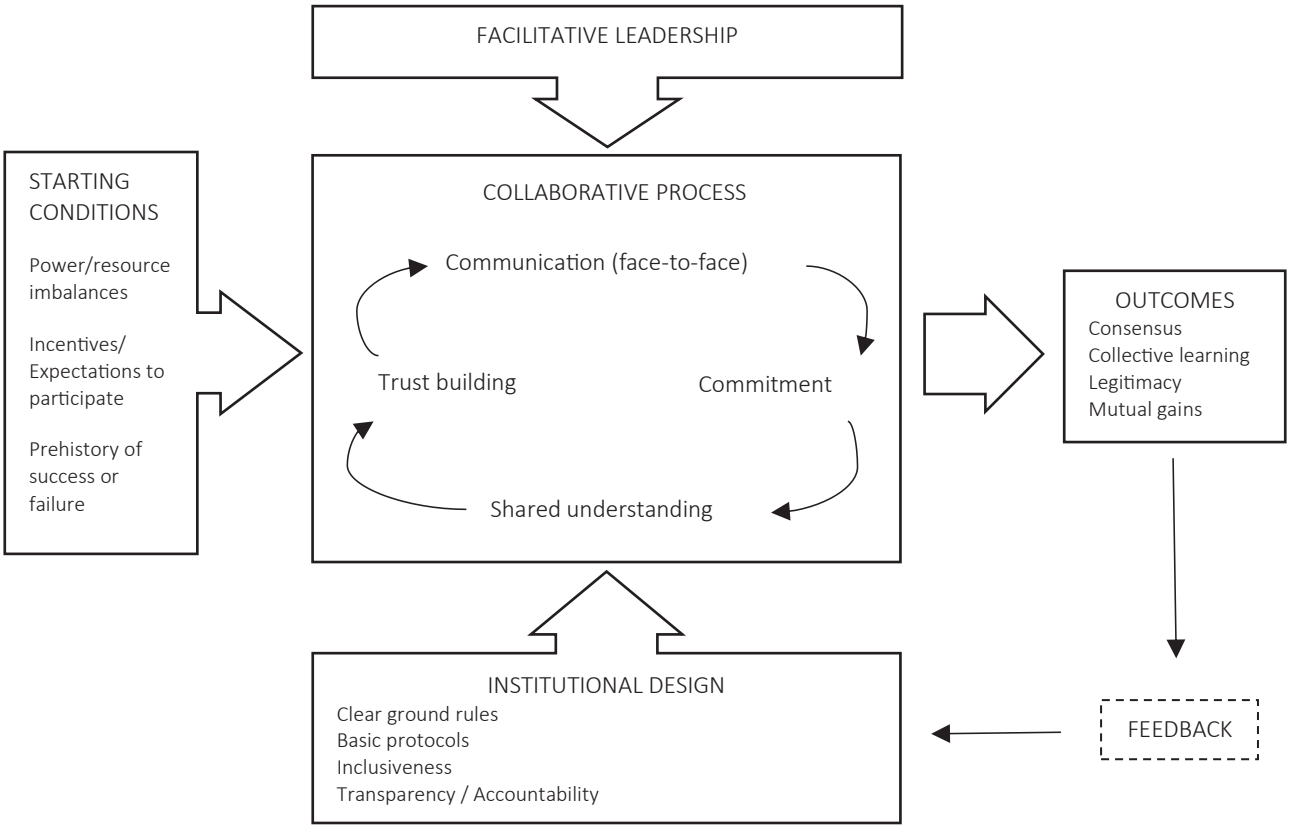

Fig. 1. Framework for analysing collaborative governance.
Modified from Ansell and Gash (2007) with emphasis on outcomes.

3. Materials and methods

3.1. Case study

3.1.1. Stakeholders

GI planning applies landscape perspective across multiple land-uses and ecosystems, which raises the challenge of handling multiple land-use sectors. For Swedish regional action plans for GI, dealing with all sectors simultaneously turn out to be impossible. Therefore, the lead agency, CAB, decided to handle each land-use sector separately, including distinct participatory processes for major land-use types. Here, forests stand out due to their importance as an important green component of GI, and also a distinct land-use sector with its inherent constellation of stakeholders. Accordingly, we chose to focus on the forest component of GI in this study.

After WWII up to the 1990s, the Swedish forest policy prioritised wood production and economic value, resulting in intensive silviculture (Lundmark et al., 2014; Jansson et al., 2011). In 1993, the Swedish parliament introduced legislation defining equal priority for forest production and environmental values (Lindahl et al., 2015). The Forest Management Act was deregulated and, instead, the focus was put on individual responsibility and the use of informational instruments, such as knowledge transfer and advice (Appelstrand, 2007). Forest owners are expected to take more responsibility by receiving the necessary knowledge and acting voluntarily (Sundström, 2005; Appelstrand, 2012). In this deregulated governance, collaborative processes are expected to play an important role. In 1998, Sweden signed the Aarhus Convention, establishing citizens' right to access environmental information and the ability to influence and appeal environmental decisions (Pettersson et al., 2017). Collaborative processes or collaborative governance, defined as consensus-oriented decision-making in collective forums, have become increasingly common (Mårald et al., 2015).

For forest GI in Scania, the stakeholders can be categorised in three main groups. The first group consists of forest owners and forest enterprises whose primary interests are timber production and utilisation. The majority of forests are privately owned, where forest owners have a significant degree of freedom in forest management decisions. About half of these owners are members of the forest owner association Södra, with its own pulp and sawmilling industries, strong lobbying capacity, advisory services to its members, and a focus on timber procurement. Contrastingly, there are non-governmental organisations (NGOs) advocating for nature conservation (i.e. the Swedish Society for Nature Conservation and Birdlife Sweden) and recreational values (e.g. Swedish Association for Hunting and Wildlife Management and Swedish Outdoor Association). The third group consists of authorities i.e. the Swedish Environmental Protection Agency (SEPA), Swedish Forest Agency (SFA) and CAB. All three have an important role in developing a GI plan and its implementation. SEPA is a government authority responsible for environmental issues, providing regular reports on statistics and measures related to forests to the government, EU and FN. SFA is public authority over forest-related issues. The primary objective is to ensure that forests are managed in a manner consistent with reaching the forest policy goals. CABs operate in each Swedish county and are de facto regional branches of SEPA. They are in charge of regional implementation of national environmental objectives and, among other functions, are responsible for establishment and maintenance of protected areas etc. In addition to these three stakeholder groups, representatives of municipalities and scientists took active roles in the GI process in Scania.

The many stakeholders involved in the forest sector underscores the importance of a collaborative process in pursuit of GI goals. Nevertheless, the legal framework for forestry in Sweden lacks specific references to the concept of effective participation (Pettersson et al., 2017). This deficiency aligns with the broader issue that not all stakeholders have formal rights or duties within the forest governance system (Lindahl

Table 1
Definitions of variables for analysing collaborative governance.

Main Component	Variable definition and implications	Examples from literature
Starting Conditions	*Power/resource balance:* the capacity of each stakeholder to take part in and influence the process, enabling them to enact change	Time of day when meetings occur (Porter and Birdi, 2018). Capacity and funds to travel (Reed et al., 2018), availability of technical knowledge (Ansell and Gash, 2007).
	Prehistory of success and failure: stakeholder's experiences and relationships with the agencies	Trust with authorities (Ansell and Gash, 2007), conflicts hindering cooperation in forest sector (Jakobsson et al., 2021).
	Incentives for collaboration: expectations of whether the process will lead to meaningful results	No motivation to join if there are other options to achieve goals (Pettersson et al., 2017). Low cost and funding are necessary (Porter and Birdi, 2018).
Facilitative leadership	The conditions that support stakeholders' collaborative contribution	Good stewards, mediators, catalysts (Ansell and Gash, 2013). Agency has power and capacity (Carlsson et al., 2017).
Institutional design	*Clear ground rules*: guidelines to make the collaboration productive and fair	Explicit purpose, principles, and rules (Johansson, 2018; Reed, 2008).
	Basic protocols: documents or records of the procedures	Supporting information on what has been said and agreed upon.
	Inclusiveness: equal access to opportunities and resources	Address power imbalances, broad representation, and social changes (Buchy and Hoverman, 2000). Informing at the right time (Pettersson et al., 2017).
	Transparency / Accountability: refers to a genuine negotiation	All relevant stakeholders are considered (Johansson, 2016; Porter and Birdi, 2018), and have an equal chance to contribute (Reed et al., 2018).
Collaborative process	*Communication (face-to-face)*: refers to exchanging information	Two-way dialogue (Ansell and Gash, 2007). A collaborative forum (arena) (Carlsson et al., 2017).
	Commitment: stakeholders' interest and dedication for the process	Avoid misleading and raising false expectations (Buchy and Hoverman, 2000). Interaction among stakeholders (Carr Kelman et al., 2023).
	Shared understanding: a collective achievement or collective perspective accepted	Comprehension of the underlying attitudes (Eriksson and Klapwijk, 2019). Clear and accessible scientific info and data sharing (Porter and Birdi, 2018).
	Trust building: refers to mutual respect	Long-term commitment (Ansell and Gash, 2007). Talk through issues beforehand to reach a common vision (Carr Kelman et al., 2023). Acceptance of social values, norms, and culture (Porter and Birdi, 2018).
Outcomes and feedback	*Consensus*: refers to a general agreement	The timing needs to be appropriate (Buchy and Hoverman, 2000) and adequate to engaging with the goals (Reed et al., 2018).
	Collective learning: the ability of a group to share and build knowledge over a period	Feedback loop and reflection enables refinement of practice (Reed, 2008). Extended time frame (McIntyre and Schultz, 2020; Bianchi et al., 2021).
	Legitimacy: an equitable and open process	Inclusive deliberative stakeholder collaboration (Pettersson et al., 2017). Effective balance of diverse needs through representativity (Lidskog and Elander, 2007).
	Mutual gains: all sides can gain from a negotiation	Win-win solutions and acceptable trade-offs (Reed et al., 2018; Johansson, 2016).

et al., 2015). Jakobsson et al. (2021) demonstrated an ongoing tension between forest production and biodiversity in southern Sweden, where trust among stakeholders has decreased over time. The forest policy arena has shifted such that dialogues are grounded in values and emotions rather than empirical evidence (forest owners). Historically, participatory processes focused on forestry issues concerning silvicultural practices, emphasising technical dimensions. Nowadays, it has shifted towards political and cultural dimensions e.g. private owners and environmental NGOs experiencing limited ability to influence political decision-making.

3.1.2. Origins of GI in Scania

In 2015, the Swedish government assigned SEPA the responsibility to coordinate and develop a functional GI for Swedish land-use, stream water, and oceans. This necessitated collaboration with various authorities. The assignment was grounded in the guidelines and implementation plan that the government, in 2014, commissioned SEPA to develop for the CABs. The purpose of these guidelines and plans was to guide and support CABs in their coordination and development of regional action plans for GI, both on land and in water. In 2016, the CABs were mandated to design regional GI plans that used a collaborative process. At the initial stage, SEPA was tasked to write guidelines on how to work with GI, while CABs also needed to carry out a plan, creating confusion and uncertainty in the early stages of the process. After an interview with the CAB of Scania, there were high hopes for the project. There was an ongoing discussion between the representatives of CAB, SEPA, and the Swedish Forest Agency about which goals should be applied and how to work with them.

Arrangement of the meetings began in 2016 with four focus groups involving concerned stakeholders i.e. landowners (28 participants), municipalities (37 participants), non-profit organisations (12 participants), and a merged group including regional authorities and experts (23 participants). It was recognised that these target groups were relevant due to their specific interests and responsibilities concerning the forest component of the GI plan. For each group, there were two chances to participate. In 2017, in response to Swedish Forest Agency's suggestion to address the needs of all individual stakeholders rather than CAB determining the approach, a joint seminar was held (65 participants). The aim was to establish a common foundation, clarify contradictions, and see how stakeholders engaged with forest issues. After participants' written feedback in 2018, the GI plan was compiled and published in 2020.

3.2. Stakeholder selection

Stakeholders with interests in forest issues were selected for this study based on the information and documents provided by CAB. To identify individuals with an interest in forest issues, we first examined those who were involved in the joint seminar on "Forest and trees in the landscape". Subsequently, we checked whether these individuals also attended the four meetings involving different stakeholders. We aimed to interview at least one person from an interest group. To contact those

stakeholders, we carried out internet searches to find e-mails or phone numbers. Identified persons were then contacted by e-mail and those who responded received an appointment for an interview. If a person did not respond, the search continued within the same organisation/stakeholder, until they agreed to participate. Ultimately, interviews were carried out with fourteen stakeholders (Table 2).

3.3. Semi-structured interviews

Semi-structured interviews are an appropriate method for examining uncharted territory with unknown but potentially momentous issues, and identifying and pursuing useful leads (Adams, 2015). The strength of semi-structured interviews is their capacity to open complementary perspectives (Dearnley, 2005), relevant in our exploration of experiences and perceptions of a collaborative process.

An interview guide consisting of four main parts, was followed during all interviews: (i) individual participant's background and position in the collaborative process, (ii) engagement and clarity of the collaborative process, (iii) the relationship and dialogue between the participants, and (iv) the outcomes of the process.

One important consideration was the potential impact of the time elapsed since the collaborative process, which may affect participants' memory and recollection accuracy. Against this backdrop, it became more relevant to investigate the developments after the finalisation of the GI plan, including continued consultation and collaboration. However, this alternative appeared challenging as well, as the answers from the interviews were ambiguous because of factors such as blurred memory and engagement in other collaborative processes.

Interviews were transcribed using MS Word and InqScribe software. After all the interviews were completed and the recordings transcribed, the data were analysed following the methodology in Hjerm et al. (2014). First, transcriptions were coded according to the themes mapped in the theoretical framework. Issues arising were also coded into new categories, which were then organised thematically and summarised. Representative quotes of different themes were translated from Swedish to English to illustrate our main findings.

Table 2
Study participants.

Position / ID	Date	Mode / Software used or Place	Duration (min)
Landowner federation	25/3/2022	Digital platform/ Teams	43
CAB	28/3/2022	In person/ participant's office	57
Scientist 1	30/3/2022	In person/ participant's office	48
Scientist 2	30/3/2022	In person/ participant's office	36
Forest foundation	1/4/2022	In person/ participant's office	32
Municipality 1	4/4/2022	Digital platform/ Teams	54
Government institution	5/4/2022	In person/ University	61
Non-profit association	5/4/2022	Digital platform/ Teams	56
Scientist 3	7/4/2022	Digital platform/ Zoom	30
Municipality 2	8/4/2022	In person/ participant's office	19
Forest owner association	12/4/2022	Digital platform/ Teams	38
Landowner association	13/4/2022	Digital platform/ Teams	47
Scientist 4	20/4/2022	Digital platform/ Zoom	53
Forest owner	21/4/2022	Digital platform/ Zoom	53

4. Results

4.1. Expectations and perceived outcomes of the GI planning

The significance of active participation in the process was explicitly mentioned by all interviewees even if their motivations varied. Some participants joined the meetings to make their voices heard i.e. to have their core interests acknowledged, while others aimed to experience different perspectives and enhance their understanding (see Table 3). Previous experience of collaborative processes created higher expectations for some stakeholders yet only modest expectations for others. Experiences of lacking involvement and unfulfilled goals reduced the confidence that the GI process would be any different, suggesting that concepts of participation and collaboration are often mishandled.

Satisfaction with participation was linked with stakeholders' initial expectations for the process. For instance, a scientist who was very interested in GI considered learning about it as sufficient motivation to participate, meeting their expectations *despite the* perceived lack of collaboration.

> "My expectations then were mostly to try to understand what this collaboration should lead to, what is it we should discuss, what is it we can discuss, for me it was a lot about that we don't understand each other, and collaboration is especially important. […] Then I don't know if it necessarily led to an increased understanding of each other's perspectives, I didn't perceive it that way […]. Collaboration came extremely late in the process and then it was not perceived as a collaborative instead as communication of what had already been discussed, and that perhaps led to some stakeholders being more critical of this than might have been needed." (Scientist 4, 20/4)

Stakeholders had a general impression that the outcomes of the process were more about sharing information rather than genuine collaboration. The process commenced with predefined ideas, leading to irritation when the final product became something that could have been written before the meetings:

> "You could interpret it as if they wanted to listen and inform, or you can also interpret it a bit cynically as if you were having a consultation, and then you might still do as you have intended from the beginning, but I do not know." (Scientist 3, 17/4)

> "Then, as usual, CAB of Scania had already decided quite a lot at the beginning as to how they wanted this project to be and mostly they also get instructions from above […], they would call it collaborative process, but it is more an information meeting. I do not know what we could change or impact in that meeting really." (Forest owner, 21/4)

There were notable differences in the expectations and objectives of each stakeholder groups, as indicated in Table 3. These differences had an impact on the collaboration due to the various aims, interests, and responsibilities in their pursuit of contributing to the overall objectives of GI. However, the perceived outcomes were similar among the groups, except the forest owner organisations. The latter conveyed a sense of isolation and perceived neglect, contrasting with the general view expressed by other groups, who indicated that the forest ownership subject was discussed most. This observation is consistent with previous research by Jakobsson et al. (2021). Despite forest owners having the opportunity to express their concerns, it did not necessarily translate into the ability to influence political decision-making. This outcome connects with the expectations of the State Forest Agency, who served as an intermediary. This positioning is likely due to their attitude that forest owners' active involvement is essential to fulfil GI objectives. It should be noted that a CAB's commitment to fostering a collaborative process was strong from their own perspective. Despite acknowledging the difficulty of achieving collective learning in the initial stages, the CAB expressed satisfaction with the process itself, emphasising that

Table 3
Expectations and outcomes as perceived by stakeholders.

Stakeholders	Expectations	Perceived outcomes
CAB	(i) Aiming to provide informational material on GI to the stakeholders; (ii) gathering opinions about the GI concept and about the measures needed at a landscape level; (iii) (iii) mapping out stakeholders that have a key role in prospectively implementing the GI plan.	Different perspectives on how to reach the GI goals. Difficult reaching a collective learning and concrete collaboration. Satisfied with GI mission, but slow practical implementation. Insufficient stakeholder initiatives and engagement in GI implementation.
FOREST OWNERS and their ORGANISATIONS Forest owner association Forest owner Landowner association Landowner federation	Ensuring CAB respected property rights, defend the ownership and jurisdictional power. Feel inclusiveness and be listened to through equal deliberation and dialogue.	Perceived as a genuine democratic attempt to consult; more informational meeting than deliberative collaboration. General feeling that CAB had predetermined decisions. Feeling of isolation in these large gatherings with many stakeholders with different objectives. Did not take landowners interests into account; critical opinions on the development of GI in Scania.
LOCAL AUTHORITIES Municipalities	Interest in municipalities' contributions and focus on urban areas. Have a good dialogue, increase the possibility to perceive stakeholders' perspectives. Views CAB as crucial partner; expects support and inspiration.	The municipals and urban areas did not receive enough attention. The collaborative processes could have been handled better, learnt how to have an effective dialogue (everyone's responsibility). Knowledge gathering/ acquisition rather than deliberative collaboration. Expected more support, suggestions for strategies on how municipalities should work with GI in urban areas.
SCIENTISTS	Understanding the aim of the collaboration and the purpose of GI. Gain diverse perspectives for better understanding, especially forest owners' motivations and values. Provide inputs and advice. Understand what knowledge and scientifical support is being sought.	The meeting involved diverse dialogues on various aspects and values. Insufficient meetings hindered collaboration; limited comprehension due to stakeholders guarding their positions. Many aspects in the plan, like strategies and concrete measures not discussed in the meetings. Expected better information (follow-up) about the implementations of GI.
NGOs Non-profit association Forest foundation	Had expectation of GI as a vehicle to promote landscape values and nature conservation. Forest foundation saw their role and responsibility to contribute from a landscape perspective. Hearing various stakeholder perspectives and understand different views.	Positive reflections on the output (GI plan), seen as a common instrument: a guide for what needs to be prioritised and can be done without large amount of resources and money. Expected better follow-up: have excursions in the forests, demonstrating on how GI can be carried out in practice. Many NGOs were not present due to daytime meeting scheduling. Meanwhile, landowner associations were always present.
SECTOR AUTHORITY Swedish Forest Agency	Support CAB with expertise with forest management and local collaboration. Not only informing about GI, instead listen to the contributions and perceptions of forest owners, have a public consultation.	Initial challenges: extensive planning and discussions meanwhile varying participation and responsibility from CAB, lacking a clear agenda. Perceived lack of cooperation. Agreed with landowners on CAB mainly presenting, reduced the sense of influence. Not ideal to separate meetings for different stakeholders; suggested a common meeting with all stakeholders.

stakeholders were afforded opportunities to express their concerns and perspectives.

4.2. Perceptions of the GI process and factors for success and failure

Table 4 maps out stakeholders' perception of the collaborative process, split by variables given in Table 1. Perceptions can be positive (+) or negative (-). We identified time, trust and leadership as key factors that might have had a critical effect on the process.

4.2.1. Time

Two important longitudinal dimensions were found: the sum of the time spent together in stakeholder meetings, and the total duration of the collaborative process. The general perception was that neither were sufficient to make everyone feel included, which created a sense of haste. Some participants claimed there was a need for more collaboration or dialogue for better articulation of interests and for achieving the purpose of the process. Little interaction was noticed after the outputs to the GI's plan had been published. The task and the complexity of GI, as a concept and as a spatial planning approach, were not given enough time to be understood.

> "I was only at one meeting when it comes to GI, this is a process, and there is always a need for more time. Thus, the CAB tried to do a decent job, and there was a lot of interest in this meeting and with different stakeholders, there was time for a dialogue, but the process isn't complete after one meeting." (Scientist 2, 30/3)

> "I think that the CAB had a huge task here, to get something done in a brief time, and on that occasion, it was not easy to find the time for collaboration that may require something like this to land. Everyone should have time to digest and be able to present their views so that it's difficult to say why it happened as it did. […] we have realised GI

Table 4
Summary of stakeholders' perceptions of collaborative governance variables.

Main Component	Variable	Stakeholders' aggregate perception (+ or -)
Starting conditions	*Power/resource imbalances*	(-) Not every stakeholder had the opportunity to participate, limitations of chosen day/hour.
	Incentives/ expectations to participate	(-) Lack of motivation to promote stakeholders' own initiatives. (-) Did not address stakeholders' expectations.
	Prehistory of success or failure	(-) Lack of trust hampered shared understanding. (-) Great scepticism towards authorities.
Institutional design	*Clear ground rules*	(-) No specific rules about agenda setting.
	Basic protocols	(+) Agendas and Excel files (stakeholders' comments on GI draft plan).
	Inclusiveness	(+) Several participants reported a feeling of inclusion and a broad purpose from the beginning. (+) Broad invitation.
	Transparency / Accountability	(-) Experiences of lacking involvement and unfulfilled goals lead to perception that concepts of participation and collaboration are often mishandled.
Facilitative leadership	*The role of leadership*	(+) Steered the discussion to avoid participants solely defending their positions. (-) Better leadership and structure were deemed necessary to achieve the stated outcomes as well as to fulfil the expectations.
Collaborative process	*Dialogue (face-to-face)*	(-) One-way communication, sharing information rather than genuine participation.
	Commitments	(-) Insufficient clarification of the stakeholders' commitments. (+) More support in field activities to keep the GI's measures and goals alive. A need for follow-up, more excursions, practical activities, and financial support.
	Trust building	(-) GI process did not enhance the mutual trust among stakeholders.
	Shared understanding	(+) Every stakeholder recognised the importance of GI (-) but not their own responsibilities. (-) The process commenced with predefined ideas.
Outcomes	*Consensus*	(-) Time spent together in stakeholder meetings and the total duration were insufficient.
	Collective learning	(-) Missed due to lack of time, the feeling as a one-time occurrence instead of feedback loop(s).
	Legitimacy	(-) There was no guarantee that perceptions were taken into consideration. (+) To be invited increased the legitimacy.
	Mutual gains	(-) Lack of personal interest in the project limits the continuous engagement. (+) Reached learning as a sufficient motivation to participate, which met expectations despite the perceived lack of collaboration.

is here to stay: the process and work, but in concrete terms, I don't know if we exactly know what this means in practice." (Scientist 4, 20/4)

Interestingly, the work carried out by Scania's CAB could be considered time-effective in regional comparisons. The GI plan documents were finalised and published following the mandated timetable, ahead of most of the Swedish counties (Guillén et al. *In Preparation*).

4.2.2. Trust

The trust towards the collaborative process and among its stakeholders was found to affect the willingness to participate. When stakeholders do not believe that participation leads to concrete results, they will not invest their time.

> "Those that were sceptical at the beginning about collaboration with CAB are still sceptical. […] you feel quite small when CAB comes and say that they will do something, then you think they will do as they want, it doesn't matter if I go. I usually go, but mostly people think why they should spend 2–4 hours when it doesn't lead to anything. It is about the legitimacy of our institutions." (Forest owner, 21/4)

It was easier for the CAB to reach out to stakeholders with similar educational backgrounds or working experience. Landowners and associations with similar experiences, interests, and attitudes towards forestry seemed to trust each other. As mentioned by a few participants, there was a broad invitation from the start, but not all attended as wished. Individual forest owners and non-profit organisations were conspicuous by their absence. Forest owners reported that they trusted the landowner associations to promote their interests. Forest owners and landowners' associations lacked trust in authorities, and the GI process did not improve relationships. Furthermore, lack of personal interest in the project limits continuous engagement.

> "If it requires a diplomatic answer, then I would say that I have not gained increased trust in them [authorities], and if I am going to speak from the head and heart, the question is whether we have any trust at all. […] we have been quite clear to some in the CAB that we don't have confidence, to be honest. However, changes can happen now because the CAB will eventually get a new environmental manager […]." (Landowner federation, 25/3)

4.2.3. Leadership

Leadership and personality played an essential role in the outcomes, expectations, trust, setting up the agenda, and what specific direction the dialogue took. On one occasion, CAB officers leading the meetings needed to steer the discussion to avoid participants solely defending their positions. Several participants reported a feeling of inclusion and a broad purpose from the beginning thanks to the CAB's leadership. On the other hand, better leadership and structure was deemed necessary to achieve the stated outcomes as well as to fulfil the expectations.

Yet, leading the GI process was not as straightforward as the CAB had wished for. This was mainly due to the mandated timing of the process and the lack of guidelines for CAB for producing the GI plan.

> "Someone just made an analogy that you want a 'rococo furniture', but you dispatched an IKEA manual. Like: Do this and good luck with this', Here's the money you have, this is something you must at least succeed in building together'. If you can, aim for the stars, and you'll get to the treetops', a bit of that philosophy. (CAB, 28/3)

The process needed to be adjusted after guidelines were received from SEPA and dialogue between the institutions and other CAB was framed.

> […] depending on the conditions, you managed to get something together, or you did not succeed with this. […] "Do the best you can and try to reach and adapt to the regional conditions and needs", so everyone [in different counties] looks different, […] we still worked in parallel with SEPA and discussed "how should we set it up then? How should one produce ecological conservation values and what kind of values should be added, and how should we do it?". […] These consultants worked with this, but there was never anyone who

felt that you got this overview, so it was quite chaotic in the first years. The discussion went: how, what, and who before it fell into place, then "now we work with it", and so, in the end, everyone did this in their own way. […] However, it took a while before we, like, got a little control over it, at each CAB." (CAB, 28/3)

The personality of the leadership affected why the plan and process turned out as they did. Two participants said the GI plan was not concrete for the individual stakeholder and was a huge piece of work. Meanwhile, an officer from CAB considered that goals and measures were not supposed to be concrete:

"I was the project manager at the beginning, and I'm a bit like this: "yes, but it's nothing, we'll bring everything later", but the person who works now as a project manager wants something like "No, but you need to have smart goals and measures, they should feel that this is what needs to be done, so everyone knows from the beginning". […]. So, our personalities are a little different, which may have formed the outcomes [the plan and the process itself]." (CAB, 28/3)

4.3. Usage of the GI plan: indifference and limits to implementation

Our interviews revealed that the collaborative process came to an end before the GI plan was published in 2020. An exception was meetings of the so-called collaborative group for nature conservation. However, the extent to which the GI plan was communicated and addressed at these meetings was limited and their format was largely confined to one-way communication from CAB. Another concern is that mostly the same people were involved at all meetings and there was no routine for transferring the information further within the involved organisations.

There are different points of view on what and who should bear the responsibility for something to happen in practice. In the view of many informants, CAB should be more engaging and supportive of undertakings by individual stakeholders. However, CAB wanted to see initiatives from the stakeholders, which were scarce. It can be argued that the plan is not used as much as expected, or at least not by stakeholders that can make a difference in the field (in particular, forest owners), but more by scientists without immediate influence on land management (Table 5).

Table 5
GI plan utilisation frequency: response examples on how often / when stakeholders used the GI plan in their daily work.

Quote examples	Use frequency	(Potential/Ideal) Reason for its use
"I use it regularly in such a way that I use it in teaching, […]" Scientist 1	Often	Teaching material
"When there is some major exploitation going on or I'm looking for some facts about how to communicate it" Municipality 2	Sometimes	Knowledge material
"If students write their master's degree in planning, then I check if they have written about GI in Scania" Scientist 2	Seldom	As a reference and educational material
"it's not something for us to use in our regular basis [work]. However, if, for example, there is a threat to an area and we want to point it out then we could refer to that area in the GI plan […]" Non-profit association	Seldom	Facts and proof
"No, but yes, I looked at it last week, why did I do it? Well, I sent it to my colleague because we will have a review this summer or this year, and then I thought it was important that my colleague who will help me, knows what we said 2017–2018 […]" "It has happened another time I have looked at it, to see what we said about the pollinated plants and deciduous trees. But no, I think it's more of a tool for those who are going to practice GI." Landowner federation	Seldom	A reference tool
"The plan is in the head; this is not something new" Forest Foundation	Never	No need of usage
"No, […] it's not so concrete to implement it in the daily work, there is so much else to think about" Forest owner association	Never	No concrete measures
"Now when you mention it, and when you asked if I had looked at the GI plan, I could see that we do a lot as what it is said here" Forest owner	Never	Working already with the strategies/ideas

5. Discussion

5.1. Successful in producing a plan but less so in collaborative participation

Our results show that, despite opportunities for collaboration and the final publication of the GI plan, the process did not meet all theoretical criteria (Table 6). Reaching the output of a GI plan did not entail genuine collaborative processes taking place, which consequently undermined the operationalisation of the measures stated in the action plan and the usage of the document by the different stakeholders. If the GI plan was supposed to instigate a long-term process of collaboration, the goal has still not been reached.

We consider the process to meet all criteria fully or partially, except criterion 3. Even though stakeholders had been invited to engage, they did not feel part of the decisive decision-making. This can stem from lack of time, and the feeling that the process was a one-time occurrence instead of a feedback loop within the core collaborative process (Fig. 1). Achieving collective learning, creating legitimacy and trust, and accomplishing the intended outcomes seemed to require more opportunities for collaboration (Jakobsson et al., 2021; Reed, 2008; Pettersson et al., 2017). The CAB conceived and initiated the GI plan, a top-down approach (Eckerberg et al., 2015; Reed et al., 2018), which may have resulted in poor engagement and non-delivery of desired outcomes. The prehistory also played a major role, as initiating a process with a low level of trust (particularly between forest owners and authorities) hampered shared understanding throughout the process (Ansell and Gash, 2007). This demonstrates a deficiency in facilitative leadership, as the CAB failed to address and anticipate the participants' expectations and the level of commitments (Carr Kelman et al., 2023; Johansson, 2018; Buchy and Hoverman, 2000). Consequently, some of the participants were left with unfulfilled expectations when they joined some sort of informational meeting, and with little recognition of their own

Table 6
Fulfilment of collaborative governance criteria by the GI process.

Criteria	Fulfilled	Why?
1. The forum is initiated by public agencies or institutions	Yes	GI is initiated by CAB, an institution
2. Participants in the forum include non-state stakeholders	Yes	Broad invitation and participation of stakeholders
3. Participants engage directly in decision-making and are not merely "consulted'' by public agencies	No	The feeling was more about sharing information than collaboration
4. The forum is formally organised and meets collectively	Partly	Several opportunities to participate. Somewhat continued in another forum
5. The forum aims to make decisions by consensus (even if consensus is not achieved in practice)	Partly	The process commenced with predefined ideas, leading to irritation when the final product was largely already written
6. The focus of collaboration is on public policy or public management	Yes	GI concern every stakeholder in the landscape, with strong input by public agencies

involvement in the GI plan. Communication and dialogue exchanges were not a guarantee that all the points of view could be taken into consideration. This questions how criterion 5 should be interpreted, and whether it is at all suitable for judging the effectiveness of collaborative governance. If taken literally, criterion 5 is fulfilled given the formal aim of the CAB to make decisions by consensus. However, it is paradoxical that, as the respondents implied, predetermined goals and the feeling of an unfulfilled collaborative process would be compatible with acceptance of criterion 5. Although we do not aim to problematise the framework, this issue reveals the importance of understanding local customs when applying general models (cf. Porter and Birdi, 2018). These six criteria are formulated from a restrictive definition of collaborative governance by Ansell and Gash (2007), providing insight into the broader context. However, it is crucial to note that we have analysed many other variables within these six criteria, offering a nuanced comprehensive understanding of factors influencing GI process success or failure.

A possible explanation for our results is the importance of the consensus culture in Sweden; in other countries, not reaching a consensus is more easily accepted. Therefore, Scania's GI plan process can be judged to be a case of managerialism rather than collaborative governance (Ansell and Gash, 2007; Karlsson, 2019). Despite having consulted and engaged directly with stakeholders, the CAB primarily relied on their own experts to reach final decisions, which some may consider as undermining the legitimacy of the process (e.g. Edelenbos et al., 2011). Negative perceptions in relation to several of the studied variables imply that tangible outcomes from an ideal collaborative process (e.g. consensus, collective learning, legitimacy, and mutual gains) were largely absent. The process was thus unable to take advantage of shared knowledge and learning outcome opportunities (Ansell and Gash, 2007).

5.2. Context and policy design limits GI implementation

Our study exposes some of the limitations that GI implementation encountered (Slätmo et al., 2019; Svensson et al., 2019). In the context of Sweden's liberal forest governance system, Scania's GI plan will have little practical effect if stakeholders do not use it. Conservation activities in Swedish forestry fall under the umbrella of voluntarism (Eriksson and Sandström, 2022) and decisions are mainly influenced through soft policy instruments including information and advice (Brukas and Sallnäs, 2012). The GI plan is such type of instrument and there are no ad hoc resources specifically dedicated to its widespread implementation on the ground. Communication and dialogue with stakeholders around GI is therefore crucial for its acceptance and utilisation. We found that some stakeholders are more prone to utilise the large amount of information gathered in the plan e.g. scientists use it in research and education. However, it is crucial to consider that impacts of GI on the ground are dependent on the stakeholders "creating the landscape" as discussed by Curtis et al. (2023). Within liberal governance, changes in a forested landscape occur through an interplay between the forest owner and forest advisor. The former carries out forest management on their property, while the latter can influence the actions inside properties at the same time, with the ability to consider the surrounding landscape (Curtis et al., 2023). Thus, GI plans would be most useful when both owners and forest advisors utilise it.

The Swedish GI plans are a recent endeavour, and their effect has not been studied in detail. According to von Post et al. (2023), the Swedish GI policies are a policy assemblage, developed by incorporating national and European Union policies. This assemblage limits the potential benefits to biodiversity as concepts and policy goals do not consider contextual aspects of Swedish natural resource governance (e.g. landowner voluntarism for conservation actions), and ignore trade-offs between policy goals (e.g. land-use changes creating conflict). It is fascinating that our study, focusing on the social process behind elaborating GI plan at regional level, reaches similar conclusions, underscoring the importance of congruent policy design.

Examining the context and the policy design allows a better understanding of the challenges that the CAB faced in accomplishing the GI plan. Vague aims and conceptual confusions in the policy (von Post et al., 2023) could have made it harder for the CAB to transmit the GI goals to stakeholders. For instance, the prescribed approach to GI plans in Sweden largely ignores land-use conflicts and expects changes in management by forest owners without considering their interests. This neglects the main conflict in the forest sector and rests on the naive idea that forests can simultaneously produce goods and services without conflicting trade-offs (Lindahl et al., 2015). Also, pressed timing of the process and vague guidelines from SEPA created difficulties for CAB's work, pressurising the production of a plan without adequate prerequisites for reaching consensus. Moreover, the lack of financial resources attached to the work of GI limits its implementation. Expecting a collaborative process to go smoothly in the polemic Swedish forestry environment could therefore be considered unfair, placing an immense burden on an authority without adequate institutional support and resources. We aim to explore these issues further in future publications. From a broader perspective, we could also question the actual set up of a top-down collaborative process for GI itself. For example, one may wonder whether SFA should have been assigned a more prominent role in the GI process, given their prior experience in local forestry and their role in overseeing forestry operations.

5.3. Missed opportunities: how could a GI collaborative process be improved?

First, commitment and clarity of the collaborative process were insufficient, leading to unfulfilled expectations and limited implementation, potentially caused by a missed link between stakeholder expectations and incentives to promote their own initiatives (Table 3). While the CAB must act as a neutral professional facilitator, this approach may produce challenges in motivating and persuading stakeholders to contribute to the collaborative efforts (Ansell and Gash, 2013). Hence, it is crucial from the outset to provide a comprehensive understanding of the purpose and principles of the collaborative process (Johansson, 2018; Reed, 2008) and to consider aspects, perceptions, and attitudes (Johansson et al., 2020; Eriksson and Klapwijk, 2019), allowing stakeholders to feel ownership of the plan and proposed activities, nurturing their autonomy (e.g. An et al., 2021). Additionally, collaborative processes must be provided with sustained funding and support over the long-term (McIntyre and Schultz, 2020; Barnes et al., 2017) and structures to support local initiatives for conservation measures (von Post et al., 2023).

Second, the measures in the GI plan are not concrete and may be too extensive to implement, thus becoming a wish list of implausible measures rather than a functional action plan. Equal deliberation throughout the collaborative process is a necessity, as is a practical project to realise actions. This aligns with the findings of Thellbro et al. (2018) showing that projects focused on process and dialogue lack a clear endpoint and demand sustained engagement. In contrast, action-oriented projects, especially those with access to external funding, tend to achieve their goals more rapidly. Support and advice on how to operate in each stakeholder's everyday life would be appreciated e.g. developing the forest management plans into a multifunctional landscape tool (Carlsson et al., 2017) and matching the objectives/measures of different forest ownership categories (Angelstam et al., 2023). In the end, there is a need for a change of the policy at a higher level. Slätmo et al. (2019) suggested that a systematic coordination of policy, tailored to each sector and supported by national policies, can promote broader and more effective implementation of GI.

Third, the created collaborative group for nature conservation, intended as the platform for continued communication, was poorly utilised after finalising the GI plan. The group was considered imbalanced as not all stakeholders were involved, meaning that follow-ups

and opportunities to discuss the implementation of the GI plan were missed. Extending the time of the collaborative process after the plan was published and continuing to work actively with all the involved stakeholders could have improved the development of collective learning and legitimacy (Bianchi et al., 2021), allowing implementation of more actions (Reed et al., 2018). Mancheva (2021) demonstrated that legitimacy can play an important role even for the implementation of non-authoritative management recommendations in the Swedish governance context. Increasing procedural legitimacy in the GI process could yield better results in future initiatives. Despite its deficiencies, the GI plan provided opportunities to create and deepen personal contacts and launched regional forums to discuss and understand other interests, and exchange ideas for sustainable landscape management. If the identified pitfalls are avoided, the collective experiences of stakeholders can be a valuable contribution to the future work with GI.

6. Conclusions

This study provided a comprehensive analysis of the GI planning process in the county of Scania, Sweden. Qualitative interviews of multiple stakeholders revealed that, although opportunities for collaboration were present and a GI plan was published, the planning process failed to foster inclusivity and deliberation, thereby impacting the legitimacy of the GI planning process. Factors such as time, trust, and leadership had a substantial influence on the outcomes from the GI collaborative process. An extensive plan with insufficient follow up hindered practical implementation of GI at the local landscape level. These findings underscore the flaw in institutional top-down approach, revealing it to be poorly conceived and ineffective in achieving legitimate decision-making for nature resources governance.

Completing and implementing a comprehensive GI plan at regional (county) level is an immense task, necessitating the collection and processing of large amounts of information, purposeful modelling and elaboration of maps, along with a collaborative process involving numerous stakeholders with divergent interests. The process can be doomed if lacking sufficient resources and personal commitment from key stakeholders. Flaws in policy design have been hypothesised to undermine the potential impacts of GI plans (von Post et al., 2023). Our findings question whether collaborative processes, with all their intricacies, are truly the right way of establishing a functional landscape level GI. The practical difficulties and limitations experienced by CAB in GI planning should be the subject of future research, preferably scrutinising the process in multiple other counties. Our analysis of the Scania's case provides a strong indication that a genuine collaborative process and a long-term commitment to implementing GI is barely possible without sustained and substantial governmental funding, capacity development at the lead agency, thorough consideration of prehistory, and targeted measures to raise trust among stakeholders.

CRediT authorship contribution statement

Anna Karlsson: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Visualization, Writing – original draft. **Luis Andrés Guillén**: Conceptualization, Funding Acquisition, Writing – review & editing. **Vilis Brukas**: Conceptualization, Funding Acquisition, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

The data that has been used is confidential.

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