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Navigating across individual and deliberative values: A dual Q-method approach to elicit diverse values in grassland restoration

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Abstract

1. The current 'UN Decade on Restoration' calls for collaboration between scientists and practitioners to formulate guidelines for ecosystem restoration, within which transdisciplinary approaches are imperative to rethink the diverse values associated with nature, paving the way for sustainable ecosystem restoration.
2. In our study, conducted within a real-world laboratory for grassland restoration in Germany, we employed an individual and a deliberative Q method approach coupled with participant observation and discourse analysis. We aimed to investigate how values attributed to grasslands that were elicited individually can shift through group deliberation.
3. Our findings revealed significant differences between the expression of grasslands values from an individual perspective compared to a deliberative group setting. Compared to individual values, deliberative perspectives exhibited less diversity and encompassed fewer values. Specifically, the proportion of relational values decreased significantly in importance during the deliberation process, while the expression of intrinsic and instrumental values increased.
4. Except for stewardship, care and aesthetic values, relational values were generally lower in the deliberative compared to individual Q-method Exercise. Values expressed explicitly in the individual Q-method exercise, such as sense of place, therapeutic value, cultural identity, relaxation values, notably declined in the deliberative group setting.
5. The shift in value expressions was strongly associated with a sense of trust in the institutional setting, participants' perception of a group balanced process, participants' self-confidence and awareness of the shift in value expressions. Moreover, we argue that the shift in value expressions might result from the legacies of mainstream narratives in restoration and conservation, such as the importance of 'nature for itself' (intrinsic values) and 'nature for people' (instrumental values).

[Correction added on 14 November 2025 after first online publication: The author's name has been corrected to Konrad Gray.]

6. Our study underscores the importance of considering both individual and deliberation levels in participatory ecosystem restoration processes, as values can be more dynamic than previously considered. Transdisciplinary and participatory approaches, such as those employed in this study, can provide valuable insights to better inform and legitimise associated restoration practices.

KEYWORDS
deliberation, inclusive restoration, plural valuations, relational turn, relational values, social-ecological restoration, transdisciplinary research, value shift

1 | INTRODUCTION

In the current 'UN Decade on Ecosystem Restoration', scientists and practitioners are expected to work together to provide guidelines and promote actions towards the effective restoration of ecosystems worldwide (Fischer et al., 2021). This collaboration blends the necessary expertise and knowledge to address the complex challenges of restoring ecosystems and ensuring a healthier planet for future generations. Restoration is considered to be not only about the ecology of the system to be restored but also includes social decisions on restoration goals, which are influenced by how restoration practitioners value the ecosystem being restored and how they place humans in nature (Allen, 2003; Davis & Slobodkin, 2004; Hobbes et al., 2004; Gray et al., 2025). Therefore, deciding which values of nature should guide restoration goals and how these values are negotiated can define the restoration project (Hobbes et al., 2004). Recently, it has been recognised that participatory and transdisciplinary processes that allow for the consideration of the diverse values of nature held by different stakeholders are essential to pave the way for sustainable and just restoration (Fischer et al., 2021; Frietsch et al., 2024).

Values of nature refer to how judgements regarding the importance of nature and its contributions to people are justified in specific contexts (Pascual et al., 2023). Three categories of nature's values are identified: intrinsic, instrumental and relational (Arias-Arévalo et al., 2017; Pascual et al., 2017, 2023; Table 1). Intrinsic values are associated with the inherent right of nature to exist as an end, regardless of the benefits to humans. Instrumental values are centred on nature as beneficial for humans' welfare. Relational values are preferences, principles and virtues meaningful on their own, associated with human–nature relationships, as well as those human–human relationships mediated by nature (Chan et al., 2016, 2018). Research on how these different sets of values express and relate in different social-ecological contexts is crucial to generating sensible and inclusive strategies for landscape management (Arias-Arévalo et al., 2017). Specifically, research on relational values of nature is gaining attention to facilitate the expression of multiple ways people relate to nature or relate to other people by the mediation of nature (Riechers et al., 2022). For instance, Schmitt et al. (2022) found that relational values of grasslands, such as sense of place or care and stewardship, spatially overlap with each other as well as with intrinsic and instrumental values, emphasising relational values 'bridging role' between the two initially expected opposing values. The mainstreaming of relational approaches is therefore expected to minimise the divide between instrumental and intrinsic values of nature which is motivated by an interdisciplinary inclusion and real-world application (Chan et al., 2016, 2018; West et al., 2020). For instance, relational values resonate broadly and differently, compared to intrinsic and instrumental values, with multiple and diverse groups of stakeholders and local communities, emphasising its boundary properties (Klain et al., 2017), and therefore might represent the key to pluralistic valuations of human–nature relationships (Himes & Muraca, 2018, Pratson et al., 2023).

The elicitation of plural values of nature through transdisciplinary approaches is gaining traction in research and at the science-policy interface because it allows for the uncovering of the multiple ways in which people understand and relate to nature, which is particularly important for implementing inclusive and legitimate decision-making processes (Pascual et al., 2023; Raymond et al., 2022). Transdisciplinary research has shown that group deliberation can bring forward or awaken diverse values of nature that were not individually expressed (Horcea-Milcu, 2022). For example, Andrade et al. (2023) found that group deliberations about landscape management in Interior Alaska and the Northern Matanuska-Susitna Valley have facilitated the expression of plural values and activated a shift towards sustainability-aligned values. Moreover, group deliberation has been considered a crucial process in which shared values are formed and expressed (Kenter et al., 2016). For example, in cases of diverse social representations (namely sets of knowledge, beliefs or opinions shared by members of a group regarding a topic), consensus can be challenging. Effective facilitation and communication through deliberation can lead to negotiation, compromise and consensus, and ultimately to higher quality outcomes based on the multiple values held by diverse people more broadly supported (Raymond et al., 2014). Despite the potential of group deliberation in transdisciplinary contexts to activate sustainability-aligned values, there is little empirical research on value-based deliberation in the context of nature conservation and restoration (Goodson et al., 2023; Kenter et al., 2016; Wainaina et al., 2023).

Applications of deliberative settings to facilitate the elicitation of deliberative values seem particularly relevant when values of

TABLE 1 Specific value domains with examples, and associated concepts, focus, worldviews and disciplines.

	Value domains	Definitions	Examples	Associated concepts	Focus	Worldview for human-nature relationships	Disciplines
Specific values of nature	Intrinsic	Values associated with the agency of other-than-humans, and the inherent worth of biodiversity as an end in itself (Pascual et al., 2023)	The inherent right of other-than-human nature to exist. The value of nature, regardless of importance or usefulness to humans	Deep Ecology, Rewilding, Ecological Restoration	Nature	Ecocentric Nature for itself Living with Nature	Ecology, Conservation Biology, Environmental Ethics, Restoration Ecology
	Instrumental	Values associated with the means to an end, nature as a resource or asset, satisfaction of needs and preferences or usefulness for people	Food provision Economic benefits Tourism and Recreation Climate regulation	Ecosystem Services, Nature's contributions to people	Benefits to humans	Anthropocentric Nature for people Living from Nature	Ecological Economy, Sustainability Sciences, Forestry, Agronomy
	Relational	Values associated with importance of desirable, meaningful and often reciprocal human–nature relationships and human–human relationships mediated by nature	Human–nature connectedness, Social-cohesion, Stewardship, Spirituality, Empathy, Partnership with nature	Good quality of life (*Buen vivir*, *Ubuntu*, *Satoyama*), Eudaimonia, Relational turn, Relationality	Context-based meaningful relationships	Anthropocentric Nature and People Living in and living as Nature	Sustainability Sciences, Social-Ecological Systems Research, Environmental Anthropology, Human Ecology, Conservation Psychology
Ref.	Pascual et al. (2023), Chan et al. (2016) and Riechers et al. (2022)		Schmitt et al. (2022), Arias-Arévalo et al. (2017) and Riechers et al. (2022)	IPBES Values Assessment (2022)		Mace (2014) and O'Connor and Kenter (2019)	

nature are contested or when the social-ecological system under consideration is underrepresented (García-Nieto et al., 2019; Kenter et al., 2015, 2016). The literature on diverse values of nature suggests multiple terms referring to deliberative values, including shared, collective and social values (Anderson et al., 2022; Irvine et al., 2016; Kenter et al., 2015, 2019). Here, for the purpose of this research, we refer to deliberative values as those shared social values that have been expressed and agreed upon in group discussions in a deliberative setting and are concerned with the value of the surrounding landscapes and nature (Kenter et al., 2019; Raymond et al., 2014). The elicitation of these deliberative values can be impacted by several factors: group composition, power dynamics, facilitation and design, institutional context, participants' ability to deliberate (e.g. argumentation), the duration and intensity of the deliberative process and the beliefs about desirable outcomes that transcend specific situations (Kenter et al., 2016). Yet, there is little empirical research exploring what factors influencing the creation of deliberative values of nature during group discussions in a deliberative setting.

According to Raymond et al. (2014), the individual and the deliberative valuations are complementary paradigms that can lead to comprehensive outcomes when both paradigms are effectively combined. Yet, there is little empirical evidence of the potential benefits and implications of integrating both valuation approaches and the processes underpinning the expression of values at both the individual and deliberative levels (Anderson et al., 2022; Eriksson et al., 2019; Raymond et al., 2014). Previous research has highlighted the importance of differentiating and establishing links between values expressed at the individual level and values at the deliberative level because it has been argued that some types of values need further formation and expression through deliberation and social learning to become what has been coined social or shared values (Kenter et al., 2016; Raymond et al., 2014). For instance, Kenter et al. (2019) suggest several potential ways of conceiving the relation between social and individual values. These can be (i) a distinct but overlapping set of values; (ii) social values as a subset of the aggregate of individual values; (iii) social values partially predicting individual values; (iv) social values predicted by individual values to some extent; and (v) dynamic interplay between social and individual values. Although empirical examples exploring these relationships for nature's values remain scarce, they might shed light on the democratic legitimacy of the participatory processes. This, in turn, could inform the design of more inclusive and representative decision-making frameworks, ensuring that a broader diversity of values and perspectives is considered in conservation and restoration efforts. Such studies could also contribute to the development of best practices for promoting collaborative and values-based approaches in conservation and restoration.

In this study, we empirically explored the potential and significance of deliberative settings to promote and inhibit values towards grasslands and facilitate collective action towards their restoration in the context of a real-world laboratory. We first employed both individual (Zabala et al., 2018) and deliberative Q-method approaches (Peck & Khirfan, 2021) to elicit both the individual and deliberative values of grasslands, respectively. Then, we applied participant observation (Musante & DeWalt, 2010) and discourse analysis (Johnstone & Andrus, 2024) to assess the formation and expression of deliberative values against individual values and asked what factors empirically influence this process in the context of species-rich grassland restoration. To minimise the potential effect of differences in the underlying rationale for values assessment, the value elicitation process, the representativeness sought and the degree of involvement of decision-makers, we employed the same value statements and actors in both methods (individual and deliberative, Raymond et al., 2014). Our specific goals were:

1. To evaluate differences and similarities between individually and deliberatively elicited values and related perspectives towards grasslands to inform restoration.
2. To assess how group deliberation and associated factors influence shifts in value expressions and associated perspectives.

2 | METHODS

2.1 | The real-world laboratory and the social-ecological system

Real-world laboratories are an experimental and transdisciplinary research approach at the science–society interface that promotes co-production of knowledge and collective action. Real-world laboratories contribute to transformation, scientific and societal learning, reflexivity experimentation, transdisciplinary research mode, scalability and transferability of results (Bergmann et al., 2021; Schäpke et al., 2018). With a strong deliberation component, real-world laboratories are called to facilitate sustainable pathways towards effective social-ecological restoration of landscapes and grasslands and mobilise sustainability-aligned values (Fischer et al., 2021). Our transdisciplinary real-world laboratory was embedded in the social-ecological context of Gifhorn district (Lower Saxony, Germany) as one of the three regions under investigation as part of the (withdrawn for peer-reviewing) project. Gifhorn has a history of public and private grassland restoration projects (e.g. restoration of the Ise river lowlands: 'Ise mit Nebenbächen'). Further, as large areas fall under various protection statuses, a range of public–private governance mechanisms for extensive use of grasslands results in the attempt to conserve species richness. Gifhorn presents a typical northern German landscape mosaic of arable lands, grasslands, wetlands, flood plains and mixed forests. Of the 17,838.2 ha of grasslands (11.4% of the district area), 53% are under some protection or use restrictions through locally and regionally protected areas (e.g. the landscape-protected area of 'Niedersächsischer Drömling'). The district has ca. 180,167 inhabitants, mainly concentrated in the centre and south. The maintenance of grasslands is under pressure due to the lack of profitability and competition with other agricultural uses, such as arable land, as well as the growing demand for land for renewable energy projects (Figure 1).

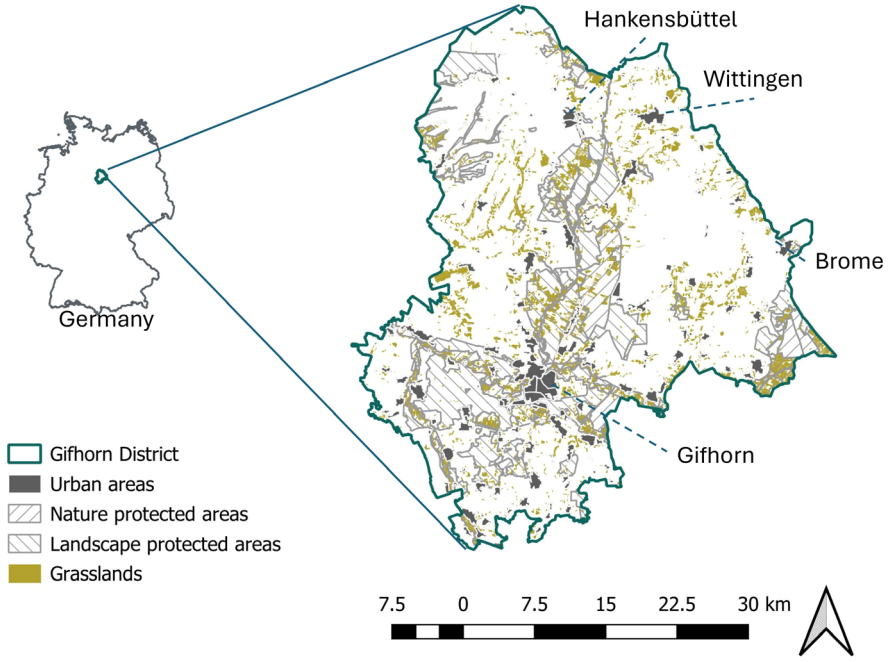

FIGURE 1 Geographical boundaries of the real-world laboratory, Gifhorn district in Lower Saxony, Germany.

2.2 | Stakeholder engagement

We collected values assigned to the regional grasslands elicited through individual and deliberative processes during two workshops conducted in February 2023 and May 2023. The participants of the workshops were previously engaged in the project through several activities, such as an open info-event (November 2022) and subsequent in-depth interviews that facilitated the identification of stakeholders through a snowball process (November 2022 until February 2023). Sixteen stakeholders with a background and interest in grassland management and restoration participated in these workshops and were willing to be engaged in the long-term process. The participants were affiliated with the following institutions and sectors: Farming sector ($n = 3$), Regional NGOs for nature conservation ($n = 3$), Protected areas management ($n = 1$), County governance (Nature Conservation ($n = 2$); Agriculture ($n = 1$); Water Management ($n = 1$)), Research Institutions ($n = 3$) and Regional planning advocacy ($n = 2$). In general, local communities were widely represented by the farming sector, including local farmers and the local rural people association; however, we did not account for local stakeholders who do not have a relation with the management of grasslands. Further details on stakeholders' profiles and relations to grasslands are unpacked in Table A1.

2.3 | Individual and deliberative values: Q-method

We used the Q-methodology, a structured approach that combines quantitative and qualitative methods to explore the diverse perspectives behind a given topic (Zabala et al., 2018), to explore the values considered important for grassland restoration. In this study, the Q-methodology was designed in two phases to compare how values-based perspectives were expressed at individual and deliberative levels. In the first phase, we applied a conventional Q-method approach (Zabala et al., 2018) where we asked the 16 participants to complete the individual Q-method in a facilitated survey by ranking several statements referring to intrinsic, instrumental and relational values. In the second phase, we applied a deliberative Q-method variation (Peck & Khirfan, 2021), where participants collectively discussed and ranked the value statements in five focus groups.

The deliberative Q-method differs from the conventional individual approach in collecting data because it additionally triggers processes associated with focus groups and deliberative processes, such as group discussions, negotiations, joint reflections, knowledge exchange and power dynamics (Kenter et al., 2016; Peck & Khirfan, 2021). In the following, we describe the four stages that comprise the individual and the deliberative phases: (1) research design, (2) data collection, (3) data analysis and (4) data interpretation.

2.3.1 | Research design

To apply the Q-methodology, we first developed a so-called concourse of statements representing a comprehensive set of potential specific values of grasslands based on the previous empirical and theoretical studies on diverse values of nature (e.g. Arias-Arévalo et al., 2018; Bataille et al., 2020; Chapman et al., 2019; Pascual et al., 2017; O'Connor & Kenter, 2019; Riechers et al., 2022; Schmitt et al., 2022). After pretesting them iteratively among research colleagues and local practitioners from the project and adapting them

TABLE 2 The set of value types, value categories and the Q statements (Q set).

Value types	Value categories	Q statements (I value grasslands in our region because…) (We value grasslands in our region because…)	Reference codes
Intrinsic	Grasslands own reason of existence in the region	*…I/we recognise that grassland in my/our region has its particular reason for its existence, and therefore, it is worth of conservation*	1, 2
	Species own right to exist	*… grassland species in my/our region have a right to exist*	1, 2
	Grasslands rights to exist and thrive	*…it has its own right to exist and prosper*	1, 2
Instrumental	Water and soil fertility provision (Regulating)	*…it provides us with clean water and soil fertility*	2, 3
	Food provision (Provisioning)	*…it provides fodder and hay*	2, 3, 4
	Profit from grasslands (Economic)	*…I/we economically benefit from it*	2, 4, 5
Relational	Stewardship and care	*…I/we feel responsible to protect from negative impacts*	5, 6, 7
	Aesthetic	*…I/_we enjoy the beauty of the scenery, sounds, and smells*	5, 7
	Cultural identity	*…it is an important part of our culture*	5, 7
	Sense of place (home)	*…it contributes to a feeling of home*	5
	Therapeutic (Well-being)	*…it makes me/us feel better, physically and/or mentally*	5, 7
	Relaxation	*…it has a calming and relaxing effect on me/us*	5, 7
	Human-nature connectedness (Individual identity)	*…it is an important part of who I/we am/are*	5
	Self-knowledge	*…I/we learn through grassland about myself/ourselves*	5
	Creativity and inspiration	*…it inspires me/us with new ideas and creativity*	5, 7
	Care and eudaimonia	*…my/our care for grassland help(s) us to have a good and fulfilling life*	5, 7
	Collective identity	*…it connects me/us with who we are as a community*	5, 6
	Cultural heritage	*…it is a place of heritage and history that is important for me, our community, and the region*	5, 7
	Community support	*…it supports other people in my community*	2, 4
	Social cohesion	*…it gives me/us the opportunity to have relationships with friends, family, and other people*	5
	Traditions	*…it is a place for our traditions and the way of life of my/our ancestors*	2
	Sense of place (region)	*…being here fosters a sense of belonging…*	5

Note: References: O'Connor and Kenter (2019) (1); Schmitt et al. (2022) (2); Pascual et al. (2017) (3); Chapman et al. (2019) (4); Arias-Arévalo et al. (2017) (5); Bataille et al. (2020) (6); Riechers et al. (2022) (7).

to the context of grasslands in the region, we compiled a set of 22 final value statements (called the Q-set) covering intrinsic ($n = 3$), instrumental ($n = 3$) and relational values ($n = 16$), as well as their subcategories (Table 2). These statements suggest the different ways in which people might value grasslands in the region. The above-mentioned studies suggest a richer diversity of relational values compared to intrinsic or instrumental values assigned to nature. To allow for this diversity of relational values that interviewees may perceive (relational values related to, e.g. identity, sense of place or stewardship), we opted to present 16 subcategories of relational values.

These 22 value statements were used for both the individual and deliberative Q-method exercises. When the heading of the statement started with 'I value grasslands in our region, because…', it referred to the individual Q-method exercise, and when the heading started with 'We value grasslands in our region, because…', it referred to the deliberative Q-method exercise.

2.3.2 | Data collection

To collect data in the Q-method, participants were asked to rank the 22 value statements with the help of the conventional Q-method grid following a simplified and quasi-normal bell-shaped distribution (Figure A1), a process known as Q-sorting (Zabala et al., 2018). In the individual exercise, we first provided participants with the Q-method grid showing 23 empty slots along a gradient from most agreement (+3) to most disagreement (−3) (22

statements/23 slots). Then, we asked participants to rank the 22 value statements on the Q-method grid according to their perception, resulting in 16 distinct Q-sorts, one Q-sort per participant. Due to the formulation of the statements, that is, 'I value grasslands in my region…' and for the matter of interpretation, the value scores represented the importance and unimportance of participants' values.

In the deliberative Q-method, the 16 participants were split into five groups, where they followed the same Q-sorting process after deliberation within the group. To encourage discussion with contrasting perspectives and enrich the deliberation about values, we avoided placing two members from the same institution in the same group or with similar affiliations (Raymond et al., 2014). Additionally, we followed a gender-balanced distribution among groups. Four deliberative focus groups were facilitated simultaneously by different researchers in February 2023 at the Popular University of Wittingen (*Kreisvolkshochschule Wittingen*). The fifth focus group took place in May 2023 at the farmers union of Gifhorn (*Landvolk Niedersachsen, Kreisverband Gifhorn-Wolfsburg e.V*). All facilitators were previously trained and followed the same protocol.

The group discussions in the deliberative Q-method were audio-recorded to enable a qualitative understanding of the process. The rules were explained to all participants before starting the activity. All participants read and accepted a participation consent in accordance with the Ethical Review Policy and Official Guidelines for Good Scientific Practice from Leuphana University of Lüneburg, Germany, which explained how the data would be used and stored.

2.3.3 | Data analysis

We used an online interface based on the Q-Method in R Environment (R Development Core Team 2011) from Zabala (2014) (qmethod package) to analyse the Q-sorts and transform them into fewer representative perspectives. We employed the same procedure for the individual and deliberative Q-sorts separately. We used a principal component analysis (PCA) with Varimax rotation, which is a multivariate data-reduction technique, to identify a smaller number of representative perspectives (factors). For the selection of the number of factors, we employed two criteria: Kaiser criterion (Eigenvalue higher than 1) and participants' distribution among factors (Zabala et al., 2018).

2.3.4 | Data interpretation

Following Zabala et al. (2018), we used the z-scores and normalised scores from the PCA to assess to what extent the statements represent the selected factors. The normalised scores resembled the scale used to collect the data in the Q-sorts. Specifically, we referred to 'important' values as those values scoring +3 or +2 and 'unimportant values' to those scoring −3 or −2. The selected factors were labelled with short statements synthesising the perspective for further applicability. The *z*-scores indicated which value statements were represented in each factor or were represented in several factors. We referred to 'distinct values' only as those important or unimportant values that were only represented in one factor. For the matter of interpretation, we referred to 'bilateral consensus' when a value was important or unimportant for two perspectives at the same time. Consequently, we referred to 'trilateral consensus' when a value was important or unimportant at the same time in three perspectives. To assign participants to the selected factors, we used the factor loadings.

2.4 | Factors influencing shifts in value expression: Quantitative analysis, discourse analysis and participant observation

2.4.1 | Shift in value expressions

We measured shifts in value expressions by applying two methods. First, we calculated the value expression shift by comparing the results from the individual ($n = 16$) and deliberative Q-methods ($n = 5$) for every value based on the Q-sorts (Equation 1. '#': Specific value, for example, social cohesion; '$n(d)$': number of groups (i.e. 5); '$a(d)$': value# score for specific group; '$n(i)$': number of participants (i.e. 16); 'a(i)': value# score for specific participant).

$$\text{VALUE EXPRESSION SHIFT} = \text{VALUE\# score average at deliberative level} - \text{VALUE\# score average at individual level}$$

$$\text{VALUE\# score average at deliberative level} = 1/n \sum_{i=1}^{n(d)} a(d)_i$$

$$\text{VALUE\#score average at individual level} = 1/n \sum_{i=1}^{n(i)} a(i)_i \quad (1)$$

We used a biplot representing the importance of values elicited individually and through deliberation, and the shift measured with Equation (1).

Second, we evaluated the participant's value expression shift, concerning their responses to values at the individual and deliberative level, after averaging the absolute participant's value expression shift for the 22 values (Equation 2), '$n(v)$': total number of values (i.e. 22); '#': specific value (e.g. 'social cohesion').

$$\text{PARTICIPANT'S VALUE EXPRESSION SHIFT} = 1/n \sum_{i=1}^{n(v)} |\,\text{Value\# score at the deliberative level} - \text{Value\# score at individual level}\,|_i \quad (2)$$

2.4.2 | Quantitative data collection and analysis

After the deliberative Q-method exercise, participants evaluated individually, via a questionnaire designed after Kenter et al. (2016) (Table A2), the deliberative process. We asked respondents to

evaluate with a 4-point Likert scale a set of statements referring to (i) participants' perceived own performance, that is, *Agreement with the results*, *Discussion skills*, *Trust in the institutional setting*, *Agreement with own values*, *Social interaction* and *Social learning*; (ii) participants' perceptions on the group, that is, *Group composition*, *Power dynamics*; (iii) participants' perception on the setting and facilitation, that is, *Facilitation and moderation*, *Process intensity* (Table A2). We then performed a Spearman correlation analysis to assess how these factors were linked to shifts in participants' value expressions.

2.4.3 | Discourse analysis

We audio-recorded the group discussion with the help of professional devices (Zoom H2next). The audio files were transcribed automatically with the online software Trint and manually corrected by researchers. We assessed the transcriptions and audios with the support of MAXQDA (2022) to identify factors that might influence differences in the value expression between the individual and deliberative Q-method exercises, with special focus on the values that shifted the most. We coded inductively potential factors associated with shifts in value expression. Verbatim statements that exemplified value shift were highlighted for further interpretation (Johnstone & Andrus, 2024).

2.4.4 | Participant observation

During the deliberative process, participants were observed to assess how social dynamics could have influenced the deliberative outcomes following standards of participant observation (Musante & DeWalt, 2010). Specifically, we focused on non-verbal dimensions (body language and use of space) of power exerted during the group deliberation (adapted from Hensler, 2022). A preliminary analysis of the discussions revealed that the initially considered dimensions of power were in reality dimensions of participant confidence since participants did have a very positive perception of the deliberative process and felt they had the possibility to freely express their opinions (see Table 3). The observations for these two dimensions were synthesised and transformed into two variables, following a 4-point Likert scale: *observed non-verbal confidence—use of the space*—and *observed non-verbal confidence—body language*. We performed a Spearman correlation analysis to assess how these factors were related to the participants' shift in value expression.

3 | RESULTS

3.1 | Differences in values expression among individual and deliberative approaches

3.1.1 | Individual Q-method

The results of the individual Q-method yielded three core perspectives, based on the first three factors (70.1% of total variance), where 11 values were scored as important in at least one of the three perspectives (Table 3). Factor 1 (F1) (27.4% of variance) comprised values from all three categories, of which two important values were distinct from this factor, namely *Relaxation* and *Water and soil fertility provision*. Besides, three unimportant values were distinct from this factor, namely *Collective Identity*, *Cultural heritage* and *Traditions*. Based on the comprehensiveness of the values comprising F1, we named this perspective as 'Holistic and relaxation'. Factor 2 (F2) (24.3%) also represented values from the three categories, of which only the relational value of *Stewardship and Care* was distinct. Two unimportant values were distinct for this factor: *Human–nature connectedness* and *Self-knowledge*. We labelled the perspective represented by F2 as 'Holistic and care'. Factor 3 (F3) (18.4%) was primarily represented by relational values focused on the individual relations with nature and the intrinsic value of Grasslands' own reason to exist in the region. We found that three important relational values were distinct for F3: *Aesthetics*, *Sense of Place* (*home*) and *Therapeutic* (*Well-being*) (Table 3). Based on the values representing F3, we labelled this perspective as 'Relations with nature'. Finally, we found four bilateral consensuses among the three perspectives for important values (scoring 2 and 3 points), but no trilateral consensuses among the perspectives for important values (Table 3). We found three bilateral consensuses for unimportant values (*Profit*, *Creativity* and *Social Cohesion*). We did not find a trilateral consensus on unimportant values. However, we found a dissensus among perspectives for one intrinsic value (*Grasslands' rights to exist*), which was scoring important in one perspective (F1), but unimportant in another perspective (F3). Published data under Cebrián-Piqueras (2025).

3.1.2 | Deliberative Q-method

The PCA with the Q-sorts from the deliberative Q-method yielded three core perspectives, based on the first three factors (ca. 91.9% of the variance), which we labelled 'Conservation and production', 'Holistic and aesthetics' and 'Ecological conservation' (Table 3). The solution of three factors accounted for ca. 91.9% of the total variance after varimax rotation: Factor 1: 31.3%, Factor 2: 31.3% and Factor 3: 29.3%. Seven values were important within these perspectives. The 'Conservation and production' perspective was represented by values from the instrumental and intrinsic categories. No relational value was important in this category. No important value was distinct for this perspective, but two unimportant values were distinct for this perspective: *Personal profit from grasslands* and *Creativity*. The perspective 'Holistic and aesthetics' was represented by values from all three categories. From the important values, only aesthetics was distinct for this perspective. For the unimportant values, *Community support* was distinct for this perspective. Values from all three categories represented the 'Ecological conservation' perspective. No important value was distinct for this perspective, but one unimportant value was distinct for this perspective, namely *Social relationships and cohesion*. We found four bilateral consensuses among important values

TABLE 3 Representation of the value scores for each PCA factor (representing a perspective) obtained after varimax rotation based on the individual Q-method (on the left) and the deliberative Q-method (on the right).

			Individual Q-factors 70.1%				Deliberative Q-factors 91.9%			
			Holistic and relaxation	Holistic and care	Relations with nature		Conservation and production	Holistic and aesthetic	Ecological conservation	
Subcategories	**Categories**	**Focus**	**I-F1 (27.4%)**	**I-F2 (24.3%)**	**I-F3 (18.4%)**	**Consensus**	**D-F1 (31.3%)**	**D-F2 (31.3%)**	**D-F3 (29.3%)**	**Consensus**
Grasslands' own reason for existence in the region	Intrinsic	Nature	1	**2**	**3**	**	**3**	**2**	**3**	***
Species own right to exist	Intrinsic	Nature	**3**	**2**	1	**	**3**	**2**	**2**	***
Grasslands' rights to exist	Intrinsic	Nature	**2**	1	**−2**	≠	**2**	−1	**2**	**
Water and soil fertility provision	Instrumental	Collective	**3**	−1	1	#	**2**	0	**3**	**
Food provision	Instrumental	Collective	**2**	**2**	0	**	**2**	**3**	−1	**
Profit from grasslands	Instrumental	Individuals	0	**−2**	**−3**	**	**−2**	0	−1	#
Stewardship and care	Relational	Individuals	1	**3**	0	#	1	**3**	**2**	**
Aesthetic	Relational	Individuals	1	1	**3**	#	1	**2**	1	#
Cultural identity	Relational	Individuals	0	**3**	**2**	**	−1	1	1	
Sense of place (home)	Relational	Individuals	0	−1	**2**	#	0	1	0	
Therapeutic (Well-being)	Relational	Individuals	1	−1	**2**	#	1	−1	1	
Relaxation	Relational	Individuals	**2**	0	−1	#	1	1	1	
Human-nature connectedness (individual identity)	Relational	Individuals	0	**−2**	1	#	**−3**	−1	**−3**	**
Self-knowledge	Relational	Individuals	−1	**−3**	0	#	**−2**	**−3**	**−2**	***
Creativity	Relational	Individuals	−1	**−2**	**−2**	**	**−3**	0	0	#
Care and eudaimonia	Relational	Individuals	0	−1	−1		0	**−2**	**−2**	**
Collective identity	Relational	Collective	**−3**	0	0	#	**−2**	**−2**	0	**
Cultural heritage	Relational	Collective	**−3**	0	1	#	−1	0	0	
Community support	Relational	Collective	−1	0	−1		−1	**−3**	−1	#
Social relationships and cohesion	Relational	Collective	**−2**	**−3**	−1	**	0	0	**−3**	
Traditions	Relational	Collective	**−2**	0	0	#	−1	−1	−1	
Sense of place (region)	Relational	Collective	−1	1	**−2**	#	0	1	0	
Empty	NA	NA								

Note: The symbol '**' represent a bilateral consensus among perspectives for important (+2; +3) or unimportant values (−2; −3). The symbol '***' represents a trilateral consensus among important or unimportant values. '#' represent distinct important or unimportant values within one perspective. I-F1 (First factor from the individual Q-method). D-F1 (First factor from deliberative Q-method). Important2 values (+2; +3) and unimportant values (−2; −3) are highlighted in bolds. The symbol '≠' represents a dissensus among perspectives for a given value.

(scoring 2 and 3 points) and two trilateral consensuses among the perspectives for important values (Table 3). These values were *Species' right to exist* and *Grassland's own reason to exist in the region* (Intrinsic values). Three bilateral consensuses for unimportant values were found for the values *Human–nature connectedness*, *Collective identity*, and *Care and eudaimonia*. Finally, one trilateral consensus for unimportant values was found, specifically for the value of *self-knowledge*.

3.1.3 | Comparison among individual and deliberative perspectives through the exploration of PCAs factors

The results indicated that more values were seen as important in individual than deliberative perspectives: 11 versus 7, respectively. Moreover, six relational values were important in the individual perspective, while only two after group deliberation. Our results also indicated less consensus among individual elicited perspectives than among group deliberative elicited perspectives, and more distinct values in the individual perspectives compared to the deliberative (Table 3). All important values identified in the deliberative setting were already identified in the individual format, meaning that there were no new elicited values at the deliberative level. The perspectives were generally more holistic at the individual level compared to the ones uncovered through deliberation. We did not consider the 'Ecological conservation' perspective (deliberative) holistic, as it mainly focuses on intrinsic values and the relational value of *Stewardship and Care*.

3.1.4 | Perspective memberships

The results revealed how participants shifted from individual to deliberative perspectives (Table 4). In general, we did not find that participant roles, especially leadership roles, had a significant influence on shifting towards deliberative outcomes. However, we can assume that some of the classical values associated with the two major overarching sectors, such as farming or conservation (instrumental and intrinsic), may surface in the deliberative process, even though they are not as evident at the individual level, for example, more holistic perspectives encompassing relational values.

3.1.5 | Value expression shift (value to value comparison)

The results show four clusters of shifts in value expressions (Figure 2). The first cluster (i) represented those values that were important in both Q-method exercises but increased in importance after deliberation: that is, the intrinsic values of *Grassland's own reason to exist in the region*, *Grassland's right to exist*, and *Species' right to exist*; the relational value of *Stewardship and Care*; and the two instrumental values of *Food provision* and *Water and soil regulation*. The second (ii), third (iii) and fourth (iv) clusters comprised mostly relational values. The second cluster (ii) comprised those relational values (i.e. *Traditions*, *Cultural heritage*, *Social Cohesion*, *Sense of place (Region)*) that, despite experiencing a substantial increase after deliberation, still scored low in their deliberative form. The third cluster (iii) represented those relational values that experienced a slight decrease from individual to deliberative: *Sense of place* (*home*), *Relaxation*, *Therapeutic*, *Cultural Identity*. Finally, the fourth cluster (iv) comprised multiple relational values representing the relations between individuals and nature (e.g. *Self-knowledge*, *Human–nature connectedness*, *Community support*) that experienced a notable decrease in the deliberative Q-method. Published data under Cebrián-Piqueras (2025).

3.2 | Factors associated with value expression shift

3.2.1 | Individual survey and participant observation

We found two parameters that were positively and significantly associated with value expression shift: the perceptions of a balanced group composition ($p < 0.06$) and the trust in the institutional setting organising and leading the process ($p < 0.01$; Table 5). Several other parameters, such as self-perception of good skills for discussing, perception of good moderation and observed participant self-confidence, expressed by the observed use of the space and body language or social learning, indicated a slight positive correlation with value shift, though not statistically significant (Table 5). Finally, our results suggested that participants were aware when their expression of values shifted from an individual to a deliberative format, as indicated by a negative relationship between perception of agreement with the discussion outcomes and their individual values ($p < 0.03$). Neither perceptions of power and influence by participants, nor age and gender, displayed any influence on values shift. Surprisingly, participants' status, expressed as leadership roles, did have a positive influence on value shift ($p < 0.07$).

3.2.2 | Discourse analysis

Concerning relational values' general decrease, especially those values referring to the importance of the individual relations, we found that respondents tended to justify this expression shift by assigning several properties to them in an effort of temporal and spatial emotional detachment. For instance, respondents mentioned that some values, while initially important, are now part of their childhood or the past: 'and I come from farming and with grasslands, and these meadows and pastures from the past, this is already a feeling of home, but not the home that I have now. So, it is tough somehow' [ID1]. Some respondents mentioned that as they come from cities, despite working now in the region, some values, for example, cultural identity, do not have a strong

TABLE 4 Participants and group assignment to elicited values-based perspectives on grasslands based on factor loadings from Q-methodology: Columns 8–13.

							Individual perspectives			Deliberative perspectives		
Discussion group	Sector	ID	Age	Gender	Leadership role	Participant average value shift	Holistic and Relaxation	Holistic and Care	Relations with nature	Conservation and Production	Holistic and Aesthetic	Ecological conservation
Group 1	County governance/ Nature Conservation	#1	33	Male		1.13	0.56	0.63*	−0.17	0.62	0.38	0.58
	Regional NGO for nature conservation	#2	36	Female		1.13	0.46	0.5	0.24			
	Research Institution—Vegetation Ecology	#3	52	Female	Yes	1.57	−0.01	−0.08	0.85*			
Group 2	Protected areas management	#4	62	Female	Yes	1.04	0.31	0.79*	0.35	0.89*	0.27	0.30
	Regional sustainable planning advocacy	#5	26	Male		1.04	0.77*	0.13	0.29			
	Research Institution—Vegetation Ecology	#6	34	Female		0.78	0.67*	0.46	0.22			
Group 3	Regional NGO for nature conservation	#7	41	Female		0.87	0.54	0.53	0.51	0.49	0.65*	0.42
	Regional agricultural chamber	#8	58	Female		1.13	0.39	0.5	0.5			
	Research Institution—Social-Ecology	#9	41	Female	Yes	1.57	0.19	0.15	0.88*			
Group 4	County governance/ Nature Conservation	#10	61	Male	Yes	0.87	0.51	0.43	0.44	0.31	0.26	0.9*
	Regional sustainable planning advocacy	#11	30	Female		1.13	0.1	0.57	0.58*			
	Regional NGO for nature conservation	#12	43	Female	Yes	1.22	0.78*	0.33	−0.01			
Group 5	Rural people association	#13	63	Male	Yes	1.48	−0.34	0.77*	0	0.23	0.93*	0.21
	Ecological farming	#14	57	Male	Yes	1.74	0.85*	−0.17	−0.04			
	Ecological farming	#15	26	Male		1.30	0.69*	0.11	0.25			
	County governance/ Water management	#16	58	Male		1.13	0.22	0.76*	0.04			

Note: The factor loadings represent correlation coefficients that quantify the relationship between each Q-sort (Individuals or groups) and each factor from −1 to 1. High positive loading (*) indicates a Q-sort strongly aligns with the viewpoint represented by that factor.

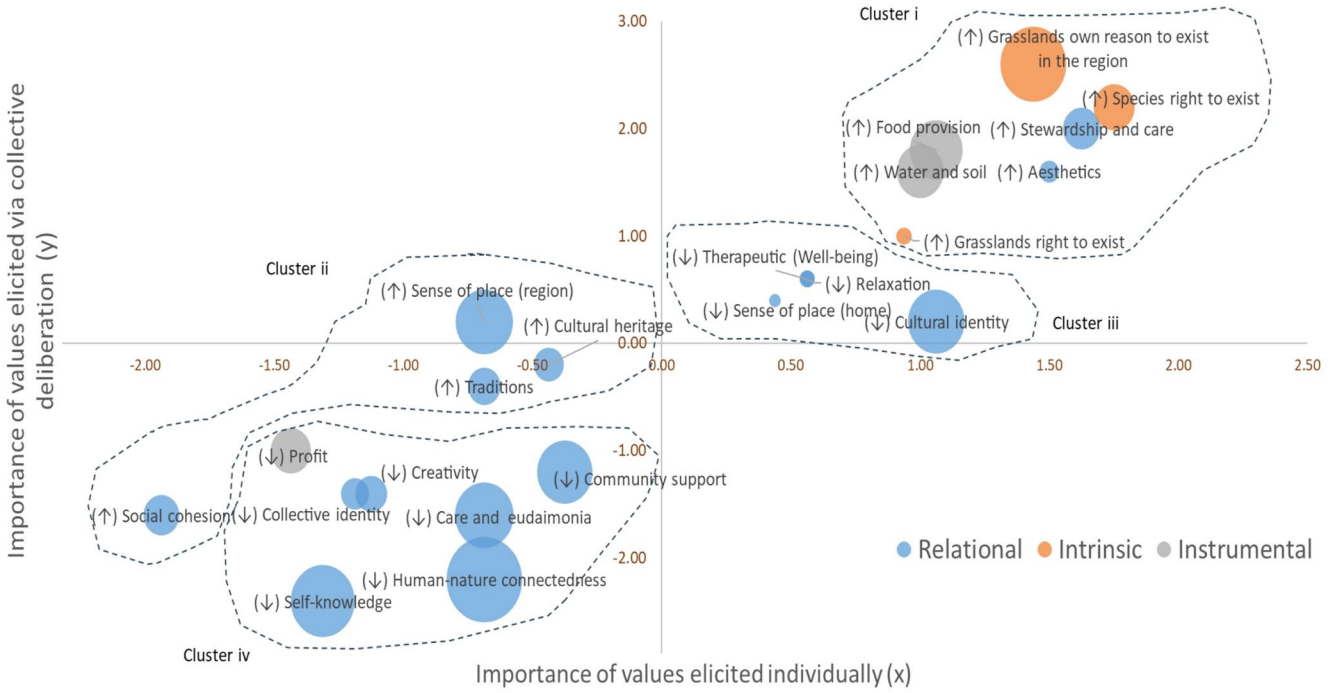

FIGURE 2 The biplot shows value expression shift symbolised by the size of the dots. The symbols (↑) and (↓) represent the value expression shift direction (increase or decrease, respectively) based on comparing individual and deliberative Q-sorts per value. The *X*-axis represents value scores averaged at the individual level ($n = 16$), and the *Y*-axis represents value scores averaged at the group level ($n = 5$). As an example, the scores +2 and + 3 represent important values. Four major clusters indicate (i) values that were high at the individual level and increased at the deliberative level (upper right corner), (ii) relational values, mostly with focus on the collective, that increased after deliberation (left side, mostly near the *X*-Axis), (iii) values, mostly individual-focused relational values, that decrease after deliberation (right side near the *X*-Axis) and (iv) values (mostly relational) that scored low at the individual level and decreased after deliberation (lower left corner).

meaning nowadays '… I just reflect that if you think historically, it's a statement that's true. However, I also grew up in the city, and I can't say that it's the main reason' [ID2], or 'yes, well, I remember when I was little that the older people, even if I come from an urban area, still mowed these areas around us with a scythe and that also left its mark and somehow showed something and yes, but I wouldn't consider it now…'[ID 3]. Some respondents expressed a higher value for relaxation of other ecosystems, such as forests, compared to grasslands: … 'Forest, quite a lot (in relation to relaxation), but grassland I would say now, not as much as forest, but not negative either' [ID4]. The discourse showed how some values, especially relational values, were challenging to ascribe to the abstract concept of regional grasslands: … 'It depends on which region you come from' [ID5] … 'Yes, that you feel at home here. Maybe it's more neutral then' [ID6]. In general, relational values focusing on the individual performed worse after deliberation (Figure 2), and this was clearly expressed by some participants: … 'As a group, I think it would be more neutral…' [ID7] (In relation to sense of place (home)): … 'Everyone has an individual opinion on it. But now, in the group, I would tend to say it is more neutral' [ID8]. By contrast, instrumental and intrinsic values were highly considered through deliberation (Figure 2) without being contested in the group: … 'Now we're on the plus side (of the Q-sort). I'll throw in a statement here; I recognise that meadows and pastures have a special raison d'être. That's the one, always all three (intrinsic values), here's another one, its own right to exist… This point here is so important, so to speak, because it doesn't question what use they have (Grasslands and species). They simply exist' (Grasslands and species)…… [ID9].

4 | DISCUSSION

Our empirical work responds to calls for enlightening the dynamic relationship between deliberative and individually elicited values of nature (Anderson et al., 2022; Eriksson et al., 2019; Kenter et al., 2016, 2019; Raymond et al., 2014) and proposals for a deliberative turn to promote inclusive conservation (Ranger et al., 2016; Rodela, 2012). Correspondingly, we aimed at understanding to what extent deliberation about the value of grasslands differs from individual elicitation in a transdisciplinary setting by applying a conventional Q-method approach, based on individual responses and its deliberative form, based on group discussions. We further asked the potential reasons and implications for the identified differences between deliberative and individual valuation paradigms (Kenter et al., 2019; Raymond et al., 2014). We confirm that group deliberation can support consensus-building about the value of nature among stakeholders from different

TABLE 5 Summary of results concerning factors linking positively or negatively to values expression shift after deliberation.

	Variables	Obs.	Min.	Max.	Mean	SD	Correlation with participant's values expression shift	Sig.
	Participant's value expression shift	16	0.8	1.7	1.2	0.3	NA	
Perceived by participants	Agreement with the results	16	3.0	4.0	3.7	0.5	−0.15	
	Social interaction	16	2.0	4.0	3.8	0.5	−0.04	
	Power and influence	16	1.0	3.0	1.3	0.6	0.04	
	Discussion skills	16	3.0	4.0	3.6	0.5	0.32	
	Balance group composition	16	2.0	4.0	3.1	0.9	0.47	*($p < 0.06$)
	Agreement with own values	16	3.0	4.0	3.4	0.5	−0.56	*($p < 0.03$)
	Process intensity	16	2.0	4.0	3.6	0.6	−0.02	
	Proper moderation	16	2.0	4.0	3.5	0.6	0.36	
	Trust in the institutional context	16	3.0	4.0	3.8	0.4	0.63	*($p < 0.01$)
	Social learning	16	2.0	4.0	3.0	0.7	0.34	
Observed on participants	Confidence—Use of the space	16	1.0	4.0	2.4	1.0	0.19	
	Confidence—Body language	16	1.0	4.0	2.8	1.0	0.33	
Socio-demographics and professional status	Age	16	26	63	45.0	13.5	0.10	
	Gender (Male)	16	0	1	NA	NA	0.12	
	Leadership role (Yes)	16	0	1	NA	NA	0.46	*($p < 0.07$)

backgrounds. However, this elicitation paradigm might overlook those relational values that refer to the meaningful relations between individuals and nature (Schaafsma et al., 2023), hence constraining the possibilities for social-ecological restoration that are based on these values. Further, based on our results and recent literature, we hypothesise about the effect of the legacy of mainstream narratives of biodiversity conservation on the expression of values, particularly in group deliberative settings. Lastly, we further discuss other potential reasons for the identified value expression shift, such as participant trust and confidence in the participatory process (Goodson et al., 2022), which eventually might reduce the potential for conflicts (Cebrián-Piqueras et al., 2023).

4.1 | Navigating across deliberative and individual values and related perspectives

Group deliberation for value elicitation has a dual nature, making it essential to know the merits and limitations. On the one hand, deliberation is a powerful tool for consensus-building between participants to express shared values of nature (Kenter et al., 2016; Pigmans et al., 2019; Raymond et al., 2014; Reed, 2008). On the other hand, deliberation can also lead to a reduction in the richness of values elicited, as the diversity of individual perspectives might get lost and sacrificed due to the pursuit of consensus or due to power dynamics (Kenter et al., 2016). In group deliberation processes, participants might tend to prioritise the lowest common denominator and potentially more conservative perspectives (Newig et al., 2017). Following the insights from Kenter et al. (2019), our results align with nested models describing the relation between individual and deliberative values, suggesting that deliberative values are a subset of the range of the individually elicited values; and also, with causal models suggesting that deliberative values are predicted by a subset of individual values. Although we did not find evidence of the direct effect of power dynamics (Kenter et al., 2019; Orchard-Webb et al., 2016), we suggest that the values and associated perspectives representing main sectors, affiliations and policies related to conservation and restoration played a crucial role in delineating the outcomes during the deliberation process. Therefore, deliberation outcomes concerning the values of nature might align with mainstream visions of conservation and restoration that are based on instrumental and intrinsic values (Hertog & Turnhout, 2018; Török et al., 2021) and might have substantial implications for jeopardising restoration equity (Wells et al., 2021). Contrarily, the aggregation of individual

perspectives can reveal potentially more holistic visions of grassland restoration, especially when local communities are also included in the elicitation process (Schmitt et al., 2022). In response to calls for acknowledging the diverse values of nature and their inclusion in decision-making as leverage points for transformation, we highlight how plural valuations based on both individual and deliberative elicitation exercises can enrich how we imagine our relationship with nature and, hence, the management interventions required to nurture those relationships (Pascual et al., 2023). We emphasise the importance of considering and integrating values elicited through individual and deliberative processes to fully mobilise the diversity of values in restoration practices.

4.2 | Why are relational values and related perspectives affected by deliberation?

Shifts in value expression are possibly related to the elicitation framing and methods used and the institutional contexts in which valuation is embedded. Our results indicate that those relational values referring to moral principles to nature (e.g. stewardship and care) or grounded in the traditions of nature conservation in cultural landscapes (e.g. aesthetics) are expressed through both individual and deliberative valuation methods, possibly because they are supported by the institutional setting of conservation of cultural landscapes (Murali et al., 2024). However, those relational values representing the relations between individuals and grasslands are overlooked in deliberative approaches. This is because individual relational values are by nature very personal, nuanced and attached to very particular contexts (e.g. sense of place) (Chan et al., 2018; Schmitt et al., 2022). Based on these results, we call for applying complementary valuation methods, including both deliberative and individual elicitation approaches since collective deliberation processes might jeopardise the expression of the particularities of an individual's relationship with nature in favour of the common benefit (Chan et al., 2018; Chapman & Deplazes-Zemp, 2023). Besides, these results call for further inclusion of local communities in the participatory processes, which might represent multiple relational values not accounted for here (Schmitt et al., 2022).

We argue that the mainstream legacies of biodiversity conservation framings of 'nature for itself' (intrinsic values) and 'nature for people' (instrumental values) (Mace, 2014) might play a significant role in collectively defining the importance of grasslands and their restoration. Despite the momentum for a 'relational turn' in the academic arena (Chan et al., 2018; West et al., 2020) and the calls to operationalise relational values in conservation (Riechers et al., 2022) and social-ecological restoration (Fischer et al., 2021), relational values are still neglected in biodiversity conservation (Murali et al., 2024) and restoration (Hertog & Turnhout, 2018). Our results show that despite the importance of some relational values (i.e. cultural identity, sense of place, therapeutic and relaxation) at the individual level (Chan et al., 2018), they encounter a 'glass ceiling' in the collective discourse. This barrier might be reinforced by the additive effects of affiliations, representation, institutional context and mainstreamed values in conservation policies, which might be more salient during group deliberations compared to individual-based elicitations (Irvine et al., 2016).

4.3 | Deliberation, trust, and value expression shifts

Contrary to what could be expected, our results suggest that a shift in the expression of values and related perspectives after deliberation in participatory processes might not always be associated with power dynamics and asymmetries (Kenter et al., 2016; Ulug et al., 2024). However, it can be triggered by positive perceptions of the participatory processes, such as trust and confidence (Goodson et al., 2022; Kenter et al., 2016), which can activate voluntary and conscious decisions towards the collective's benefits versus the individual's benefits. For instance, Goodson et al. (2022) found that the perceived moral competency of the institutions managing protected areas in Alaska is directly related to the level of perceived inclusivity in the management process by local communities. Indeed, previous global reviews have revealed the role of building trust as a critical leverage point for inclusive conservation strategies in protected areas (Cebrián-Piqueras et al., 2023). However, trust has rarely been empirically related to value expression shift and needs further research (Kenter et al., 2016; Manfredo et al., 2017). Indeed, trust does not come alone, and we highlight the importance of transdisciplinary deliberations in which participants feel comfortable and safe and can express their ideas freely. For instance, distrust in the wildlife governance institutions has recently emerged associated with backlash movements against a massive value shift from domination towards mutualism in the USA due to the incapacity of governance institutions to accommodate traditional values with current narratives (Manfredo et al., 2017). These studies along with our results might indicate that deliberation in a trusted environment can promote participants to reassess and shift their values for the sake of collective goals and for realising a sense of group belonging. Further research is necessary to untangle the psychological mechanisms associated with group deliberation and value shift (Batalha et al., 2019). Moreover, further research is needed to uncover the effect of the quality of participatory processes on deliberative valuation, including aspects of effective facilitation, communication, time employed, individual and collective reflections, and consideration of everyone's worldviews, values and aspirations (Raymond et al., 2014). Empowerment of participants and ownership of the outcomes appear to be critical ingredients for the successful development of deliberative settings in transdisciplinary research and, potentially, for the collective engagement in restoration practices. Yet, further research should investigate the stability of value expressions through transdisciplinary processes and how these processes can be used to mobilise dormant sustainability-aligned values.

4.4 | A call for values-based inclusive social-ecological restoration

In line with previous theoretical and empirical works, our research suggests that participatory research methods operate as values-articulation institutions (Anderson et al., 2022; Kuhn et al., 2025). We, consequently, point to the role of elicitation methods as value-laden mechanisms, encompassing specific ontologies and epistemologies, that determine which values are prioritised in the decision-making process (Pascual et al., 2023; Raymond et al., 2014). For instance, valuation methods are usually preceding subsequent identification of goals and interventions in the restoration process of grasslands (Gray et al., 2025). In response to calls for enacting diverse values of nature and plural valuations, and for articulating environmental justice and equity in ecosystem restoration (Tedesco et al., 2023), we urge for the implementation of inclusive, adaptive and reflective mix-method approaches that consider the nuances, challenges and opportunities of both individual and deliberative group perspectives for a resilient and sustainable co-design of restoration interventions. Participatory and transdisciplinary decision-making processes should pay particular attention to allow the expression of neglected and dormant values and clearly reflect on the outcomes of elicitation methods to better accommodate interventions that amplify the marginalised voices and local communities in the decision-making of restoration interventions (Maniraho et al., 2023). Finally, we argue that value-based restoration participatory processes should (i) consider valuations of nature and related reflections before, during and after the co-designed interventions, (ii) foster collective and individual real-world relational experiences and stewardship to nurture diverse values of nature and (iii) include and empower local communities (Figure 3).

4.5 | Methodological limitations and further research

Our methodological approach has some caveats and five considerations for further research. (i) First, the ranking exercise both at the individual (conventional Q-method) and the deliberative level (deliberative Q-method) might have jeopardised the potential for the expression of values and associated perspectives that might also be relevant for the participants with the use of other methodologies,

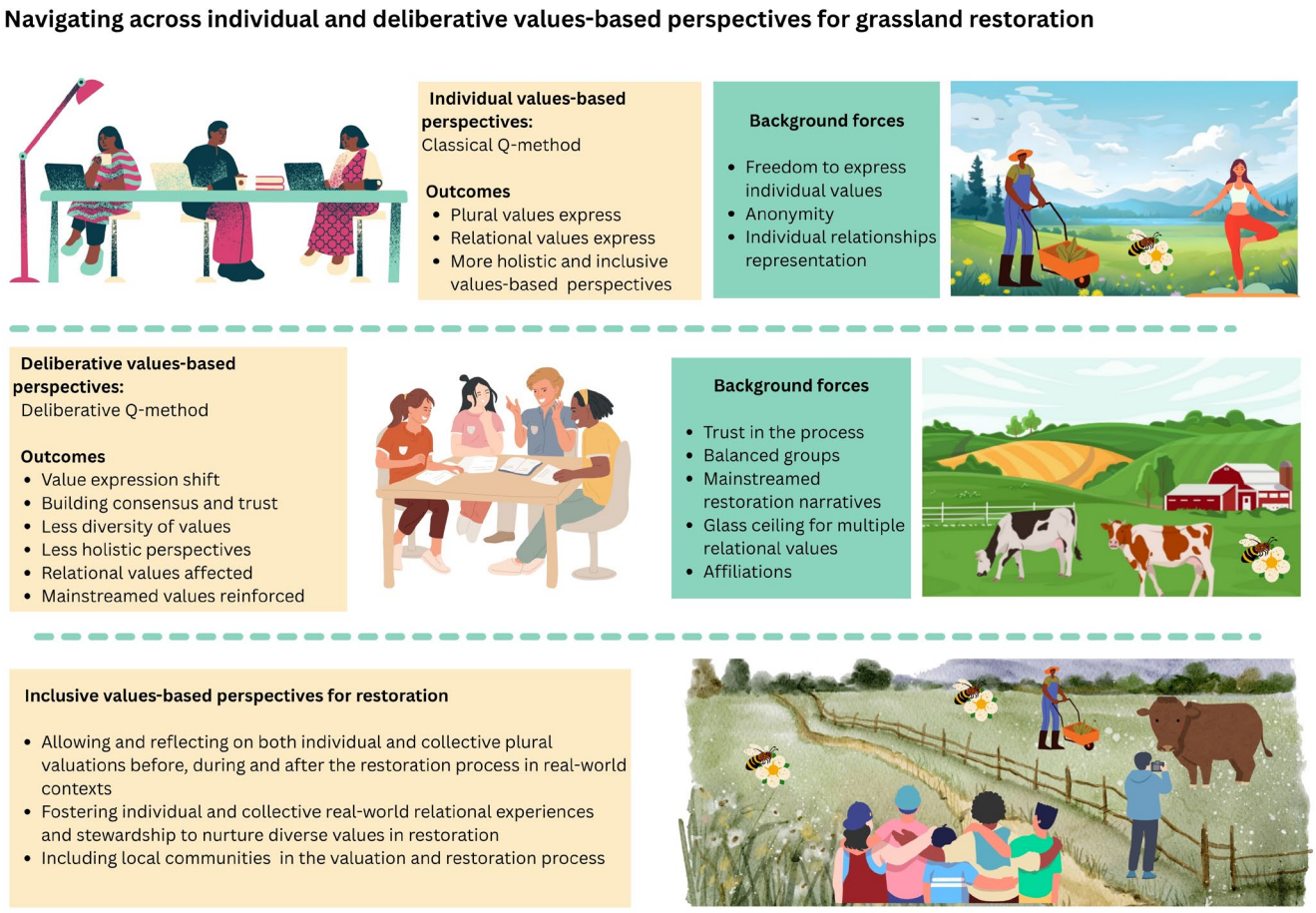

FIGURE 3 Synthesis of results and prospects concerning individual and deliberative values-based perspectives for fostering inclusive values-based grassland restoration.

such as in-depth interviews or less structured open discussions. (ii) Second, we acknowledge that the low sample size might compromise the statistical tests' robustness despite the Q-method's non-positivist nature. (iii) Third, we recognise that the inclusion of other social groups, widening the representation of local communities, might benefit the plurality of values and related perspectives. (iv) Fourth, further research would benefit from tracking the stability of value shifts by employing additional individual valuations after deliberation (Andrade et al., 2023). (v) Finally, despite the participants of our approach mentioning that trust in the institutional setting and context was high, further research would benefit from measuring perceived trust among participants.

5 | CONCLUSIONS

By applying a dual deliberative and individual Q-method approach to the same sample of local stakeholders, we have gained insights on how specific values and associated perspectives attributed to grasslands have undergone a shift in their expression through deliberative value formation in the context of a real-world laboratory for grassland restoration. Our results confirm that group deliberation concerning diverse values of nature can facilitate consensus among stakeholders towards shared values and emerging perspectives concerning regional grasslands, yet it can overlook individual perspectives on the importance of grasslands. In fact, some relational values can be substantially affected through group deliberation since they require specific local contexts to be expressed (i.e. sense of place) and since participatory processes can promote the expression of those values that are supported by the traditional discourses of conservation and restoration based on intrinsic and instrumental values. Moreover, trust and confidence in the participatory process can also facilitate a voluntary shift in the expression of values during deliberation. Our study underscores the importance of considering both individual and deliberative values elicitation processes in order to uncover the broad spectrum of nature's values that can support ecosystem restoration. This approach can offer valuable insights for designing resilient, adaptive policy frameworks that account for evolving societal values and better legitimise management practices.

AUTHOR CONTRIBUTIONS

Miguel A. Cebrián-Piqueras: Conceptualisation, design of the methodology, data collection and analysis, data curation, visualisations; writing—original draft, and writing—review and editing. Konrad Gray: Data collection and writing—editing and review. Lukas Kuhn: Data collection and writing—editing. Jacqueline Loos: Funding acquisition, supervision, data collection, and writing—editing and reviewing. Ioana A. Pătru-Duşe: Data collection, writing—editing and review. Maraja Riechers: Writing—editing and review. Vicky Temperton: Funding acquisition, data collection, and writing—editing. Berta Martín-López: Funding acquisition, conceptualisation, supervision, and writing—editing and reviewing.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest to declare.

DATA AVAILABILITY STATEMENT

The dataset generated and analysed for this study is available in the ZENODO repository at https://doi.org/10.5281/zenodo.17331140 (Cebrián-Piqueras, 2025).

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

Figure A1. (a): Grid used to elicit values-based perspectives at the individual level—Conventional Q-method (Zabala et al., 2018). (b). Grid (A0 size) used to elicit values-based perspectives at the collective deliberative level—Deliberative Q-method (Peck & Khirfan et al., 2021).

Table A1. Stakeholders' affiliations and relations to grasslands.

Table A2. Questionnaire about the deliberative process.

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