

TECHNICAL ADVANCE

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Drawing systems of stewardship to guide action and reveal critical relationships of care

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Abstract

Environmental action, including that which addresses climate change and takes care of the environment more broadly, could be strengthened by making collaboration across silos more imaginable. In this technical article, we describe a “systems of care” tool that facilitates a broad range of participants to express the local and everyday relations that underpin care for their places and communities. Researchers and practitioners who aim to bring together participants from different sectors can implement the tool, using drawings and narrations of these systems of stewardship and care, to find connections and disconnections between participants. Reflexive questions can be tailored to fit the participants, but aim to identify important relations in the system and actions to strengthen them. We show the use of the tool in two case studies: one as part of a community workshop on climate adaptation in New York City and another in a digital workshop with artists and urban greening practitioners across the world as part of The Nature of Cities Virtual Festival. Through this tool, we can see, in real time, how hyper-local actions and relations can thread into wider networks of environmental stewardship and community care. In particular, the tool unveils aspects of environmental stewardship often uncaptured by other research methods, such as the non-environmental organizations and relations that sustain caretakers. It also allows participants from different contexts to dialogue, finding both common and different elements across their practice and strengthening relationships between them. Finally, it can expand the conceptual and geographic lens at which stewardship is understood by bringing attention to how relations across thematic silos and large physical distances can support local environmental actions. By starting with the relations, actions, and places that already exist, the tool promotes a relational understanding of people-place-organization connections and disconnections that can strengthen the overall system of care while working to repair relationships in environmental governance.

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INTRODUCTION

As average temperatures trend upwards and their social-ecological consequences reveal themselves, local environmental stewardship can be strengthened such that it addresses multiple crises (Fisher, 2023; Henig & Knight, 2023). Stewards, at the individual and group level, engage in a variety of actions that aim to “protect, care for or responsibly use the environment in pursuit of environmental and/or social outcomes in diverse social-ecological contexts” (Bennett et al., 2018). Currently, local environmental stewardship is often understood from the mesoscale, or the perspective of organizations, yet people individually create their surroundings and maintain infrastructure (Eisenman et al., 2024), have different positionalities that contribute to climate and environmental action (Whyte et al., 2019), and use their individual networks to become organizations, diversifying action at broader social and ecological scales in response to pivotal moments (Chriswell & Huberts, 2023; Landau et al., 2021). A better understanding of these individual perspectives can strengthen local environmental stewardship by facilitating collaboration across silos, leveraged towards actions taken to create and care for a world worth “working on, with, and for” (Shotwell, 2016). To achieve this relational work, we need tools designed to reveal informal connections, create new relationships, and expand the lens with which we think about stewardship.

Current tools that aim to map the social landscape of environmental work do not always allow us to see informal connections. For example, environmental organizations often use surveys and desktop research to understand who works in the space and with whom. Surveys used to understand social networks ask organizations to identify who they already collaborate with (e.g., Buckingham et al., 2018), while desktop research relies on organizations to self-identify within the topic of interest (e.g., Clark et al., 2024). Constraining our inclusion in the social landscape to those that already identify as environmental organizations can perpetuate decision-making that prioritizes the status quo and has unintended consequences (Campbell et al., 2022). A tool that allows inclusion of both organizations and individuals that may not identify as “environmental” can help strengthen collaboration across silos, by showing the importance of including affordable housing groups in

decisions about urban parks to prevent displacement, as well as individuals that may not be part of an organization at all, but may still be affected by an environmental decision (Oscilowicz et al., 2025).

Tools that emphasize relationality and care in the English language peer-reviewed literature tend to focus on individual reflection (see, for a counter-example, Latin American body-territory methodologies, for example, <https://territorioyfeminismos.org/wp-content/uploads/2017/11/mapeando-el-cuerpo-territorio.pdf>).

“Care” has often been operationalized within healthcare contexts and theorized across social science (see Box 1 for a short description of the relationship between environmental stewardship and care). Many such tools focus on care related to education and training around healthcare providers and on the caregiver and care-receiver relationship. These use narrative journaling to evaluate the strength and dynamism of these specific relationships and the success of education interventions (e.g., Bzowickyj et al., 2017; Chambers, 1999; Olmos-Ochoa et al., 2021). This focus on relationships between two actors (caregiver and care-receiver) is also present in environmental psychology methods, like surveys measuring an individual’s place attachment to a specific location (Altman & Low, 2012; Manzo & Devine-Wright, 2021). While individual reflective tools on specific relationships can help us understand how strong existing relationships are or gaps where new relationships need to be made, they do not always facilitate the creation of new relationships through group discussion. We need tools that leverage reflection on relations and care to place them in context and directly create new collaborations and relationships.

Open-ended tools without a standardized goal can expand the lens with which we understand environmental stewardship both conceptually and geographically. Expanding this conceptual and geographic lens can reveal emergent patterns and insights that strengthen local environmental stewardship by connecting it to broader scales. For example, an open-ended tool where researchers ask students to color in a map of the British Isles and Ireland based on where they would go for university, following up with one question “tell me about your map” forces students to tell a story positioning themselves in relation to what they perceive about this larger geographic area, revealing understandings of class, power, and hierarchy beyond questions about university choice (Donnelly et al., 2020). Other youth-focused tools

BOX 1 The relationship between stewardship and care.

In this technical article, we use the terms stewardship and care interchangeably. However, these terms do not have the same theoretical histories. This box is meant to give a primer on the relationship between stewardship and care for interested readers. This explanation is incomplete as full consideration of these terms is beyond this article's scope (see Box 1 References in [Supporting Information](#) for more information).

Environmental stewardship is a term with Judeo-Christian origins. This idea of responsibility for the rest of nature appears in the Old Testament, with stewards described as “masters” in Genesis 1 and “gardeners” in Genesis 2 (Hutchinson, 1994). This first definition of dominion over was more common through Hebrew bible descriptors of royal stewards, and Christian bible descriptions of household managerial enslaved people as stewards (Beavis, 1994). In both cases, the managerial steward oversaw resources, which popularized the term in nineteenth century Protestant churches to describe those recruiting members and fundraising (Beavis, 1994). That humans are given resources to manage is one of the assumptions behind “stewardship” that is criticized—an assumption that unjustly places humans above the rest of nature, where the continued use of the word reproduces the assumption (Ridd, 1994).

Yet, the term has always been contested and negotiated, with one example in the differing connotations of “master” and “gardener” in Genesis (Beavis, 1994; Hutchinson, 1994). Environmental and conservation practitioners in the 1980s began to use the term “stewardship” to broadly denote an environmental ethic of responsibility, attention, and action that has since been institutionalized from the local to the global (Falkner & Buzan, 2018; Hiltz, 1994; Lerner, 1994; Malley, 1994). Since then, scholarship on environmental stewardship has acknowledged the lack of a specific, standardized, and unified definition of the term (e.g., Bennett et al., 2018; McLeod et al., 2024) and instead opted to use the term as a boundary object that allows multiple definitions to be assessed together (Enqvist et al., 2018). This allows for the transformation and incorporation of elements in environmental stewardship that recreate the term against the

oppressive assumption that humans are above the rest of nature towards one that represents the futures- and action-oriented and plural relations with nature that its users hold (e.g., Lerner, 1994; Arakawa et al., 2018; Chapin III, 2024; Chapman & Deplazes-Zemp, 2024).

Among these incorporated elements is “care” (Enqvist et al., 2018; West et al., 2018; Whyte & Cuomo 2016). Care as a social science concept arose in the 1980s in the feminist literature that aimed to better understand questions of inequality in who provides and receives practical and emotional support, and whose needs are met (O’Flynn et al., 2021; Tronto 2015). As the study of care expanded, “care” expanded from interpersonal relations to the roles of organizations and histories, the potential for caregiving and care-receiving beyond humans, and critiques of care in creating dependencies (de la Bellacasa, 2011; Haraway, 2008; O’Flynn et al., 2021). Feminist care ethics have been brought into conversation with Indigenous care ethics that see caring for humans as inseparable from caring for nonhuman relatives (McMillen et al., 2020; Whyte & Cuomo, 2016). Indigenous understandings of relationality and reciprocity have also been deeply influential for the development of “relational values” in environmental studies, that is, values that are not present in things but derivative of relationships and responsibilities to them (Chan et al., 2016). Care ethics and relational values have been important tools in reshaping what we mean by “stewardship” in the face of critiques from those who engage in environmental action around the world (Campbell et al., 2024; Warren, 1994).

have also acknowledged the importance of blank space for eliciting the involvement of groups marginalized in decision-making. For example, a community mapping tool that allowed youth to design a health clinic with minimal instruction revealed that, unlike surveys, mapping felt “fun and casual” and “represent[ed] the emotional and lived dimensions” (Amsden & VanWynsberghe, 2005, pp. 364 and 367, respectively). Even environmental tools that allow participants to expand who the relevant “community” is still have specific environmental goals prescribed into the instructions (e.g., Bouska et al., 2025; Paveglione et al., 2024). A tool where the goal is not an environmental objective, but a relational one, can strengthen the resilience of environmental stewardship by focusing on aspects of climate and

environmental actions that many people are willing to act upon (Dietz et al., 2020).

As engaged researchers and organizers, we, the author team, employ different tactics and strategies to activate care, knowledge, and agency towards environmental stewardship (West et al., 2018). We have developed tools to visualize groups, networks, and capacity (Johnson et al., 2025; Svendsen & Campbell, 2008), reveal social use of green and blue space (Campbell et al., 2016), and connect environmental stewards via sustained engagement with multiple ways of knowing (Campbell et al., 2024; McMillen et al., 2020). These tools either rely on existing environmental stewardship connections or represent a moment of time that does not necessarily facilitate agency and ongoing care. They can miss crucial opportunities to activate care, knowledge, and agency that do not fit into existing structures and conceptions of environmental stewardship (Campbell et al., 2022). In this technical article, we present a “systems of stewardship and care” tool that aims to bridge this gap and meet people where they are to be used with existing tools. We delve into two applications of the tool to show it reveals informal connections, facilitates new relationships, and expands the lens with which we think about stewardship.

DESIGN AND METHODS

The systems of care exercise is designed to be adapted to a variety of participants, objectives, and settings. We envision this exercise as an entry point to a participatory process that includes other tools. It gets people talking about stewardship and identifying what they care about and for, as well as community capacity. It puts emergent relationships on the table and allows us to search for similarities and differences across people, places, and sectors. It does not require a specific level of knowledge, high artistic talent, or access to specific technologies. It has three phases and can be implemented in as little as 1 h and as long as half a day. The three phases are parameter setting; generation of system; and reflection (Figure 1). Materials needed for the exercise are minimal—we have designed a worksheet with instructions that can be used as well as a [video](#) to help explain the generation process, which could be adapted into verbal talking points to require no technological equipment (see [Supporting Information](#)). Each phase and all materials can be adjusted to fit the implementation team’s (whoever has decided to implement this exercise) objectives and the exercise’s participants (see section [Application](#) for examples). At the end of the exercise, the participants will have a visualization of their relations and key takeaways



FIGURE 1 Three phases of tool application: (1) pick a starting point and system to draw; (2) draw and then narrate the system within a set time to a peer; (3) reflect as a group.

from the discussion regarding their community’s capacities.

In the parameter setting phase, the main tasks are to decide the care-receiver and the starting point for system generation. The care-receiver should be tied to the implementation team’s objectives. It could be a specific place, like an urban park or the street trees on a block, or a more conceptual understanding of a place, like “the neighborhood.” It could be specific groups of people, like “children” or “elders,” or a group with many definitions, such as “community.” The implementation team could also choose to allow participants to identify a care-receiver on their own. Whatever/whomever the care-receiver is, the implementation team should discuss it and be on the same page prior to the application. Once the process of identifying the care-receiver is decided, the next step is to decide where to start generating the system of care. In our experience, we have begun with the individual, asking “how do we take care of [care-receiver]?” However, participants have interpreted the question via “group” as well, whether this was an organization, household, or another type of group they felt part of. That starting point should go in the central circle of the worksheet (see [Supporting Information](#)).

Once the parameters are set, participants draw their system of care within a time limit. We have found that 10–20 min is enough time to get into a rhythm where participants can think of different caretakers and how they are related before hitting a wall but is short enough

that it encourages participants to start no matter how imperfect. It is the implementation team's responsibility to remind participants that the drawing can be as simple as circles and lines or as figurative and representative as they want—it is a prop for them to think through who is doing the caring, as well as what allows them to care (in other words, who or what cares for them). Once participants have drawn, they are encouraged to narrate the system to another person. Both drawing and narrating should also be time limited.

Finally, the exercise is closed with a full group discussion. This group discussion speaks directly to the implementation team's objectives. The drawings and narratives generated individually and shared in pairs are used to reflect on questions the implementation team has drawn up. Prompts that we have used include the following: *How is care happening in your place? Who is doing the care? Why do they care?* and *What allows them to care?* A facilitator is particularly important for this stage of the exercise as emerging topics and questions may arise and having someone with experience listening attentively, identifying patterns, posing guiding questions, and connecting responses to the overall exercise aim is important. The process of individual reflection (drawing), pair work (narrating), and sharing in the group is based on the active learning strategy, “think-pair-share,” allowing participants to construct their knowledge, connect with others, and feel confidence in sharing across a group (Cooper et al., 2021). Depending on the objectives of the implementation team, a note-taker would be useful to produce subsequent collaborative actions, reports, or research products.

Our aim as government researchers without land management jurisdiction in New York City was to bring systems thinking to the design of this tool and to its applications presented below. In both applications presented, we did not have neighborhood-specific or contextual knowledge of what individuals were sharing, except where more general urban connections were made. While this may have decreased the ability to discern nuances to the specifics shared, it allowed us to take in the contributions at face value.

APPLICATION

We show two different applications of the tool to illustrate the exercise's flexibility and utility (Table 1). The first is from a climate adaptation and resilience workshop in New York City led by the Civic-led Urban Adaptation Research Center (CIVIC-UARC) research group in February 2024. The second example is from a session at The Nature of Cities (TNOC) Virtual Festival,

a global meeting focused on urban social-ecological systems that mixes science, art, and urban practice, held in April 2024.

Celebrating capacity towards a civic-led urban adaptation research center

CIVIC-UARC is a research group convened via a National Science Foundation CRISES planning grant awarded to the Cornell Mui Ho Center for Cities (<https://centerforcities.aap.cornell.edu/initiatives/urban-adaptation/civic-led-urban-adaptation-research-center-civic-uarc>). The group's objective is to create a research center that co-produces knowledge and solutions to address climate risks in New York City, with special attention to environmental justice concerns. The project team is composed of university, government, and civic society investigators and focuses on three research areas: climate hazards and risks, community vulnerability and capacity, and creation of digital twins for NYC. The Forest Service author team is one of the partners leading the community vulnerability and capacity research area. While much of the work is focused on citywide perspectives, the project team is also focused on two neighborhoods, where the work is led by civic groups (Brownsville, Brooklyn, NY, led by UniverseCity, and the Rockaways, Queens, NY, led by the Rockaway Initiative for Sustainability and Equity or RISE).

The systems of care tool was implemented as part of a full-day, in-person workshop with 65 community members, city government representatives, and researchers (Ahearn et al., 2024). The full workshop was designed to co-produce ideas for a research center proposal and report on climate change resilience and adaptation. The tool implementation came after an introductory session where participants shared their visions for their neighborhoods and before the afternoon sessions, where participants ground-truthed climate vulnerability maps (geospatial maps that quantitatively summarize variables, like average household income, that make neighborhoods more vulnerable to climate disasters like floods and heat; see Ahearn et al., 2024 for maps used in this workshop), and discussed equitable relationships with academic partners. The author team explained the process and illustrated a personal system of care in a prerecorded 7-min video. Participants drew their systems and then shared their drawings in small groups before a full-group discussion facilitated by the author team. Full-group questions included asking for the focus of the small group conversation, modes of care, who is doing care, and what community features were discussed. Finally, participants who were comfortable sharing their drawings broadly were asked to display their drawings for all

TABLE 1 Summary of the two applications of systems of care described.

Aspect	CIVIC-UARC workshop	TNOC festival
Implementation Team Objectives	Identify what relationships people rely on for community care	Exchange which elements are important for care across places
Implementation Team Context	Research group looking to co-produce ideas for a proposal and report	Research group workshopping with interested festival participants
Modality	In person	Virtual
Participants	65 community members, city government representatives, and researchers	6 urban planners, artists, researchers, gardeners + author team
Geographic Scope	Brownsville, Brooklyn, NY Rockaways, Queens, NY	Global, touching down on Portland, USA; Kommetjie, South Africa; Mumbai, India; Utrecht, The Netherlands; Brooklyn, USA; Montreal, Canada; Minneapolis, USA; Queens, USA
Timing within Broader Event	90-min session after the introductory session during a 1-day event	90-min session towards the end of the 2-week festival
Process Details	Author team explains process 7-min video showing how to do the exercise Drawing individually (pen and paper) Narration/discussion in small groups Full group discussion facilitated by author team	Icebreaker Author team presentation and example Drawing individually (15 min; participants' choice) Narration in Zoom breakout rooms Full group discussion facilitated by author team
Discussion Prompts	• What was the focus of your conversation? • How is care happening? • Who is doing the care? • What community futures were discussed?	• Who is brave enough to share what stood out for you? • Did anyone else have a similar experience? • Did anyone have a totally different experience?
Key Takeaways	• Systems of care extend beyond environmental groups and organizations • Systems of care hold multiple languages, places, time periods, and roles • Systems of care revealed relationships between Brownsville and the Rockaways	• Systems of care showed the need for emergence and autonomous use of spaces • Systems of care facilitated sharing of the “glue” for their particular neighborhood, sparking ideas for others • Systems of care can be drawn using different tools, such as watercolors or online graphics

to look through and reflect in between sessions (Figure 2).

Takeaways from implementing the tool in this context centered around the aspects revealed by participants' drawings that are not always captured by other more traditional social science methods (such as document analysis or quantitative surveys; Donnelly et al., 2020). One aspect is the inclusion of broad demographic groups of people, beyond organizations, in the drawings, such as “immigrants,” “children,” and “homeless.” The drawings also revealed groups from sectors outside of the climate or environmental space as important for community and place care, such as faith-based organizations, tenants associations, libraries, and childcare centers. The drawings made references to multiple languages, and some

extended their systems of care to places far away from New York City, denoted as “abroad/overseas” and highlighting communications via the Internet. They noted concepts and actions that unfold over time, such as “continuum of care/succession,” “celebrate personal birthdays/events,” as well as different roles involved in caring—such as being a leader of a group, a member, or an activist. Finally, the drawings showed connections between the Rockaways and Brownsville that would not have been revealed if the focus was on formal collaborations between organizations, such as the fact that people from Brownsville take swimming lessons in the Rockaways. Unlike vulnerability maps that focus on threats, the exercise helps visualize capacity, surfacing the expertise and deep local knowledge of the participants.



FIGURE 2 Top: Workshop participant at the gallery wall of Systems of Care drawings at CIVIC-UARC workshop. Photo taken by Lindsay Campbell on February 15, 2024. Bottom: Summary figure of group discussion on the Systems of Care drawings developed by Rose Zhang (Ahearn et al., 2024).

Transboundary exchanges at the nature of cities virtual festival

The Nature of Cities Festival is a virtual global meeting held by TNOC, an international platform for transdisciplinary dialogue and collaboration towards cities and communities that are better for nature and people (<https://www.thenatureofcities.com/>). TNOC holds the festival in two different modalities, virtual and in person, to lower global barriers of engagement. Programming at these festivals is meant to be interactive and push the boundaries of what collaborative engagement could look like. The author team engaged a group of six participants from four different continents via a virtual “seed session” or a “small interactive workshop that explores an idea, project, or direct action in cities.” Because of the intimacy of the group, there was space and time for the author team to both facilitate the exercise and participate in drawing their own systems of care, bringing the total number of participants to nine. These nine participants were artists, urban planners, social scientists, gardeners, and ecologists.

For this implementation, the author team began the seed session with an icebreaker about the places that they take care of. We then briefly presented on what the systems of care tool is via Zoom and then illustrated, in real time, how to draw a system of care on Google Jamboard. Following, there was individual drawing time (15 min) where each participant worked on one slide of Google Jamboard while music played via the Zoom room. Two of the participants drew their systems on paper and then took pictures and uploaded them to Google Jamboard. Participants were then grouped into pairs via Zoom breakouts to share their systems and discuss what stands out to them about each other's narrative and drawing. After 15 min of discussion in pairs, everyone was brought into the main Zoom room, and each participant reported out what they took away from sharing their systems and narratives.

This implementation of Systems of Care highlighted the ability for participants across the world to inspire each other to understand community-space relations and actions in the future via digital and analog means. In the full group discussion, different communities' physical space relations were revealed, with one participant noting, referencing a plenary talk, that “an overly managed city is a dead city.” This was related to what one participant called, “the glue” of a space, or the objects by which community members relate to each other. The “glue” could include a community newsletter that can bring newcomers and old-timers in a neighborhood together. Or, it could include children that connect parents in the urban parks. What that “glue” is specific to the people who live there, but their function in communities is transferable across contexts and can be something people

far away in different settings can each understand. An important takeaway from this modality was to trust the process—this was the first time we had attempted to use this tool via a digital platform and the participants were able to adjust to their favorite way to express themselves (Figure 3). Even though participants were tuning in from very different cities, they were able to share with each other and identify actions for better local action. One participant shared, “The treasure was the group discussion, in my opinion.”

DISCUSSION

The Systems of Care tool, a facilitated and creative exercise, can be adjusted to multiple objectives, participants, and modalities. The exercise can reveal aspects of stewardship often hidden or emergent, enable dialogue and new relationships, and expand the conceptual and geographic lens with which we understand care of community and place. The primary objective of this tool is to create and strengthen relationships, first between participants and with the implementation team, but the tool can also be used for research with coding methods (Saldaña, 2021). Our application of this tool at an in-person community workshop about climate change and a virtual meeting for urbanists interested in greening shows how this exercise can fulfill these uses.

Visualizing unseen connections that form crucial parts of systems of stewardship and care is vital for a more holistic understanding of stewardship. Both applications of Systems of Care revealed informal and formal groups that may not have been elicited via an organizational survey that asks, “which groups does your group collaborate with?” (e.g., the Stewardship Mapping Assessment Project, Svendsen & Campbell, 2008). In our case studies, these organizations, identified through the exercise as “those who care for the place and community,” included tenant associations, faith-based organizations, childcare services, while informal groups included identity, demographic, or affinity groups, like “children,” “immigrants,” and “homeless people.” Individuals might include neighborhood leaders, family members, activists, or social media contacts. These inclusions in the drawings can reveal what the drawer is motivated by (e.g., a care-receiver, such as a child, or a value, such as beliefs represented by their church), as well as the resources mobilized and actors involved beyond environmental stewardship groups. The narration also requires narrators to position themselves (Donnelly et al., 2020), revealing which of these groups the drawer is connected to versus who they could potentially be connected to and the actions through which the connections occur. This narration can help differentiate between what people think and

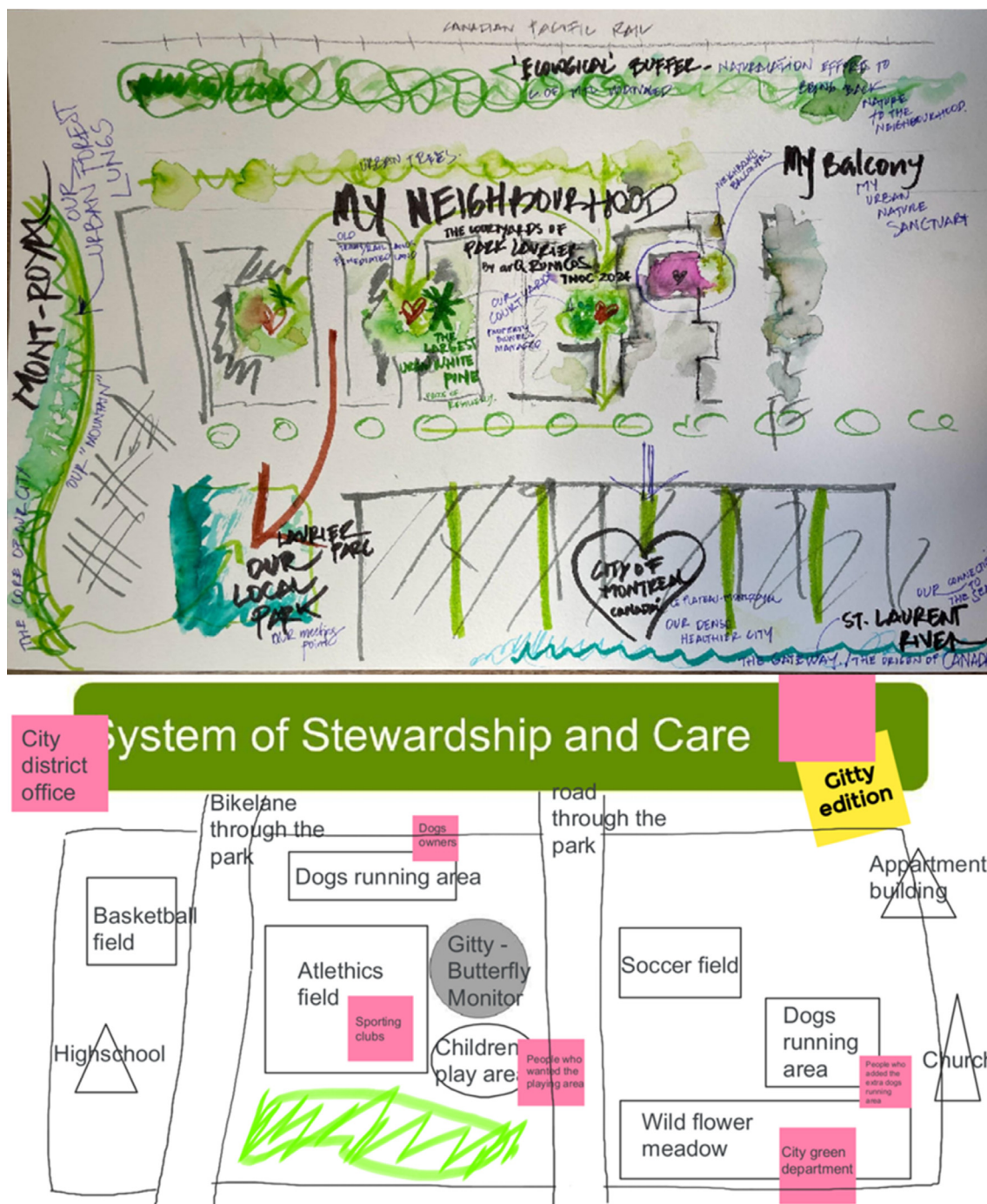


FIGURE 3 Two Systems of Care drawings from the TNOC Virtual Festival, April 2024. Top: Sandra-Viviana Murillo-Morales (instagram: @arQRunicoS) watercolored her Montreal System of Care and uploaded it to Google Jamboard. Bottom: Gitty Korsuize used Jamboard functionality to differentiate between physical space and groups and individuals that care for it.

what people do, a key gap in linking values, motivations, and behavior (Dietz et al., 2020).

Action without this place-based, often unseen knowledge can affect the success of stewardship and governance efforts. For example, research may support a decision regarding the design of an open space, but without recognizing many of the groups revealed in this exercise, these groups could stand to gain or lose much from this type of

action (e.g., children in the context of spaces to play, or homeless people in the context of shelter). Additionally, researching and communicating about places without a holistic understanding of who the caretakers are can negatively affect relationships and trust, hindering action. The use of this tool in supporting these goals aligns with the goals of action researchers focused on environmental justice (McKane et al., 2023), asset-based community

development (Salinas Lanao et al., 2011; Wali et al., 2017), and others, by visualizing these “hidden networks” and knowledge. Additionally, the tool can help contextualize quantitative measurements that more technocratic organizations may rely on to conceptualize community capacity (such as indices, Johnson et al., 2025), thereby visualizing the diversity of people and their relations that are often obscured (Strathern, 2020).

Enabling dialogue and new relationships through exercises like this one can strengthen local stewardship. In both cases presented, individuals took time to reflect and draw on their own, and then shared in small groups, before being brought up to a full group setting. This is a pedagogical strategy that helps individuals feel safer to share and connect in group settings (Cooper et al., 2021). In situations where there are power asymmetries, people can shy away from bringing up conflict, but we believe that situating this exercise in between introductions and the vulnerability exercise in the CIVIC-UARC workshop facilitated the potential for more honest conversation in the final exercise of the day where participants shared what they wanted from a research center. This process began with introductions that asked participants why they took care of their communities and what they wanted to protect in the face of climate change (leaning on desire-based methodologies, Yanchapaxi et al., 2023), drew the systems that already care for their communities, and then talked about the threats that communities face. In that final exercise, participants shared that they already knew about the threats of extreme heat and flooding and their communities’ vulnerabilities. They wanted more services and more relationship building with municipal politicians that had the power to respond to their demands. Consequently, the CIVIC-UARC research group is now looking for funding that could do more than document vulnerabilities and threats by building the networks that community members rely on for stewardship and care.

Finally, using exercises like this one shows the importance of expanding the conceptual and geographic lens with which we talk about stewardship. For example, in the CIVIC-UARC workshop, the fact that people moved between the two neighborhoods of Brownsville and the Rockaways connected two otherwise different communities. In the same way, there were global networks highlighted in these systems of care—through arts exchange communities and family connections that sustain individuals’ ability to care. We live in a globalized world, and this has shaped the way that people engage with each other across space, sharing their values internationally towards local, on-the-ground practice. Conceptually, this expands the idea of stewardship away from the local: our global communities also enable us to care. The virtual festival Systems of Care exchange showed how people were

able to adapt the idea of “the glue” of a community, or the social infrastructure, to culturally relevant objects, like a park newsletter, WhatsApp group, or programming that would connect people in their own cities through place attachment. Individuals can participate in these exercises as representatives of their informal or formal groups as well as on their own. These can then be shared, creating a scaling that is not about an organization’s geographic scope but about these networks or community capacity.

Despite the described uses of this tool, it is not appropriate for all situations or as a stand-alone intervention. We envision the tool as one of many used in a participatory process like those used in asset-based community development, and as particularly useful at the beginning to more holistically understand participants’ realities. For further work, like formal evaluation over time or sustained relationship building, other standardized methods are better (e.g., standardized surveys or community-building programs, respectively). This tool is also a good entry point for beginning to understand the landscape, but a tool like power mapping may be better for designing specific interventions with a concrete shared goal (Noy, 2008). The audience may also be inappropriate for the tool: some audiences may find this tool to be too “out-of-the-box” and may not trust the process (Amsden & VanWynsberghe, 2005). Additionally, the tool could be used for research via visual coding methods (Saldaña, 2021), this has not yet been tested. We also believe the tool has the potential to meet people where they really are to create more trust. However, trust between institutions might, in some cases, be so tense that other changes in the relationship must happen before feeling open to sharing systems of care (McKane et al., 2023). Additional application and adaptation of the tool, by the author team and anyone else who is interested in trying it out, will help better understand its utility and its limitations.

This exercise can help visualize unseen connections for a more holistic understanding of what it takes to care for people and place. It can enable dialogue and new relationships to strengthen local stewardship and connect people through a broader conceptual and geographic lens to foster solidarity and collaboration across silos. In this way, this tool may support an intersectional view of climate justice that involves more people and tackles a global problem. As a new tool, we are tracking the collaborations and action that it inspires as well as its potential for formal research. We look forward to seeing more iterations and adaptations of this exercise for community care and capacity-building.

CONCLUSION

We present a creative, facilitated, qualitative tool for revealing and building relationships in environmental

stewardship and care. The tool is made up of three phases that can be adapted to specific objectives and participants. It builds and reveals relationships through recognition of existing knowledge via narrative, play, dialogue, and co-produced analysis and planning. We have implemented it in a handful of settings, including the classroom and with K-12 STEM educators, and describe two applications: one in-person workshop centered on climate change in NYC and one virtual workshop centered on nature in cities. This tool can also be used to better understand stewardship as a whole—functioning as an approach for revealing motivations for stewardship and the unseen relations valued by participants. The tool can also be used for strengthening stewardship itself at a local scale by connecting people during the exercise itself, identifying the relations to strengthen for momentum building, local histories to increase place attachment, and leverage points to target for just sustainability transformations. It can also broaden the lens by which we understand stewardship, bringing local expressions of stewardship to multiple locations, breaking down geographic and conceptual boundaries, and creating place attachment as people move across the world. Through this tool, we envision an iterative, reflexive entry point to strengthening environmental stewardship and care across physical, social, and cultural boundaries.

AUTHOR CONTRIBUTIONS

Natalia C. Piland: Conceptualization; investigation; writing – original draft; visualization; writing – review and editing. **Lindsay K. Campbell:** Conceptualization; investigation; writing – review and editing; visualization. **Michelle L. Johnson:** Conceptualization; investigation; writing – review and editing; visualization. **Erika S. Svendsen:** Conceptualization; investigation; writing – review and editing; visualization.

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ETHICS STATEMENT

This study was conducted in accordance with ethical guidelines for research and tool development involving human participants. All participants were informed of the purpose, methods, and intended use of the tool, and verbal and/or written consent to write up the cases was obtained from participants involved in the case studies.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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SUPPORTING INFORMATION

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

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