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Respecting nature's limits in urban planning: values and principles for human–nature partnerships



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The transgression of planetary boundaries demands that societal and ethical limits to Nature's availability for human use, impact, and consumption are set, particularly in cities. However, so far, we lack an understanding of how sustainability-aligned values can define such limits and how limits can be operationalized in practice. The objectives of this perspective paper are therefore twofold. First, based on partnership ethics and the sociological concept of *Uncontrollability*, we identify broad values that feed into the concept of human-nature partnerships that respect limits to making Nature controllable. Second, we translate these broad values into four guiding principles that support urban planning to operationalize human-nature partnerships. Planning for urban human-nature partnerships thereby enables cities to become regenerative, healthy, convivial, and compassionate. Our concept of urban human-nature partnerships provides a heuristic for amplifying Nature's voice and underscores the importance of relational capacities that enable urban planning to respond attentively.

Human activities are causing an intensifying social-ecological polycrisis, jeopardizing the safeguarding of the Earth's life-support system¹. Patterns of consumption and production, grounded in exploitative economic models, are driving the transgression of planetary boundaries, endangering the stability of the Earth system and thus a just and healthy future for human and non-human Nature^{2,3}. To stay within planetary boundaries, societal and ethical considerations need to be taken into account^{4,5}. Strengthening recognition of these limits requires addressing deep leverage points, particularly the worldviews and values that shape human–nature relations⁶, and confronting human speciesism, based on the belief in human superiority over other species^{7,8}. In support of this necessary radical shift, voices are growing louder calling for non-anthropocentric planning of cities with and for Nature^{9,10}. It is crucial to understand how increasingly urbanized societies, which in many ways are disconnected from Nature, can be supported in (re-)establishing non-anthropocentric human-nature relationships that acknowledge limits of making Nature available for use and access^{11–13}. References to Nature in urban planning are not fixed, with modern ideas composed of older concepts that have been woven with new meanings. Despite growing efforts to integrate ecological thinking into planning theory and practice, urban planning remains largely grounded in reductionist and scientific-rational paradigms. An example of this is the overemphasis on technological innovation in the smart cities discourse, which promises a good life for humans only¹⁴. Although Nature is

increasingly accommodated in socio-ecological understandings of urban planning theory, modern cities continue to be places where Nature is domesticated and made available for human needs, calling for a reconsideration of human exceptionalism¹⁵.

To explore alternatives to anthropocentric urban planning, broad values can provide normative orientations. Broad values are also called universal or transcendental values and refer to moral principles and life goals. They are less bound to specific contexts but are informed by certain worldviews, guiding human-nature relationships and behaviors^{16–18}. Worldviews that emphasize the interdependence and entanglement between humans and Nature have been termed pluricentric worldviews. In contrast to anthropocentric or ecocentric worldviews, in which humanity or Nature (i.e., ecosystems, plants, animals, ecological processes) is at the center, pluricentric worldviews contain no center and eschew forms of hierarchy. Rather, pluricentric worldviews focus on reciprocal human-nature relationships that nourish a meaningful and flourishing life (i.e., eudaimonia)^{18,19}. Broad values that strengthen pluricentric worldviews are, for instance, care, kinship responsibility, or identity¹⁶. In fact, such broad values are an important lever for shifting policies away from anthropocentric foundations²⁰ and for planning sustainable and just cities in particular²¹. However, the kinds of broad values that can inform ecological and ethical boundaries of Nature's use and access need further exploration.

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We argue that the concept of human-nature partnerships can be a helpful lens to identify and make sense of how broad values can inform policy and decision-making that respects limits to Nature's use. Human-nature partnerships, considered as an ontological form of human-nature relations²², place humanity vis-à-vis Nature²³. This is in contrast to hierarchical human-nature relations such as stewardship, which is taken up by a range of urban ecological studies^{24,25}. In a stewardship approach, Nature stands below humans²⁶. At the same time, human-nature partnerships contrast with the idea of oneness-with-nature through developing an ecological self, which is a major pillar of deep ecology²⁷. From this perspective, some scholars argue that identification with Nature through an expanded self may risk remaining a projection of human selves, and that the absence of duality could also imply the absence of a relational dimension^{28,29}. Human-nature partnerships offer a novel approach in which both humans and Nature speak with their own voice and listen to each other, highlighting the agency of the more-than-human world. Such partnerships are characterized by a mutual exchange of benefits and a recognition of equal value, affirming that both humans and Nature have the right to flourish^{22,26}. Enabling Nature's flourishing demands recognizing ethical limits to human self-limitation³⁰; true partnerships require respecting Nature's voice, and not all aspects of Nature can, or should, be subject to human control. However, how these limits and underlying values can be articulated through human-nature partnerships, and operationalized for urban planning, still requires further conceptualization.

To address these research gaps, we further develop the concept of *Uncontrollability* by the sociologist Hartmut Rosa. Rooted in Critical Theory, Rosa argues that modern societies continually strive to render the world controllable—through technological innovation, political regulations, resource extraction, personal optimization, market expansion, or the accumulation of knowledge. This drive for total availability mutes our relationships with the world and deepens alienation³¹. Linking the idea of *Uncontrollability* with human-nature partnerships will advance both concepts. First, *Uncontrollability* will be conceptualized to develop a more substantiated understanding of Nature's limits. Second, human-nature partnership will be operationalised for real-world policy and decision-making contexts, something that is lacking in current debates^{22,23,26,32,33}. In this regard, this perspective paper has the following aims: (1) to identify broad values acknowledging limits of Nature's controllability for fostering human-nature partnerships, and (2) to operationalize these ideas for urban planning. Thus, this paper does not provide a new theory but instead seeks to weave the social science idea of *Uncontrollability* with (i) discourses from environmental philosophy on human-nature partnerships, (ii) discourses from relational sustainability science on inner-outer transformation³⁴, and (iii) our expertise on the topic of urban sustainability in a broader sense.

In acknowledging our positionalities, we wish to make transparent that we are all based in and shaped by academic and cultural contexts in Western Europe, where anthropocentric and utilitarian perspectives on Nature often prevail. At the same time, we are deeply committed to critically engaging with these dominant paradigms. For several years, we have been exploring the role of inner transformations for sustainability in relation to human-nature connections and urban development, guided by a self-reflective, dialogical, and inclusive approach. While this includes an explicit openness to and respectful engagement with non-Western worldviews, epistemologies, and value systems, we apologize for any misrepresentations. Nonetheless, these perspectives have informed and are consciously reflected in the conceptual framing and content of this paper.

Linking the concept of uncontrollability with human-nature partnerships

To frame how limits to Nature's controllability can support human-nature partnerships, this paper draws on Hartmut Rosa's concept of *Uncontrollability*³¹. *Uncontrollability* is a conceptual extension of Rosa's resonance theory. Resonance describes vibrant, reciprocal relationships between humans and their world—whether with people, Nature, art, or work. Such resonance cannot be forced or planned; it emerges through

openness and responsiveness. Attempts to control everything stifles these connections, while allowing for uncontrollability creates space for resonance³⁵.

Building on this, Artmann applied Rosa's ideas to the context of human-nature resonance as a relational account for sustainability science. The ongoing silencing of Nature—by making it controllable—blocks its warnings and calls for transformation²³. Human-nature resonance thus offers a multidimensional heuristic on how recognizing Nature's limits of controllability can foster just partnerships between humans and the natural world²³.

The process of making the world controllable is characterized by four dimensions. These follow a logical order of making the world (a) visible (e.g., increasing the knowledge what is, such as by making the space visible through telescopes), (b) physically reachable (e.g., accessing the moon by spaceships), (c) manageable (e.g., by mastering of Nature via technical innovations such as the sea through ships) and (d) useable (e.g., privatizing knowledge). This demand for world scope enlargement by modernity becomes visible as well in the process of increasing urbanization, which can be interpreted as human preference to live in cities due to the potential of making the world reachable through shopping malls, zoos, or train stations³¹. However, further research is needed to deepen our understanding of how Nature's limits can be meaningfully interpreted and operationalized through Rosa's framework of *Uncontrollability*.

Our starting point is that the limits of Nature's controllability must be respected in order to shift from anthropocentric, domination-oriented approaches toward fostering human-nature partnerships that enable mutual flourishing²³. When we refer in this paper to limits, we do not aim to set any quantified targets such as the two-degree target by the international climate policy³⁶. Rather, we are referring to relative and qualitative reflections of material (e.g., fossil resource extraction³⁷) and immaterial (e.g., ethical values³⁰) lines that shouldn't be crossed. These boundaries are always dynamic, context-dependent, and part of societal discourses. We establish these limits from a deep and dynamic appreciation of relationality between people and Nature. We argue that keeping within ecological limits requires sustainability-aligned values³⁸ that nourish human-nature partnerships for the practice of non-anthropocentric urban planning.

How limits of Nature's controllability and its underpinning broad values can be framed conceptually and operationalised for urban planning is elaborated in this paper along a two-pillar approach (see Fig. 1):

Pillar 1) Describing broad values of human-nature partnerships

For exploring the limits of making Nature controllable, we mirror the four dimensions of *Uncontrollability*³¹ with human-nature partnership qualities that need to be enabled to overcome pressing sustainability challenges. The normative framing of human-nature partnerships is nourished by pluricentric worldviews and related broad values highlighting the interdependence among all beings¹⁶. It must be noted that the identified broad values are by no means exhaustive but provide a basis for urban planning to operationalize approaches for non-anthropocentric urban sustainability planning (see pillar 2).

Pillar 2) Earthing human-nature partnerships for urban planning

Based on the normative conceptualization of human-nature partnerships (see pillar 1), implications for urban planning are explored. By doing so, we aim to translate the broad values identified into real-life urban development practices. For this, we distilled four key principles for planning human-nature partnerships. These principles act as a heuristic that makes the limits of Nature's controllability easier to understand.

Describing broad values of human-nature partnerships

In this section, we elaborate on the broad values of human-nature partnerships that link to the four dimensions of *Uncontrollability* suggested by Rosa³¹. We start with the urgent need to set limits for Nature's usability. Thus, its success will depend on humanity's relational capacities to set limits of Nature's manageability, accessibility, and visibility.

Fig. 1 | Broad values of human–nature partnerships underpinning urban sustainability planning principles considering limits to Nature controllability (inspired by Anderson et al.¹⁶, (p. 49), image: M. Artmann (concept), N. Bongaerts/IOER Media (design)).



Limits of making Nature useable

Making the world usable stands for a mode of taking the world into service and transforming it according to humanity’s projections and material desires³¹. These desires are met by instrumentalizing Nature, thereby promoting the overconsumption of its material resources³⁹. The major socio-ecological crises reveal, from a partnership ethics perspective, a lack of partnership quality rooted in the neglect of reciprocity in human–nature relations. According to de Groot³², reciprocity in human–nature partnerships emphasizes the need not only to take from Nature but to invoke a natural way of giving back to secure that both relating entities can flourish. Such an understanding of a reciprocal connection between human and Nature is found in Indigenous societies⁴⁰, which can strengthen a meaningful relational ontology for sustainability science⁴¹. A shift from resource exploitation aiming at limitless prosperity to reciprocal material human–nature partnerships will not be realistic without re-shaping the contemporary capitalist and growth-oriented economic system towards alternative policies, such as degrowth⁴². Such a degrowth society is aware of the limits of natural resources by striving for a life within the ecological boundaries and the planet’s biocapacity⁴³. Consequently, in order to foster human–nature partnerships, it needs a radical shift away from current resource exploitation of Nature and re-thinking the system’s intents of growth and economic efficiency that obstruct just development and regenerative capacities⁴⁴.

Limits of making Nature manageable

Making the world manageable describes humanity’s demand to bring the world under human control³¹. In fact, this paradigm is a driver of anthropocentric human–nature relations, placing humans above Nature and ascribing the more-than-human world mainly instrumental values. Accordingly, the Transformative Change Report by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) emphasizes that domination over Nature is a root cause of biodiversity loss⁷. In this paradigm, Nature is regarded as something to be controlled, dominated, and exploited for human benefit, reducing our planetary kin to lifeless resources with no intrinsic boundaries⁵. However, these values are not in line with partnership ethics, as they overlook the entanglement between human and Nature’s well-being. In this vein, de Groot³² suggests putting human–nature

partnerships in the context of health that encompasses care for all living beings. Framing environmental issues in terms of health can strengthen public and political support³² and promote the broad value that limits human control over Nature in ways that do not harm the well-being of humans, animals, and ecosystems⁴⁵. Such an understanding of health is linked with an ecocentric and relational orientation of health, as found in the idea of EcoHealth or One Health. These concepts consider, besides human health, also the well-being of Nature, thereby nourishing broad values of kinship, equity, and justice of and with the natural world across the globe and generations^{46,47}. To acknowledge such values, there is the call—also by the IPBES—to integrate Indigenous peoples and local communities (IPLC) into ecosystem assessment and management. Environmental management informed by IPLC is not informed by the domination of Nature. Rather, it acknowledges that humans and their well-being are deeply intertwined with Nature. Thereby, IPLC are key stakeholders in the global science-policy arena, informing relational worldviews of human–nature connections^{48,49}.

Limits of making Nature accessible

Limits of making the world accessible especially address the physical access to the world³¹. Through the lens of partnership ethics, the physical access to Nature takes into account that Nature remains concrete and demands humans’ tangible bonds with Nature³². However, does this mean that the limits of making Nature accessible need to limit physical access to Nature? Under the concept of human–nature partnerships, the answer could be either “yes” or “no”. Limiting access to Nature does not mean avoiding spending time with the more-than-human world, as long as *how* and *where* Nature is approached is considered carefully. Limits of making Nature reachable foster local Nature experiences in the form of non-extractive and non-destructive interactions. Thus, when engaging with Nature as a partner, we suggest avoiding accessing Nature far away from one’s residence and capitalist (eco)tourism harming Nature’s well-being. Under the guiding principle of convivial conservation, it needs a shift from touristic voyeurism towards engaged visitation, taking into account our interactions with everyday Nature⁵⁰. This, in turn, can strengthen broad values of place-based identities and care^{16,33}. Such an engagement with Nature discovers Nature’s sentience, intelligence, and soulfulness, thereby acting in respect to the limits of Nature’s usability and manageability.

Table 1 | Normative framing of human-nature partnerships and its limits of making Nature controllability based on the four dimensions of Uncontrollability by Rosa³¹

Controllability dimension	UNUSABILITY	UNACCESSIBILITY	UNMANAGEABILITY	UNSEPARABILITY
Definition of limits making Nature controllable	Making Nature rationally recognizable	Making Nature physically accessible	Bringing Nature under human control	Taking Nature's resources into service for human purposes
Business-as-usual disrespecting the limits of making Nature controllable	Uncovering Nature through technologies	Accessing Nature as a passive object	Dominating Nature as a lifeless object	Overconsuming Nature's material resources
Broad values for acknowledging the limits of making Nature controllable	Opening our hearts to embrace the values of spirituality, compassion, and empathy	Engaging with Nature to foster values of care, place-based identities, and mindfulness	Entangling with Nature to strengthen values of relational health, kinship, and justice	Healing our relationships through the values of regeneration, reciprocity, and solidarity

Limits of making Nature visible

Technical and scientific innovations are especially considered as solutions for the intensifying social-ecological crises⁵¹. This increasingly visible-making of the world describes the process of making the world recognizable³¹, such as by an emphasis on scientific modes of understanding, which are in service of a politics that seeks to assert human dominance over Nature⁵². In terms of partnership ethics, it is not about attempting to understand and make Nature visible by fully knowing and assessing ecosystems and biodiversity through parameters of propositional knowledge. Rather, in the vein of human-nature partnerships, we engage with the web of life spiritually and compassionately, considering Nature as a living being³². Thus, making the limits of Nature visible does not seek to fully stop understanding the more-than-human world. Rather, this dimension is postulating not to overestimate the importance of facts, information, or data guided by pure rationalism. Human-nature partnerships call for a deeper exploration of our humanity and our relationship with Nature, guided by compassion and empathy and informed by multiple ways of knowing—ranging from ecological wisdom to embodied, spiritual, and phenomenological insights^{18,53,54}.

To sum up this chapter, we derive broad values that inform normative limits of making Nature controllable (see Table 1). These values are the basis for earthing the concept of human-nature partnerships and for developing key principles for non-anthropocentric urban sustainability planning in the upcoming section.

Key principles for non-anthropocentric urban sustainability planning

In the following, we elaborate on four key principles that guide non-anthropocentric urban sustainability planning along the broad values informing human-nature partnerships derived from the previous section. The principles address key questions for urban planning research and practice on how to strengthen Nature's voice and the relational capacities of planners to listen to it (see Table 2). Needless to say, the key principles are not considered to be unique and separated. Rather, they have been selected based on the rationale to be interdisciplinary, scientifically accepted, and at the same time comprehensible for those unfamiliar with human-nature partnerships, ecological boundaries, and relational sustainability science. Thus, the principles are of an illustrative character that provide a basis for urban planning practice to operationalize urban human-nature partnerships.





The regenerative city—enabling values of reciprocity and solidarity

Planning urban human-nature partnerships that consider limits of Nature's usability calls for radical transformations that recognize ecological boundaries and support mutual flourishing. Drawing inspiration from Indigenous knowledge systems, this partnership quality emphasizes reciprocity, solidarity, and the ethical responsibility to give back to Nature. Based on these broad values, the first guiding principle refers to the regenerative city.

A regenerative city can be realized by addressing questions such as how Nature's self-healing capacities can be secured and how Nature can be granted legal personhood. Self-healing capacities of Nature address biotic and abiotic factors such as restoring and improving biodiversity and the quality of water, soil, or air, and enabling their biogeological cycles, circular food chains as well as CO₂-sequestration and storage^{55,56}. Mushrooms are a good example of what reciprocal relationships can look like, as they nourish the mutual exchange between humans, fungi, and soils, where each benefits from the other: humans gain nutrients and health benefits, fungi receive organic material, and soils are enriched⁵⁷, such as experimented with in Portland (US)⁵⁸.

Furthermore, acknowledging Nature's integrity calls for legal regulations assigning members of the more-than-human world legal personhood²³. To foster such a radical transformation, various urban stakeholders—such as residents, municipal authorities, planners, and local organizations— need to practice listening to Nature's voice and to act as a

Table 2 | Key questions to operationalize urban human-nature partnerships in and through urban planning

Urban planning principles	Strengthening urban planning's capacities to listen to Nature's voice	Strengthening Nature's voice for human-nature partnerships
 <p>Regenerative Cities</p>	<ul style="list-style-type: none"> • How can voices calling for voluntary simplicity inform urban planning? • How can urban planning translate the voices of Indigenous wisdom for modern lives in cities? 	<ul style="list-style-type: none"> • How can Nature's voices calling for self-healing capacities be considered? • How can Nature's voices be strengthened by acknowledging members of the more-than-human world as legal entities in urban planning?
 <p>Healthy Cities</p>	<ul style="list-style-type: none"> • What are urban planning's roles and obligations in making kin with Nature? • How can urban planning hear plural voices of and about Nature? 	<ul style="list-style-type: none"> • How can we avoid Nature's voices being muted in urban techno-fixes? • How can we strengthen kinship by hearing what autonomy and well-being mean to Nature?
 <p>Convivial Cities</p>	<ul style="list-style-type: none"> • How can urban planning shape place-based Nature engagements by co-creating communities of care? • How can urban planning recognize place-based historic voices of Nature? 	<ul style="list-style-type: none"> • How can the voices of Nature be considered in built environments? • How can voices of and a good life for (unwanted) wildlife be heard?
 <p>Compassionate Cities</p>	<ul style="list-style-type: none"> • How can urban planners learn and consider affective and spiritual planning capacities? • How can cities be shaped to nourish access to the spiritual bonds with Nature? 	<ul style="list-style-type: none"> • How can we overcome speciesism by hearing the voices of alien species? • How can we overcome speciesism by hearing the voices of livestock animals?

legal advocate for Nature. Thus, besides non-anthropocentric updates of legal frameworks, it needs explorations on its realistic implementation in cities, especially by defining who will represent the rights of Nature^{10,59} and where the limits will be drawn and defined ecologically, socially, and ethically. Extending urban justice paradigms, such as the “right to the city”⁶⁰ to encompass more-than-human beings is likely to be a generative line of inquiry and experimentation. Also, ethical-spiritual reflections can strengthen urban stakeholders’ capacities to listen to Nature’s voice, for instance, by seeking permission for human actions from Nature, inspired by Indigenous practices such as rituals and ceremonies⁶¹. However, use of Indigenous practices and ideas by non-Indigenous actors is often not appropriate, and should be done respectfully, carefully, and in partnership with Indigenous stakeholders. To exchange knowledge, urban planners from the Global North can learn from Indigenous communities about regenerative architecture and “(...) perspectives on sustainability, materials, the relationship between architecture and life itself, and the connection between thought and space”, such as offered in a workshop in Germany in May 2025⁶². Overall, this requires transdisciplinary negotiations on the goals and meanings of a good life in cities beyond growth and consumption^{63,64}. It also involves exploring how lifestyles of voluntary simplicity⁶⁵ can be explored in cities of the Global North, which are often centers of consumption and hedonistic lifestyles.

A promising approach to operationalizing regenerative cities can be derived from the South American collective concept of *Buen Vivir* (“good life”). Emerging from Indigenous traditions, *Buen Vivir* fundamentally challenges modern, growth-oriented understandings of well-being associated with progress and material accumulation. Instead, it conceives well-being as a state of harmony with Nature and community, grounded in reciprocity, respect, and interconnectedness with all beings^{30,66,67}. The relevance of *Buen Vivir* for urban contexts is exemplified by the urban agroecology movement in Bogotá (Colombia). Here, practices such as *mingas* (collective work actions organized in solidarity to create or revitalize shared spaces like community gardens) and *trueque* (cashless exchange systems based on reciprocity and mutual support) demonstrate how Indigenous traditions can be adapted within cities. These practices strengthen community cohesion, foster a sense of belonging, and promote ecological resilience. At the same time, they constitute a critique of agro-industrial and colonial models by valuing Indigenous knowledge systems, promoting agrobiodiversity, and reclaiming urban territories for collective use⁶⁸.

In contrast, the case of Guayaquil, Ecuador, illustrates the risks of instrumentalizing *Buen Vivir* in urban regeneration. The Guayaquil Ecológico linear park, intended to restore green areas for the city, largely employed *Buen Vivir* in rhetorical terms. The project prioritized esthetic design while neglecting social complexities and structural inequalities. Implemented in a dense and vulnerable urban setting, it resulted in forced evictions and the disregard of existing socio-ecological needs⁶⁹. This example underlines that urban human-nature partnerships involve not only solidarity with Nature but also reciprocity and regeneration that embrace vulnerable communities.

The healthy city—addressing values of kinship and justice

Respecting limits of Nature’s manageability is grounded in mutual flourishing, which contrasts sharply with dominant paradigms of domination and instrumentalisation of Nature. Instead of treating Nature as a lifeless resource to manage, this perspective promotes a relational and ecocentric understanding of health, where the well-being of humans is inseparably connected to the well-being of animals, ecosystems, and Nature as a whole. Therefore, the second key principle grounding human-nature partnerships for urban planning is addressing the vision of healthy cities nourished by broad values of kinship and multispecies justice. These principles are crucial in cities shaped by techno-fixes that neglect the well-being of Nature¹⁰.

In this vein, Nature’s voice needs to be considered by ensuring that technological infrastructure in cities secures Nature’s flourishing. Thus, urban planning should raise questions such as “Which technological-infrastructure pollutes and degrades ecosystems? How are these impacts and threats distributed, and how do they obstruct ecological functions and processes?”⁷⁰. These questions are nourished by values of kinship, decentering human interests in urban planning. However, such a transformation “(...) requires bridging the ontological divide of Western thought and Indigenous knowledges to rebuild our sense of kinship.”⁷¹ A lived kinship acknowledges the well-being and agency of more-than-human communities and is keen to ask for our human roles as being a caring kin⁷¹. To explore the obligations of urban stakeholders in fostering kinship with the more-than-human world, creative methods such as role-playing games can be used, inviting participants to take on the role of a river, a tree, or a bee and explore their autonomy and well-being in various contexts⁷².

For a healthy coexistence, urban planning should be guided by values of multispecies justice, reinforced through participatory processes in which citizens help amplify Nature’s voice⁹. Justice, then, includes also the voices of

marginalized population groups such as children representing the future generations⁵. Furthermore, the consideration of the plurality of values about human–nature relations, such as emphasized by the IPBES⁴¹, forms the basis to operationalize human–nature partnerships through and in urban planning. This includes as well the voices of Indigenous peoples, their world-views and values that nourish relational practices and welcome Nature as a soulful sibling⁷³.

A practical example of how to foster healthy cities is the European city network “One Health 4 Cities”. The network comprises partner cities from across Europe, such as Finland, France, Germany, and Romania, with the goal of testing and innovating urban strategies based on the OneHealth approach⁷⁴. An exemplified result of the network is found in Finland, where the *Nature Step to Health Programme* was developed in and for the city of Lathi. Key action areas of the program address, for instance, the promotion of healthy and sustainable nutrition or strengthening the connection with Nature. In each of these action areas, a range of concrete projects can be found. For instance, one initiative aims to foster the development of healthy forests in areas such as hospital surroundings, enhancing well-being for both human and non-human life⁷⁵. To be consistent with urban human–nature partnerships and the values of kinship and justice, such initiatives should take care to safeguard Nature’s health in all forms of human engagement. Technologically, mapping the status of urban ecosystems’ health can be done, for instance, by using artificial intelligence, such as for the monitoring of tree health in the German city of Bamberg⁷⁶. Socially, Nature’s and human residents’ health can be mutually strengthened when urban landscape managers invite residents to write love letters to trees. Such an interpersonal practice not only helps capture local knowledge about trees’ health but also reflects people’s sense of kinship with urban Nature⁷⁷.

The convivial city—enabling values of care, place-based identities, and mindfulness

Planning urban human–nature partnerships that consider the limits of Nature’s accessibility can create opportunities for meaningful engagement with Nature, informed by broad values of care, place-based identities, and mindfulness. However, an ever-ongoing increase in land take and soil sealing in cities diminishes Nature’s presence while contributing to landscape fragmentation. Consequently, urban populations are increasingly losing opportunities to deeply experience their embeddedness in Nature⁷⁸. In the sense of urban human–nature partnerships, urban stakeholders are invited to reflect on how to foster a mindful and place-based engagement with and for Nature. This calls for reflections on how to consider the voice of urban wildlife and their habitat requirements, as postulated by the manifesto for an architecture of cohabitation⁷⁹. This also involves amplifying the voice of animals that are considered a threat to human safety and well-being⁸⁰.

The convivial city widens the perspective of urban planning that human–nature connections are not only considered as exposure to Nature, as widely discussed by indicators, making the accessibility of residents to urban residents visible⁸¹. Rather, the planning principle of the convivial city shifts from exposure to Nature to a mindful and place-based engagement with Nature in daily urban lives⁸². Thus, urban planning is invited to co-create communities of care through shared responsibilities that listen to Nature’s voices. Transition experiments can help to gain knowledge about how relationships between urban planning administrations, engaged residents, and urban Nature need to be shaped for successfully co-creating sustainability transformation, as explored on the example of edible cities in Dresden (Germany)⁸³. Co-creating edible cities can then also strengthen place attachment and bonding with Nature⁸⁴. Another crucial pillar for strong place-based identities is the strengthening of the voice of a place-specific history and heritage of urban Nature⁸⁵. For instance, caring for heritage trees or historical gardens can strengthen the connections of urban populations with local Nature and history⁸⁶.

Practical examples of convivial cities can draw on Hinchliffe and Whatmore’s call for a more-than-human reconceptualization of the city. Their idea of “living cities” challenges the conventional divide between the wild and the civic, framing urban spaces as recombinant ecologies where

diverse life forms reshape the material and symbolic fabric of the city⁸⁷. Berlin (Germany) illustrates this vision. Known as a pioneer in urban ecology, its fragmented spaces and post-industrial decline have fostered a uniquely biodiverse environment. Vacant lots, railway corridors, and brownfields often evolve into thriving ecological patches without deliberate human intervention⁸⁸. Yet, place-based conviviality extends beyond brownfields and considers the built environment. An example of *Animal-Aided Design* can be found in a Munich (Germany) residential project. Already in the planning phase of the project, species-specific measures such as bat roosts in facades, green roofs supporting food for woodpeckers, or dust baths for sparrows have been taken into account⁸⁹. Further inspiration arises from the vision of an “animal-friendly Switzerland.” Here, wildlife–human conflicts are interpreted as “acts of resistance” by non-human citizens. For instance, foxes moving into cities are seen as responding to degraded peri-urban forests. Rather than resorting to culling, solutions are based on values of care and maximization of animal welfare through exploring the improvement of (peri-)urban forest habitats or recommending wildlife contraceptives to prevent overpopulation^{90,91}. While still experimental and controversial, oral contraceptives for wildlife are increasingly discussed as a more ethical alternative, enabling humans and animals to share limited space and resources⁹². These examples highlight how convivial cities can emerge from both ecological informality and intentional design, fostering urban environments that recognize more-than-human beings as co-inhabitants with rights to flourish.

The compassionate city—embracing values of spirituality and empathy

Urban human–nature partnerships that consider limits of Nature’s visibility are based on values of empathy with and compassion towards Nature and our spiritual bonding with the web of life. The development of compassionate cities necessitates critical examination and rejection of speciesism. Speciesism is defined as “(...)unjustified comparatively worse consideration or treatment of those who are not classified as belonging to a certain species (or group of species) whose members are favored, or who are classified as belonging to a certain species (or group of species) whose members are disregarded”⁹³. We see two avenues by which greater awareness and rejection of speciesism can redirect urban planning to promote urban human–nature partnerships.

The first avenue engages with the debate on urban biodiversity and explores the role of cultivating ethical and compassionate relationships with non-native plant species. Their voices are muted by labeling them as aggressive “bad” invaders harming local biodiversity and contrasting native species, which are considered “good” and positively contributing to biodiversity⁹⁴. However, effects of alien species on biodiversity are not only bad, but research also shows neutral or even positive effects on various ecosystem services⁹⁵. The second avenue to foster compassionate cities aims at strengthening empathy with so-called “production” animals (e.g., pigs, cows) for the human food supply by promoting plant-based lifestyles. Fostering plant-based diets in cities is then not only saving the lives of billions of animals but is also mitigating climate change and biodiversity loss, to name only a few benefits of plant-based diets^{96,97}.

Avoiding speciesism requires strengthening the relational capacities of urban planning voices, such as through ecological wisdom. Ecological wisdom “(...) recognizes that human beings have an innate emotional affiliation with the environment”⁹⁸. Incorporating affective and intangible bonds with Nature in urban planning calls for creative place-based approaches. Urban planning could, for instance, be enriched by post-anthropocentric education that encourages experiencing the city through olfactory and auditory senses, as well as the cultivation of imagination⁹⁹. However, for such a holistic approach, it needs training in the fields of urban planning and architecture to integrate affective and spiritual experiences in urban spaces. In this regard, close collaborations with neuroscience can make such interconnections visible for urban planning. For instance, a healthy pineal gland and melatonin production are important for the human capacity to process emotions, develop emotional and cognitive

empathy, and become spiritually attuned^{100,101}. However, a healthy pineal gland and melatonin production are constrained by external environmental stressors such as irregular sleep patterns¹⁰², electromagnetic and light pollution^{103,104}, high stress levels¹⁰⁵, and unhealthy diets¹⁰⁶. Based on these scientific findings, planning compassionate cities can address measures that secure healthy lifestyles, such as diets, light and electro-smog pollution, and reducing stressful environments. Spatial relationships in the context of emotions and subjective well-being can be captured by citizen science approaches, as demonstrated in the project *Your Emotional City*¹⁰⁷.

Concrete examples of compassionate cities include initiatives that address human–nature relationships and promote empathy beyond species boundaries. Cities such as Grenoble (France), Udaipur (India), and Amsterdam (Netherlands) have signed the Plant Based Treaty, a grassroots initiative linking food systems to climate action and sustainable diets¹⁰⁸. Amsterdam, as the first European capital to sign the Plant Based Treaty, aims to expand vegan food options in public facilities such as hospitals, community centers, and care institutions¹⁰⁹. Achieving such transformations requires urban planning practices to place sufficient emphasis on diets and food system change^{83,110}. From a relational perspective, urban planning can address broad values of compassion and empathy. Thus, research indicates a correlation between plant-based eating and higher self-reported empathy and heartfulness, while omnivores are more likely to endorse social dominance and deny animal sentience^{111–113}. By integrating these relational perspectives into urban planning, compassionate cities should not only strengthen compassion for farmed animals but also consider the principles of the convivial city and address wild animals that are often overlooked or disliked, such as pigeons. This neglect exemplifies a pervasive anthropocentric perspective, in which urban animals are primarily regarded in functional or instrumental terms such as pests or sources of waste, rather than as sentient beings possessing intrinsic value¹¹⁴. That city pigeons are compassion-worthy, intelligent, sentient, and social beings is advocated for instance by an urban association in Munich (Germany). Among other things, the association dispels myths about city pigeons, such as damage to buildings caused by pigeon droppings, and encourages city dwellers to treat city pigeons with respect and to help those animals in need¹¹⁵.

Interweaving broad values with social practices for urban human–nature partnerships

In this paper, we suggest a set of planning principles and interrelated broad values that inform human–nature partnerships aiming to overcome anthropocentric planning, which largely disrespects material and immaterial limits of Nature’s availability. Like Maller¹¹⁶, we do not see the relationship between values and actions as a one-way road where, firstly, values need to change for sustainable action to take place. Maller elaborates the reciprocal relationship between values and actions based on the theory of social practices. Social practices are recurring, socially embedded patterns of everyday actions and their associated meanings, materials, and competences¹¹⁶. In the following, we therefore examine social practices not in terms of the idea of human–nature partnerships per se, but in terms of the concrete planning and implementation of such partnerships along with the associated meanings, materials, and competences. There is a range of possibilities for how values of Nature may shift through the planning of human–nature partnerships—an area that warrants further research and is reflected in the final sections of this paper.

In terms of meanings—which refer to the understandings and rationales that shape how, when, where, and why a practice is carried out¹¹⁷—human–nature partnerships may challenge urban planners’ conceptions of planning. For example, what non-anthropocentric planning means to them, why it matters, and how it may generate conflicts between values and actual practices. For instance, professionals in environmental management in Austria personally reject a Mastery approach over Nature, although their profession demands practices in this sense. The authors therefore suggest group-based reflections on paradoxes found in human–nature relationships within planning¹¹⁸. In fact, in sustainability studies, there is an increasing call that researchers should become more aware of their values influencing

scientific methods and concepts¹¹⁹. We aim to inspire planners to engage in these reflections as well, thereby making the underlying values and world-views of planning practices more visible. Such reflections can also examine whether planning documents, financial resources, and related goals align with the values of human–nature partnerships. To engage urban residents, NGOs, or entrepreneurs in such reflections, urban planning can realize enabling environments for transformative learning and co-creation¹²⁰. These places can act as living labs to reflect on daily actions related to urban development and how far these can be nourished by the visions of regenerative, healthy, convivial, and compassionate cities.

Materials of social practices refer to the planning of technologies and infrastructure, which, in the light of human–nature partnerships, can be addressed through affordance-based planning. While referring in particular to cognitive affordance in the context of urban design, Marcus et al.¹²¹ emphasize the reciprocal relation between human cognition and the urban environment, influencing socially shared norms and behaviors. To enable the value of regeneration, for instance, a radical change of the urban infrastructure for sustainable affordances would cut down the oversupply of material goods such as shopping malls, where spending spare time is considered a leisure activity³⁹. Through the lens of urban human–nature partnerships, urban planning can radically transform such places for and through Nature by applying our planning principles. This can include, for convivial cities, places for public art intervention that invite people to explore sensorial capacities of livestock animals¹²² and thereby get inspired to shift towards a plant-based diet, realizing a compassionate city.

Competencies are the skills and practical knowledge necessary to perform certain social practices¹¹⁷. For human–nature partnerships, in particular, relational capacities are necessary that strengthen everybody’s capacities to listen to Nature’s voices and to acknowledge the more-than-human world as a soulful sibling with intrinsic value, autonomy, and intelligence. Building such relational capacities includes scientific advancements to better understand the intelligence and sentience of the more-than-human worlds, such as plants¹²³ or livestock animals¹²⁴. However, urban human–nature partnerships won’t be fully realized when urban planning remains solely focused on rational thinking and technological innovation and thereby excludes social practices informed by spirituality and Indigenous wisdom^{51,53,98,123}. However, such a re-visioning of urban planning calls for deeper engagement with planning theories and urban discourses that make space for inner dimensions such as emotions, spirituality, faith, and sacredness^{125–127}. These debates intersect with concepts such as the postsecular city¹²⁸, the application of Integral Theory to urban planning¹²⁹, and post-humanist approaches like the multispecies city, which challenge the ontological exceptionalism of humans in planning theory¹³⁰.

The shifting of societal paradigms informed by human–nature partnerships is a deep leverage point¹³¹. However, a paradigm shift is not possible without addressing political and societal power structures and priorities¹⁷. Furthermore, cities are not isolated islands but are regionally and globally interconnected with their hinterlands and distant places, so-called urban land teleconnections¹³². Thus, the realization of human–nature partnerships constitutes not only an urban planning challenge but a collaborative undertaking encompassing urban residents, stakeholders, decision-makers, and extending to regional, national, and global levels—essential for scaling sustainability transformations aligned with philosophies of good living^{133,134}. Accordingly, the human–nature partnerships heuristic can be integrated into international frameworks, such as the Inner Development Goals¹³⁵, embracing sustainability transformation through repairing relationships we hold with ourselves, others, and Nature¹²⁰. Thus, rather than ‘controlling’ Nature, it needs relational capacities of human ‘self-control’ to enable Nature and people to flourish. Ultimately, values like compassion, care, and solidarity can only animate our partnership with Nature if they also inform our relationships with ourselves and other humans. As the interplay between values and actions is reciprocal, sustainability transformations must be understood as the integration of both outer and inner dimensions^{34,120}. This highlights the necessity of relational paradigms for sustainability science, to which our paper contributes.

Finally, we note that challenging the anthropocentrism embedded in our daily thoughts and actions is a complex and ongoing task. As Morgan et al.¹³⁶ state in their reflections on overcoming human-separate mental models shaped by Western science, we also experienced while writing this paper “(...) an unlearning and subsequent relearning process stemming from our own personal and professional commitments to confront the foundational issues of the Anthropocene”¹³⁶. Like Muradian & Gómez-Baggethun⁵, we are aware that our ideas may be considered utopian, particularly as they call for moving beyond utilitarian environmentalism and its instrumental view of nature. Nevertheless, recognizing that faith and hope are vital to advancing sustainability transformations amid dystopian scenarios, we maintain a firm belief in humanity’s capacity for inner transformation to cultivate desirable, peaceful, and just futures.

Data availability

No datasets were generated or analyzed in the perspective paper.

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