



Understanding the Rights of Nature: Working Together Across and Beyond Disciplines

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Abstract

Recognising the rights of nature is seen by many as the paradigm shift needed to truly embed ecology and the environment into nature-based policy and management solutions to address biodiversity loss, climate change, and sustainable development. However, despite its potential, research across and beyond disciplinary boundaries remains very limited, with most located in the humanities and social sciences and often lacking connection with environmental sciences. Based on a multi-, inter-, and transdisciplinary project, we identify some critical common themes among the humanities, social sciences, and environmental sciences to support future research on the potential of the rights of nature to address contemporary social-environmental challenges. We argue that future research needs to be not only interdisciplinary but also transdisciplinary since the movement of rights of nature is often driven by and based on knowledge emerging outside of academic disciplines.

Keywords Rights of nature · Humans and nature · Legal personhood of nature · Representation of nature · Social-environmental transformations · Interdisciplinary research

Introduction

The Earth is facing multiple interdependent ecological crises, including climate change and biodiversity and habitat loss, necessitating a reassessment of environmental conservation and management strategies. The idea of recognising the rights of nature (RoN), grounded in many Indigenous peoples' ontologies and worldviews (O'Donnell, 2020), has emerged in philosophical and legal theories supporting a less anthropocentric approach to nature (Stone, 1972; Berry,

1999; Burdon, 2011) and is often hailed as being a legal revolution that could significantly help to protect the environment or at least lead to reforming legal, governance, and economic systems of natural resource management (Boyd, 2017). This sense of urgency is gaining traction in the context of human-made climate change and the idea that the 'Anthropocene' requires a body of environmental laws that does not centre human beings as the main actor in, or beneficiary of, environmental legislation (e.g., Vermeulen, 2017).

Ecuador inscribed RoN in its 2008 constitution, followed by new legislation in Bolivia in 2010. There are now more than 150 initiatives affirming RoN across the globe (Putzer, et al., 2022).¹ The reasons for this are complex and place-specific but relate to issues of social equity and restorative justice, the (in)effectiveness and/or (non)enforcement of environmental regulation, and pressing concerns for global social-ecological challenges (Tănăsescu, 2022). RoN are seen by many as the paradigm shift needed to truly embed ecology and the environment into nature-based policy and

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¹ For updates and to follow these developments, see the website of the Global Alliance on the Rights of Nature: <https://www.garn.org/> and the Eco Jurisprudence Monitor: <https://ecojurisprudence.org/> (last accessed 23/01/23).

management solutions. There are also some more cautious and critical voices highlighting practical limitations and the potential for even more anthropocentric laws (Bétaille, 2019; Guim & Livermore, 2021).

We argue that questions related to delineating nature and rights, socio-cultural ecological knowledge, changes in ecosystem services, institutional-economic drivers, and outcomes of granting a legal status to nature are interlinked in complex relationships requiring an analysis at a matching interdisciplinary level. The body of research exploring this new legal approach to nature is only starting to emerge and there is still relatively little understanding on how it works in practice and what commonalities exist beyond specific case studies. While the main core of the research has been in law and political sciences, it is an emerging research area in other disciplines, mostly in the social sciences, such as human geography, anthropology (notably area studies in Latin America), development studies, and political ecology. Research in the social sciences is anchored in specific case

of Nature: an interdisciplinary scoping analysis” (Arts and Humanities Research Council (UK) (Interdisciplinary Network on the Study of the Rights of Nature (INSRoN)). Although it is not possible to cover all the relevant disciplines, we argue that a dialogue between humanities, social sciences, and environmental sciences is a necessary first step to allow identification and development of possible common areas and themes of future research to explore the potential of the RoN.

We adopted an iterative three-tier approach (Fig. 1), with a first phase dedicated to conducting a multidisciplinary review, a second phase focusing on finding common themes that could be particularly relevant for interdisciplinary research, and a third phase exploring connections between academic research and practitioners under the heading of transdisciplinary research.² This approach combined an extensive literature review, regular monthly sessions of collective reflections on key findings, and interactions in the form of two intensive workshops and a qualitative survey

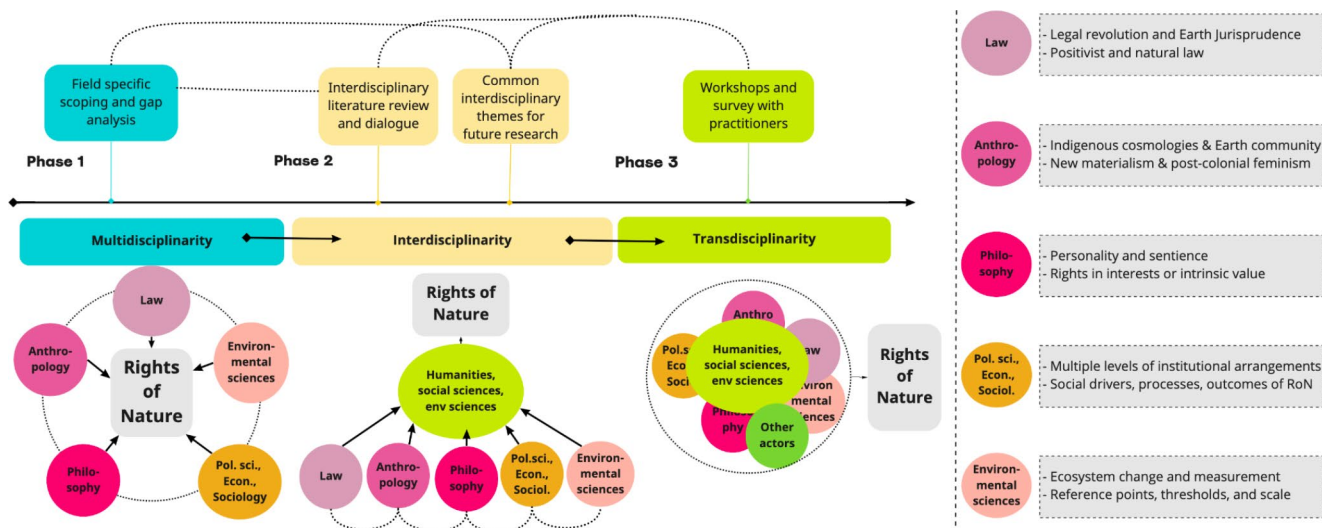


Fig. 1 Three iterative phases of multidisciplinary, interdisciplinary, and transdisciplinary approaches undertaken within the project for scoping research on RoN

studies, but most have not engaged with other relevant disciplines such as ecology and environmental sciences, and notably economics. We argue for research that goes beyond any single discipline to better understand the multifaceted potential of the RoN.

Methods

This article stems from a scoping project to support a first transdisciplinary dialogue on future research on RoN (December 2020–January 2022) “The future of the Rights

² The three forms of collaboration between disciplines most frequently mentioned are multidisciplinary, interdisciplinarity, and transdisciplinarity, but the distinctions between them can be blurred and definitions of them vary. In our case, we have adopted the following understanding: multidisciplinary - people from different disciplines working together, each drawing on their own disciplinary knowledge; interdisciplinary - integrating knowledge and methods from different disciplines, using a real synthesis of approaches; and transdisciplinary - creating a unity of intellectual frameworks beyond the disciplinary perspective by using synergies between scholars, practitioners, non-scientific knowledge holders, and policymakers. For references, see Stock and Burton (2011).

with 11 practitioners actively involved in local to global discussions and developments on RoN.³

Results and Discussion

Understanding Rights of Nature Through A Multidisciplinary Lens

Since most research on RoN is emerging from legal, political, and anthropological studies, we needed to identify potential contributions of other disciplines. We first reviewed RoN across (a) humanities and social sciences - including law, anthropology, philosophy and environmental ethics, and institutional economics and governance; and (b) environmental sciences - including physical geography and ecology. For each we explored whether there is any specific engagement on RoN, and if not, what relevant concepts/areas could potentially link with RoN, and what gaps exist.

Rights of Nature Through Humanities and Social Sciences

Law, Jurisprudence, and the Rights of Nature Law represents a logical terrain for the expansion of RoN since the movement is often labelled a ‘legal revolution’ (Boyd, 2017). The origins of the idea can be traced to Christopher Stone’s law review article ‘Should Trees have Standing’ (1972), which examined the legal implications of considering trees as rights-bearing entities. Stone drew from ideas articulated by thinkers such as Aldo Leopold, who proposed that we have moral responsibility to nonhuman nature, or ‘Land ethics’ (1968). Some of the questions Stone explored remain at the heart of RoN scholarship. For example, Roderick Nash’s *The Rights of Nature* (1989) extended the history of the struggles of the right-less for recognition to nature to argue that nature, which does not have rights, should be attributed specific rights to promote ethical, environmental, and sustainable governance goals.

Although this RoN approach is distinctive in its pragmatism, it is deeply related to and often discussed as a part of Earth Jurisprudence (EJ), a legal theory that incorporates elements that have been prominent in environmental philosophy for many decades. EJ decentres an anthropocentric understanding of law, suggesting that an interpretation of law should be based on an ecocentric concept of Earth community, and shares therefore some basics with Critical Legal Studies in critiquing the law for legitimising particular

social relations and illegitimate hierarchies.⁴ Most of the work has concentrated on advocating the legal recognition of nature’s rights. While in the Natural Law tradition a discoverable set of theocentric or anthropocentric principles are directing human laws, in EJ, these normative principles are ecocentric and the concept Earth community integral to our idea of law and legal concepts.

Not all proponents of EJ consider it as a theory only. Cullinan (2002), for example, argues that EJ should also be a living practice and a way of life, seeking to expand the concept of law from its narrow frame of positivism and to base our legal system on different ways of knowing, being, and governing humans and the Earth. This interpretation shares some core ideas with RoN as Cullinan also advocates for the recognition of natural communities and ecosystems as legal persons with legal rights. This, he argues, changes our relationship with nature from one characterised by exploitation to one centred on democratic participation in a community that consists of all life.

The field of Indigenous peoples’ rights and legal decolonisation provides another significant approach to RoN, drawing upon Indigenous peoples’ worldviews and their rich tradition of interconnecting the human with the natural or nonhuman world. RoN provides a pragmatic attempt to build connections between western legal systems and Indigenous worldviews showing that extension of legal personhood to nature is a common way of being amongst Indigenous communities (Tănăsescu, 2020). Although not necessarily framed as rights (which is a western concept), in many Indigenous cultures ecological knowledge and cultural practises are deep rooted in spiritual and cultural practises recognising and celebrating the inherent value of nature (Arabena, 2015). From this perspective, the idea of recognising the fundamental nonhuman RoN is not new and can be connected to ancestral and ongoing cultural practices of many Indigenous communities. Consequently, the global RoN movement is often connected with Indigenous peoples’ struggles and rights (Gilbert, 2022) and has been transposed in legal normative processes, most notably in New Zealand/Aotearoa, Ecuador, Bolivia, and Colombia.

Existing research can be viewed at least from three perspectives: (i) research on philosophical and legal theories highlighting nature as a source of human laws and ethics leading to a new non-anthropocentric approach to nature (e.g., Berry, 1999; Burdon, 2011; Koons, 2012); (ii) research on the granting of legal personhood to nature as a pragmatic tool to allow nature to be represented in humanly-devised legal-institutional frameworks (e.g., O’Donnell and

³ We conducted a field specific gap analysis of the literature and conducted multiple project workshops to exchange on our findings and develop the most important common themes across and beyond the disciplines.

⁴ Thomas Berry (see e.g. *The Great Work: Our Way Into the Future*) has been the main inspiration for EJ. His theory shares some similarities with the religious heritage of Thomas Aquinas and builds on earlier Natural Law theories.

Macpherson, 2019; Macpherson, et al., 2020); and (iii) research with a more critical analysis of RoN, particularly within the context of integrating RoN in existing legal-institutional frameworks (Bétaille, 2019). Although some legal scholars view RoN as a potentially transformative idea that could revolutionise how we perceive and relate to nature (Cullinan, 2011; Boyd, 2017), the debates remain fragmented and sometimes antagonistic. From a RoN perspective there are thus two main strategies:

- Purely legalistic (positivist): following Stone in attributing rights to nature on the basis of extending legal agency or personhood through, for example, appointing legal guardianship;
- Naturalist (natural law): following EJ and wild law based on the idea that there are other, more important and greater, laws than human laws, which attribute rights to natural entities.

In practice, rights claims for nature have been justified relying on different legal theories and often in mixed ways. There is the pragmatic approach that extending rights to nature is a logical step in the genealogical evolution of rights. For sustainable development to be meaningful, ethical, environmental, and governance models are needed for nature to be better protected. Stone or even those who favour giving rights to nature (such as rivers) to protect them from becoming owned or commodified subscribe to this kind of approach. However, critics suggest that the philosophical grounds for justifying legal personhood - such as sentience - are not met by nonhuman natural entities. Given the interconnectedness and relationality between humans and nature in the Indigenous worldviews, investigating how such worldviews can provide a basis for recognition of nature as a legal entity with standing has been another distinct approach to RoN in legal studies. Merging Western laws with Indigenous laws and cosmologies is not without problems, notably the issue of how this combination can occur without colonising or appropriating indigenous worldviews, increasingly reflected in critical literature on these connections (Marshall, 2020; O'Donnell, et al., 2020). In terms of ongoing socio-legal research, another area that has created a dualistic approach is whether the recognition of legal personality of certain natural entities (such as rivers) and a more top-down proclamation of the whole of nature as having rights are part of the same movement, or very different approaches which need to be differentiated (Tănăsescu, 2022). The relationship between international law, transnational legal lobbying, and localised forms of advocacy is also lacking focus (Gilbert, et al., 2023). More generally, although legal research is increasingly engaging with politics and governance, there is

a lack of interdisciplinary engagement to explore how these legal changes could be measured and put into practice.

Anthropology, the Relationships Between Humans and Non-humans, and the Rights of Nature Anthropology has a long tradition, predating RoN, of research examining the tangled relationship between humans and nonhumans. While anthropological literature on RoN is limited, there are some specific case studies, such as the Ecuadorian constitution recognising the concept of Mother Earth (De la Cadena, 2010) or the Whanganui River in Aotearoa/New Zealand being declared as a legal being (Salmond, 2014). These studies provide a very nuanced understanding of how Indigenous cosmologies interact with western legal framings. For example, the anthropologist Iván Vargas Roncancio (2017) argues that the Amazonian plant community provides new political and legal insights, and the inter-species encounters between humans and non-humans give expression to a bio-centric turn in law. Studying Article 27 of the Constitution of the Republic of Ecuador from an Amazonian perspective, he points to treating plants as a new legal prototype that is fully embedded in the Amerindian worldviews of relationality and interdependency of all living and nonliving entities. This view has been at the forefront of the ontological approach in anthropology for which Eduardo Kohn's *How Forests Think* (2013) was a major turning point. The profoundness and how it differs from RoN movement, including its more theoretical expression of earth jurisprudence can be best illustrated by the wild law lawyer, Cullinan, and the anthropologist Kohn. In his book, *Wild Law*, Cullinan (2002:78) starts the section on The Mountain:

I am not part of the mountain, nor is the mountain part of me. We are distinct from one another and yet we are both part of the same Earth, and the same subatomic particles and energy flow through us. The characteristic of being both part of a whole while remaining distinct within it, also applies to how we understand Earth jurisprudence.

While Kohn in *How Forests Thinks* (2013:1) reflects on his first-hand experience of nature in the Amazon:

Settling down to sleep under our hunting camp's thatch lean-to in the foothills of Sumaco Volcano, Juanicu warned me, "Sleep faceup! If a jaguar comes he'll see you can look back at him and he won't bother you. If you sleep facedown he'll think you're aicha [prey; lit., "meat" in Quichua] and he'll attack.

What distinguishes these anecdotes is that in Kohn's account the Jaguar and Juanicu share an understanding and Juanicu acknowledges that other kinds of being force us to recognise the fact that seeing, representing, and perhaps knowing and thinking are not exclusively human. Kohn uses a series of Amazonian other-than-human encounters question our relations with them but also to consider the meaning of the human in this world. An ethnographic focus on how humans and non-humans relate breaks the circular thinking that perpetually returns to a dichotomy between humans and nature. While earth jurisprudence and by extension RoN has been very focussed on a scientific understanding of the universe, other analytical frameworks have theorised more specifically on the relationship between humans and non-humans, such as Latour's work in science and technology studies and Haraway's (2012) work on multispecies. But anthropologists arguing for an ontological turn show that even posthuman approaches that seek to erase the boundaries between humans and the rest of the world cannot sidestep the Cartesian dualism as they either conflate representation with language and atomic elements remain either human mind or unfeeling matter (Barad, 2007). What Kohn shows through his ethnographic encounters in the Amazon is that we still universalise human predisposition by assuming that all representation is human and that all representation has language-like properties, but that representation is something more general and beyond human language.

While legal RoN discourses may sometimes essentialise Indigenous philosophies and legal theories, anthropology provides a more balanced and in-depth understanding of the entanglements of the realities and indeed what is presented as opposing epistemologies and ontologies (see e.g., Vigh and Sausdal, 2014; Kohn, 2015). This approach adds a much needed localised and historical understanding of the complex processes and interactions between Indigenous cosmovisions and modernity. It is not surprising that RoN as a hermeneutic has particularly gained traction in socio-legal studies. One of the main milestones has been the recognition of Mother Earth or Pachamama in the constitutions in Ecuador and Bolivia. These progressive legal developments or amendments were part of a wider Indigenous movement that offered *Buen Vivir* as an alternative worldview to a neo-liberal and capitalist exploitation of nature (Berros, 2021). RoN has thus been part of a wider Jurisgenerative movement recognising Indigenous laws as transformative legal sources.

Anthropological theories and methods can add a new pragmatism to RoN, showing not just the differences in worldviews and accompanying legal systems, but also alternative realities about the understanding of RoN that go beyond the legal discourses that focus more on the extension of legal personhood through rights-based framings. Studying

RoN from an anthropological perspective will result in situated, complex, and layered understandings of the different realities and interpretations that exist about the relationship between the human and nonhuman, but above all that there are different ways to understand nature. Particularly, the recent ontological turn in anthropology adds an exciting element to the study of RoN. The other world where humans are entangled with nonhumans is experienced through the concepts and queries of different realities as experienced by the 'Other' (Salmond, et al., 2014). The great divide between nature and culture is not only questioned, but also transcended. This posthuman anthropological perspective questions human exceptionalism and pursues a multispecies ethnography exploring perspectives of nonhuman life and non-life forms. Multispecies ethnographies provide a conceptual and methodological toolkit to challenge and decentre traditional approaches to human agency and politics, and represent human and nonhuman relationships through different perspectives (see e.g., Haraway, 2016). Multispecies justice (see e.g., Fitz-Henry, 2022) is a growing field that could be expanded to also include ecosystems such as river catchments. This type of anthropological enquiry adds a new dimension to RoN research to explore the paradigm shift from the perspective of the nonhuman. To achieve this, anthropology engage more with arts and humanities research, moving closer to the environmental humanities. For example, analysing Indigenous arts practices, Indigenous literatures, or ecocriticism can add new perspectives to the understanding and perspectivism of nonhuman realities and ways of being. Some work has already been done in law within the context of native title claims (Anker, 2014; Vermeylen, 2021) but within the field of RoN these conversations are still very exploratory and sporadic.

Philosophy, Environmental Ethics, and the Rights of Nature

The academic discipline of Philosophy is concerned with conceptual analysis and logical argumentation. The subdiscipline of moral and political philosophy - especially within the Anglo-American tradition - is most concerned with exploring topics such as rights, obligation, and justice. It is perhaps surprising, then, that there is little work on RoN within modern Anglo-American philosophy, and existing work is typically critical of this novel legal approach. Most prominent philosophical commentators hold that there are serious conceptual problems with attributing rights to non-human natural entities. Such entities seem to possess none of the properties that justify the attribution of rights in other contexts. Humans possess autonomy (the capacity to make freely chosen choices about the direction of their lives) and both human and non-human animals possess sentience (the capacity to suffer, feel pain and pleasure, and experience the world around them). These are the kinds of capacities

which justify the attribution of rights to humans and (potentially) non-human animals. Since non-human natural entities - such as rivers, mountains, and forests - do not possess these capacities, many rights-theorists argue that awarding rights to nature is a conceptual error (see e.g., Cahen, 1988; Pepper, 2018; Kurki, 2022). Other philosophers have suggested that attributing rights to non-human natural entities can serve practical or rhetorical purposes, considering the ways our legal frameworks are constructed, but should not be thought of as *real* rights in the way that humans and (for many theorists) non-human animals possess them (see e.g. Nash, 1993; Knauss, 2018).

Despite current philosophical resistance to the idea of RoN legislation, within any study of RoN philosophy can help to clarify key concepts such as “rights” and “nature” with logical arguments for the legitimacy (or illegitimacy) of natural entities to be rights bearers and drawing from conceptual analyses of rights in other contexts to apply to RoN. Though RoN discourse has emerged relatively recently, the concept of “rights” and their application have a long history in Anglo-American discourse. Many of the traditional debates within environmental ethics can be directly applied to RoN discussions while not explicitly addressing RoN.

Typically, when modern moral and political philosophers talk about “rights” they mean claim rights. On this view, an entity has a right if it has a legitimate *claim* against another entity to act (or refrain from acting) in some way (Hohfeld, 1917). This means that the rights of some entities are always accompanied by the obligations of others to respect those rights. If one entity has a right to life, then others obtain an obligation to refrain from taking the life of that entity, no matter how beneficial it might be for them to do so. Attributing legal and moral rights to entities is useful not least because rights have what is often referred to as ‘trumping force’ (Dworkin, 1984). A right is not just one more consideration to be balanced against all our other claims and practical interests; a right has trumping force in the sense that it always takes precedence when other claims and interests conflict with it.

It is for exactly this reason that we should want to restrict the attribution of rights to only certain kinds of entities. If everything had rights, or if every interest of an individual were interpreted as a right, then the concept would quickly cease to have practical meaning. We need an account of rights such that only *appropriate* entities are recognised as rights-bearers: an account that is not too narrow (does not exclude entities that should have rights) and not too broad (does not include too many entities as rights-bearers). Many modern rights-theorists are wary of applying rights to non-human natural entities since this would seem to be an unhelpful broadening of the concept. Generally, there are

two ways modern philosophers delimit entities that should be recognised as rights-bearers: that an entity has certain fundamental *interests* which should not be violated; or that an entity has a certain *status* or intrinsic worth deserving of respect. Both strategies reveal important challenges for RoN.

Let us briefly consider the interest strategy. It is not clear that non-human and non-animal natural entities have interests in the same way that biological entities do. Many philosophers working in this area believe that sentience is the limit of having interests of the required sort (e.g., Feinberg, 1974; Singer, 2002). Our notions of welfare and wellbeing are tied to this capacity to feel pain and pleasure, and so without sentience, the welfare of a being cannot be threatened or improved. Thus, if we speak of ‘harming’ an ecosystem, we are either: (a) talking metaphorically about threatening the stability of the ecosystem in a way we perceive to be negative; or (b) making a judgement about what is or is not in the collective interests of the elements that make up that ecosystem. If ecosystems are not sentient, then they cannot be harmed or benefited, and they cannot possess interests of the sort necessary to ground rights.

As a result, some philosophers who argue that non-human and non-animal entities are morally important accept that they are not sentient, but suggest that they still have interests because they are goal-directed. Plants, for instance, do not seem to be sentient in the sense of being capable of feeling pain or pleasure, but they do have goals and states that are preferable to them. Plants prefer certain kinds of soil, sunlight, and treatment, and will be harmed or benefited by us insofar as we create or remove these conditions (see, e.g., Taylor, 2011). If such goal-directed behaviour can ground interests, then ecosystems might demonstrate such goal-directed behaviour when they aim towards (for instance) ‘stability’ or ‘health’ (see, e.g., Goodpaster, 1978; Attfield, 1981; Mish’Alani, 1982). Most philosophers remain unconvinced, however, holding that the attribution of such goal-states to ecosystems are either metaphorical (nothing is aiming for these states) or the cumulative results of the goal-directed activities of the individual creatures comprising those ecosystems (e.g., Cahen, 1988; Pepper, 2018). Even environmental philosophers who are sympathetic to the moral importance of ecosystems typically resist cashing out this moral importance in terms of ‘rights’ (e.g., Brennan, 1984).

The second way of justifying the rights of natural entities is through the recognition that nature has a certain kind of intrinsic or non-instrumental value. That is to say that natural entities have a significance not reducible to human interest or purposes or have a certain kind of status grounding the attribution of rights to them. Environmental ethics is an area of philosophy that was – at least at its inception

– partially defined by an attempt to provide an account of the non-instrumental value of nature (Callicott, 1999: 240). Some philosophers have argued from the idea that non-human natural entities have inherent or intrinsic worth to the notion that they have moral rights (Warren, 1983: 128; Nash, 1993: 240). However, there are two problems. Firstly, recently philosophers have become somewhat suspicious that the concept of intrinsic value makes sense, as it appears to attribute a special kind of property (“intrinsic value”) to an object, which is both non-observable and disconnected from that object’s relation with other objects (e.g., Weston, 1996; but cf. McShane, 2007). Secondly, even if natural entities did have an intrinsic or inherent worth, this is not sufficient to ground legal rights. To ground legal rights, we must be able to act for the sake of an entity, and this returns us to the notion of welfare (see Pepper, 2018). Without a good account of how non-sentient entities can be benefited or harmed, any legal rights lack moral grounding. There is further, conceptually connected, discussion to be had within legal philosophy as to whether legal personhood is a concept that can be meaningfully applied to non-sentient entities (see Kurki, 2019: 63–4; 127).

Consequently, some philosophers argue for a purely instrumental approach. We might argue: we urgently need to protect nature; the rights-based framework is one legal tool which we use to do this; therefore, we should attribute rights to nature (e.g., Knauß, 2018). But there are limitations to this approach. Firstly, it seems to misinterpret the fact that most advocates for nature’s rights argue that nature should be protected for its own sake, rather than for any instrumental reason. Secondly, it would apply equally to anything else we might value and desire to protect, such as economic entities, technological entities, or corporate entities, and so this instrumental approach to rights risks diluting ‘rights-talk’ so that it ceases to carry the requisite force. Thirdly, there is no evidence (yet) that the rights-based approach has these instrumental effects. These considerations suggest the need for an interdisciplinary analysis that delineates why natural entities are the appropriate bearers of rights, and shows that the rights-based framework is (or would be) effective in protecting natural entities.

Western philosophy can contribute to the academic study of RoN only by developing connections with other disciplines, which might assist in overcoming its own resistance to the notion that non-human natural entities can be legitimate rights-bearers. One of the clear gaps within existing western philosophical literature on RoN is a connection with Indigenous cosmologies and philosophies that typically underpin existing movements and policies regarding RoN. In many of these, the natural entities in question have many of the qualities traditionally attributed to rights-holders, such as sentience and intrinsic value. Consider, for instance,

the Māori concept of Whakapapa, which holds that humans have familial relations and obligations to natural entities and other living creatures (Stewart, 2021: 88). Different worldviews, less predicated on naturalistic science, attribute different properties to natural entities that might make them more appropriate bearers of rights. More multidisciplinary and transdisciplinary engagement with non-naturalistic worldviews will no doubt be vital for understanding how the western concept of rights can coherently be applied to non-sentient natural entities.

Institutional Economics, Governance, and the Rights of Nature Since granting rights to nature can fundamentally transform institutional and governance arrangements in a society, institutional economics as a subdiscipline at the intersection of political sciences, sociology, law, and economics is particularly suitable for an inter- and transdisciplinary analysis necessary for the understanding of RoN-related societal drivers, processes, and outcomes. Institutional economics involves analysis of the formal and informal rules in use that shape human interaction in relation to issues of shared concern (North, 1990; Ostrom, 1990; Williamson, 2000). Institutional analysis of RoN thus can help understand the causes, processes, and outcomes of institutional change that RoN would represent, that is, rule-making and their enforcement. Institutional analysis also involves analysis of governance - the processes and mechanisms that shape agenda setting, negotiation, agreement, implementation, revision of new arrangements. New institutional economics has re-ignited the global academic interest in institutional analysis in the last decades particularly with the pioneering works of Douglas North, Elinor Ostrom, and Oliver Williamson. Analytical frameworks such as the Institutional Analysis and Development (IAD) framework, Social-Ecological Systems framework, institutional change and path dependence, transaction costs economics have emerged largely within new institutional economics.

Understanding RoN requires an analysis of institutional arrangements at various levels, from customs, traditions, norms, religion governing the broader societal processes (level 1), formal constitutional-level rules, especially collective definition of property rights, polity, judiciary (level 2), to more operational governance levels such as selection and evaluation of regulatory-hierarchical, economic-market-based, voluntary-advisory mechanisms (level 3), and continuous operational rules of social interactions focusing on optimization of (human-natural) resource allocation (level 4) (Williamson, 2000). Analyses at the higher levels involve inputs from Philosophy, Law, Economic History, Economic Sociology, Environmental Sociology, Political Economy, while analyses at the lower end are often the object of

analysis in more classical economic studies that investigate concepts such as labour, markets, and prices. Each of these levels of analysis is also interested in transaction costs – a broader set of costs related to institutional change (costs of agenda setting, negotiations, agreement, implementation, revision, and adaptation). Institutional economic analysis similarly involves classical economic as well as natural science analyses for understanding the social and biophysical characteristics of the resource system, for example in terms of resource subtractability (does one's use diminish others' chance to use?) and excludability of resource users (how difficult is it to prevent overuse?). Since different institutional and governance arrangements may be more or less effective, efficient, fair, sustainable depending on these characteristics, various drivers and processes leading to recognition and implementation of RoN can potentially result in correspondingly different outcomes.

Existing scholarship with institutional analysis of RoN remains scarce and tends to be from the perspective of human agents and seeing nature rather as a resource base or a part of the biophysical environment. Some literature exists contrasting RoN or such linked concepts as *Buen Vivir* to more conventional economic and anthropocentric concepts such as capital, development, and commodities (van Noren, 2020; Villalba-Eguiluz & Etxano, 2017; Washington & Maloney, 2020). But the role of RoN in decommodification of nature needs to be better understood. The existing literature also has early indications that the terms guardianship, stewardship, trusteeship, custodianship have different roots (especially related to religion, see e.g., Zagonari, 2020) and therefore are likely to carry different institutional biases. They represent and create different path dependencies where historical events limit the scope of available choices at present (North, 1990), for example 'guarding' and 'trusting' reflecting different relationships in terms of hierarchy and power, which could signal different priorities. Further research is necessary to understand under what conditions these concepts could represent more socially equitable and environmentally sustainable relationships (Washington & Maloney, 2020). Empirical evidence is necessary to understand how adopting RoN affects the existing property rights or bundles of rights (Schlager & Ostrom, 1992; Talbot-Jones & Bennett, 2019) and how potential conflicts arising from granting rights to nature can affect the livelihoods of different groups within a society, as well as to what extent such conflicts can be overcome. Operationalisation of RoN represents a major gap from an institutional perspective in the literature. If RoN are adopted, which measurable indicators will allow implementing the rights on the ground (Kauffman & Martin, 2017)? Institutional analysis could offer insights for tackling this challenge through analysis of non-instrumental (intrinsic, relational) values of nature,

for example by learning from Indigenous worldviews, and to what extent such values can contribute to the valuation studies that predominantly rely on instrumental values. A significant gap exists in terms of measuring and delineating potential changes in livelihoods of affected actors (e.g., income, opportunities, and living standards) due to the introduction of RoN. An important question here is whether allocation of benefit and cost streams hinders or facilitates certain outcomes, making them more or less equitable and sustainable, simultaneously affecting power relationships in a society. Further, the outcomes of granting rights to nature need to be understood in terms of positive and negative externalities (benefits and costs to third parties) that RoN would entail and how they can be equitably allocated at various scales (Sovacool, et al., 2017; Dupuits, et al., 2020). While higher level analyses are necessary to address the fundamental questions RoN raise, the analyses at the lower levels are needed to move beyond conceptual discussions of RoN and test the viability of RoN in practice.

Rights of Nature Through Environmental Sciences

It can be argued that existing scholarship on RoN has focused more on 'rights' than 'nature' in the sense that, compared to disciplines in the humanities and social sciences, environmental sciences are only beginning to engage with RoN. There are at least two important overlaps between discussions in RoN research and environmental sciences: seeing nature as an interconnected system and identifying reference points for understanding the state of the system. For example, environmental sciences encompass physical geography and ecology amongst other disciplines. Physical geography investigates the natural processes operating at the Earth's surface, including interactions or processes operating within and between the atmosphere, hydrosphere (lakes, rivers, oceans, groundwater), lithosphere (rocks and soils in the Earth's crust), and biosphere (all life on the planet), and how they affect patterns and fluxes on the Earth surface. The related science of ecology focuses on the interactions between groups of organisms and between organisms and their physical environment, including, amongst other things, the movement of materials and energy through living communities. Central to ecology is the concept of the ecosystem: dynamically interacting systems of organisms, communities, and the non-living components of their environment. Ecosystem processes, such as primary production and nutrient cycling regulate the flux of energy and matter through an environment. Ecosystems also provide many ecosystem services such as biomass production, climate regulation, water cleansing and flood protection. The process-based approach and integrated nature of physical geography and the holistic and connected view of the ecosystem

taken by ecology overlap with the similar discussions in RoN research.

Whilst RoN may address the natural world at any scale, from microhabitats to the climate, applications have focused on discrete landforms and particularly rivers. Rivers are dynamic and responsive landscape features that are critically important for ecological and human communities. Rivers and associated wetlands are among the most biodiverse habitats on land (Dudgeon, et al., 2006). Through hydrological and geomorphic processes, they support a broad range of ecosystem services: water supply, carbon flux, power generation, navigation, floodplain agriculture, fisheries, etc. However, alteration to rivers, floodplains, or the wider landscape (i.e., catchment) can significantly affect the river flows and in turn form geomorphic dynamics (Vörösmarty, et al., 2010; Wohl, 2019). These changes can have knock-on effects for ecosystems and people, upstream, downstream, and on the land surface. For example, dam construction and urbanisation have both been shown to affect water and sediment flows in rivers, which then affects their form, causing the loss of habitats, the disconnection of the land surface with the river, and degradation of aquatic and terrestrial ecosystems (Richter, et al., 2010; Beck, et al., 2012; Vietz, et al., 2016). These changes impact people directly and indirectly through feedbacks and interactions with physical, chemical, and biological processes. For example, communities living downstream may be exposed to increased flood risk and may lose access to clean water or fisheries resources. Both RoN movement and environmental sciences take a holistic and connected view of the ecosystem but there are few studies explicitly linking the two (but see Wuijts, et al., 2019), perhaps because of the recent emergence of RoN and the lag time between designation and measurable changes in the ecosystem. In environmental sciences there has been a historical focus on the stewardship of nature leading to the wilderness or preservation approach to conservation (e.g., National Parks in the US). This focus also underlies approaches to ‘mending’ or restoring ecosystems where ‘reference’ (supposedly pristine) systems are identified and attempts are made to return impacted sites to this condition (e.g., the Water Framework Directive of the European Union). In the above example of rivers, changes to the form, behaviour or accessibility of rivers can also affect their social, cultural, and religious value and importance, such as minimum river flows at specific times for traditional practices. RoN studies in this regard can provide valuable reference points that are rooted in understanding what nature needs, although still from a human perspective. More recently some have argued that there should be a transition to a mutually enhancing human-earth relationship (Garver, 2019); some international organisations (e.g., European Union, United Nations) have developed policies along

these lines although they are still constrained by an anthropocentric ‘growth insistent narrative’ (e.g., the Sustainable Development Goals of the United Nations). Stewardship approaches and the rise of local organisations safeguarding their environment are conceptually very different from RoN but the desired end results for the ecosystem could be similar. Thus, new scientific research is urgently needed to evaluate the potential of RoN to produce transformative ecological change.

There has been some recent discussion of RoN from a physical geography perspective, especially related to the Māori in New Zealand. Following the granting of legal personhood to the Whanganui River, scholars have proposed specific rights from a fluvial geomorphological perspective, such as the freedom for the river to transport water and sediment and adjust its form naturally (Brierley, et al., 2019). They have also outlined how indigenous knowledge (Mātauranga Māori) and ethics can inform freshwater management (Harmsworth, et al., 2016; Stewart-Harawira, 2020) and river restoration and management (Hikuroa, et al., 2018; Te Aho, 2019). This work builds on earlier studies of ethnogeomorphology (Wilcock, et al., 2013; Wilkinson et al., 2020) and environmental management thresholds and targets based on indigenous perception and use (e.g., Cultural Health Index & Cultural Flow Preference, Tipa, 2009; Harmsworth, et al., 2011; Tipa and Nelson, 2012; Crow, et al., 2018; Anderson, et al., 2019).

These cross-cultural examinations support the study and potential application of RoN in non-Indigenous contexts. For example, researchers have explored ecocentric ‘self-defence rights’ for the transnational Rhine River (Wilk, et al., 2019), rights-based governance of the Scheldt and Ems River basins and estuaries in Europe (Gilissen, et al., 2019), and the application of physical geography and ecology perspectives to assessment of the transfer of legal rights to rivers to support river health (Wuijts, et al., 2019). Environmental scientists are becoming increasingly interested in RoN as an approach that embraces their whole systems approach to understanding the natural world to support the development of holistic and effective management solutions.

Despite these recent advances we have identified some fundamental research gaps for environmental management. These are relevant to all environmental systems, and particularly rivers that have been the focal ecosystem for RoN movement. First, although the failure of environmental legislation to slow or reverse biodiversity loss is one of the factors highlighted by RoN advocates and despite case-specific research, no study has yet systematically evaluated the environmental drivers for RoN across a range of ecosystems to identify common themes, develop transferable methods for analysis of ecological conditions or impacts, or assess the impact of RoN on socio-ecological learning.

Second, the specification of ‘nature’ in RoN has significant implications for the representation of ecosystems and management of natural resources due to scale dependencies and framing. Scaling is a particular issue for rivers because the identification and quantification of processes and interactions, assessment of drivers of change, and mapping of the social-ecological system are strongly affected by the definition and framing of the ecosystem, spatially (i.e., channel and floodplain, catchment, transnational river basins) and temporally (e.g., stationary vs. non-stationary systems). Third, research is needed on the mechanisms by which RoN could affect environmental management to positively impact ecological systems across the hierarchy of legal designations for nature conservation, from local nature reserves to internationally protected sites. This is necessary for the evaluation of how new forms of legal protection or designation through RoN can affect the achievement of ecological targets and timelines, adaptive capacities of management, and inclusivity and participation. Concerning rivers, environmental scholars have identified rights of a river based on the scientific assessment of fluvial geomorphological processes and explored how ecocentric rights could transform the management of river basins and estuaries. However, RoN must be placed into the wider context of integrated environmental management and sustainable development to assess its potential impacts on nature and society.

Uncovering Common Themes Across Disciplines: Towards Future Interdisciplinarity

Based on our multidisciplinary analysis (phase 1), we identified three common threads that cut across our disciplinary boundaries and that represent key thematic areas for

future research on RoN: (a) the dichotomy between nature and human beings; (b) the valuation and commodification of nature; and (c) the importance of representative concepts such as guardianship and stewardship (Fig. 2). Although these three themes were explored within each discipline, we argue that a full analysis and examination requires an interdisciplinary approach integrating knowledge and methods from the humanities, social sciences, and environmental sciences. The humanities can provide detailed analysis of the conceptual and practical background of the RoN movement, but without concrete empirical contributions from the social and environmental sciences, this will remain abstract. Social sciences can explore the cultural and systemic factors that might help or hinder the adoption of RoN legislation, but are not by themselves fully able to assess questions regarding its practical implementation. Without input from the environmental sciences, academic discourse about RoN remains purely hypothetical, and the claims that RoN legislation will have positive benefits on the health of non-human natural entities remain unsubstantiated. Any complete examination of the RoN movement must adopt an interdisciplinary approach.

RoN and Dichotomy Between Nature and Human

One common theme among the different disciplines concerns the criticism of the traditionally recognised distinction between “nature” and human culture. It is commonly accepted that viewing nature as outside and alien to human culture enables us to conceptualise it as a mere resource (see, for instance, Plumwood 1993). RoN vocabulary can be considered one way to bridge this gap by giving natural entities a “voice” within the socio-legal system.

	Rights of Nature and dichotomy between nature and human	Rights of Nature and valuation and commodification of nature	Rights of Nature and concepts of representation
Humanities	How do we understand and delineate rights and nature and how does this inform our understanding of RoN? Why?	What are the intrinsic values of nature and (how) could RoN capture them?	How should we think about the representation of RoN? Who counts as a legitimate representative for nature's rights?
Social sciences	How have the current social governance systems evolved and how can they change with RoN? Why?	What are the instrumental and relational values of nature and are they compatible with RoN?	How representatives are supported (or not) by their institutional, governance, and broader cultural context?
Environmental sciences	What are the reference points for delineating human and nonhuman nature and how to set them for RoN?	To what extent is it possible to set non-instrumental value thresholds such as health or wellbeing of the ecosystem as part of RoN?	What is the scale of the ecosystem and what are the implications for management?

Fig. 2 Common themes of Rights of Nature that require interdisciplinary research across humanities, social sciences, and environmental sciences, with example research questions

Vital sources of alternative models of interrelation can come from outside western traditions in reconsideration of human beings' relation to the natural world. Indigenous cosmologies tend not to separate human beings from their natural environments, and are often the major driving forces of existing RoN legislation. There is, however, legal-institutional, sociological, anthropological, and philosophical research needed to explore how well western 'rights' discourse (largely analysed within the disciplines of positivist law, political sciences, economics) can cohere and interact with these Indigenous cosmologies (largely analysed within the disciplines of natural law and humanities). As discussed, many philosophical and legal justifications of rights rely on the idea that entities are sentient, goal-directed, or intrinsically valuable in ways that make sense on Indigenous cosmologies but not on western worldviews.

Aside from legal and philosophical justifications, the exact rights that can or should be attributed to natural entities need to be specified (right to exist, flourish, regenerate vital cycles, and naturally evolve, etc.), and this research is of necessity interdisciplinary, as is a precise delineation of the goals of RoN, and whether it should be understood in purely instrumental terms as a way of using existing legal frameworks to further the goals of environmental protection, ecological restoration, and a more sustainable use of ecological resources, or whether it should be understood as challenging the anthropocentrism of existing legal frameworks and fundamentally reconceiving the relationship between humans and the natural world (as Kauffman and Martin 2021 suggest). This in turn requires a full examination of ecosystem states - such as 'health' and 'stability' - or concepts such as restoration employed in understanding these goals.

RoN and Valuation and Commodification of Nature

A distinction between intrinsic (for their own sake) and instrumental (as a means to an objective) values is useful in discussing the value of nature, ecosystems, and natural entities. Intrinsically valuable things are not considered exchangeable or commodifiable, while things valued instrumentally can be assigned an exchange value and so commodified. Under existing legal structures ecosystems and natural communities are being treated as property. In response, many environmental theorists in the humanities and social sciences have argued that nonhuman nature is *intrinsically* valuable, and should not be viewed as property or a resource for human use (e.g., Callicott, 1999, Warren, 1983, Butler and Acott, 2007, O'Connor and Kenter, 2019). The RoN debate is an attempt to enshrine this reconceptualisation of nature's value in law. When we attribute legal personhood to any entity, we recognise its moral standing,

which cannot be owned, commodified, or treated as a mere resource or property.⁵

How we value natural entities connects to the question of attributing rights to non-human natural entities. From a more practical and instrumental view of RoN, they are employed as a mechanism to facilitate more effective, holistic, or locally engaged nature management (see, e.g., Knauss 2018). In this light, environmental sciences are commonly used to inform environmental policy and management strategies without abandoning an instrumental view of the value of natural entities (e.g., Lawton, 2007). This raises the question of which ways of conceptualising the nonhuman environment are more conducive to the different goals we might have for RoN. It also introduces the question of how RoN interacts with existing human needs to use 'their' environment, rights to property, and human rights more generally. When nature's rights conflict with the existing human rights, we need an established convention for adjudicating that conflict. Again, these questions will benefit from interdisciplinary research since answering them requires understanding of the natural entities both from humanities and social sciences as well as environmental sciences perspectives, valuing them from non-economic or at least not conventional economic perspectives, as well as selecting appropriate informal institutional or formal legal mechanisms.

RoN and Concepts of Representation

An important element behind the idea of recognising nature's fundamental rights relates to the concepts of guardianship, stewardship, trusteeship and/or custodianship of nature. Natural entities cannot defend their own rights and require representation (at least in human-led legal systems). This raises questions concerning how we should think about the representation of natural entities, and who should be thought of as appropriate representatives. In many modern RoN contexts, the responsibility of the representation of nature's rights is taken on by Indigenous peoples, or other 'guardian institutions' (see, e.g., MacPherson, 2022). It remains to be seen how nature's rights might legitimately be represented in contexts where there are no Indigenous peoples to act as default representatives. Do representatives require ecological knowledge? Must they have local knowledge? Research in posthumanism and new materialism (also referred to as ontological turn in anthropology, or vitalism) also suggests it is possible for natural entities to represent themselves through pre-linguistic meaning and non-human interpretation and production of signs (Bateson,

⁵ Compared, for instance, to the language of 'natural capital' and the ecosystem services model, which aim to protect the environment by attributing economic or instrumental value to ecosystems.

2002; Hoffmeyer, 2008). Under all scenarios, the question of representation faces challenges of legal, anthropological, sociological, economic, political, and ecological character.

There are connected questions concerning representation and the scale of an ecosystem. Local representation for small-scale natural features might make sense, but as the size of the system expands, the diversity of drivers, pressures and processes that must be considered when managing the system also expands, possibly beyond the comprehension of the same kinds of local representation. Additionally, interdisciplinary research is required to understand the nature of this representation: should this representation, for instance, be understood under analogy to parental representation; to the legal representation of those who lack capacity; or to the political representation of a constituency? These forms of representation each have their own norms and justifications concerning how the perceived best interests of those represented should be protected – which, if any, are more applicable to representing an ecosystem?

Going Beyond Academic Knowledge and Embracing Transdisciplinarity

The RoN movement has been developed mainly by the action of transnational civil society movements, largely driven by transnational networks of activists, NGOs, lawyers, and policymakers (Kauffman & Martin, 2021). This network is composed of both global advocacy organisations and local organisations working towards the recognition of nature's rights. Due to its practical and political importance, RoN discourse is driven by non-academic knowledge, such as local community ecological knowledge, as well as mixed forms of knowledge formed as part of activists' advocacy and political negotiations. This non-academic knowledge constitutes an important element of the research on RoN, so future research should focus on synergies among scholars, practitioners, non-scientific knowledge holders, and policymakers.

Overall, our two workshops and exploratory survey of key individuals - mainly activists - (see Annex 1) highlighted the need to support more collaborative work between communities/activists and academic research. Several of the participants noted that the natural science disciplines, such as biology, environmental and earth sciences, and ecology, are still underrepresented. More broadly, the feedback at the workshops and in the survey also revealed the general lack of public debate, as well as awareness on RoN, and therefore the need for more education and knowledge with activists emphasising the role that academics can have in access to learning resources to support work on the ground. Participants also argued that a lack of funding undermines the capacity to support more significant research on RoN, and

the difficulty for transdisciplinary research on this front as academic research tends to support and focus on knowledge that remains within academia. Overall, all the participants confirmed the importance of transdisciplinary research for future research to support our understanding of RoN enriched by a substantial knowledge exchange between academic researchers and local activists and communities. Our findings reveal the need to not only embrace more interdisciplinary research, but also much more embedded transdisciplinary approaches to understand the concept of RoN, as well as its role and how it is perceived in local communities, as these will likely define the potential of RoN to address contemporary social-environmental challenges.

Conclusion

The recognition of RoN is gaining momentum worldwide and represents a significant paradigm shift from nature seen as a resource or object of protection to a subject of rights on its own. Our scoping research highlights that despite its promising role to offer a truly transformative approach to our relationship with nature, academic research, and funding that go beyond any single discipline have yet to fully engage with this emerging field of research. It also confirms that most existing projects and research that go beyond a single discipline tend to be located at the interface between humanities and social-sciences; while research between humanities, social sciences, and environmental sciences is still lacking and further work is urgently needed to develop analytical frameworks and tools to adequately evaluate rapidly unfolding RoN developments on the ground⁶.

To fully understand how human beings relate to the non-human environment, to comprehend and act upon the obligations we have towards that environment and to each other, and to navigate and creatively re-think our social, legal, and political approaches to nonhuman nature, we need collective methodologies and approaches that provide a holistic understanding of new concepts with far-reaching societal consequences such as RoN. We offer some initial ideas and methodologies for interdisciplinary research in RoN, notably between humanities, social sciences, and environmental sciences, highlighting three key areas to develop future interdisciplinary research focusing on the dichotomy between humans and nature, the commodification of nature, and the concepts of representation. Although these

⁶ For example, the lagoon Mar Menor in Spain was granted a legal personhood at the time of writing, making it the first RoN case in Europe, but the processes behind it and its consequences are yet to be understood. URL: <https://www.theguardian.com/world/2022/sep/21/endangered-mar-menor-lagoon-in-spain-granted-legal-status-as-a-person> (last accessed 15/12/2022).

issues are already significant themes of focus in the different relevant disciplines, we demonstrate that developing an adequate understanding of them necessarily requires an interdisciplinary approach. Acknowledging this need also reveals that novel interdisciplinary research is required to critically evaluate RoN and its potential for transformative change in social-ecological systems. For this we also suggest that transdisciplinarity provides basis to support future research on RoN since it bridges traditional divides between academic research and non-academic practices and knowledge. In summary, our scoping research confirms that there is a need for more research that goes across and beyond disciplines to account for the fact that overall RoN involve knowledge, activism, as well as engagement of local communities and their interaction with their local environment. This article is a first reflection, but also a call to other disciplines and scholars to develop such work across and beyond disciplines and join our newly formed interdisciplinary network on the study of the rights of nature.⁷

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Data Availability The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Conflict of Interest The authors declare that they have no conflict of interest.

Informed Consent N.A.

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⁷ See <https://natureandrights.org/>.

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