White Rose Research Online

eprints@whiterose.ac.uk
https://eprints.whiterose.ac.uk
Universities of Leeds, Sheffield and York

Deposited via The University of Leeds.

White Rose Research Online URL for this paper:
https://eprints.whiterose.ac.uk/id/eprint/93342/

Version: Accepted Version

Article:
Heikkurinen, PP, Rinkinen, J, Järvensivu, T et al. (2016) Organising in the Anthropocene: An Ontological Outline for Ecocentric Theorising. Journal of Cleaner Production, 113. pp. 705-714. ISSN: 0959-6526

https://doi.org/10.1016/j.jclepro.2015.12.016

© 2015. This manuscript version is made available under the CC-BY-NC-ND 4.0 license
http://creativecommons.org/licenses/by-nc-nd/4.0/

Reuse
Items deposited in White Rose Research Online are protected by copyright, with all rights reserved unless indicated otherwise. They may be downloaded and/or printed for private study, or other acts as permitted by national copyright laws. The publisher or other rights holders may allow further reproduction and re-use of the full text version. This is indicated by the licence information on the White Rose Research Online record for the item.

Takedown
If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.

UNIVERSITY OF LEEDS
University of Sheffield
UNIVERSITY of York

Organising in the Anthropocene: an ontological outline for ecocentric theorising

Pasi Heikkurinen[a,*]
p.heikkurinen@leeds.ac.uk

Jenny Rinkinen[b]
jenny.rinkinen@lancaster.ac.uk

Timo Järvensivu[c]
timo.jarvensivu@aalto.fi

Kristoffer Wilén[d]
kristoffer.wilen@hanken.fi

Toni Ruuska[e]
toni.ruuska@aalto.fi

[a]University of Leeds, Sustainability Research Institute, UK
[b]Lancaster University, Department of Sociology, DEMAND Centre, UK
[c]Aalto University School of Business, Department of Marketing, Finland
[d]Hanken School of Economics, Department of Marketing, Finland
[e]Aalto University School of Business, Department of Management Studies, Finland
[*]Corresponding author. Tel.: +44 (0)113 343 9631

Highlights

- The central premises of the ecocentric organisation literature are identified.
- Three essential qualities of objects for ecocentric theorising are proposed.
- The implications for ecological practice and theory are discussed.
- It is concluded that a new ontology is needed in the Anthropocene.

Abstract

As a response to anthropogenic ecological problems, a group of organisation scholars have acknowledged the importance of ecocentric theorising that takes materiality and non-human objects seriously. The purpose of this article is to examine the philosophical basis of ecocentric organisation studies and develop an ontological outline for ecocentric theorising in the Anthropocene. The paper identifies the central premises of ecocentric organisations from the previous literature, and complements the theory with a set of ontological qualities common to all objects. The study draws on recent advances in object-oriented and ecological philosophies to present three essential qualities of objects, namely *autonomy*, *uniqueness*, and *intrinsicality*. The paper discusses how these qualities are critical in reclaiming the lost credibility and practical relevance of

ecocentrism in both organisational theory and the sustainability sciences in general. To organise human activities in a sustainable manner in the new geological era, a new ontology is needed that not only includes materiality and non-humans in the analysis, but also leads to an ecologically and ethically broader understanding of ecospheric beings and their relationships.

1. Introduction

In the era of the Anthropocene (Crutzen and Stoermer, 2000; Crutzen, 2002), it is increasingly acknowledged that the way human life is organised is ecologically damaging and jeopardises the existence of most beings (MA, 2005; Barnosky et al., 2011; IPCC, 2014). Especially since the Industrial Revolution, or more precisely the invention of the steam engine, the biosphere and its local ecosystems have undergone radical changes in terms of rising temperatures and a reduction in biodiversity (Zalasiewicz et al., 2008; Barnosky et al., 2012). Climate scientists have recorded a worrying global temperature rise of 1 °C since the early twentieth century (NASA/GISS, 2014), while biologists and palaeontologists have suggested that the sixth mass extinction might be on the horizon if the current rate of species loss continues (Barnosky et al., 2011, 2012; Ceballos et al., 2015). These two changes in the environment are assumed to be causally related, so that global warming is leading to biodiversity loss, as ecosystems and their organisms are unable to adapt to the rapid climatic changes in their habitat (MA, 2005). To avert further damage, continued population growth, excessive resource use and environmental deterioration are challenges that humanity must deal with within the next few decades (Steffen et al., 2007), and arguably, the sooner the better (see e.g., Ceballos et al., 2015).

Despite the severity of the ecological challenge, and particularly the significant role that the organisation of production has in the climate crisis (Barnosky et al., 2012; IPCC, 2014), ecological questions have remained at the periphery of contemporary organisation theory, as reviewed by Cunha et al. (2008). Rather than focussing on the non-human and material aspects of the world, organisational enquiries have tended to emphasise the role of humans and non-material aspects of the organisation (Fleetwood, 2005; Orlikowski, 2010). It follows that organisational studies are inclined to reproduce the anthropocentric and antirealist philosophical tradition of science, as the human experience is favoured at the expense of the non-human world. The absence of an ecological perspective on organising human activity seems likely to lead the way deeper into the Anthropocene with unpleasant consequences not only for the human species but also for the ecosystem as a whole.

The lack of organisational theorising from an ecological perspective was first noticed in the mid-1990s, when the relationship between organisations and the natural environment attracted scholarly attention (Shrivastava, 1994; Gladwin et al., 1995; Clair et al., 1996). Some of the early scholars discussed, for instance, the relevance of organisational activities to developments such as overpopulation and overconsumption (Starik and Rands, 1995), as well as the limitations of an anthropocentric worldview in dealing with ecological problems (Purser et al., 1995). Thus, instead of continuing to position human actors above other beings and interpreting the world in terms of human

values, these scholars developed and called for ecocentric approaches in the ontological, epistemological, and axiological domains of organisation studies (Shrivastava, 1994, 1995; Purser et al., 1995; Starik and Rands, 1995; Starik, 1995).

While the call was not immediately taken up, a few organisational scholars have recently expressed signs of ecocentric theorising by embedding social actors in the ecosystem (Whiteman and Cooper, 2000), recognising the interconnectedness of all actors in the ecosystem (Valente, 2012; Newton, 2002), and advancing ethical considerations for the non-human world (Gosling and Case, 2013; Ezzamel and Willmott, 2014). Critics of ecocentrism, however, have continued to question the necessity and practicality of ecocentric thought, as well as the underpinnings of its worldview (Hanna, 1996). An intellectually well-founded critique on ecocentrism has been presented on the feasibility of reordering the human relationship with the natural environment, and on the dualistic representations of nature and humans (Newton, 2002). These fundamental, yet constructive strictures on ecocentrism, coming from both the managerial and sociological sides of organisation studies, invite environmental scientists to revisit the philosophical foundations of ecocentric theory.

Against this background, the purpose of this paper is to examine the philosophical basis of ecocentric organisation studies, and develop an ontological outline for ecocentric theorising in the Anthropocene. The study is guided by the following research questions: (a) what are the central premises of ecocentric organisations in the previous literature, and (b) how might these premises be complemented in order to respond to the criticism of ecocentric thought and advance ontology for an ecological organisation?

Without a thorough discussion on the basic categories of being and how they relate to each other (particularly those between human and non-human objects), the task of advancing ecocentric theory becomes not only extremely demanding, but can also threaten the credibility of the approach and attract criticism of a failure to deliver practical value. The importance of focussing on ontological questions is reinforced by the premise that the way humans perceive objects–and their relations–will influence the way things are (and will be) organised. Hence, the nature of objects is crucial in the search for ecological organisations, including sustainable modes of production[1].

The paper begins with a brief introduction to the questions of ontology in organisation studies and provides an overview of the challenges related to the Anthropocene: the current geological era[2]. The study proceeds to review the ways previous studies in the field of the organisation and the natural environment have conceptualised human–nature relationships, and also to identify the central premises of ecocentric organisations. To advance ecocentric theorising, the paper draws on object-oriented and ecological philosophies to arrive at a set of essential qualities of objects. Lastly, it proposes an ontological outline for further studies and concludes by discussing the implications of the outline for ecological practice and theory.

[1] A sustainable mode of production as imagined in this study is not limited to the early German concept on sustainability (*Nachhaltigkeit)*, which appeared in 1712 in the writings of von Carlowitz "to indicate how monetary profits could be made from nature by obtaining optimum sustainable yields" (Martinez-Alier, 2014, p. 38) but is instead in line with the idea of strong sustainability (e.g., Pearce and Atkinson, 1993; Beckerman, 1995; Ayres et al., 2001).

[2] A team of scientists led by Jan Zalasiewicz announced that in 2017 a decision will be made on whether the current geological epoch will be officially re-named (Schwägerl, 2013).

2. Ontological questions in the age of humans

The field of organisation studies has undergone several intellectual redirections or turns within its relatively short history (Reed, 2005). Some of these turns have dealt with the means of acquiring and analysing data, while others have focused more on the assumptions related to the nature of knowledge and reality, or ontology. The ontological position of a person, community, or turn, could be described as a way of understanding the nature of reality. An ontology can also more directly, and quite literally, be thought of as how the world *is*: 'what exists, and so what are the primary entities of concern in any given field, and what are their most general features and relationships' (Spash, 2012, p. 37). Moreover, as ontologies deal with the question of existence and being, they are often considered the most profound concerns in scientific enquiries.

Fleetwood (2005, p. 197) describes the ontological discussion in organisation studies as ambiguous, 'which makes it difficult to get to the bottom of ontological claims and, of course, to locate the source of any ontological errors'. Ontological discussions often also mix with epistemological questions (that relate to knowledge) and axiological questions (that relate to value), which make them even more complex and challenging to grasp. Owing to its often-assumed lack of practical implications for managers and its weak relevance to what might be called the publication rat race, ontology (as a study of being and existence) might also have a forbidding echo for some organisation theorists. However, if scholars seek ecologically advanced understandings of organisations, the examination of ontologies may offer not only prolific grounds and stimulating avenues in the quest for considering different objects and their relations, such as man-made organisations and the natural environment, but may also be unavoidable in the current times of ecological, and sociocultural, turmoil. The climatic and geological changes are arguably pressing humans to rethink their relationship with other humans and the non-human world through recent phenomena like climate refugees and mass extinctions.

The ontologies in organisation studies have recently been heavily influenced by the cultural, linguistic, post-structural or postmodern approaches that build on an idea of socially constructed realities (Fleetwood, 2005). For an ecocentric inquiry, this development can be considered problematic because, in the antirealist ontology, a world does not exist independent of human perception, and because the proponents of antirealism do not subscribe to any causal scientific independence of matters of fact in the world (Mäki, 2008). To put it bluntly, if the causality of human action and ecological harm cannot be propounded with any degree of certainty, then protective measures (e.g., conservation efforts) are difficult to justify and legitimise.

According to a recent report by the Intergovernmental Panel on Climate Change, the main causes of global warming are anthropogenic greenhouse gas emissions, which are in turn undesired consequences of economic and population growth (IPCC, 2014), and particularly the former (UNEP, 2011; Lorek and Spangenberg, 2014). The growth of economies (measured in gross national product) and in the number of human inhabitants on the planet, have meant a rising demand for food, mobility, housing and other goods and services (Latouche, 2009; Jackson, 2011). The production of these goods and services has led not only to growing pressure on the atmosphere through emissions, but also to growing pressure on land and water occasioned by their utilisation for

production purposes: 'During the course of the 20th century, average resource use per capita merely doubled,' while 'the global annual material extraction increased […] by a factor of eight' (UNEP, 2011, p. 17–18). The use of the term Anthropocene – the Age of Humans – is apt to describe this current era of global climate change and negative human influences on ecological processes (Crutzen and Stoermer, 2000; Crutzen, 2002; Zalasiewicz et al., 2008).[3] In ontological terms, this signifies that humans are not only observers of the Anthropocene but a central causal factor in the unfolding of reality: a dominant ingredient of the planetary ecosystem.

For a large part of the scientific community, it is apparent that ecosystems are now setting limits to the expansion of organised human activity (Rockström et al., 2009; Steffen et al., 2015). Unsustainable development has been enabled by medical and other technical advances, by an unequal global exchange of energy and other natural resources (Hornborg, 2014), particularly fossil fuels (Wrigley, 2010), as well as a major growth in agriculture and animal husbandry (Crutzen and Steffen, 2003). In terms of material limits, non-renewable natural resources are running out and renewable resources are being consumed at a faster rate than they can renew (e.g., Lorek and Spangenberg, 2014). Concerning less tangible limits, again, the atmospheric carbon dioxide concentration has been found to be too great and the global nitrogen cycle to be too disrupted to ensure a safe operating space for humanity and other species (Rockström et al., 2009; Steffen et al., 2015). These estimates concerning the state of the planet are certainly surrounded by uncertainties, but the important point here is that if humans are to steer away from the worst-case scenarios of collapsing ecosystems and civilisations, human activities should be reorganised in ecologically sustainable ways (Goodland and Daly 1996).

In ontological terms, an ecologically substantive understanding of 'being' in the Anthropocene epoch thus calls for a more realist approach in organisation studies. Considering an organisation merely as a socially constructed phenomenon might lead to overlooking the material basis of all human activity in the ecosystem. Any such exclusion of materiality and non-human objects from the analysis is not only scientifically limited, but also highly dangerous if it propounds a worldview where ecological destruction is not considered problematic beyond human interests. Thus, without doubt, 'in certain instances it might be "appropriate", "justifiable" and eminently sensible to look for something other than human language in order to appreciate the force of phenomena like human responsibility and harm; simply recurring to discourse may *often* be unsatisfactory' (Holt and Mueller, 2011, p. 82). Moreover, denying reality independent of the human subject is disturbingly anthropocentric, which again is shown to be limited in its usefulness in solving the complex ecological problems that organisations now face (Purser et al., 1995).

[3] It is important to note what Graham Harman (in Koot and Grootveld, 2015, p. 1) expressed in a recent interview: "[the] Anthropocene Epoch is not an Anthropocentric Epoch, because it highlights the fragility of the human species rather than human supremacy. This split between the Anthropocene and the Anthropocentric compels us to recognise an important philosophical distinction that is seldom acknowledged. Namely, the fact that humans are involved as ingredients in the creation of some entity does not entail that the entity has no autonomous reality apart from humans. The Anthropocene climate is generated by humans and independently mysterious to us, and the same holds for other fields that have been 'anthropocene' from the start: human society, art, economics."

Against this call for a new ontological frame, the next section reviews and discusses the main premises of, and advances in, ecological organisation literature. In the current study an ecological organisation refers to those organisational orderings that take place within the bioregional and global, and material boundaries of ecosystems, and hence embrace the existence and prosperity of humans, as well as other beings.

3. Organisations and the natural environment

In the Western tradition, the origins of ecological thought on organising human action can be traced to influential North-American texts such as *Nature* (Emerson, 1836), *Walden* (Thoreau, 1854), and *Silent Spring* (Carson, 1962). In Europe, important early contributions to ecological thinking were *Capital: Critique of Political Economy* (Marx, [1867] 1992) and *The Technological Society* (Ellul, [1954] 1964). The authors of these far-sighted texts identified and reported on a development whereby humans are becoming increasingly distanced from the natural environment (i.e. non-man-made objects), but are becoming a greater force in shaping it (i.e. turning non-man-made objects into man-made ones). Most of these seminal works explicitly acknowledged that a major reason for such a rapid change in the human–nature relationship lies in the advance of industrial and technological organisations.

Although these organisations of different shapes and sizes are considered to be a 'primary instrument by which humans impact their natural environment' (Shrivastava, 1994, p. 705), organisation studies have paid relatively little attention to the human relationship with the non-human world, and likewise, have largely overlooked the threats evident in the Anthropocene. A rather small group of scholars, however, have discussed ecological questions related to organisations (e.g., Shrivastava, 1994; Jennings and Zandbergen, 1995; Purser et al., 1995), some with a focus on the economic organisation (Welford, 1995; Hart, 1995; Clair et al., 1996), for over two decades (for a summary, see Gladwin et al., 1995). More recently, continuations to these pioneering studies have emerged (Valente, 2012; Gosling and Case, 2013; Ezzamel and Willmott, 2014), but large-scale attention to ecological questions in organisation theory yet to come.

3.1. Embeddedness in the ecosystem

In the early 1990s, it became clear that the view offered by mainstream organisation studies in analysing the surroundings of organisations was denatured, narrow, and parochial due to its emphasis on the economic, social, political, and technological aspects of organisational environments (Shrivastava, 1994). This profound critique of the underlying assumptions of the field led to an opportunity to reconceptualise the organisational environment so that the significance of the non-human world was recognised in explaining and understanding social activity. The centrality of nature became obvious with the realisation that all individuals and organisations, as well as sociocultural and political-economic systems, are embedded in the planetary ecosystem (Starik and Rands, 1995; Ezzamel and Willmott, 2014).

While ecological embeddedness applies to all societies, institutions and organisations, it

also holds true on the individual level. Whiteman and Cooper (2000, p. 1265) explain this as follows: 'To be ecologically embedded as a manager is to personally identify with the land, to adhere to beliefs of ecological respect, reciprocity, and caretaking, to actively gather ecological information, and to be physically located in the ecosystem'. The important finding from the search for ecological organisations is that the degree of ecological embeddedness is linked to managers' commitment to, and engagement in an ecological praxis (Whiteman and Cooper, 2000). Thus, instead of making organisational decisions based on mere technical knowledge, 'which removes the knower from the process of knowing' (Purser et al., 1995, p. 1060), embeddedness is related to situational knowledge that comprises first-hand experience of local ecosystems (Whiteman and Cooper, 2000). It goes without saying that the premise of embeddedness radically changes the manner in which the human–nature relationship is perceived and organisations are managed (see Tilley, 2000).

3.2. Dependency on the ecosystem

Instead of presupposing nature is something distinct from humanity and an infinite pool of resources for economic, or other human activity, humankind has been forced to admit that ecosystems are finite (Georgescu-Roegen, 1975; Daly, 1979) with material boundaries (Rockström et al., 2009; Steffen et al., 2015), and the parts are dependent on the whole (Naess, [1974] 1989). As human organisations 'receive a number of inputs from various ecosystems, including air, water, land, minerals, energy, animals, plants, and microbial life' (Starik and Rands, 1995, p. 917) that are critical to their existence and success (Hart, 1995), the material dependency of organisations on the planetary ecosystem became obvious. In other words, the ecosphere provides the conditions essential to the existence of humans and organisations (Shrivastava, 1995), as well as those required to conduct economic or any other activity (Starik and Rands, 1995).

In their study, Starik and Rands (1995, p. 928) demonstrated how 'organizations have environmentally oriented interactions with other levels and systems, and [how] these are integrated in […] a web of relationships'. This insight signifies a shift from atomistic and reductionist ideas to perceiving interconnectedness: all actors in the ecosystems are connected (Valente, 2012; Newton, 2002). Many ecologically oriented organisation scholars have employed the notion of interdependency to describe the relationship between human organisations and the natural environment (Newton, 2002; Valente, 2012; Ezzamel and Willmott, 2014), while others have refrained from the use of the term (e.g., Starik and Rands, 1995; Purser et al., 1995). According to Gladwin et al. (1995), this disparity can be explained by a difference in ontological stances. Ecocentric theorists assume that an entity (e.g., an economic organisation) that is embedded in the ecosystem is dependent on the ecosystem; however, the whole ecosystem is not dependent on every single part of it. That is to say, life on the planet may well continue without any human organisation, but a human organisation cannot continue without the planet. However, organised human actions undoubtedly have an effect on local and global ecosystems as all objects are interconnected, and thus a degree of *inter*dependency can be argued, but to propose an equivalent interdependency between objects would be a fallacy. Hence, it is posited that certain objects (e.g., the Earth) are more dependent on other objects (e.g., the sun) than others are (e.g., a business organisation).

3.3. Value of the ecosystem

While anthropocentric organisation studies continue the construction of an ontological hierarchy and a moral order, where humans are above or apart from the ecosystem (Purser et al., 1995), ecocentric theorists respectfully consider all human organisations as subordinate to the planetary ecosystem. In ecocentrism, nature as a whole is 'more important than humans, as humans are simply one animal species in the ecosystem' (Ketola, 2008, p. 426). This reverse in the construction of the ontological and moral hierarchy is not favoured by most relational theorists (e.g., Newton, 2002), as for them the world will 'remain flat at all points' (Latour, 1996, p. 240). Despite neglecting the difference in the relations between the whole and its parts, a flat ontology is an important step away from anthropocentrism, but it does not extend to ecocentrism, which broadens the idea of community to include ecological wholes (such as forests, wetlands, lakes and deserts) and also extends moral value to ecological organisms (Purser et al., 1995). This broadened view is radically different from the prevailing understandings of value, where any non-instrumental value in the non-human world is received with anxiety.

While anthropocentrism can also work as a basis for developing an ecological conscience when motivated by concerns about intergenerational equity and justice (Johnson, 1988, p. 610), major problems arise from anthropocentrism for the ecological organisation. The main problem with anthropocentrism is not that it is human-centred (Purser et al., 1995, p. 1054), 'or even that its proponents view nature instrumentally, but with proponents' tendency to view human beings as sole locus of value and measure of all things' (Purser and Montuori, 1996, p. 611). A further problem with the largely prevalent anthropocentrism in organisational theory (Ezzamel and Willmott, 2014) and practice (Tilley, 2000) is that it influences the code of ethics towards nature by essentially denying that nature could have any inherent worth (Purser et al., 1995). This, of course, has severe consequences for how humans interact with the non-human world.

A few organisation scholars have lately started to raise questions concerning the reflective dismissal of the anthropocentric ethos. For instance, Wright et al. (2013, p. 647) ask: 'how can we imagine alternatives to our current path of ever escalating greenhouse gas emissions and economic growth?' Gosling and Case (2013, p. 716) suggest that the social dreaming found in many traditional cultures 'may offer us a route to discover meanings that are not accessible within normal conscious rationality', like a non-anthropocentric moral frame. Similarly, Ezzamel and Willmott (2014, p. 2) suggest that 'unclosing the ethical register invites novel thinking about established forms of knowledge, and thereby opens up new vistas of theory development and empirical investigations', and importantly for the present research, 'attentiveness to the ethical register is seen to invite radical reflection on a dominant, anthropocentric value-orientation' (Ezzamel and Willmott, 2014, p. 1). A desired outcome of these reflections could be an ecocentric ontology and an ethical frame that encompasses extended and deepened care for humans as well as non-humans (cf. Naess, 1997).

Table 1 summarises the central premises in the previous ecocentric organisation literature and the conceptualisation of human–nature relationships. Next, the paper proposes and discusses three essential qualities of all objects (mixing humans and non-

humans), derived from object-oriented and ecological philosophies, to complement ecocentric theorising.

Table 1. The table illustrates the central premises in the ecocentric organisation literature and the consequent conceptualisations of human–nature relationships.

Central premise	Embeddedness in the ecosystem	Dependency on the ecosystem	Value of the ecosystem
Description of the premise	Humans and their organisations are embedded in ecosystems	Humans and their organisations are dependent on ecosystems	Humans and their organisations are not the only source of intrinsic value
Conceptualisation of human–nature relationships	Human and man-made objects are embedded in non-human and non-man-made objects	Human and man-made objects are dependent on non-human and non-man-made objects	In addition to human and man-made objects, non-human and non-man-made objects can also hold intrinsic value

4. Essential qualities of objects for ecocentric theorising

As discussed above, previous studies on ecocentrism assume organisational embeddedness in, and dependency on, the planetary ecosystem (and also regional ecosystems), and enable a departure from anthropocentrism. In terms of the human–nature relationship, the premise of *embeddedness of the ecosystem* suggests that human and man-made objects are embedded in non-human and non-man-made objects, while the premise of *dependency on the ecosystem* denotes that the human and man-made objects are dependent on non-human and non-man-made objects. Moreover, with regard to the premise of *value of the ecosystem,* non-human and non-man-made objects may also hold intrinsic value (Table 1).

But since ecocentric theory attracts accusations of dualism by maintaining the analytical separation between humans and non-humans, normativity through its calls for radical change, and an unsatisfactory representation of nature (Newton, 2002), reimagining the ontological basis on ecocentric theorising is a worthwhile exercise.

4.1. Autonomy of objects

One way to avoid the often-problematized human–nature and subject–object dualism in ecocentric thought (Guattari, 1989; Newton, 2002) is to consider both human subjects and nature-objects equally as objects among other objects. This radical idea of object-oriented philosophy asserts that an enquiry cannot be merely about the humans in the world, but must encompass other things and objects (such as crude oil and the oceans), including their fundamental relations and characteristics (Harman, 2002, 2009). So far many fields of research, including material culture studies, have ignored factors like the achievements and impacts of [non-human] living organisms (Ingold, 2012).

The distinction between the notions of things and objects should be noted. For Ingold (2012), objects are completed forms that stand over and against the perceiver and block

further movement. He rejects the notion of the object and takes materiality for what it is–made and finished–and turns to things to emphasise the gatherings of materials in movement, as distinct from objects. In Ingold's (2012) ecology of materials, a focus on the life of materials prioritises the processes of production over those of consumption. Ingold thus insists on a radical distinction between object and thing, drawing inspiration primarily from an influential essay, entitled *The Thing* by Heidegger ([1971] 2001, p. 165–182). For Harman (2009) again, all things are objects. Thus real objects include those things without matter and relation. And the 'real objects […] withdraw from all human view and even from all relations with each other' (Harman (2009, p. 195), making the essential qualities that this paper seeks to outline rather more a matter of perception than actuality.

Another crucial difference is that while Ingold's (2011) largely enquires into what things do, Harman (2009) seeks to understand what objects are. For an ecological organisation, both tasks are definitely important. In the present enquiry, however, the focus is on the latter as the study seeks to complement ecocentric thought with a set of essential *qualities* common to all objects. These qualities are within the object itself, not to be found in its relation to other objects (Harman, 2009).

Object-oriented philosophy differs in an important way from the relational tradition (e.g., actor-network theorising by Latour, 1996, 2005; Johnson, 1988), as it does not consider objects as fully defined by their relationships with other objects, but views objects as entities that have a certain autonomy (Harman, 2002, 2009, see also Morin, 1994, 2008). In other words, when compared to relational ontologies (e.g., Latour, 2005; Johnson, 1988), a distinctive feature of the object orientation is that objects are not fully defined by their relationships with other objects, but have a degree of *autonomy* (Harman, 2002, 2009; Pierides and Woodman, 2012). Harman (2009, p. 132), one of the key contributors of speculative realism, explains objects and their relations as follows:

> [...] there are countless actors of different sizes and types, constantly duelling and negotiating with each other. But objects are not defined by their relations: instead they are what enter into relations in the first place, and their allies can never fully mine their ores. In Heideggerian terms, objects enter relations but withdraw from them as well; objects are built of components, but exceed those components. Things exist not in relation, but in a strange sort of vacuum from which they only partly emerge into relation.

However, such autonomy is relative: 'we will have to conceive the system in its relation with its environment, in its relation with time, in its relation finally with the observer/conceiver' (Morin [1977] 1992, p. 123). Human and man-made objects are embedded in non-human and non-man-made objects. While the existential phenomenological tradition of Heidegger ([1927] 1962) is also inclined to consider objects as subordinate to human access to them, the present study draws a non-anthropocentric ontological line, where objects may not only exist but also thrive independently of human perception and presence. This means that not all objects depend on the subject (cf. Morin, [1994] 2008, p. 108), and it is exactly because of this that the autonomy of objects is highly relevant to the task of developing ecocentric theorising, as it offers an exit from the anthropocentric and dualistic conceptual frames of thought.

Humans should no longer speak of relations between people and things, because people are things too (Ingold, 2012) but should instead address everything as an object (Harman, 2009). The importance of this post-human ontological turn is that when each thing becomes an object, the material and non-human worlds, and their relations with other objects, are also included in the analysis (Pierides and Woodman, 2012). For an organisational analysis, this signifies that 'all objects and their relations matter' (Pierides and Woodman, 2012, p. 663), as they become full members of the world community (Purser et al., 1995). This helps not only to account for the missing living (and non-living) organisms in the scholarly analysis, but it also helps to erase the division between ecological and social, and encourages people to view organisms as parts of an intertwined process of becoming (Ingold and Palsson, 2013). Things are not mere objects of perception, but part of the world-in-formation. In other words, rather than considering humans as subjects and observers, becoming prompts us to view humans as objects and participants (Ingold, 2011), as well as beings with the capability to act as the observers of the observer (Morin, [1994] 2008).

4.2. Intrinsicality of objects

The ethical register of theory building often tends to be overlooked (Ezzamel and Willmott, 2014), but in this paper axiological questions are considered an integral part of the ontological outline. When independent non-human entities enter the equation, the traditional anthropocentric assumptions are likely to be challenged (Pierides and Woodman, 2012). However, the inclusion of non-human objects in the analysis, although signalling that analysis is taking the materiality of organisations seriously, does not mean that an ecocentric ethos would automatically emerge. In fact, there is a danger the post-human approaches develop into post-humane, and perhaps violent, forms of actions unless the question of value is explicitly addressed.

The second quality of objects adds depth to the ecocentric organisation theory by suggesting that every object (including agents such as ants or humans, structures such as buildings or religions, and processes such as thinking or life) has intrinsic value. Following intrinsicalism (Gladwin et al., 1995), this quality of objects can be called *intrinsicality*. It is important to note here that the intrinsicality of objects does not denote that all objects are proper, good or right in the ethical sense. Nevertheless, by assuming this quality is present, no object is considered merely an instrument for, or means to, another object: instead objects become valued in themselves. This signifies that non-human objects are valuable independently of human objects (Naess, 1973, [1974] 1989) and fosters the view of a human object as an object among others. In contrast to the anthropocentric form of thought, ecocentric scholars are able to escape the human–nature value dichotomy through a premise of inherent equality and justice between all objects.

According to Naess (1973), such broadened egalitarianism, however, only works in principle. This is because 'any realistic praxis necessitates some killing, exploitation, and suppression' (Naess, 1973, p. 95). Moreover, Naess ([1974] 1989, p. 95-96) explains the inclusive form of egalitarianism as follows:

> The ecological field worker acquires a deep-seated respect, even veneration, for ways and forms of life. He reaches an understanding from within, a kind of understanding that others reserve for

> fellow men and for a narrow selection of ways and forms of life. To the ecological field worker, *the equal right to live and blossom* is an intuitively clear and obvious value axiom. Its restriction to humans is an anthropocentrism with detrimental effects upon the life quality of humans themselves. This quality depends in part upon the deep pleasure and satisfaction we receive from close partnership with other forms of life. The attempt to ignore our dependence and to establish a master-slave role has contributed to the alienation of man from himself.

In the above excerpt, Naess illustrates how the understanding of the intrinsicality of objects relates to both human ethics and aesthetics, and how humans have a natural attraction to life. Ingold (2011, p. 39), somewhat similarly, connects value and senses as he states that 'nothing, however, better illustrates the value placed upon a sedentary perception of the world, mediated by the allegedly superior senses of vision and hearing, and unimpeded by any haptic or kinaesthetic sensation through the fee' (Ingold, 2011, p. 39). That is, ethics and aesthetics are to a great extent intertwined (Bateson, [1972] 2000; Kagan, 2010). While human objects have the skill of aesthetic evaluation, which surely helps people to perceive value in the non-human world, it does not denote that the value of objects is dependent on humans assigning such value to objects. In Naess' ([1974] 1989) terms, it instead refers to the human realisation of the inherent value *in* objects, and its consequences for humans (e.g., in terms of aesthetic experiences). The quality of intrinsicality hence contrasts with instrumentalism, which views the value of objects only in relation to other objects. While the value of objects largely unfolds in relation to others (Bateson, [1972] 2000; Latour, 2005), intrinsicality posits that value is a *quality* rather than a relation.

Perhaps somewhat paradoxically, humans might find themselves forced to leave the still largely prevalent anthropocentric premises behind in order to save the human species while not destroying others. In practice, this would first mean recognising the human place within the complex ecosphere, then admitting the limitations of human intellectual mechanisms in understanding the complexity, and third, proceeding with precaution and respect for all objects. But leaving anthropocentrism behind also necessitates and implies an ecosophical language that turns the enquiry away from human-centred discourse and practices based on the instrumentalisation of objects. Fortunately, there is an increased awareness of the connection between 'scientific truth, on the one hand, and beauty and morality, on the other: that if a man entertain false opinions regarding his own nature [or arguably regarding any nature], he will be led thereby to courses of action which will be in some profound sense immoral and ugly' (Bateson, [1972] 2000, p. 265).

4.3. Uniqueness of objects

The rationale for considering everything as an object and assuming all objects come with intrinsic value comes from the realisation that an object's existence (and becoming) is always exceptional. Objects, be they persons, flowers, events, sounds, or other phenomena, disclose in a specific time and place a horizon that is always unique. To ontologically arrive at this idea of uniqueness, objects are considered to be irreducible to their constituent parts (Naess, [1974] 1989; Harman, 2009). For example, 'any attempt to undermine an object – in thought, or with a gun, or with heat, or with the ravages of time or global warming – will not get at the withdrawn essence of the object' (Morton, 2011, p. 150). It is crucial to note that objects cannot be rejected and

reduced to anything: objects are what objects are. This signifies that objects are irreplaceable (Naess, [1974] 1989) and non-substitutable (Daly, 1979).

The substitutability of objects is often assumed in economics and reductionist ecological studies (Heikkurinen and Bonnedahl, 2013). However, objects such as natural and human capital are not substitutable but only complementary (Daly, 1979), if even that. For an ecological enquiry, the non-substitutability factor is of vital importance, as man-made objects such as thoughts, machines and economic processes cannot substitute for non-man-made objects (such as stars, forests and species), and vice versa. Daly (1996, p. 76) explains this non-substitutability vividly:

> One way to make an argument is to assume the opposite and show that it is absurd. If man-made capital were a near perfect substitute for natural capital, then natural capital would be a near perfect substitute for man-made capital. But if so, there would have been no reason to accumulate man-made capital in the first place, since we were endowed by nature with a near perfect substitute. But historically we did accumulate man-made capital – precisely because it is complementary to natural capital. [...] Man-made capital is itself a physical transformation of natural resources which come from natural capital. Therefore, producing more of the alleged substitute (man-made capital), physically requires more of the very thing being substituted for (natural capital) – the defining condition of complementarity!

This paper thus assumes that the essence and relations of all objects are at best complementary rather than substitutable. For instance, it is common sense that objects such as sawmills cannot substitute for stocks of wood (Daly, 1979, 1992), and the other way around, which necessitates rethinking the role of objects and the current industrial practices that transform objects at an increasing pace. And what follows the irreducibility and non-substitutability of objects is the quality of *uniqueness*. The uniqueness of objects directs scholars away from any reductionist mode of organisation studies towards more inclusive frameworks (see e.g., Purser et al., 1995; Reed, 2005; Lozano, 2008), and guides them to proceed with caution when organising and managing objects, as well as encouraging respect for the exceptionality of all objects.

5. Discussion on object-oriented ecosophy

As the essential qualities of objects in this study are derived from object-oriented philosophy (Harman, 2002, 2009) and ecological philosophy (Naess, 1973, [1974] 1989). The three-point outline could be labelled *object-oriented ecosophy*. In the following, the reasons why the emergence of ontological discussion in ecological studies could be valuable, and the implications of the outline for ecological theory and practice are discussed.

Autonomy is very relevant to ecocentric theory, as the 'notion of autonomy does not correspond to the old notion of freedom, which was to a certain extent immaterial and detached from constraints and physical contingencies' (Morin, [1994] 2008, p. 69). According to Morin ([1994] 2008, p. 69), 'it is, on the contrary, a notion closely linked to that of dependency, and the latter is inseparable from the notion of self-organization'. That is, objects are emergent, a quality that might be measured or registered by their relationships, 'but can never be fully defined by them' (Harman, 2009, p. 143). This quality enables scholars to describe and prescribe different agencies for objects, yet

keep them embedded in the ecosystem. For example, it is commonly accepted that without a degree of autonomy, no moral responsibility for sustainability (or any other end) can be assigned or assumed. Further, when ethics is considered an essential element in achieving sustainability (de Paula and Calavanti, 2000), then moral agency is needed to enable, or at least support, the change. Thus, it is vital that the degree of autonomy can be used to explain different agencies in scientific enquiry instead of claiming full interdependency between objects, which leaves little or no room for moral agency (or quality) in objects (see e.g., Latour, 2002).

However, without a degree of autonomy, objects lack the ability to act and to explore their full potential. The idea of the degree of autonomy urges researchers and practitioners of ecological organising to gradually move from questions such as 'how are objects related to each other?' to more practically relevant questions such as 'what are the implications if all objects are assumed to have agency beyond their relations to other objects, and thus also beyond human comprehension?' Consequently, humans responsible for organisations become better equipped to appreciate the idea that they need not only to understand how objects are related to each other in the production system, but also to understand the capability of all objects to surprise the production system with their inherent agency.

While a degree of autonomy is an essential part of object-oriented ecosophy, it becomes ecologically strong only when complemented with the other two qualities. By realising that objects are not substitutes for other objects and cannot be reduced to any other object, the quality of uniqueness becomes accessible, and when objects disclose *uniquely* in a specific time and place horizon, it calls for the theory and practice to respect and embrace their exceptionality, including transformation, change, decomposition and death, that is, also the vulnerability and fatality of objects.

This quality should prompt both researchers and managers to scrutinise the ethics of depriving any object of its agency or existence. The focal implication for organisational practices would thus be to proceed with caution when organising and managing objects. Assuming objects, such as people, animals, forests, chairs, activities, ideas and sounds, are entities that are irreducible and non-substitutable invites us to consider that objects possess not only instrumental value dependent on other objects but, most importantly, value in themselves. This kind of inherent value translates to the quality of *intrinsicality*. The main implication of intrinsicality for organisational enquiry is that it releases objects from the instrumental rationale, and signifies the right of objects to disclose on their own, that is, to live and flourish.

Moreover, *object-oriented ecosophy* and the quality of intrinsicality hold crucial instrumental value for an enquiry into ecological organisation. In other words, if it is to imagine, practice, and manage those organisational orderings that are to stay within material boundaries, humankind has to embrace the existence of all objects for their own sake and therefore to admit their intrinsic value. In the light of anthropocentric thought, this rationale might seem paradoxical for two reasons. First, although instrumentality and intrinsicality usually (if not always) coexist in an object, they are often thought of in dualistic terms, as opposites. Nevertheless, there is no reason to think that they could not coexist in an object. Second, the rationale behind intrinsicality

is supported with an instrumental logic dictating that if people are to imagine and practice those ecological orderings, they need to embrace the existence of all objects for their own sake. Again, teleological argumentation (which claims something for the sake of an end) can be considered to conflict with the idea of intrinsicality only if intrinsicality is presumed to be something that is antithetical to instrumentality.

An ecological turn based on these ecocentric premises represents a radical departure from mainstream organisation theory and shallow environmental turns within and around it. There is little doubt that importing ecological concepts into organisation theory will involve a major reorientation (Purser et al., 1995), which will take time. It is, however, rather encouraging to note that ecologically advanced ontological turns are occurring in sociology (Urry, 2011) and economics (Spash, 2012). However, the question remains whether ecocentric theory must still be developed on the outskirts of contemporary organisation theory, or whether society will open up and begin taking the threats of the Anthropocene seriously.

Be that as it may, the paper considers that given the proposed set of essential qualities of objects (see Table 2 for a summary), organisational scholars would be willing and able to build practically relevant and ecologically advanced theories that consider the non-human and material realms as integral parts of the analysis without falling into the trap of dualism or unsatisfactory representations of nature (see Newton, 2002; Hanna, 1996). Furthermore, such a descriptive outline could offer a response to the critique of ecocentric theorising being just normative ecological ordering that is doomed to fail, since it is merely *an* ontology that is not considered to be over-encompassing or forced on anyone. It may or may not be realised.

Table 2. The table illustrates the essential qualities of objects and the implications to ecocentric theory and practice.

Quality of objects	Autonomy	Intrinsicality	Uniqueness
Underlying assumption and key literature	Objects are not fully defined by their relationships with other objects but have a degree of autonomy (Harman, 2002; 2009)	Objects are not considered to be merely instruments for, or means to, other objects but have value in themselves (Naess, [1974] 1989)	Objects are irreducible (Harman, 2002; Naess, [1974] 1989) and non-substitutable (Daly, 1979)
Description of the quality	All objects have a degree of autonomy	All objects are ends in themselves	All objects are unique
Theoretical implication	Some objects are more autonomous than others	No object should be treated merely as a means	Objects disclose in a specific time and place horizon
Practical implication	Autonomy can be used to explain and assign different (moral) agencies, i.e. objects' ability to act and explore their fullest potential	Intrinsicality releases objects from instrumental rationale, and signifies the right of objects to disclose on their own; to live and blossom	Uniqueness suggests precaution in organising activities and the conservation of ecosystems, as well as embracing the diversity of objects

The ontological outline suggested in this paper escapes the kind of realism where reality is objective and accessible to humans objectively, as well as the kind of antirealism where realities are socially constructed and always relative to subjective human interpretation. The philosophical position of the present study decentralises the human subject by assuming that reality may be objective but knowledge about it only subjective. A significant motivation for leaving the antirealism behind comes from noting that these positions are not equipped to face the ongoing ecological catastrophe (Bryant et al., 2011) that is the Anthropocene.

It has been argued that if humans are to move to ecocentric ontologies, they need more than a popular, observer-style understanding of ecology (Purser et al., 1995, also Morin, [1994] 2008). Thus, in addition to embedding social actors in the ecosystem (Whiteman and Cooper, 2000), recognising the interconnectedness of all actors in that ecosystem, (Valente, 2012; Newton, 2000), and advancing ethical considerations to encompass the non-human world (Gosling and Case, 2013; Ezzamel and Willmott, 2014), objects would have a metaphysical footing of their own. 'Objects exist as autonomous units, but they also exist in conjunction with their qualities, accidents, relations, and movements without being reducible to these' (Harman, 2009, p. 156). Becoming aware of the qualities of objects necessitates engaging with the objects in a direct and open manner, that is, encountering them without instrumentalisation.

While the popular knowledge of objects is a sort of 'spectator epistemology that assumes that by withdrawing from participation in the world, objects can be described and represented as if there were no subjective observer (with values, feelings, etc.)' (Purser et al., 1995, p. 1059), the situational knowing that *object-oriented ecosophy* hints at does not exclude subjectivity from objects or values from ontology. Subjective sentiments such as values in fact play a central role in the ecocentric ontology that is not dominated by, or limited to, instrumental rationality (Purser et al., 1995). Furthermore, several scholars have pondered whether the groundlessness that characterises modern living is preventing humans from developing deeper understandings of, and relations to, objects (Heidegger, [1945] 2010; von Wright, 1978; Ingold, 2011). If so, then re-establishing grounds for time- and space-sensitive knowing by anchoring practices in closer proximity would be warranted.

6. Conclusions

The current research indicates that the new geological era of the Anthropocene calls for a new ontology to guide the organisation of human activities. The ontology proposed here takes a realist and ecocentric turn to avoid the pitfalls of the antirealist and anthropocentric approaches. Drawing from object-oriented (Harman, 2002, 2009) and ecological philosophies (Naess, 1973, [1974] 1989), the study proposes three essential qualities common to all objects, namely *autonomy, intrinsicality,* and *uniqueness.* The ontological outline formed by these three points responds to the critique of ecocentric organisation studies. It demonstrates how to avoid the human–nature dualism by considering each *thing* an object while still arriving at an ecologically relevant view of reality.

The outline labelled *object-oriented ecosophy* facilitates explaining and assigning different agencies depending on the degree of autonomy, the release of objects from an instrumental ethical rationale, and the reasoning behind exercising caution around objects and encouraging their conservation. When the suggested qualities are assumed in organising activities, objects become capable of unfolding in their own ways (*autonomy*), acquire rights to exist on their own (*intrinsicality*), and are respected for what they are (*uniqueness*).

The current study's main contribution to ecological organisation theory and practice is to provide a framework for reimagining the object–object relations central to the peaceful coexistence of objects. This includes the reconsideration of the relationship between humans and the natural environment, and the consequent need to reorganise production activity in a manner that embraces the diversity of objects. The ongoing growth of human economic activity has had a severe impact in terms of reducing the diversity of life, leading to a call for a 'degrowth society' (Daly, 1996; Latouche, 2009; Jackson, 2011). *Object-oriented ecosophy* offers an ontological outline for this transition. If the suggested qualities of objects are perceived in organisations, then organisations are likely to radically reduce the instrumentalisation of objects, including the use of so-called natural resources or capital. In practice, the outline is to signify a decrease in the rate of material throughput needed to reach sustainability (Georgescu-Roegen, 1975; Daly, 1996) and an ecological organisation.

The limitations of this paper relate to the conceptual nature of the study. Whether the proposed ontological outline is actually suited to promote sustainability and would lead to desirable changes in organisational practice is a question that must be explored empirically. Future studies might therefore test the model in organisations, and encompass further theoretical work on the qualities and activities of objects.

Funding

The research undertaken by Pasi Heikkurinen, Jenny Rinkinen, Kristoffer Wilén, and Toni Ruuska received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. The work of Timo Järvensivu was funded by a Tekes (the Finnish Funding Agency for Innovation) research project 'Energizing Urban Ecosystems'.

Acknowledgements

Previous versions of this paper were presented at two international colloquia: (1) the Finnish Society for Environmental Social Science (YHYS), sub-theme 'Methods of Framing in Environmental Policy and Sustainable Consumption Research' in November 2013, and (2) the European Group for Organizational Studies (EGOS), sub-theme 'Things Ain't What They Used to Be: Objects, Relations, Materiality' in June 2014. We wish to thank the organisers and participants of these events for their valuable comments. We also want to express our deepest gratitude to the editorial team and the four anonymous reviewers of this journal for their encouragement and critical remarks.

References

Ayres, R., van den Berrgh, J., Gowdy, J., 2001. Strong versus Weak Sustainability. Environmental Ethics 23, 155–168.

Barnosky, A.D., Hadly, E.A., Bascompte, J., Berlow, E.L., Brown, J.H., Fortelius, M., ... Smith, A.B., 2012. Approaching a state shift in Earth's biosphere. Nature 486, 52–58.

Barnosky, A.D., Matzke, N., Tomiya, S., Wogan, G.O., Swartz, B., Quental, T.B., ... Ferrer, E.A., 2011. Has the Earth's sixth mass extinction already arrived? Nature 471, 51–57.

Bateson, G., [1972] 2000. Steps to an Ecology of Mind. University of Chicago Press, New York.

Beckerman, W., 1995. How would you like your 'sustainability', sir? Weak or strong? A reply to my critics. Environmental Values 4, 167–179.

Bryant, L., Srnicek, N., Harman G., 2011. The Speculative Turn: Continental materialism and realism. re.press, Melbourne.

Carson, R., 1962. Silent Spring. Houghton Mifflin, Boston.

Ceballos, G., Ehrlich, P.R., Barnosky, A.D., García, A., Pringle, R.M., Palmer, T.M., 2015. Accelerated modern human–induced species losses: Entering the sixth mass extinction. Sci. Advances 1, e1400253.

Clair, J.A., Milliman, J., Whelan, K.S., 1996. Toward an environmentally sensitive ecophilosophy for business management. Organization & Environment 9, 289–326.

Crutzen, P.J., 2002. Geology of mankind. Nature 415, 23–23.

Crutzen, P.J., Steffen W., 2003. How long have we been in the Anthropocene Era? Climatic Change 61, 251–257.

Crutzen, P.J., Stoermer, E.F. 2000. The Anthropocene. Global Change Newsletter 41, 17–18.

Cunha, M.P.e., Rego, A., Vieira da Cunha, J., 2008. Ecocentric management: an update. Corporate Social Responsibility and Environmental Management 15, 311–321.

Daly, H.E., 1979. Entropy, growth and the political economy of scarcity, in: Smith, V.K., (Ed.), Scarcity and growth reconsidered. John Hopkins U. Press, Baltimore, pp. 67–94.

Daly, H.E., 1992. Steady-state economics. Earthscan, London.

Daly, H.E., 1996. Beyond growth. Beacon Press, Boston.

de Paula, G.O., Cavalcanti, R.N., 2000. Ethics: essence for sustainability. J. Clean. Product. 8, 109–117.

Ellul, J., [1954] 1964. The technological society [La technique ou l'enjeu du siècle] (translated by Merton, R.K.). Vintage Books, New York.

Emerson, R., 1836. Nature. James Munroe and Company, Boston.

Ezzamel, M., Willmott, H., 2014. Registering 'the ethical' in organization theory formation: Towards the disclosure of an 'invisible force'. Organization Studies 35, 1013–1039.

Fleetwood, S., 2005. Ontology in organization and management studies: A critical realist perspective. Organization 12, 197–222.

Georgescu-Roegen, N., 1975. Energy and economic myths. Southern Economic Journal 41, 347-381.

Gladwin, T.N., Kennelly, J.J., Krause, T.S., 1995. Shifting paradigms for sustainable development: Implications for management theory and research. Academy of Management Review 20, 874–907.
Goodland, R., Daly, H., 1996. Environmental sustainability: universal and non-negotiable. Ecological Applications 6, 1002–1017.
Gosling, J., Case, P., 2013. Social dreaming and ecocentric ethics: sources of non-rational insight in the face of climate change catastrophe. Organization 20, 705–721.
Guattari, F., 1989. The three ecologies. New Formations 8, 131–147.
Hanna, M.D., 1996. Environmentally responsible managerial behavior: Is ecocentrism a prerequisite. Academy of Management Review 21, 796–799.
Harman, G., 2002. Tool-being: Heidegger and the metaphysics of objects. Open Court Publishing, Chicago.
Harman, G., 2009. Prince of networks: Bruno Latour and metaphysics. re.press, Prahran.
Hart, S.L., 1995. A natural-resource-based view of the firm. Academy of Management Review 20, 986–1014.
Heidegger, M., [1927] 1962. Being and Time [Sein und Zeit] (translated by Macqarrie, J., Robinson, E.). Blackwell Publishing, Malden.
Heidegger, M., [1971] 2001. Poetry, Language, Thought [Das Gegeneinander von Welt und Erde ist ein Streit] (translated by Hofstadter, A.). Harper & Row, New York.
Heidegger, M., [1945] 2010. Country Path Conversations [Gesamtausgabe, vol. 77] (Translated by Davis, B.W.). Indiana University Press, Bloomington.
Heikkurinen, P., Bonnedahl, K.J., 2013. Corporate responsibility for sustainable development: a review and conceptual comparison of market-and stakeholder-oriented strategies. J. Clean. Prod. 43, 191–198.
Holt, R., Mueller, F., 2011. Wittgenstein, Heidegger and drawing lines in organization studies. Organization Studies 32, 67–84.
Hornborg, A., 2014. Ecological economics, Marxism, and technological progress: Some explorations of the conceptual foundations of theories of ecologically unequal exchange. Ecological Economics, 105, 11–18.
IPCC (Intergovernmental Panel on Climate Change), 2014. 5th Assessment Report. Climate change 2014: Impacts, Adaption, and Vulnerability.
Ingold, T., 2011. Being alive: Essays on movement, knowledge and description. Taylor & Francis, New York.
Ingold, T. (2012). Toward an Ecology of Materials. Annual Review of Anthropology, 41, 427-442.
Ingold, T., Palsson, G., 2013. Biosocial becomings: integrating social and biological anthropology. Cambridge University Press, Cambridge.
Jackson, T., 2011. Prosperity without growth: Economics for a finite planet. Earthscan, New York.
Jennings, P.D., Zandbergen, P.A., 1995. Ecologically sustainable organizations: an institutional approach. Academy of Management Review 20, 1015–1052.
Johnson, J., 1988. Mixing humans and nonhumans together: The sociology of a door-closer. Social Problems 35, 298–310.
Kagan, S., 2010. Cultures of sustainability and the aesthetics of the pattern that connects. Futures 42, 1094–1101.

Ketola, T. 2008. A holistic corporate responsibility model: Integrating values, discourses and actions. J. Bus. Ethics 80, 419–435.
Koot, L., Grootveld, M., 2015. Interview with Graham Harman on the Anthropocene. Sonic Acts Research Series #10, Anthropocene Objects, Art and Politics. Available at: http://www.sonicacts.com/portal/anthropocene-objects-art-and-politics-1.
Latouche, S., 2009. Farewell to Growth. Polity Press, Cambridge.
Latour, B., 1996. On interobjectivity. Mind, culture, and activity 3, 228–245.
Latour, B., 2002. Morality and Technology: The End of the Means (translated by Venn, C.). Theory, Culture & Society 19, 247–260.
Latour, B., 2005. Reassembling the social-an introduction to actor-network-theory. Reassembling the Social-An Introduction to Actor-Network-Theory. Oxford University Press, Oxford.
Lorek, S., Spangenberg, J.H., 2014. Sustainable consumption within a sustainable economy–beyond green growth and green economies. J. Clean. Prod. 63, 33–44.
Lozano, R., 2008. Envisioning sustainability three-dimensionally. J. Clean. Prod. 16, 1838–1846.
MA (Millennium Ecosystem Assessment), 2005. Ecosystems and human well-being: Synthesis. Island Press, Washington.
Martinez-Alier, J., 2014. Environmentalism, currents of, in: D'Alisa, G., Demaria, F., Kallis, G., (Eds.), Degrowth: a vocabulary for a new era. Routledge, London, pp. 37–40.
Marx, K., [1867] 1992. Capital Volume 1: A Critique of Political Economy [Das Kapital: Kritik der politischen Ökonomie] (translated by Fowkes, B.). Penguin Classics, New York.
Morton, T., 2011. Objects as temporary autonomous zones. Continent 1, 149–155.
Morin, E., [1977] 1992. Method: Towards a Study of Humankind. Volume 1: The Nature of Nature [La nature de la nature] (translated by Belanger, J.L.R.). Peter Lang, New York.
Morin, E., [1994] 2008. On Complexity [La complexité humaine] (translated by Postel, R., Kelly, S.M.). Hampton Press, Cresskill.
Mäki, U., 2008. Scientific realism and ontology. The New Palgrave Dictionary of Economics 7, 334–341.
Naess, A., 1973. The shallow and the deep, long-range ecology movement. A summary. Inquiry: An Interdisciplinary Journal of Philosophy 16, 95–100.
Naess A., [1974] 1989. Ecology, community and lifestyle [Økologi, samfunn og livsstil: utkast til en økosofi] (translated by Rothenberg, D.). Cambridge University Press, Camridge.
Naess, A., 1997. Sustainable development and the deep ecology movement, in: Baker, S., Kousis, M., Richardson, D., Young, S., (Eds.), The politics of sustainable development: Theory, policy and practice within the European Union. Routledge, London, pp. 61–71.
NASA/GISS (National Aeronautics and Space Administration / Goddard Institute for Space Studies), 2014. Climate Data. Available at data.giss.nasa.gov.
Newton, T.J., 2002. Creating the new ecological order? Elias and actor-network theory. Academy of Management Review 27, 523–540.

Orlikowski, W.J., 2010. The sociomateriality of organisational life: Considering technology in management research. Cambridge Journal of Economics 34, 125–141.
Pearce, D.W., Atkinson, G.D. 1993. Capital theory and the measurement of sustainable development: an indicator of 'weak' sustainability. Ecological Economics 8, 103–108.
Pierides, D., Woodman, D., 2012. Object-oriented sociology and organizing in the face of emergency: Bruno Latour, Graham Harman and the material turn. The British Journal of Sociology 63, 662–679.
Purser, R.E., Montuori, A., 1996. Ecocentrism is in the eye of the beholder. The Academy of Management Review 21, 611–613.
Purser, R.E., Park, C., Montuori, A., 1995. Limits to anthropocentrism: Toward an ecocentric organization paradigm? Academy of Management Review 20, 1053–1089.
Reed, M., 2005. Reflections on the 'realist turn' in organization and management studies. Journal of Management Studies 42, 1621–1644.
Rockström, J., Steffen W., Noone, K., Persson Å., Chapin S.F.III, … Foley J.A., 2009. A safe operating space for humanity. Nature 461, 472–475.
Schwägerl, C., 2013. Anthropo-scene #1: From Rocks to Thoughts. Next Nature, April 29, 2013. Available at https://www.nextnature.net/2013/04/anthropo-scene-1-from-rocks-to-thoughts/.
Shrivastava, P., 1994. Castrated environment: Greening organizational studies. Organization Studies 15, 705–726.
Shrivastava, P., 1995. The role of corporations in achieving ecological sustainability. Academy of Management Review 20, 936–960.
Spash, C.L., 2012. New foundations for ecological economics. Ecological Economics 77, 36–47.
Starik, M., 1995. Should trees have managerial standing? Toward stakeholder status for non-human nature. J. Bus. Ethics 14, 207–217.
Starik, M., Rands, G.P., 1995. Weaving an integrated web: Multilevel and multisystem perspectives of ecologically sustainable organizations. Academy of Management Review 20, 908–935.
Steffen, W., Crutzen, P.J., McNeill, J.R. 2007. The Anthropocene: Are humans now overwhelming the great forces of nature. Ambio: A Journal of the Human Environment 36, 614–621.
Steffen, W., Richardson, K., Rockström, J., Cornell, S.E., Fetzer, I., Bennett, E.M., ... Sörlin, S., 2015. Planetary boundaries: Guiding human development on a changing planet. Science 347, 1259855.
Thoreau, H.D., 1854. Walden. Ticknor and Fields, Boston.
Tilley, F., 2000. Small firm environmental ethics: how deep do they go? Business Ethics: A European Review 9: 31–41.
UNEP (United Nations Environment Programme), 2011. Decoupling natural resource use and environmental impacts from economic growth. A report of the working group on decoupling to the International Resource Panel. English summary. Retrieved from http://www.unep.org/resourcepanel/Portals/24102/PDFs/DecouplingENGSummary.pdf
Urry, J., 2011. Climate change and society. Polity Press, Cambridge.

Valente, M., 2012. Theorizing firm adoption of sustaincentrism. Organization Studies 33, 563–591.
Welford, R., 1995. Environmental strategy and sustainable development: The corporate challenge for the twenty-first century. Routledge, London.
Whiteman, G., Cooper, W.H., 2000. Ecological embeddedness. Academy of Management Journal 43, 1265–1282.
von Wright, G.H., 1978. Humanismen Som Livshållning [Humanism as an approach to Life]. Månpocket, Stockholm.
Wright, C., Nyberg, D., De Cock, C., Whiteman, G., 2013. Future imaginings: organizing in response to climate change. Organization 20, 647–658.
Wrigley, E.A., 2010. Energy and the English industrial revolution. Cambridge University Press, Cambridge.
Zalasiewicz, J., Williams, M., Smith, A., Barry, T.L., Coe, A.L., Bown, P.R., ... Stone, P., 2008. Are we now living in the Anthropocene? GSA Today 18, 4–8.