



Who speaks for the future of Earth? How critical social science can extend the conversation on the Anthropocene



Eva Lövbrand^{a,*}, Silke Beck^b, Jason Chilvers^c, Tim Forsyth^d, Johan Hedrén^a, Mike Hulme^e, Rolf Lidskog^f, Eleftheria Vasileiadou^g

^a Department of Thematic Studies – Environmental Change, Linköping University, 58183 Linköping, Sweden

^b Department of Environmental Politics, Helmholtz Centre for Environmental Research – UFZ, Permoserstraße 15, 04318 Leipzig, Germany

^c School of Environmental Sciences, University of East Anglia, Norwich Research Park, Norwich NR4 7TJ, UK

^d Department of International Development, London School of Economics and Political Science, Houghton Street, London WC2A 2AE, UK

^e Department of Geography, King's College London, K4L.07, King's Building, Strand Campus, London WC2R 2LS, UK

^f Environmental Sociology Section, Örebro University, 701 82 Örebro, Sweden

^g Department of Industrial Engineering & Innovation Sciences, Technische Universiteit Eindhoven, P.O. Box 513, 5600 MB Eindhoven, The Netherlands

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ABSTRACT

This paper asks how the social sciences can engage with the idea of the Anthropocene in productive ways. In response to this question we outline an interpretative research agenda that allows critical engagement with the Anthropocene as a socially and culturally bounded object with many possible meanings and political trajectories. In order to facilitate the kind of political mobilization required to meet the complex environmental challenges of our times, we argue that the social sciences should refrain from adjusting to standardized research agendas and templates. A more urgent analytical challenge lies in exposing, challenging and extending the ontological assumptions that inform how we make sense of and respond to a rapidly changing environment. By cultivating environmental research that opens up multiple interpretations of the Anthropocene, the social sciences can help to extend the realm of the possible for environmental politics.

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1. Introduction

In recent years leading environmental scientists have told us that we live in an unprecedented time called ‘the Anthropocene’. The Anthropocene concept was coined by the chemist and Nobel Laureate Paul Crutzen and biologist Eugene Stoermer at the turn of the new millennium to describe a new geological era fully dominated by human activity (Crutzen and Stoermer, 2000). Since then it has taken root in scientific and popular discourse and offered a powerful narrative of human resource exploitation, planetary thresholds and environmental urgency. Central to the Anthropocene proposition is the claim that we have left the benign era of the Holocene – when human civilizations have developed

and thrived – and entered a much more unpredictable and dangerous time when humanity is undermining the planetary life-support systems upon which it depends (Rockström et al., 2009; Steffen et al., 2015). In the Anthropocene, we are told, the Cartesian dualism between nature and society is broken down resulting in a deep intertwining of the fates of nature and humankind (Zalasiewicz et al., 2010, p. 2231).

In this paper we discuss how the social sciences can engage with this powerful environmental narrative in productive ways. In a time when international science initiatives such as *Future Earth* are ‘calling to arms’ and asking environmental scholars across all disciplines to participate in an integrated analysis of the Anthropocene (Palsson et al., 2013), this is a pressing question that has triggered a discussion on the role of social and cultural theory in the study of global environmental change (O’Brien, 2012; Castree et al., 2014; Castree, 2014a). In a number of recent publications, scholars have questioned the marginal and instrumental roles granted to the social sciences and humanities in environmental research and problem-solving. Whereas the Anthropocene concept represents a tremendous opportunity to

* Corresponding author. Tel.: +46 011 363393.

E-mail addresses: eva.lovbrand@liu.se (E. Lövbrand), silke.beck@ufz.de (S. Beck), jason.chilvers@uea.ac.uk (J. Chilvers), t.j.forsyth@lse.ac.uk (T. Forsyth), johan.hedren@liu.se (J. Hedrén), mike.hulme@kcl.ac.uk (M. Hulme), rolf.lidskog@oru.se (R. Lidskog), E.Vasileiadou@tue.nl (E. Vasileiadou).

engage with questions of meaning, value, responsibility and purpose in a time of rapid and escalating change (Rose et al., 2012, p. 1), critics maintain that the institutions and networks out of which the Anthropocene concept has emerged (notably the global change research programmes of the International Council for Science, ICSU) to date have failed to bring qualitative questions of this kind to bear on their research activities. In the quest for solutions to urgent collective action problems, the focus has primarily been on means rather than ends and attention has hereby been diverted away from the social and cultural norms, practices and power relations that drive environmental problems in the first place (O'Brien, 2012). As a consequence, the global change research community has been charged of producing a post-political Anthropocene narrative dominated by the natural sciences and focused on *environmental* rather than *social* change (Malm and Hornborg, 2014; Castree et al., 2014; Swyngedouw, 2014).

In this paper we draw upon this critique to explore how the social sciences may help to extend the conceptual terrain within which the Anthropocene scholarship currently operates. While we note that the Anthropocene is a concept in the making, we argue that the mainstream story projected by leading environmental scientists in high profile journal articles and conference declarations so far has offered a restricted understanding of the entangled relations between natural, social and cultural worlds. As such it has also foreclosed the conversation on the range of social and environmental futures that are possible, and indeed desirable, in 'the age of man'. In order to push the conversation on the future of Earth in new directions, this paper outlines a research agenda for the social sciences that invites critical engagement with the Anthropocene as a socially and culturally bounded object with many possible meanings and political trajectories. To that end we mobilize the critical and interpretative social sciences. While analytically diverse and sometimes competing, the multiple theoretical traditions that we sort under this label share an interest in thinking creatively and critically about the causes, rationalities, practices and politics of environmental research and policy-making. Rather than accepting the world as we find it, work in this field prompt scholars to reflect upon the ideas, norms and power relations that make up the world and to imagine it anew (for useful examples, see Death, 2014; Bradley and Hedrén, 2014).

In the following we tap into these intellectual resources to critically examine three claims that underpin the proposed advent of the Anthropocene. We call these the post-natural, the post-social, and the post-political ontology of the Anthropocene. We begin by outlining what characterizes each claim and continue by discussing how social inquiry may help to interpret, and ultimately extend, the cultural, social and political assumptions they rest upon and project. We contend that critical social engagement with the Anthropocene does not promise any immediate solutions to contemporary environmental challenges. The research agenda advanced in this paper is more likely to unsettle the Anthropocene and to pave the way for competing understandings of the entangled relations between natural and social worlds. Rather than leading astray, however, we argue that such interpretative multiplicity offers an important alternative to the contemporary quest for integrated and solutions-oriented environmental research (Future Earth, 2013). In order to facilitate the kind of political mobilization required to meet the complex environmental challenges of our times, the social sciences need to do more than ask which 'products and services' societal stakeholders need in the transition to sustainability (Future Earth, 2014). A more pressing analytical task lies in exposing and challenging the underlying cultural and social assumptions that inform how we collectively make sense of and respond to a changing environment. Only when extending the conversation on the future of Earth to a broader set of knowledge traditions and communities is it possible, we argue,

to harness the critical potential of the Anthropocene and hereby extend the realm of the possible for environmental politics. Herein lies a tremendous opportunity for social science.

2. The advent of the Anthropocene

The Anthropocene is far from a settled concept. The growing number of publications on the topic suggest that it is an idea in the making that has sparked diverse interdisciplinary conversations on the state of the global environment, the direction of late capitalist society, and the possibility of a self-contained, rational human subject (see, for instance, Steffen et al., 2015; Malm and Hornborg, 2014; Wakefield, 2014). While the Anthropocene clearly has the potential to draw 'the humanities and the natural and social sciences into dialogue in new and exciting ways' (Rose et al., 2012, p. 4), the concept has its home in the environmental sciences and is dominated by a persuasive science narrative of escalating human-induced environmental change. Steffen et al. (2011a) trace the idea of a human dominated planet back to early observations of human alterations of land and sea found in volumes such as George Perkins Marsh's *The Earth as Modified by Human Action* (1874), Eduard Seuss' *The Face of the Earth* (1906), and Vladimir Vernadsky's *Biosphere and Noosphere* (1945). Long before Nobel-prize winning chemist Paul Crutzen and biologist Eugene Stoermer coined the Anthropocene concept in a global change newsletter in year 2000, the environmental consequences of human activities such as land clearing, water usage and fossil fuel burning were well documented and debated within the environmental sciences (Vitousek et al., 1997). When integrated Earth System models were introduced and developed by international science programmes such as the International-Geosphere-Biosphere Programme (IGBP) in the late 1980s, these findings were compiled and aggregated into a global understanding of human-induced environmental change (Uhrqvist and Lövbrand, 2014).

In the following we examine three ontological claims emerging from these coordinated research efforts and that now form the ground for the scientific Anthropocene narrative. The assumptions we make about this narrative rest upon a close reading of conference declarations such as the *Amsterdam Declaration on Global Change* (2001) and the *State of the Planet Declaration* (2012), as well as journal articles produced by leading proponents of the Anthropocene concept such as Paul Crutzen, Will Steffen and Jan Zalasiewicz. While the significance and meaning of the Anthropocene remains contested and unsettled, we argue that there is a distinct story emerging from the global environmental change research community that is affecting how the conversation on the future of Earth currently is unfolding.

2.1. The post-natural ontology of the Anthropocene

The deep intertwining of natural and human systems is at the heart of the scientific Anthropocene narrative (Oldfield et al., 2014). As clarified by Zalasiewicz et al. (2010, p. 2228) the Anthropocene concept was coined in a time of 'dawning realization that human activity was indeed changing the Earth on a scale comparable with some of the major events of the ancient past.' In Stoermer's and Crutzen's pioneering paper from year 2000, climate change emerges as the primary signal of the Anthropocene. The rising atmospheric concentrations of greenhouse gases resulting from human land use change and fossil fuel burning here symbolize the ability of 'civilized man' to alter natural systems to the extent that they cannot be considered 'natural' anymore. In other studies the strong human 'footprint on the planet' (Vitousek et al., 1997) is attributed to land transformations through forestry and agriculture, biodiversity loss through land clearing and the introduction of alien species, the damming of rivers, the

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