



Research Paper

Rethinking climate change adaptation and place through a situated pathways framework: A case study from the Big Hole Valley, USA

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ABSTRACT

This paper critically examines the temporal and spatial dynamics of adaptation in climate change science and explores how dynamic notions of ‘place’ elucidate novel ways of understanding community vulnerability and adaptation. Using data gathered from a narrative scenario-building process carried out among communities of the Big Hole Valley in Montana, the paper describes the role of ‘place-making’ and the ‘politics of place’ in shaping divergent future climate adaptation pathways. Drawing on a situated adaptation pathways framework and employing an iterative scenario building process, this article demonstrates how ‘place’ contextualizes future imagined trajectories of social and ecological change so that key impacts and decisions articulate as elements of place-making and place politics. By examining these key ‘moments’ of future change, participants illuminate the complex linkages between place and governance that are integral to understanding community adaptation and planning for an uncertain future.

1. Introduction

This article describes a research project exploring the intersection of place, community, and social change through scenarios of possible future adaptive pathways in the Big Hole Valley, Montana (USA). It builds on a growing consensus that climate change adaptation planning must consider how adaptation is made meaningful and particularly as it relates to the meanings and practices of ‘place’ (Adger, Barnett, Chapin, & Ellemor, 2011; Castree et al., 2014; Chapin & Knapp, 2015; Devine-Wright, 2013; Fresque-Baxter & Armitage, 2012; Groulx, Lewis, Lemieux, & Dawson, 2014; Lamargue, Artaux, Barnaud, Dobremez, Nettier, & Lavorel, 2013; Perry, 2015). Much of this growing chorus concerns the role of ‘place’ as a ‘boundary concept’ (Groulx et al., 2014) and communicative tool for engaging diverse stakeholders and facilitating collaborative adaptation planning (Chapin & Knapp, 2015). We build on this attention to place by situating this article in a parallel shift away from viewing adaptation as an outcome towards adaptation as a process (Wise et al., 2014). In this sense, adaptation not only represents the temporal dynamics of ecological feedback and response over time but also the ways in which decision-making processes and governance unfold as pathways of *social change* in actual, socio-ecological landscapes (Wise et al., 2014; Wyborn, Yung, Murphy, & Williams, 2015).

Using qualitative data gathered from a multi-scaled, iterative scenario-building process carried out with diverse community members and land management actors, this article builds a case for a theoretical and methodological integration of these two emerging research themes of place and pathways through a ‘situated pathways’ approach (Wyborn et al., 2015) and explores the implications for planning for an uncertain future. Such an approach is directly relevant to the growing literature on pathways, which emerges from diverse regions of the world; for example, Indonesia (Butler et al., 2014), New Zealand (Lawrence & Haasnoot, 2017) and the Netherlands (Haasnoot, Schellekens, Beersma, Middelkoop, & Kwadijk, 2015). As this concept is transported globally, it is critical that it is sufficiently grounded with a robust theoretical understanding of place so that adaptation planning attends to local dynamics and contexts.

This integration, we argue, is critical because the consensus on ‘place’ as a boundary concept tends to treat ‘place’ in apolitical, atemporal, and somewhat naïve ways, whereas pathways approaches tend to focus on technocratic and bureaucratic practices of decision-making in which certain views on place, particularly ‘scientific’ ones, are privileged. In this article, we argue that ‘place’ is not a salve but is helpful primarily because it can both situate and foreground often hidden politics of place, some of which might be incommensurable. A place-

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based approach that does not attend to these politics is devoid of the dynamic forces that bridge meaning into action. Yet, in a similar vein, a pathways approach that does not attend to place is devoid of the substantive content through which these politics become meaningful. To reframe these emerging research foci, we offer *place-making* and *politics of place* as integrative concepts that bridge these perspectives in a situated pathways approach. Here we follow loosely Williams' (2014) definition of place-making as a process "of deliberate effort of people to try to shape, contest, and/or otherwise govern the landscape" in meaningful ways. Politics of place encapsulates the ways those efforts are embedded in and emanate from power and political struggle.

To demonstrate the value of this perspective, we investigated key trajectories of future change from a set of scenario narratives built with the participation of residents and land management agencies living and working in the Big Hole Valley, Montana. This article explores one key scenario of potential transformation to demonstrate how participants illuminated the complex linkages between place, identity, and governance that are integral to understanding community vulnerability and adaptation in the context of future climate change. In particular, we explore key points at which the intersection of place and governance become vital to future community resilience. Attending to place in such transformational moments enables understanding of the politics of negotiation and contestation that underlie collaborative adaptation planning and decision-making around the world (see Erikson et al., 2015).

2. Theoretical framework

As Adger et al. (2013) point out, adaptation research has struggled to situate adaptation in ways that are both recognizable to social scientists and the people who are enacting and/or experiencing adaptation as *social change* (see also Wyborn et al., 2015). We argue that this is partly due to poorly theorizing the intersection of social change and place in adaptive planning processes. Consequently, this section outlines a framework for bridging and integrating temporally mediated notions of place, such as *place-making* and *politics of place* with adaptation pathways (Wise et al., 2014; Wyborn et al., 2015). In short, thinking about climate change adaptation in grounded, situated ways provides a more robust interpretive framework for illuminating the dynamics of adaptation than the resilience and social-ecological systems frameworks that dominate the literature, which pose a number of obstacles for many social scientists, particularly their incongruence with predominant theories of *social change* (Basset & Fogelman, 2013; Cote & Nightingale, 2012; Davidson, 2010; Olsson, Jerneck, Thoren, Persson, & O'Byrne, 2015). Here, our focus is on integrating theories of social change, represented narrowly by place-making and politics of place (within a broader political ecology). We argue this can improve conceptual tools for both the social science of natural resource management and for practitioners and communities confronting the complexities of adaptation as well as the possibilities for future conflict and collaboration (Olsson et al., 2015).

2.1. From system adaptation to situated pathways

As others have noted, because many adaptation frameworks derive from ecological science, they are often devoid of political and historical dynamics as well as cultural meaning and their role in adaptive processes (Cote & Nightingale, 2012; Davidson, 2010). As Basset and Fogelman note (2012), for instance, understanding that the vulnerability that makes adaptation necessary is generated not by simple physical exposure to a threat or hazard but rather by the underlying social, political, and historical root causes that mediate them discounts the applicability of system attributes like 'functionality' or 'adaptedness'. Consequently, as Cote and Nightingale (2012: 479) argue, "power relations and cultural values are integral to social change and to the institutional dynamics that mediate human-environment relations." (see

also Erikson et al., 2015).

This critique focuses, in particular, on the dominance of a systems perspective which diminishes the role of the human agent in social change (Cote & Nightingale, 2012; Davidson, 2010; Olsson et al., 2015; Wyborn et al., 2015). Accounting for agency extends beyond a simple insertion of rational decision-makers and is further complicated by "the fact that any description of an ecosystem is from the perspective of an observer" (Olsson et al., 2015: 3). As several scholars have argued following Nagel (1986), systems frameworks often frame adaptation and resilience through a 'view from nowhere', as opposed to a 'view from somewhere' (Brugger & Crimmins, 2013; Cote & Nightingale, 2012; Williams, 2014). Adaptation, or adaptedness, is *always* a view from somewhere and those views depend on the positionalities, subjectivities, and performative capacities of the agents who define and animate them (Cote & Nightingale, 2012). Subsequently, bridging these views also requires "situate[ing] adaptation within interacting political, economic, institutional, and biophysical processes" (Wyborn et al., 2015). As such, similar to Cote and Nightingales' (2012) 'situated resilience framework', adaptation can be grounded in ways that provide temporal and spatial depth through attention to specific actors and to the cultural, political, and historical dynamics that shape them. To develop this conceptually, we offer an elaboration of the adaptive *pathways-and-envelope approach* (Wyborn et al., 2015) and merge it with the contemporary literature on place to demonstrate the efficacy of such an interpretive frame for planning and practice.

As Wise et al. (2014) define them, *adaptive pathways* are a metaphor for the iterative decision cycles that bridge incremental adaptation to long-term transformational adaptation (or small changes to large changes). In this sense, adaptation pathways not only attend to the social production of actual adaptation histories but, in practical terms, they also open up the realm of future possibilities for applied efforts like planning. In this sense pathways are "*trajectories* of knowledge, intervention, and change which prioritize different goals, values and functions" (Wise et al., 2014 citing Leach et al., 2010: 5). In other words, pathways always reflect temporalities of "social framing" because "how social groupings with different values or worldviews may choose different decision pathways ... [reflects] particular contextual assumptions, methods, forms of interpretation and values that different groups might bring to a problem, shaping how it is bounded and understood" (Wise et al., 2014 citing Leach et al., 2010).

Further extending the adaptation pathways concept in ways that attend to social theory and social change, Wyborn et al. (2015) "recommend conceptually pairing adaptive capacity with an 'adaptation envelope' to acknowledge the multi-scaled social structures creating and reinforcing vulnerability and adaptive capacity." Moreover, this approach also envisions adaptation as "a continual pathway of change and response" so that "the emphasis on the ability of agency to influence structure distinguishes a pathway from path dependency" (Wyborn et al., 2015). This pathways-and-envelope approach more closely approximates actual social process as it reflects a more robust dialectic of adaptive agency and structural contingency, exemplified, for instance, by institutional dynamics. In other words, pathways are not just a sequence of decisions but rather result from a broader set of structural conditions and dynamics that limit, constrain, or enable possibility.

To further extend the pathways-and-envelope metaphor as an analytical tool we propose a *situated pathways approach* in which cultural and political dynamics animate diverse trajectories of change over time (see Morzillo et al., 2015 for a similar perspective). As Cote and Nightingale (2012: 481) point out "this is not simply a case of 'adding' cultural and historical factors in feedback models"; rather, this approach reflects the fundamental fact that decisions and contexts are constituted by and implicated in *culture and power* (Hulme 2011; Strauss 2012). As Wise et al. (2014: 330) point out, "of particular relevance is how these actors, consciously or implicitly, view and define the relationships between human and nature, the goals of adaptation, and the

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