Using scenario planning to assess governance reforms for enhancing biodiversity outcomes

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ABSTRACT

Governance arrangements frame and direct how land managers respond to the multiple demands and challenges of conserving biodiversity. Biodiversity conservation requires attention to how social-ecological systems (SES) change and can be influenced over time. It is important that governance settings within these systems can support achievement of biodiversity outcomes. Two questions then arise. Will current arrangements lead to desirable biodiversity outcomes, and if not, are there other arrangements that plausibly might do better? However, methods for answering these questions in collaboration with critical stakeholders such as policy makers and land managers are not evident in the literature. The aim of this paper is to explore the use of a participatory scenario planning process to test the efficacy of proposed governance reforms for enhancing biodiversity outcomes in two contrasting landscapes in Australia. A workshop process was used to consider the effect of the reform options on key drivers of change, and thus how these affected drivers would in turn modify future scenarios, and the biodiversity outcomes of these scenarios. In both landscapes, there was a preference for reforms that retained governmental influence or control, in contrast to academic calls for adaptive governance that emphasises the importance of self-organisation and devolution of authority. The workshop process, although complex and cognitively challenging, was regarded by participants as suitable for testing the utility of alternative governance options for biodiversity conservation. Challenges for the future include designing and considering reforms based on what is possible rather than probable or preferable, and engaging participants over time to build knowledge, engagement and trust. The paper concludes with suggestions for addressing these challenges.

1. Introduction

Incorporating strategies to manage biodiversity loss and climate change into land use planning represents a significant governance challenge. The issues involved are long-term, systemic and complex (Underdal, 2010), and require planning for social and ecological system dynamics that co-evolve (Rammel et al., 2007; Rands et al., 2010), with an awareness that human intervention can result in unintended consequences and feedbacks (Carpenter et al., 2006; Lambin and Meyfroidt, 2010). Such an approach to planning needs to be adaptable. That is, it requires a shift away from

"planning-then-doing" to one of "planning-by-doing" as an iterative process (Mitchell et al., 2014a; p. 308).

However, a long-term and adaptable approach to planning does not sit well with current neoliberal approaches to governance, where lean government, market mechanisms and the short-term political cycle predominate. While neoliberal governance regimes enable a degree of flexibility associated with increased devolution of responsibilities and the pursuit of networks spanning public, private and community interests, any benefits arising from uptake of these opportunities are often curtailed by simplistic one-dimensional accountability arrangements (Eakin et al., 2011), and the inherent contradiction between profit motives and public good outcomes (Büscher et al., 2012). Those pursuing biodiversity enhancement in the field often end up excluded from planning and decision-making responsibilities, and are burdened with reporting requirements that have little to do with enhancing biodiversity

outcomes (McDonald-Madden et al., 2010). Planning processes are needed that can more immediately respond to learnings that arise from those doing the intervening, and transparent processes through which planning objectives can be modified in response to new learnings and unexpected developments.

In response to such issues, many scholars have called for governance reforms, and have detailed the attributes that might constitute adaptive governance (Folke et al., 2005; Lebel et al., 2006; Lockwood et al., 2012) as an alternative, preferred approach to those currently in place. The term 'adaptive governance' extends the notion of 'adaptive management' by conveying "the difficulty of control, the need to proceed in the face of substantial uncertainty, and the importance of dealing with diversity and reconciling conflict among people and groups who differ in values, interests, perspectives, power, and the kinds of information they bring to situations" (Dietz et al., 2003; p. 1911). 'Management' can be too easily associated with notions of command and control, thus clashing with the self-organising behaviour of co-evolving social-ecological systems (SES), and the ability all humans have for anticipating, imagining, and potentially influencing the future (Davidson, 2010). Instead, institutions and policies need to be reformed through governance processes (Paavola, 2007) so that planning processes can become more nimble and responsive to change. Such reform is particularly sought to improve biodiversity conservation outcomes (Steinberg, 2009; Armitage et al., 2012; Lockwood et al., 2012; Curtin, 2014).

A key challenge is how adaptive governance can be implemented in practice, something we (the authors) have been investigating as researchers and practitioners, leading to a need addressed through this paper for processes through which the practical efficacy of governance reforms can be assessed. Reforming governance to make it more adaptive in the context of biodiversity conservation is challenging, and it is even more difficult to determine the extent that governance reforms are achieving the adaptability sought. Post hoc evaluations and case studies are one approach, but these do not readily allow consideration of future unknowns and the uncertainties that may lead to a range of possible futures. Intervention in current governance, then observing and measuring the effects is another research possibility, but requires years of highly adaptable and transdisciplinary research effort. Given these constraints, scenario planning appears to offer a pragmatic method that allows explicit consideration of governance reforms in the context of uncertainties and diverse futures. In this research, a modified approach to participatory scenario planning was developed to enable biodiversity conservation stakeholders to evaluate a set of proposed governance reform options aimed at improving biodiversity outcomes.

Scenario planning is extensively used and promoted to engage stakeholders in contexts involving a high degree of uncertainty and low levels of controllability (Peterson et al., 2003). The technique has been promoted as a means for businesses to think 'outside the square', and to prepare for the unexpected (Schwartz, 1996). Scenario planning is well suited to participatory approaches for assessing the adaptive and transformative possibilities of particular systems of interest, as it enables a diverse range of plausible futures to be imagined systematically (Walker et al., 2002). Participatory approaches are also a useful way to help stakeholders analyse complex SES in which they are embedded (Hanspach et al., 2014).

A systems approach to participatory scenario creation involves workshop activities where interactions between different trajectories of the key drivers of change are identified and explored, often focusing on the extreme ends of two critical uncertainties to create four scenario spaces (e.g. O'Connor et al., 2005). Narratives are then created to characterise these scenario spaces, and each is given a title. Scenarios can also be used to detail and/or visualise

future circumstances given current trajectories, especially when planning for or raising awareness about climate change impacts (e.g. Shaw et al., 2009). By combining elements of both approaches, it is possible to explore current trajectories as they might eventuate across a diverse range of plausible futures, as has been undertaken by Haward et al. (2013). Similar approaches have been used for scenarios involving future trajectories related to different policy options (Soliva et al., 2008; Hirschi et al., 2013), adaptation strategies (Ravera et al., 2011), and community priorities (Bohnet and Smith, 2007; Reed et al., 2009).

The need to incorporate governance aspects into participatory scenario planning is also recognised, with different strategies proposed (Wangel, 2011). Governance has been included as a theme to help characterise differences between future scenarios (Vervoort et al., 2014). Scenarios representing alternative governance regimes have been developed by stakeholders in a water conflict (Kuzdas and Wiek, 2014), and scenarios have been used to explore the consequences of specific governance strategies that could be adopted by Indigenous communities in Canada responding to polar bear conservation legislation (Dowsley et al., 2013). An alternative strategy has been to use participatory processes to develop contrasting scenarios, and then create discussions around the kind of governance arrangements needed to deliver the preferred characteristics of each (Carvalho-Ribeiro et al., 2010; Southern et al., 2011).

This paper presents and analyses a different strategy to those outlined above. Our research strategy involved two phases. In the first, participants created a range of future scenarios all under the assumption that governance arrangements would not substantially change by 2030. This is in contrast to other approaches where participants created scenarios in terms of governance arrangements that had changed in opposing directions (e.g. Vervoort et al., 2014), or who had 'backcasted' the kind of governance arrangements needed to achieve a desired future (e.g. Southern et al., 2011). The reason for the strategy of initially creating alternative future scenarios with no change in governance arrangements was to enable determination, in a second phase, of the effect of proposed governance reforms on these scenarios.

Our research aim, therefore, was to explore the use of a participatory scenario planning process to test the efficacy of proposed governance reforms for enhancing biodiversity outcomes. The final stage of the research process is presented here, in which stakeholders in two contrasting case study contexts participated in workshops in 2014 to assess the effect of proposed governance reforms on the 2030 scenarios developed at workshops the previous year (Mitchell et al., 2015b, 2016). Because the scenarios had been created assuming relatively constant governance arrangements, participants in the 2014 workshops could then assess the extent they considered the proposed governance arrangements would influence the scenarios and hence change biodiversity outcomes relative to their likely futures under current arrangements.

The paper continues with an overview of the context for the research leading up to the workshop where the proposed governance reforms were tested. The methods used for this workshop are then presented, followed by the results organised to follow the staged logic of the approach. We conclude with a discussion of what these results imply for those seeking to put biodiversity governance reforms into practice, with associated recommendations for how to improve the participatory scenario planning approach adopted.

2. Research context

As this paper reports on the final stage of a research project, it is necessary to provide a brief overview of the project, the two case study contexts, and the scenarios and reforms used as the basis for the 2014 workshop deliberations. More detail is available else-