Resilience and conservation – promises and challenges from conservation science and practice

Duan Biggs*1, Natalie Ban, Lance Gunderson, Bob Pressey, and Michael Schoon

1Centre of Excellence for Environmental Decisions, University of Queensland (CEED) – Australia

Abstract

There is a growing emphasis on the importance of integrating resilience thinking into conservation planning and decision-making. Conservation interventions aim to manage ecosystems to limit the risk of crossing dangerous thresholds into undesirable states that deliver a lower level of conservation benefits and ecosystem services. These interventions play out in the context of rapid social and ecological change, characterised by complex feedbacks, uncertainty, and a lack of historical analogue. The contribution of resilience thinking to conservation planning is that it actively considers issues such as social-ecological complexity, uncertainty and alternative social values and goals.

However, limited guidance exists on how resilience thinking can be integrated into conservation planning and management frameworks, or how existing frameworks, and ways of operating need to change to embrace resilience thinking. A review of the Thomson Reuters Web of Knowledge shows that although the term ‘resilience’ is being increasingly used in the conservation planning literature, it is defined less than 50% of the time, and important concepts associated with resilience thinking such as thresholds, alternative stable states, and social-ecological dynamics are often not mentioned at all. We argue that resilience thinking is compatible with and can make a valuable contribution to conservation planning and management processes. We summarise how these key resilience concepts can contribute to conservation planning and management and present a framework that outlines how this can be done.

There are numerous challenges to incorporating a more complexity-oriented approach to conservation planning and management. These challenges include legal systems and traditional governance procedures and cultures. In addition, the experiences and challenges in incorporating resilience thinking into the research and management of tourism in South African National Parks will be discussed. Finally, ways in which scientists and practitioners can navigate these barriers will be explored.

Keywords: resilience, social, ecological systems, biodiversity, conservation, management, transformation, stewardship

*Speaker