Land Use Policy 52 (2016) 430–438

Contents lists available at ScienceDirect

Land Use Policy

journal homepage: www.elsevier.com/locate/landusepol

Employing resilience in the United States Forest Service

Christopher Bone[a,*], Cassandra Moseley[b], Kirsten Vinyeta[c], R. Patrick Bixler[d]

[a] Department of Geography, University of Oregon, Eugene, OR 97403, United States
[b] Institute for a Sustainable Environment, University of Oregon, Eugene, OR 97403, Unites States
[c] Environmental Studies Program, University of Oregon, Eugene, OR 97403, United States
[d] Institute for Renewable Natural Resources, Texas A&M University, College Station, TX 77843, United States

ARTICLE INFO

Article history:
Received 5 August 2015
Received in revised form
23 December 2015
Accepted 10 January 2016

Keywords:
Resilience
United States Forest Service
Landscapes
Communities
Content analysis

ABSTRACT

The concept of resilience has permeated the discourse of many land use and environmental agencies in an attempt to articulate how to develop and implement policies concerned with the social and ecological dimensions of natural disturbances. Several distinct definitions of resilience exist, each with its own concepts, focus and contexts related to land use policy and management. This often makes understanding the inherent objectives of policies and related principles challenging. The United States Forest Service (USFS) is one example where ambiguity and uncertainty surrounding the use of resilience permeates the content of documents in various areas of the agency. The objective of this paper is to investigate how the USFS employs the term resilience as a means to communicate strategies for managing forest lands. We perform a content analysis of 121 USFS documents including budgetary justification reports, research findings (i.e., journal articles, book chapters and technical reports), public releases, and newsletters to analyze both the rise and specific use of the term resilience in the USFS. Our analysis, which is guided by definitions of resilience in the social-ecological systems literature, reveals that the ambiguity surrounding the use of resilience in the academic literature is reflected in the content of USFS documents. However, we also find that often criticized versions of resilience (namely engineering resilience) are minimally employed by the USFS, and instead the agency focuses on the notion of ecological resilience in which natural disturbances are seen as an important component of the landscape. In some cases, the USFS employs notions of social-ecological resilience, however, the extent to which specific components of social-ecological resilience are integrated into management strategies appears minimal. The findings from this study suggest that clarity regarding the type and function of resilience needs to improve in USFS documents, and that the agency should evaluate the existing question in the SES literature of *resilience of what to what?*

© 2016 Elsevier Ltd. All rights reserved.

"The bottom line is this: We need to restore the resilience of America's forests and grasslands to disturbances of all kinds. The treatments needed will improve watershed health, increase water quantity, improve water quality, generate rural prosperity, and meet our shared vision of healthy, resilient landscapes. Those are our priorities." Tom Tidwell, Chief of the United States Forest Service Presenting to the Western States Land Commissioners Association, January 13, 2010 (Tidwell, 2010b).

1. Introduction

The opening quote to this paper is taken from the President of the United States' budget request for fiscal year 2015 identifying the Administration's top priorities for the United States Forest Service (USFS). The quote speaks to a desire by the USFS to protect the nation's forests against threats of disturbance that compromise ecosystem health and social wellbeing. Central to this quote is the use of "resilience," a term that is increasingly employed in the discourses of public agencies to describe land use policies and management strategies aimed at preparing for, or dealing with, natural and human-caused disturbances (Ostrom and Janssen, 2005). While the use of resilience with respect to forests provides a perceived direction for the USFS to take when developing and implementing policies, ambiguity surrounding the use of the term "resilience" in the context of environmental poli-

* Corresponding author.
E-mail addresses: cbone@uoregon.edu (C. Bone), cmoseley@uoregon.edu (C. Moseley), kvinyeta@uoregon.edu (K. Vinyeta), Patrick.Bixler@ag.tamu.edu (R.P. Bixler).

http://dx.doi.org/10.1016/j.landusepol.2016.01.003
0264-8377/© 2016 Elsevier Ltd. All rights reserved.

cies and management leaves the meaning of this quote open for interpretation. Resilience has been used to describe land management objectives that promote the capacity to adapt to disturbance (Nelson et al., 2007) and, conversely, has also been employed to describe the objective of minimizing the potential and influence of disturbance on a system (Tilman and Downing, 1996). The former requires perceiving resilience as the ability to modify practices and behaviors when faced with disturbance in ways that help maintain important components of a system (Walker et al., 2004), while the goal of the latter is to manage landscapes in a manner that minimizes the impact of disturbance, thus also minimizing the time it takes to return the landscape to its pre-disturbance state (Holling, 1996). Multiple critiques of the use of resilience have emerged in various disciplines such as disaster planning (Manyena, 2006) and urban development (MacKinnon and Derickson, 2013). Yet, there are several signals demonstrating the growing, or at least continued interest in investigating the use of the concept of resilience for developing policies pertaining to, amongst other things, land use. Such signals include the recent emergence of the journal *Resilience*: *International Policies, Practices and Discourses*, which focuses on critical social theorizing of resilience in numerous contexts; the rise in the use of the term in the land use policy literature (e.g., Adger et al., 2011; Schouten et al., 2012; Lloyd et al., 2013; Ogden et al., 2013; Wilson, 2013); the current evaluation by the US Congress of the Resilient Forests Act of 2015 (H.R.2647).

The concept of resilience as a main USFS priority invites questions regarding how resilience is perceived, implemented and achieved in the context of agency goals and land use change. Federal agencies, especially in the United States, are typically large organizations governed through hierarchical structures composed of many geographically separated departments and individuals, and so the way in which resilience is perceived can have significant implications for policy implementation. The USFS, for example, is responsible for the management of over 193 million acres of federal land across 154 individual national forests and grasslands in all regions of the United States ([USFS], 2015). The bureaucracy is multi-level, with each level of the hierarchy given some discretion in forest management priorities and practices. The Chief of the USFS oversees: (1) the national forest system, which is responsible for the management of the national forests and grasslands, (2) research and development, (3) state and private forestry, and (4) administration program and legislation, each of which is guided by a deputy chief and programmatic staff in the National Office. Below the chief are regional foresters and regional program staffs for nine administrative regions, forest supervisors and supporting office program staff, and over 600 ranger districts with accompanying district program staff.

The structure of the USFS and other federal agencies can affect how policies are realized on the ground. Federal policies are rarely adopted or implemented quickly in a homogenous fashion (Moseley and Charnley, 2014), but the ways in which certain terms or phrases are used in agency documents shapes the direction of institutional change over time. The use of specific terminology frames policy discussions by legitimizing and delegitimizing institutional arrangements (Hajer, 1995) and shapes resource management guidance in the form of rules, regulations, policies, and budgeting and accountability procedures. This is especially true in an agency such as the USFS in which policy implementation can vary from one region to another based on the beliefs of individual bureaucrats, the pressure exerted from higher levels in the organization, and the amount of collaboration that takes place between individuals (Moseley and Charnley, 2014). Investigating how the use of resilience impacts federal agencies such as the USFS requires determining what resilience really means when referring to specific forests and their resources, what components of the social and ecological systems to include in resilience approaches for managing forests, and, ultimately, how to breed resilience into forests under the presence and uncertainty of climate change (Park et al., 2011). Additionally, taking a resilience-based land use management approach requires that land managers address the question put forth by Carpenter et al. (2001): *resilience of what to what*? This question asks one to define the component or state of the system that is vulnerable (*of what?)*, and the type of disturbance that is under investigation (*to what?*). From a forest management perspective, one could consider the state of a productive forest being resilient to a natural disturbance such as wildfire, insect outbreaks or invasive species. Managing for resilience would then require altering practices to achieve specific objectives that are dependent on how resilience is defined. For example, if one defines resilience as having the forest rebound as quickly as possible from disturbance, then increasing disturbance suppression efforts may be desired. Conversely, if resilience were viewed as having disturbance be part of a healthy forest, then management activities could examine potential forest composition that permits disturbance to take place without significantly altering the state of the forest (a more detailed explanation of resilience perspectives is provided in the next section).

The objective of this paper is to investigate how the USFS is employing the use of resilience and associated terms in agency communications related to land management. We perform a content analysis of public digital documents from the USFS to understand how these terms are utilized to articulate agency mission, agendas, and developing strategies towards the management of public forestlands. In doing so, we aim to understand how specific terms have been employed in the USFS discourse in the past decade, if their use has increased over time (thus mirroring trends in the academic literature), and in what context these terms are used. We turn to the literature on social-ecological systems (SES) to contextualize the uses and interpretations of the term "resilience". While numerous disciplinary definitions and approaches to resilience exist, the SES literature provides a suitable theoretical framework for examining the use of resilience related to national forest land use policies because of the USFS' mission to focus on both the ecological and social dimensions of forests. Our intent is not to use the SES literature as a means to critique USFS policies, but instead to enhance our understanding of how the agency is discussing these policies in their public documents. In the next section, we draw distinction between three approaches to resilience as defined in the SES literature: (1) engineering resilience, (2) ecological resilience or social resilience, and (3) social-ecological resilience. Discussing the three definitions provides a conceptual spectrum on which to evaluate how resilience is used in USFS documents. We then present the methods and results from the content analysis, followed by a discussion that describes how the USFS has engaged in the resilience discourse.

2. Approaches to resilience

The earliest use of resilience in literature pertaining to either ecological or social systems stems back to Holling (1961) who described the interactions of insect populations using ecological stability theory. The term was later used by Holling (1973) to describe ecological systems as complex entities with interacting parts that do not settle upon states of equilibrium. Since then, resilience has been situated as a "perspective" (Folke, 2006) and a way of "thinking" (Walker and Salt, 2006) when considering the sustainability of social and ecological systems. While different interpretations of the relationship between sustainability and resilience exist, we look towards the sustainability science literature that contextualizes "sustainability" as an umbrella concept inclusive of "resilience". As Turner (2010) describes, sustainability

Download English Version:

https://daneshyari.com/en/article/6547511

Download Persian Version:

https://daneshyari.com/article/6547511

Daneshyari.com