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Developing a Socio-Ecological Approach to Extension Natural Resources Programming

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Abstract

This article proposes the concept of socio-ecology as a natural resources programming model in Extension. After a brief review of the concept, I link it with the original vision of Extension and more recent Extension scholarship that addresses the human–environment conundrum. I then suggest socio-ecology as both a guide for programming and a vision for directing Extension leadership in developing a path forward for sustainable, and just, natural resources allocation and use.

Keywords: socio-ecology, socio-ecological systems, natural resources, ecology, social

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Introduction

The concept of socio-ecology, or socio-ecological systems, centers on advancing a model in which human–environment interaction is viewed as a single coadapting system (e.g., Chapin et al., 2010; Folke, Hahn, Olsson, & Norberg, 2005; Gunderson & Holling, 2002). Often new ways of conceptualizing phenomena lead to new insights, questions, and solutions.

The attempt to better conceptualize the interplay between human and "natural" systems can be seen as the latest step in the ongoing evolution of the practice of natural resources management. This evolution has entailed a progression from focusing on single resource maximization to taking account of a larger ecosystem and the multitude of ecological values present in any resource management system. Whereas once the objective of natural resources management was to maximize the sustainable production of fish, game, and wood fiber, the goal has shifted to one of restoring and maintaining complex ecological systems and processes, with the consumptive resource output seen as only one of many ecological values provided (Chapin et al., 2010).

Through the application of socio-ecology, this evolution is advanced further as humans and human society are

situated in their rightful positions as part of nature and natural systems. Although ostensibly it is obvious that humans and human society are a part of nature, as well as a natural force of environmental change, this actuality often is not assumed in dialogue on natural resources or environmental issues or in proposed policy and regulatory frameworks (Folke et al., 2005). The importance of recognizing human society as a component of nature was emphasized two decades ago in a committee report from the Ecological Society of America: "A strict dichotomy of natural vs. unnatural breaks down when humans are considered part of an ecosystem. The Darwinian revolution united human and nature in the most fundamental way—by origin" (Christensen et al., 1996, p. 679).

What Application Does Such a Concept Have for Extension Programming?

Extension's tradition perhaps makes it uniquely suited to promote a conception that captures humanity's membership as a part of the natural world. By its lack of a regulatory role and its focus on the betterment of people and communities, especially rural people engaged in the production of agricultural and natural resources commodities, Extension has always concentrated on both the economic and social well-being of rural communities and the long-term stewardship of the land and natural resources on which human communities, and our entire civilization, depend (Bailey, 1915; Smith, 1949).

Extension's concern with people has carried forward to the present, as evidenced by Scott Peters's keynote address ("Imagining America: Extension Reconsidered") at the 2015 Joint Council on Extension Professionals Public Issues Leadership Development Conference, in which he asserted that "people come first" and emphasized the grassroots/local empowerment focus of our work (personal communication, April 13, 2015). It also has been observed that Extension's agriculture and natural resources tradition gives us "an inherent understanding of the connectedness of social and ecological systems" (Krasny & Tidball, 2010, p. 3).

Calling for Extension to incorporate ecology and natural resources science into traditional agriculture programming (Cecil, 2004) is an important step in advancing a socio-ecological vision—and one that mirrors the change in natural resources management described previously—yet it is but a step and, as such, falls short of producing a complete picture. Although Cecil (2004) called out Extension educators in agriculture for lacking needed background in ecology or resource management, it is also likely that some educators in natural resources and environmental programming lack understanding of social, cultural, economic, and logistical factors that may constrain what otherwise would be the abstract "ideal" natural resource or environmental solution.

Additional movement toward advancing a socio-ecological vision for Extension includes suggestions that Extension act as a bridging organization to address the social and cultural dimensions of natural resources use and agriculture to mitigate (and perhaps amend) what I call the "discipline and punish" model of environmental regulation that is often ignorant of (or dismisses) the social, cultural, economic, logistical, and even ecological constraints to implementation by people dependent on working the land (Hudson, 2015; Jones, 2013). Members of Extension's traditional clientele in agriculture and natural resources have voiced concern over the increasing regulatory burden on agriculture and natural resources industries, which many see as an assault on our "food and fiber" industries (e.g., Perkowski, 2016). This view is shared by some scholars working in this arena who have emphasized the context-sensitive nature of socio-ecological systems and their complexity with calls for local adaptation, local knowledge, and a change from the exclusive use of top-down regulatory systems to a social learning/adaptive management model of natural resources management (Chapin et al., 2010; Folke et al., 2005; Gunderson & Holling, 2002).

To promote this more collaborative approach to natural resources management, Extension could apply the socio-ecological model in various ways. One would be for Extension professionals to act as independent analysts of natural resources and agricultural policy to fairly assess not only a policy's effects on the environment but also the policy's impact on individual landowners and the larger community (Warren, 2014). In this capacity, Extension would serve as a mediator across policy makers, regulators, and clientele (Hudson, 2015; Jones, 2013). Another way would be to apply this mediation concept in engagement with local natural resources collaboratives, which try to arrive at solutions to thorny natural resources controversies, such as those involving federal land management, by having members of the various sides, or factions of natural resources users, work together to craft solutions. Extension professionals could become involved to ensure that participants recognize the human element and the cultural and economic dependence that many rural communities have on extracting natural resources.

Extension programming for landowners and the public generally also could benefit from application of the socio-ecological concept. This approach would require that educators become more aware of and take account of in their programming the financial, logistical, and other constraints landowners face when applying conservation or management practices rather than teach to the "perfect" system. A landowner's personal, family, social, and economic milieu is inextricably linked with the land he or she inhabits and should be considered when recommending practices.

The challenge those of us working in Extension face is to find ways to wed the ecological values we want to maintain on the landscape with the social, cultural, and economic needs of the people who inhabit it and depend on its use directly, and to see the latter as legitimate natural agents of environmental change (for example, see Dagget, 2005, and Starrs, 2002).

Grounding our work in a socio-ecological model provides a theoretical basis for Extension's tradition of grassroots empowerment of the agricultural producers and natural resources users we serve. We want to avoid the connotation that we are talking down to our clientele by not seeing our mission as being "to teach individuals and communities how to live and work" (Elliot, Hyde, McDonell, Monroe, & Rashash, 2008, "Opportunity for the Cooperative Extension System," para. 1) and not taking sides among stakeholders, such as through condemning major commodity agriculture in an attempt to support new local agricultural movements (Colasanti, Wright, & Reau, 2009).

Extension educators can and should act as social change agents, but through offering new ways of seeing the world (e.g., the socio-ecological model) and new ideas and applying the known basic principles of socio-ecological systems that will encourage our stakeholders to use new insights and innovation to find solutions to their own unique problems and situations. This is the social learning model advocated for the "adaptive governance" of complex and inherently unpredictable socio-ecological systems (Folke et al., 2005; Liu et al., 2007; Spies et al., 2014) that builds adaptive capacity and resilience (Chapin et al., 2010). Extension should act as a partner in this social learning model, learning along with communities and adapting to change.

Conclusion

The explicit use of socio-ecology in Extension natural resources programming can help us avoid the shortsightedness inherent in focusing only on how humans affect the environment in a negative way and move to a vision that establishes a reciprocity of concern for how the health and well-being of humans and human communities are affected by our recommendations regarding natural resources use as well as an

acknowledgment of the positive impacts that human-caused environmental change can have on ecological values.

If the human community is viewed as part of the ecosystem (which it is), negative effects on the human community will be seen as equally as important as changes to the environment. Humans may need to do things differently in some cases to maintain the ecological values that are preferred, but also there may need to be an acceptance (and even appreciation) of human-caused environmental change implemented for the purpose of providing positive benefits to the human components of the ecological system.

The socio-ecological approach proposed here would not involve viewing agricultural and natural resources management systems as external to nature, as something to protect nature from, but as legitimate natural forces creating a new nature, perpetuating what nature has always been, ever changing, ever replacing what has been. Ultimately, Extension's purpose is to help reimagine the relationship between the rest of nature and humanity as an interrelationship of a humanized nature and a naturalized humanity.

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