

## Section 9—Social/Economic/Cultural Components

Patricia L. Winter,<sup>1</sup> Jonathan W. Long,<sup>2</sup> and Susan Charnley<sup>3</sup>

Previous chapters of this synthesis rely on multiple ecological disciplines to frame core aspects of a sustainable, resilient ecosystem. Approaching forest management in the Sierra Nevada and southern Cascade Range in a manner that promotes socioecological resilience and sustains important forest values requires consideration of not only the ecological, but also the social, economic, cultural, and institutional components of the ecosystem, using a systems approach (Higgins and Duane 2008). The term “socioecological system” has been widely used in scientific literature on resilience. Key ideas underpinning the concept of integrated socioecological systems are: interactions between biophysical and social factors; linkages across spatial, temporal, and organizational scales; regulation of the flow and use of critical resources that are natural, socioeconomic, and cultural; and continuous adaptation (Redman et al. 2004). In the following six chapters, we draw from published research to improve understanding of forest management for socioecological resilience in the synthesis area.

Chapter 9.1 describes the social context of the synthesis area. Drawing from the extensive analysis of the Sierra Nevada Ecosystem Project Final Report (Erman and SNEP Science Team 1997), the chapter explores the social complexities of the area. Recreation and tourism are used as a specific example of a triple bottom line approach to sustainability, which brings together ecological, economic, and social considerations (Thomas 2012). These topics are emphasized because of their great importance

---

**Forest management that promotes socioecological resilience considers ecological, socioeconomic, cultural, and institutional components of the ecosystem.**

---

<sup>1</sup> Research social scientist, U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station, 4955 Canyon Crest Dr., Riverside, CA 92507.

<sup>2</sup> Research ecologist, U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station, 1731 Research Park Dr., Davis, CA 95618.

<sup>3</sup> Research social scientist, U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Forestry Sciences Laboratory, 620 SW Main St., Suite 400, Portland, OR 97205.



People on a trail in the center of Crescent Meadow, Sequoia National Park.

in this synthesis area and because they are the subject of recent scientific advances reflected in published literature (see Bricker et al. 2010, Cottrell and Vaske 2006, Cottrell et al. 2007, Winter et al. 2013, WTO and UNEP 2008).

Chapter 9.2 focuses on how the concept of ecosystem services can be used in forest management to frame and describe concerns and tradeoffs as they relate to social, economic, and cultural values. This chapter also considers tensions between supply and demand for such services, especially in light of the population growth described in the first chapter.

Chapter 9.3 examines the connection between social and ecological health and well-being in the Sierra Nevada and southern Cascade Range. It explores, from a sociocultural perspective, the ecosystem dynamics that are threats to and stressors on ecosystems in the synthesis area—specifically, climate change, wildland fire, and invasive species. The chapter also presents and discusses the complexities of decisionmaking associated with effective management for resilience.

After considering these broad regional issues in the first three chapters, this section turns to the sustainability and resilience of rural communities that lie within the synthesis area. The final three chapters examine how benefits for rural communities can be created through forest management that contributes to socioeconomic sustainability and enhances overall socioecological resilience within the region.

One way to create local community benefits is to undertake forest management in a manner that enhances economic opportunities in local communities. This can be accomplished in a number of ways, including through forest restoration, recreation management, and the production of forest products. Chapter 9.4 discusses strategies for job creation in forest communities through forest restoration and recreation on national forest lands. Chapter 9.5 focuses on strategies for sustaining and improving the production of forest products from public lands, including timber, biomass, nontimber forest products, and forage for livestock, to help support community residents who depend on these resources for their livelihoods.

The final chapter in the section, 9.6, focuses on institutions, processes, and models for collaboration in forest management that use an all-lands approach and incorporate traditional and local ecological knowledge. The importance of collaboration within the larger context of forest management, discussed in the first chapter, loops back here to focus on effective approaches for collaboration across scales, regions, and institutions, with examples from throughout the state. These collaborative institutions and processes will continue to be an important influence on the success of managing for socioecological resilience in the Sierra Nevada synthesis area.

## References

- Bricker, K.S.; Winter, P.L.; Schultz, J.R. 2010.** Health, economy, & community: USDA Forest Service managers' perspectives on sustainable outdoor recreation. *Rural Connections*. September: 37–42.
- Cottrell, S.P.; Vaske, J.J. 2006.** A framework for monitoring and modeling sustainable tourism. *e-Review of Tourism Research*. 4(4): 74–84.
- Cottrell, S.P.; Vaske, J.J.; Shen, F., Ritter, P. 2007.** Resident perceptions of sustainable tourism in Chongdugou, China. *Society and Natural Resources*. 20(6): 511–525.
- Erman, D.C.; SNEP Science Team, eds. 1997.** Status of the Sierra Nevada: the Sierra Nevada Ecosystem Project [CD-ROM]. Digital Data Series DDS-43. Denver, CO: U.S. Department of the Interior, Geological Survey. [http://pubs.usgs.gov/dds/dds-43/DDS\\_43.PDF](http://pubs.usgs.gov/dds/dds-43/DDS_43.PDF). (14 May 2013).
- Higgins, T.L.; Duane, T.P. 2008.** Incorporating complex adaptive systems theory into strategic planning: the Sierra Nevada Conservancy. *Journal of Environmental Planning and Management*. 51(1): 141–162.
- Redman, C.L.; Grove, J.M.; Kuby, L.H. 2004.** Integrating social science into the long-term ecological research (LTER) network: social dimensions of ecological change and ecological dimensions of social change. *Ecosystems*. 7(2): 161–171.
- Thomas, C. 2012.** Using GTR 220 to build stakeholder collaboration. In: North, M., ed. *Managing Sierra Nevada forests*. Gen. Tech. Rep. PSW-GTR-237. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station: 89–93.
- Winter, P.L.; Bricker, K.; Schultz, J. 2013.** The sustainability of outdoor recreation and tourism: findings from a survey of Forest Service managers. In: Cordell, H.K.; Betz, C.J.; Zarnoch, S.J., eds. *Recreation and protected land resources in the United States: a technical document supporting the Forest Service 2010 RPA assessment*. Gen. Tech. Rep. SRS-GTR-169. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 198 p. [http://www.srs.fs.fed.us/pubs/gtr/gtr\\_srs169/gtr\\_srs169\\_appendix\\_papers.pdf](http://www.srs.fs.fed.us/pubs/gtr/gtr_srs169/gtr_srs169_appendix_papers.pdf). (19 December 2013).
- World Tourism Organization and United Nations Environment Programme [WTO and UNEP]. 2008.** *Climate change and tourism: responding to global challenges*. Madrid, Spain. <http://www.unep.fr/shared/publications/pdf/WEBx0142xPA-ClimateChangeandTourismGlobalChallenges.pdf>. (23 December 2013).