

Section 5. Society

Chapter 5.1. An Introduction to Social, Economic, and Ecological Factors in Natural Resource Management of Northeastern California Public Lands

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Socioecological Resilience

The adaptive management of forests and rangelands is directed toward achieving an ecologically sustainable landscape that contributes to social and economic sustainability. This “socioecological resilience” is a significant focus of the U.S. Department of Agriculture, Forest Service 2012 Planning Rule directing how national forests are to revise their forest plans, as introduced in Chapter 1.1 (Dumroese, this synthesis, *The Northeastern California Plateaus Bioregion Science Synthesis: Background, Rationale, and Scope*). This process is complicated not only by ecological disturbances discussed throughout this *Northeastern California Plateaus Bioregion Science Synthesis*, but also by stressors of demographic, economic, and social change at a variety of scales. Stressors relevant to Lassen and Modoc National Forests include anticipated forces of:

- **demographic trends**—human population shifts in the area may produce a reduction in overall population count but with increased racially and ethnically diverse members; and
- **ecosystem services**—increases in population-related “demand for ecological services within the region and from areas farther removed” are expected (Long et al. 2014, p. vi), yet within the context of an anticipated reduction in forest ecosystem services in many areas of the Western United States.

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Meanwhile, measures of adaptation may be learned and practiced through:

- **community engagement**—proactive, creative, collaborative community-based partnerships are encouraged to embrace science education and work across institutional boundaries (Vose et al. 2012), despite the resource deficits and social fragmentation that many local rural communities face; and
- **tribes and cultures**—respect of multiple cultures, especially of local tribal values, may encourage a philosophy of sustaining forest health, cultivating public goods, investing in future generations, and participating in the natural environment in ways that may ultimately contribute to the well-being of the local socioecological system.

As noted in Chapter 1.1 (Dumroese, this synthesis, *The Northeastern California Plateaus Bioregion Science Synthesis: Background, Rationale, and Scope*), recent science syntheses, namely, the *Science Synthesis to Support Socioecological Resilience in the Sierra Nevada and Southern Cascade Range* (Long et al. 2014; hereafter *Sierra Nevada Science Synthesis*); *Synthesis of Science to Inform Land Management Within the Northwest Forest Plan Area* (Spies et al. 2018; hereafter *Northwest Forest Plan Science Synthesis*); and *Effects of Climatic Variability and Change on Forest Ecosystems: A Comprehensive Science Synthesis for the U.S. Forest Sector* (Vose et al. 2012) review the general approach and the substantive concerns of managing the impact of change on Forest Service-managed lands with integrated ecological, economic, social, and cultural perspectives and strategies. The *Sierra Nevada Science Synthesis* is in part modeled on other documents and, in addition to social/economic/cultural human dimensions, includes natural science sections on forest ecology, genetics of forest trees, fire, soils, water resources and aquatic ecosystems, terrestrial wildlife, and air quality. The *Northwest Forest Plan Science Synthesis* reviews socioeconomic and cultural issues, as well as natural and physical aspects of climate and forest science, local species census, biodiversity projections, and aquatic conservation. The synthesis on climatic variability discusses ecological effects, but attends more heavily to suggested social and institutional responses required to navigate the impacts of change upon socioecological systems.

Both the Sierra Nevada and Northwest Forest Plan science syntheses already addressed aspects of human dimensions with the Lassen and Modoc National Forests (hereafter the Lassen, the Modoc, or the Lassen-Modoc) The Sierra Nevada Science Synthesis devotes Section 9 to Social/Economic/Cultural Components (see Long et al. 2014). The Northwest Forest Plan Science Synthesis (Spies et al. 2018) similarly addresses human dimensions of forest management in Chapters 8 through 11. A science synthesis of climate change impacts on forest ecosystems (Vose et al. 2012) dedicates Chapter 3 to socioeconomic contexts. It also reviews in Chapter 4 some management models in use for the adaptation and mitigation of climate change specifically, but which may be extrapolated to decision making for the sustainability of socioecological systems and management of ecosystem services (see Vose et al. 2012). This *Northeastern California Plateaus Bioregion Science Synthesis* makes note of these science syntheses where relevant to social-economic concerns, but also responds to concerns particular to the Lassen and the Modoc, insofar as peer-reviewed literature exists. Note that the Restoration sections of Chapter 2.1 (Moser, this synthesis, *Understanding and Managing the Dry Conifer Forests of Northeastern California*) and Chapter 3.2 (Dumroese, this synthesis, *Rangeland in Northeastern California*) have additional discussion on the decisionmaking process for dry pine forestland and sagebrush rangelands, respectively.

Tribes, community members, partners, and stakeholders who are invested in the Lassen and the Modoc cited gaps in both the Sierra Nevada and Northwest Forest Plan science syntheses. This science synthesis has distilled the many social, economic, and cultural questions they proposed and responds to them in this society section that includes four chapters:

- Chapter 5.2: *Demographic Trends in Northeastern California*
- Chapter 5.3: *Ecosystem Services and Public Land Management*
- Chapter 5.4: *Community Engagement in the Decisionmaking Process for Public Land Management in Northeastern California*
- Chapter 5.5: *Integrating Tribes and Culture Into Public Land Management.*

The general limitation of these chapters is the scarcity of social science literature specific to the Lassen, the

Modoc, and the surrounding areas. The chapters in this section draw on social science topics of concern to local community members and Forest Service staff. Where possible, we include literature that relates directly to Lassen and Modoc Counties, as well as to the Northern California region.

References

- Long, J.W.; Quinn-Davidson, L.N.; Skinner, C.N., eds. 2014. Science synthesis to support socioecological resilience in the Sierra Nevada and southern Cascade Range. Gen. Tech. Rep. PSW-GTR-247. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. 712 p.
- Spies, T.A.; Stine, P.A.; Gravenmier, R.; [et al.], tech. coords. 2018. Synthesis of science to inform land management within the Northwest Forest Plan area. Gen. Tech. Rep. PNW-GTR-966. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 1020 p. 3 vol.
- Vose, J.M.; Peterson, D.L.; Patel-Weynand, T., eds. 2012. Effects of climatic variability and change on forest ecosystems: A comprehensive science synthesis for the U.S. Forest Sector. Gen. Tech. Rep. PNW-GTR-870. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 265 p.