Part V
Ecosystem Processes and Feedbacks in Social–Ecological Landscapes

With expanding interest in social-ecological systems comes a new set of challenges. Rather than considering only biotic or environmental factors, the interactions of people and nature become paramount. These exercises explore fundamental concepts of connectivity and heterogeneity from the perspective of social-ecological landscapes, both in terrestrial and marine systems. Chapter 16 uses a straightforward spatial modelling approach in Excel to explore ways to incorporate landscape heterogeneity into ecosystem processes and services. The lab includes a well-loved "build-your-own-adventure" framework suitable for fun group projects. Chapter 17 also takes a user-friendly approach to account for heterogeneity in tropical landscapes managed for their carbon storage potential. Using the lens of carbon accounting, the role of spatial heterogeneity at different scales is assessed, exemplifying contemporary challenges of ecosystem service management at landscape scales. Chapter 18 explores spatial resilience and regime shifts in a coral reef social-ecological landscape and demonstrates the universality of spatial resilience principles (such as feedbacks) in diverse landscape (or seascape) settings. Chapter 19 examines tradeoffs among ecosystem services in an agricultural setting using a realistic modelling environment via web interface. Lastly, Chapter 20 offers a challenging perspective on social network connectivity using another marine-based example. Building on network themes from prior modules, social network connectivity is used to examine the flow of information related to fishing practices across a heterogeneous marine landscape. Taken together, this suite of exercises demonstrates the myriad ways in which landscape principles and tools are relevant to sustainability challenges in social-ecological landscapes throughout the world.