

BOOK REVIEWS

Readers are encouraged to submit book reviews to the *Natural Areas Journal*. See instructions and book list at the end of this section.

The Science of Overabundance: Deer Ecology and Population Management

William J. McShea, H. Brian Underwood, and John H. Rappole (eds.). Smithsonian Institution Press, Washington, D.C. 402 p., cloth, 1997. [ISBN 1-56098-681-6]

Ungulate browsing has received increasing attention as a fundamental force shaping terrestrial ecosystems. Aside from livestock, North America has several large herbivores (e.g., deer, elk, moose) that can produce noticeable and often negative ecological impacts. Since these ungulates are native species, natural resource management has come to view browsing as a problem of overabundance. But what is "overabundance?" In what context is it defined? Why is it necessarily a problem? What systems (e.g., biological, ecological, socioeconomic, political) are most affected by excessive numbers of large herbivores? These questions (and more) spawned the conference that eventually produced this text.

By including "overabundance" in the title of this book, the editors appear to have stacked the deck toward those who feel there are too many deer. Yet several chapters in this book take what at the very least would be considered a skeptical approach to deer "overabundance." Their inclusion recognizes the spectrum of professional opinions on deer overabundance. McCabe and McCabe (Chapter 2) note that even though the reconstruction of presettlement

white-tailed deer abundance in eastern North America is difficult and filled with uncertainty, present population estimates may differ little from historical levels. Rutberg (Chapter 4) disputes the notion of overabundance as a diversion to sustain sport hunting. Other chapters question some of the long-held dogmas in wildlife management, like Aldo Leopold's early model of predator removals/protection and ungulate population irruptions.

The diversity of papers and perspectives provided in this symposium proceedings is both a blessing and a curse. Some aspects of deer population dynamics are well represented (e.g., genetic variation in white-tailed deer, Chapter 7) while others are only superficially covered (e.g., density-dependence, Chapter 8). This inconsistency in detail probably is not deliberate but rather reflects the challenge of studying a big, hard-to-control organism. Even though North American deer (especially white-tails) are some of the best-understood large mammals on earth, much of the research has been observational and lacks the rigor of experimental trials. Several of the experimental efforts reported in this text run into problems: Bowers (Chapter 19) provides an example of a pseudo-replicated study, while Hansen et al. (Chapter 20) make guarded inferences from nonreplicated field samples. Difficulties also arise from some of the studies based on simulation modeling. For example, the gap model used by Seagle and Liang (Chapter 21) is ill suited for studying tree regeneration dynamics because of its inappropriate assumptions on propagule availability. Other modeling efforts reported in this book take a population approach to deer dynamics, removing the deer from the context of the ecosystems and landscapes in which they exist.

The Science of Overabundance is not without its merits. Numerous studies are both carefully designed and analyzed (e.g., Healey, Chapter 15; Alverson and Waller, Chapter 17; Risenhoover et al., Chapter 22), while others add to the growing body of correlative (and logical) linkages between high deer densities and unwanted environmental responses (e.g., Palmer et al., Chapter 10; Schmitz and Sinclair,

Chapter 13; Wilson and Childs, Chapter 14; McShea and Rappole, Chapter 18). Kept in the context of a broadly organized conference proceedings, many different aspects of deer biology and ecology are presented and the references provided cover the majority of key articles. Inclusion of the voices of some critical thinkers provided perspectives that are rarely heard in wildlife management forums, and long-held paradigms are openly challenged. This book helps lay the foundation for future research and management of deer abundance by providing some testable hypotheses and recognizing that biological and ecological systems are not separable from the socioeconomic and political ones we have imposed.

It is important to note, however, that this is not an objective, prescriptive management guide. Some authors (from both sides) spend too much time posturing about the tools used to manage deer herds (primarily hunting) rather than addressing the questions begged by the title: Are deer truly overabundant? If so, what can/should we do? Wemmer (Chapter 5, p. 65) perhaps states it best: "Managing abundant wildlife is as daunting of a challenge as managing threatened wildlife." Notwithstanding some of the science and commentary, I do believe *The Science of Overabundance* is a suitable addition to the libraries of those striving to address the consequences of deer on ecosystems.

Reviewed by:

Don C. Bragg
Southern Research Station
USDA Forest Service
Monticello, Arkansas USA

The National Environmental Policy Act: An Agenda for the Future

Lynton Keith Caldwell. Indiana University Press, Bloomington. 209 pp., cloth, 1998. [ISBN 0-253-33444-6]

Lynton Keith Caldwell's book about the National Environmental Policy Act (NEPA) provides historical information about the act, insights on current politics, and a vision for an America in which the princi-