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Review of *The Tallgrass Restoration Handbook: For Prairies, Savannas, and Woodlands* Edited by Stephen Packard and Cornelia F. Mutel

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The Tallgrass Restoration Handbook: For Prairies, Savannas, and Woodlands. Edited by Stephen Packard and Cornelia F. Mutel. Washington, DC: Island Press, 1997. xxxii+ 463 pp. Illustrations, tables, references, index. \$25.00 paper (ISBN 1-55963-320-4).

Prairies have been termed the nation's most endangered ecosystem. Tallgrass prairies especially have been converted to cultivation; most states have lost ninety-eight percent or more of the tallgrass prairie that existed before European settlement. The rich soils that tallgrass vegetation created over millennia led to the prairies' replacement by the Corn Belt in a matter of mere decades.

While most persons, rather than mourning the passing of tallgrass prairie, are contented with the vistas of grains and soybeans that displaced it, some conservationists are attempting to stem the tide of habitat loss, and others are going so far as trying to restore or recreate grasslands. *The Tallgrass Restoration Handbook* is intended for this latter group.

Aptly titled a handbook, the volume provides practical, hands-on advice for anyone interested in re-establishing tallgrass prairie or its associated

savanna or woodland. Unlike agronomy, which generates advice to farmers based on carefully designed and replicated field experiments, ecosystem restoration must currently rely on anecdotal reports passed from one practitioner to another. This limitation is clear throughout the book: recommendations are typically based on experiences at individual sites, and many chapters contain no references to published literature.

The first two chapters offer a brief introduction to the tallgrass prairie and oak savanna, including the often neglected but critically important below-ground components, such as plant roots and mycorrhizal fungi. The next section wisely emphasizes the importance of planning and setting objectives. A section comprising seven chapters gives sound working advice on the mechanics of restoration, including selecting, processing, and sowing seed. Three chapters discuss management options, including prescribed burning and controlling invasive plants. A chapter on monitoring vegetation is short but effective. Individual chapters cover management of insects, amphibians and reptiles, birds, and bison. Among the appendices are tables of vascular plants and terrestrial vertebrates of Midwestern tallgrass prairies, an annotated bibliography of publications on natural communities of the tallgrass region, and sources of seeds, equipment, and further information.

The book has its shortcomings, some reflecting its plural authorship. The term "conservative species" is defined in four different chapters but used before any of them; a conveniently placed glossary would have avoided this drawback. Some recommendations for monitoring birds seem misguided. It is suggested that surveys of birds be conducted only every few years, which would complicate tracking species that naturally fluctuate in number and distribution. Also, twenty-minute point counts are recommended, which are needlessly long in grasslands. And one author suggests learning prairie plants by consulting a book on wildflowers. What about grasses, the plants dominant in prairies?

But the volume has many engaging features, particularly its informative introduction to prairies, its emphasis on setting objectives and monitoring progress toward them, and its good information on the behavior of prescribed fires. I noted few typographical errors.

I would have liked a chapter emphasizing the importance of *preserving* prairie. Saving what remains is far more straightforward, economical, and effective than trying to re-establish what has been lost. True, some of the more conspicuous components of prairie can be restored: grasses, certain forbs, migratory birds, and some mammals and reptiles. The less conspicuous components are more challenging: the numerous invertebrates and fungi,

for example. Yet these latter taxa are abundant and play critical roles in natural prairies. Some pieces of a broken prairie can be put back, but can we restore their functions? This handbook summarizes what is known, or believed, about reaching that goal. **Douglas H. Johnson**, *Northern Prairie Wildlife Research Center, U.S. Geological Survey-Biological Resources Division, Jamestown, North Dakota.*