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Review of *The Tallgrass Prairie Center Guide to Prairie Restoration in the Upper Midwest.* By Daryl Smith, Dave Williams, Greg Houseal, and Kirk Henderson.

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The Tallgrass Prairie Center Guide to Prairie Restoration in the Upper Midwest. By Daryl Smith, Dave Williams, Greg Houseal, and Kirk Henderson. Iowa City: Published for the Tallgrass Prairie Center by the University

of Iowa Press, 2010. xxi + 301 pp. Photographs, illustrations, maps, tables, charts, glossary, scientific terms list, references, index. $27.50 paper.

Tallgrass prairie restoration in the Upper Midwest is the focus of this guide. Its geographic area of coverage includes the eastern fifth of South Dakota and Nebraska and northeast Kansas, a region some ascribe to the eastern Great Plains. Two types of prairie restoration are dealt with: prairie reconstruction, which the authors define as creating prairie from scratch on sites where prairie plants no longer exist; and prairie remnant restoration, defined as upgrading degraded existing prairies. The book comprises five sections: "Reconstruction Planning," "Implementing Reconstruction," "Prairie Restoration and Management," "Special Cases," and "Native Seed Production." There are 16 chapters, each written by one of the four authors, an approach that leads to some duplication.

For those wanting to restore prairie, this guide provides thorough coverage of all aspects of restoration ranging from seed collecting and planting to postplanting management. It is also replete with details on restoration methodology. For example, anyone seeking instruction on how to operate a seed drill will find it here. The volume is well illustrated with black-and-white photos demonstrating equipment and methods.

The authors promote a rather rigorous, labor-intense approach to prairie restoration. They recommend seed cleaning, high seeding rates, drill planting, and postplanting annual weed control. Throughout the Midwest many prairie restorationists now follow a much less meticulous methodology with success. They do little seed cleaning, broadcast plant (which is much faster than drill planting), and do little if any follow-up weed control (in regions with less precipitation weed growth is less robust, perhaps mitigating the need for postplanting weed control). Many restorations are large, some a few hundred acres in size, and restorationists simply don't have the time or funds to follow many of the methods recommended here.

I disagreed with some of the authors' specific recommendations on restoration methodology. For example, they state that one should not broadcast plant seed on snow or ice as this exposes the seed to wind erosion and predation. Some of our best, most diverse plantings have resulted from broadcast planting onto snow. The sun quickly melts the seed into the snow, even hard snow, providing ideal conditions for cold, moist seed stratification. They also recommend drill planting 20 grass and sedge seeds per square foot for typical restorations. This is a fairly high grass seeding rate, especially when drill planting. Many restorationists now promote low grass seeding rates as the quick-to-establish warm-season grasses compete with, and limit, the establishment and growth of forbs (wildflowers).

Overall, this manual is a useful addition to the literature on prairie restoration. It can provide good guidance, but restorationists should always experiment as local conditions, such as climate and soils, can influence the success of specific restoration methods. **Gerry Steinauer**, *Nebraska Natural Heritage Program, Nebraska Game and Parks Commission.*