

## A Multi-Region, Adaptive Approach to Invasive Plant Management on Fish and Wildlife Service-Owned Native Prairies



- **The Challenge:** The extent of native prairie in North America, particularly in the Prairie Pothole Region of the northern Great Plains, has been dramatically reduced. Agricultural conversion and exclusion of historic disturbances that shaped the ecosystem has caused the decline. Around 100,000 hectares of native prairie are found within units of the National Wildlife Refuge System; therefore, this large public land base is an important conservation reservoir of native prairie. Service-owned prairies have experienced extensive invasion by two exotic cool-season grasses, smooth brome (*Bromus inermis*) and Kentucky bluegrass (*Poa pratensis*). Refuges are attempting to curb these invasions and restore native prairie species through reintroduction of different forms of disturbance, such as fire and grazing. However, success has been inconsistent to poor. Managers need guidance for selecting appropriate disturbance actions and this guidance should occur in a systematic framework that helps managers learn better management practices.



- **The Science:** Northern Prairie Wildlife Research Center and Patuxent Wildlife Research Center are partnering with the U.S. Fish and Wildlife Service to design and implement an adaptive decision-support framework for management of native prairies on Service-owned lands. The scope of the project includes 120 management parcels on 19 refuges across 2 Service regions and 4 states in the Prairie Pothole Region. The framework brings together individual land managers, accommodates local prairie conditions and management constraints, while providing decision guidance that takes advantage the collective experience of all participating cooperators. The framework integrates predictive modeling and resource monitoring in a recurring cycle of activities designed to provide decision support while reducing management uncertainties.



- **The Future:** We have developed a provisional framework for adaptive decision support. The components include predictive models of prairie response, an expression of stakeholder goals, and a monitoring program to update understanding about effects of management. Based on resource conditions that they measure, managers receive guidance for the selection of one of five available management options. Managers choose an option, record their implemented actions, and conduct follow-up monitoring. The monitoring results inform the predictive models, which in turn influence the decision guidance for the next year, thus initializing another cycle of the process. Adaptive management on cooperating refuges was formally initiated in August 2010, when decision guidance from the provisional framework was provided to managers. Further work to refine the models and other elements of the framework will result in a final decision product delivered to USFWS at the end of FY2011.

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