AN ADAPTIVE APPROACH TO INVASIVE PLANT MANAGEMENT ON FISH AND WILDLIFE SERVICE-OWNED NATIVE PRAIRIES IN THE PRAIRIE POTHOLE REGION: DECISION SUPPORT UNDER UNCERTAINTY

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Much of the native prairie managed by the U.S. Fish and Wildlife Service (Service) in the Prairie Pothole Region (PPR) is extensively invaded by the introduced cool-season grasses, smooth brome (*Bromus inermis*) and Kentucky bluegrass (*Poa pratensis*). Management to suppress these invasive plants has had poor to inconsistent success. The central challenge to managers is selecting appropriate management actions in the face of biological and environmental uncertainties. In partnership with the Service, the USGS is developing an adaptive decision support framework to assist managers in selecting management actions under uncertainty and maximizing learning from management outcomes. The framework is built around the practical constraints of refuge managers and includes identification of the management objective and strategies, analysis of uncertainty and construction of competing decision models, monitoring, and mechanisms for model feedback and decision selection. Twenty-four Service field stations, spanning four states of the PPR, are participating in the project. They share a common management objective, available management strategies, and biological uncertainties. While the scope is broad, the project interfaces with individual land managers who provide refuge-specific information and receive updated decision guidance that incorporates understanding gained from the collective experience of all cooperators. We describe the technical components of this approach, how the components integrate and inform each other, how data feedback from individual cooperators serves to reduce uncertainty across the whole region, and how a successful adaptive management project is coordinated and maintained on a large scale.