

AN EVALUATION OF PRAIRIE TRANSPLANT METHODS

*THOMAS ROSBURG, Department of Biology, Drake University, Des Moines, IA 50311, USA

Abstract: A field experiment was conducted from 2001 to 2007 in central Iowa to determine the effectiveness of prairie transplant methods. A blocked, split-plot design was used to assess three aspects of methodology: 1) tree spade versus scraping and hauling, 2) shallow (10 cm) versus deep (25 cm) scraping, and 3) removal of topsoil (10 cm) versus intact topsoil at the recipient site. Five blocks were established on a remnant prairie in the footprint of a highway construction project. Baseline data on the species composition of the prairie remnant was obtained in July 2001, the prairie was transplanted to the recipient site in September 2001, and monitoring of species composition on the treatment plots at the recipient site occurred in July of 2002, 2003, and 2007. Paired t-tests and three-way ANOVA were used to analyze 12 community and 24 species variables characterizing prairie quality. Although both transplanting and tree spades were effective, the transplant method had several advantages including greater efficiency and prairie quality due to less growth of woody species, hairy aster (*Aster pilosus*) and Kentucky bluegrass (*Poa pratensis*). Deep scraping was favored over shallow scraping due to its negative effects on Kentucky bluegrass, quackgrass (*Elymus repens*), and sweet clover (*Melilotus* sp.), and its positive effects on prairie forbs. Topsoil removal on the recipient site produced better results than leaving the topsoil intact. Five of six prairie species fared significantly better and two ruderal species were significantly reduced on plots with topsoil removed.