

A 12-year study on the scaling of vascular plant composition in an Oklahoma tallgrass prairie

Ecological Archives E091-124

DANIEL J. MCGLINN,¹ PETER G. EARLS, AND MICHAEL W. PALMER

Department of Botany, Oklahoma State University, Stillwater, Oklahoma 74078 USA

Abstract. We present data that were collected as part of a monitoring project on vascular plant composition at the Tallgrass Prairie Preserve in Osage County, Oklahoma, USA. The purpose of these data are to promote the study of multi-scale patterns of species composition for both theoretical and applied questions. Furthermore, these data will provide a reference point for tallgrass prairie restoration projects in the Flint Hills. Over the course of the 12-year period, we sampled 20 permanent plots annually. The permanent plots were selected semi-randomly from a UTM grid using the criteria that they contain less than 20% of woody cover, standing water, or exposed rock. Plant species presence was recorded at five spatial scales: 0.01, 0.1, 1.0, 10, and 100 m² in each of the four corners of a 100-m² square quadrat. Plant species were assigned to a percent cover class at the 100-m² grain. In addition to information on plant composition, we provide data on topography, soil variables, monthly total rainfall, monthly average temperature, and management records related to fire and grazing history. We hope this data set will stimulate further research into the scaling of biodiversity and insight into the functioning and conservation of tallgrass prairie plant communities.

Key words: *bison; Flint Hills; restoration; spatial scale; species-time-area relationship; tallgrass prairie; vascular plants; vegetation monitoring.*

The complete data sets corresponding to abstracts published in the Data Papers section of the journal are published electronically in *Ecological Archives* at (<http://esapubs.org/archive>). (The accession number for each Data Paper is given directly beneath the title.)