

Effects of Mowing on a Native Tall Grass Prairie in Central Oklahoma

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A mowed, tall-grass prairie was studied by the plant ecology class at the University of Oklahoma in the autumn of 1957. This prairie, located in McClain County about 9 miles southwest of Norman, was previously analyzed by Kelting (1950) before it was subjected to annual mowing.

The mowed prairie was analyzed by means of 25 one-tenth square meter quadrats, spaced at intervals of ten paces along the lines of study utilized by Kelting (1950). In each quadrat, the areal (foliage) cover of each species was estimated to the nearest whole percent of the total quadrat area. From these data, frequency, and cover data were calculated.

In the study of the unmowed (virgin) prairie, Kelting (1950) decided that the dominants were *Andropogon scoparius*, *Panicum virgatum*, *Sorghastrum nutans*, and possibly *Andropogon Gerardi*. In the mowed prairie, as determined by relative frequency and relative cover, the dominants were *Andropogon scoparius* and *Andropogon Gerardi* (Table I). Secondary species of importance were *Sorghastrum nutans*, *Sporobolus asper*, *Panicum Scribnerianum*, *Panicum virgatum*, and *Bouteloua curtipendula* (Table I). It should be noted that *Andropogon scoparius* and *Andropogon Gerardi* increased in areal cover with mowing whereas *Panicum virgatum* and *Sorghastrum nutans* declined in importance (Table II).

A total of 44 species was encountered in the investigation as compared to the 36 species listed by Kelting (1950). Of the 36 species found in the unmowed (virgin) prairie only 19 species continued to exist after six years of annual mowing. A total of 25 additional species, however, appeared in the mowed prairie, presumably as a response to mowing and removal of the dead material (9,544 pounds per acre). Many of these species were weeds which are characteristic of grazed tall grass prairie.

This investigation deals with the analysis of a mowed tall grass prairie and a comparison of the results with those on the same (virgin) prairie before it was mowed. The dominants in the virgin prairie were *Andropogon scoparius*, *Panicum virgatum* and *Sorghastrum nutans* whereas the dominants of the mowed prairie were *Andropogon scoparius* and *Andropogon Gerardi*. A total of 36 species were listed in the virgin prairie whereas 44 species were encountered in the mowed prairie. Of the 36 species in the virgin prairie 19 species disappeared, but 25 additional, mostly weedy, species were encountered following mowing.

TABLE I. Frequency and areal cover of important species in a mowed prairie near Norman, Oklahoma

Species	Relative frequency	Relative cover
<i>Andropogon Gerardi</i>	7.8	14.2
<i>Andropogon scoparius</i>	12.3	26.4
<i>Bouteloua curtipendula</i>	7.8	3.6
<i>Panicum Scribnerianum</i>	10.0	5.8
<i>Panicum virgatum</i>	8.5	6.0
<i>Sporobolus asper</i>	12.3	5.2
<i>Sorghastrum nutans</i>	11.7	7.3
Seedlings	16.2	22.0

TABLE II. Areal cover percentages in a virgin prairie and in the same prairie after six years of mowing.

Species	Virgin prairie Autumn 1950	Mowed prairie Autumn 1957
<i>Panicum virgatum</i>	5.0	2.5
<i>Andropogon scoparius</i>	5.5	11.0
<i>Sorghastrum nutans</i>	4.0	3.0
<i>Andropogon Gerardi</i>	1.7	6.9
<i>Leptoloma cognatum</i>	3.0	1.9
<i>Aster ericoides</i>	0.5	1.2

REFERENCE

Kelting, R. W. 1954. Effects of moderate grazing on the composition and plant production of a native tall grass prairie in central Oklahoma. *Ecology* 35: 200-207.