HERPETOFAUNA OF THE KONZA PRAIRIE RESEARCH NATURAL AREA IN THE FLINT HILLS REGION OF KANSAS WITH RESPECT TO HABITAT SELECTION

by

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INTRODUCTION

Ecological study of many species of amphibians and reptiles has been rather limited even though approximately 30% of North American vertebrates (excluding fish) north of Mexico are herpetiles (Bury et al. 1980). This lack of study has been due in part to the secretive habits of many species coupled with the lack of suitable techniques for assessment of numbers, microhabitat selection and activity by secretive forms. Lack of ecological study of herpetiles is also true for the Great Plains region of central North America even though a few species have been studied in detail, e.g., the five-lined skink, collared lizard, six-lined racerunner, copperhead and ringneck snake (Fitch 1954, 1956b, 1958a, 1960, 1975). For most herpetiles of the Great Plains available information consists of distributional ranges and general natural history (e.g., Collins 1982, Hudson 1942, Webb 1970, Wheeler and Wheeler 1966).

Recently, investigators interested in habitat relationships, the role of herpetiles in native habitats and nongame wildlife management have studied habitat distribution and collected natural history data on herpetiles in prairie preserves of the central United States. For example, the herpetofauna of preserves was examined in North Dakota (Hopkins 1983), Nebraska (Ballinger et al. 1979, Jones et al. 1981), Iowa (Platt 1973, 1975), and Kansas (Fitch, collective references in Literature Cited). Study of herpetiles, in such preserves, should provide important insights into ecological requirements since these sites often contain vegetation conditions that resemble native habitats rather than habitats created by livestock grazing and agriculture practices. Native prairies recently or

presently being set aside by conservation organizations offer considerable potential for the continued study of herpetiles under ecological conditions that more closely match natural habitats than the habitats created by intensive agriculture and other human disturbances of native ecosystems. The Konza Prairie Research Natural Area (KPRNA) in the Flint Hills region of eastern Kansas offers the opportunity to study the ecological requirements of herpetiles in native habitats of the tallgrass prairie. As a first phase, the present study was initiated to compile a species list as well as to gather information on habitat distribution and natural history of herpetiles on the KPRNA.

MATERIALS AND METHODS

Reptiles and amphibians were collected from 1 March to 15 October 1983 on the Konza Prairie Research Natural Area (KPRNA) located ten kilometers south of Manhattan, Kansas. Supplemental nighttime searches for anurans were also carried out on this site in the spring of 1984. KPRNA, located in Riley and Geary counties, was purchased in two units, one in 1971 and the other in 1977, by the Nature Conservancy to establish an experimental tallgrass prairie research site in the Flint Hills region of eastern Kansas. KPRNA contains 3487 ha and consists primarily of tallgrass prairie (>90% of the site), a limited amount of woodland, especially along streams, and less than 100 ha of cultivated fields. The site managed by Kansas State University is one of eleven Long-Term Ecological Research sites supported by the National Science Foundation (Callahan 1984).

Tallgrass prairie on the KPRNA is dominated by big bluestem (Andropogon gerardi), little bluestem (Andropogon scoparius), and indian grass (Sorghastrum nutans; plant names from Freeman and Hulbert 1983). Shrubby habitats, dominated by rough-leaved dogwood (Cornus drummondii) and some smooth sumac (Rhus glabra), occur along portions of limestone outcrops. The two large creeks, Kings and Shane Creeks, support gallery forest habitat dominated by common hackberry (Celtis occidentalis) and bur and chinquapin oaks (Quercus macrocarpa and Q. muhlenbergii). Additionally, Kings creek, Shane creek, smaller spring fed streams and 12 man made ponds provide habitats for aquatic herpetiles.

Three terrestrial areas served as primary collecting sites, an upland limestone outcrop dominated by native grasses with a few patchy areas of