

## OBSERVATIONS ON THE ECOLOGY AND NATURAL HISTORY OF ANURA

XI. THE INVASION OF THE CANADIAN RIVER FLOOD PLAIN BY TWO PRAIRIE SPECIES<sup>1</sup>

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Normally, *Bufo cognatus* Say and *Pseudacris clarkii* Baird occur only in the prairie habitat in central Oklahoma, although both are present in small numbers in the "islands" of prairie of the oak-hickory woodlands-savannah in eastern Cleveland and western Pottawatomie Counties. Both breed by the hundreds or thousands in clear-water temporary pools after spring and summer rains and are, therefore, easy to locate. (For details, see Bragg 1937, and 1940a, b, c). Till recently they have never been seen or heard on the flood-plain of the Canadian River, even though another species of each genus (*B. woodhousii woodhousii* Girard and *P. streckeri* Wright and Wright) is found here in abundance, breeding in the sloughs (Bragg 1940a, 1940b, 1942).

Breeding of both the prairie and flood-plain species has been under close observation near Norman, Cleveland County, Oklahoma, each spring from 1935 to 1941 inclusive. In addition, notes taken by Mr. A. H. Trowbridge for the spring of 1934 have been made available to me. The statements made above are based upon this experience.

In the spring of 1940, one calling male of *B. cognatus* was collected from a congress of the flood-plain species in a flooded slough on the plain. The following spring, about twenty males of this species and over a hundred of *P. clarkii* were found at the same place. None could be found elsewhere on this floodplain, either at this time or later when males were calling on the prairie.

The slough in question had been dammed sometime prior to 1934 to form an extensive shallow pond which often completely dries up during the hot weather of summer although water may remain throughout the year if the rainfall is heavy. The soil is of river sand mixed with clay. Sedges formed the principal vegetation just prior to the spring floods of 1941.

The observations are interpreted as a clear case of invasion of the floodplain at this point by species usually limited to the prairie. Apparently, the damming of the slough started a succession which by 1941 reached a stage attractive to these prairie amphibians and they migrated in from the adjoining prairie in consequence. I had hoped to prove this more definitely and also to trace this succession in detail before publication, but extensive floods on the river later in the spring of 1941 completely destroyed the area as I had known it. The facts given are interesting in themselves and, furthermore, add to the implication in former contributions (Bragg 1940a, b, c) that anuran amphibians can be used as ecological indicators of some importance.

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## LITERATURE CITED

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