

Nesting and Brooding by King Rails in Upland Cool-Season Grasses in a Southern Illinois Sanctuary

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King Rails (*Rallus elegans*) use a variety of habitats ranging from freshwater, brackish, and coastal saltwater marshes to shrub swamps and upland fields near marshes (Bent 1926, Meanly 1969, Bateman 1977, Ripley 1977). Typically, they nest on hummocks (rounded knolls, higher than surrounding marshy area) in portions of marshes with shallow (0-25cm) water. Water depths at foraging sites of King Rails are usually <10 cm and drying natural swales (low marshy areas) are important for brooding. Because of wetland losses and other factors, the species was included on the National Audubon Society's Blue List in 1976-1982 and list of Special Concern in 1986 (Tate 1986). In Illinois, the species was listed as threatened in 1994 (Herkert 1994). This paper describes characteristics and apparent fates of the two nests of King Rails found during a 29-year (1963-91) study of Greater Prairie-Chicken (*Tympanuchus cupido pinnatus*) nests on scattered grassland sanctuaries in Jasper County, Illinois. Subsequent brood observations suggest that the species has become a regular breeder on Illinois sanctuaries.

The first of the two nests was discovered on 30 May 1990 by a team of nest searchers walking a 4-ha meadow dominated by redtop bentgrass (*Agrostis alba*) within a 94-ha sanctuary. An adult King Rail was flushed from five eggs at a distance of 6 m. The second nest was



King Rail nest and eggs in smooth brome (grass parted for photo) on the Donnelley Prairie-Chicken Sanctuary, Jasper Co., IL. 31 May 1990. Photo by Ron Westemeier.

found the following day by a team of searchers while walking a 2-ha stand of smooth brome (*Bromus inermis*) within a 65-ha sanctuary. One adult flushed from seven eggs at a distance of 1 m; a second adult flushed about 2 m from the nest and the searchers. Because clutch size of King Rails is typically 10-12 eggs (Meanly 1969), we assumed adults at both nests were still in the laying stage.

We revisited both nests on 11 July 1990. Both were judged successful on the basis of: (1) small chips of egg shells present in and immediately outside both nest bowls, (2) the presence of one unhatched, nearly intact egg containing embryo remains (i.e., not depredated) in each nest, and (3) an egg shell with a typical pip line characteristic of hatching. Meanly

(1969:65) reported shell fragments to be characteristic of "virtually all" successful nests and that adults may eat egg shells soon after hatching. One intact egg showed no evidence of fertility when opened. The 12 eggs observed upon discovery were light buff and spotted with brown. The three unhatched eggs from the two nests measured 41.8 (mm) x 29.6, 40.8 x 30.5, and 41.3 x 30.4.

We identified and measured plants within 30 cm of the rim of each nest. The nest in the redtop field was mostly concealed by redtop (65%) with lesser contributions by timothy (*Phleum pratense*)(15%), wild mustard (*Brassica campestris*)(15%), and brome grass (*Bromus commutatus*) (5%). The brome nest was 95% concealed by smooth brome and a small amount (5%) of slender rush (*Juncus tenuis*). Both fields had been high mowed by combine (for redtop seed) or rotary mower the previous summer or fall leaving a residual stubble height of 41 cm at both nests. New growth was slightly higher (43-46 cm) on the dates of discovery. Both clutches could be viewed from overhead through a slight interlaced canopy of grass leaves. Depths of grassy duff, comprising each nest bowl, measured 3-5 cm in the centers and 5-8 cm at the rims. Both nests were on upland prairie sites, but in essentially level fields that tended to be poorly drained when subjected to heavy rainfall. During May 1990, precipitation was 135% above a 30-year average with 25.2 cm recorded

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