

235-02-1993

KING RAIL (Rallus elegans)

Gene Wilhelm, Ph. D.

General Location Prospect Quadrangle, Number 4008081, Block 2 and Mount Chestnut Quadrangle, Number 4007988, Block 1, Butler County, Pennsylvania.

Exact Location Specific site of observations straddles longitude 80°00' on the Prospect and Mount Chestnut Quadrangles, 7.5 minute series, USGS, photo-revised in 1970 and 1972 respectively. The site varies approximately from one and one-half to one and three-quarters miles west of Muddy Creek (hamlet) junction of State Routes 8 and 138 on the south side of Muddy Creek itself, near the confluence of Muddy Creek and Muddy Creek Arm of Lake Arthur, Moraine State Park.

Specific Habitat Habitat of the site varies from wide open and standing water adjacent to Muddy Creek Arm of Lake Arthur to dense growth of willow and alder trees, interspersed with clumps of dense cattails, skunk cabbage, grass tussocks, sedges, smartweed, and jewelweed. Exact nest site is still unknown.

Sighting Dates May 25, June 06, and July 07, 1993

Breeding Code FL (based on PA Breeding Bird Atlas Project)

Breeding Behavior I managed to investigate briefly proposed Dam Site D10-103 across Muddy Creek at the extreme east end of Moraine State Park on May 25, June 06, and July 07, 1993 between ecotours to Alaska and Maine-New Brunswick. I both heard the characteristic "kek-kek-kek" call and observed two adult King Rails (pair?) on May 25 and June 06 at the site and saw one adult King Rail (female?) with two nearly full-grown juveniles there on July 07, 1993.

Sightings The mornings of May 25 and June 06 were clear, calm, and cool between 0600-0730 hours. Sunlight was bright and directly behind my back when I observed the the birds. July 07 was partly cloudy but with bright light. Birds observed at a distance of 100-125 feet through a 9 x 35 mm wide-angle Bausch & Lomb binocular.

Identification The adult King Rails look like large counterparts of the Virginia Rail, which they resemble in color. About two times larger than the Virginia Rail, the adult King Rails had cinnamon-brown cheeks (Virginia Rail has gray cheeks), long, slender, slightly down-curved cinnamon-colored bills. Underparts were light brown to rusty, streaked with dark brown except on the crown which was similar in color to the belly - a rich cinnamon color. Wings were plain brown by comparison to the very streaked back. Throats were whitish to pale gray with a paler cinnamon streak or eyeline extending from the eyes to the base of the upper mandible. The underparts were rich rusty-cinnamon with buffier lower bellies. Flanks of the birds were deep brown, conspicuously barred with white and under-tail coverts mottled with the same color. Legs were mostly yellowish-brown but truly distorted by wading in

muck. The adults stayed together, in fact, for less than a minute or two on May 25 and June 06. Both adults conspicuously flicked tails repeatedly upon greeting each other and made low "kek-kek-kek" calls, then parted company and disappeared on the north side of Muddy Creek near the stream's terminus with Lake Arthur. Possibly the nest site could have been on the north side of the creek but I had no way of crossing the creek other than wading in the cold water. As far as I could discern in the short time of direct observation, both adults were about the same size.

On July 07 I observed one adult (female?) King Rail accompanied by two nearly full-grown juveniles under partly cloudy skies but good light between 0710-0715 hours on the south side of Muddy Creek approximately 300 feet east of the creek's confluence with Lake Arthur. Again I used 9 x 35 mm wide-angle Bausch & Lomb binocular. All three birds were less than 100 feet away, but clear views were obstructed by dense undergrowth. When viewed in the binocular, the two juveniles were following closely behind the adult which was seen picking up some insects, species unidentified, and feeding them to the youngsters, one at a time. Because of the dense vegetation, it was difficult to prove that the juveniles were actually eating anything on their own, although both birds were seen plucking seeds from low-growing smartweeds. The small family unit moved eastward along Muddy Creek for some 100 feet, then back-tracked to the mouth of the creek. I never saw either juvenile fly nor did I see either bird attempt to cross the creek on its own. But I suspect that their plumage (see below) was still too downy to permit flight. Newly hatched young are covered with short, thick, black downy feathers. These juveniles were starting to lose their down. Immature plumage was beginning to appear on the underparts, back, head, and neck. The wings still looked short and underdeveloped. In general, the upperparts were much like the adult but much darker. The upper back was nearly black with brown edgings; underparts dull gray washed with pinkish buff or cinnamon, especially on the neck and flanks. Many breast feathers of one juvenile, slightly larger than the other (older?), were dusky tipped. I lost view of the birds in dense cattails but could still hear the juveniles making a nearly constant high shrill "peep-peep-peep" call which I identified as a food-craving call so characteristic of all young birds.

Experience with Species I am familiar with the King Rail since my youth in Saint Louis, Missouri, where the species bred commonly in the extensive bottomland marshes along the Missouri and Mississippi Rivers in Saint Charles County, Missouri, and East Saint Louis, Illinois. Also I have observed the species from early spring to late autumn in Louisiana, Texas, Delaware, Maryland, and Virginia since 1968. However, it was the rare status of the species in Pennsylvania that attracted my ornithological attention to it in the 1980's.

Status of the Species This rare species was first discovered in Mercer County in April-May 1980 by Mary Kruth, John Lersch, and Gene Wilhelm in Gamelands 284 which straddles the line separating Mercer and Lawrence Counties, one-quarter mile southwest of the hamlet called Drake. The gamelands is commonly called Pennsy Swamp on the Mercer County (north) side of the gamelands. One adult King Rail was seen here in 1980 but two adults were observed together April 27-28, 1981 and again a single adult on May 5-6-7, 1981 by Mary Kruth and John Lersch. However, the bird was not recorded in 1982-1983 but Mary Kruth saw an adult King Rail on April 29-30, 1984. In late May 1985 Gene Wilhelm visited Pennsy Swamp apparently too late in the day to hear or see the species (dawn and dusk are best times) but was elated to see an adult King Rail with two black downy young moving rapidly through the dense cattails at 0700 hours on a bright, sunny morning of June 18, 1985. Wilhelm

filed a Special Species Report with the Pennsylvania Breeding Bird Atlas Project. However, because the Atlas of Breeding Birds in Pennsylvania (1992) misidentified the geographical location of the breeding record for Region 28, indicating that it was in Butler County (p. 122), it is important to record the correct details of the record in this report.

The exact location of the breeding site in Gamelands 284 is along an abandoned railroad right-of-way that must be used to reach the site. By following this right-of-way north of the parking lot for the gamelands approximately one-half mile, the observer begins to see an extensive swamp on the east (right) side of the pathway and a dense cattail marsh on the west (left) side of the pathway. At the third power-line pole the observer sees an open pool of water surrounded by cattail on the west (left) side of the pathway. This pool starts near the bank and extends west some 150 yards. This has been the consistently traditional spot where the King Rail has been heard and observed over the years, although on three other occasions (1989, 1990, 1991) one adult King Rail has been observed one-half mile farther north on the west (left) side of the pathway.

The habitat here in Pennsy Swamp consists of lush cattail marsh interspersed with open pools of water. In fact, the cattails are dense and matted in many spots. The marsh in general is an ideal locality for the King Rail, since it harbors a sluggish stream on its west perimeter. The marsh has never dried up, even in the driest of years (e.g., 1986, 1988). The cattail marsh extends for nearly one-half mile south to north and perhaps is 250 yards wide at its widest extremity. A trail divides the marsh at its northern extent, then continues again another one-half mile farther north. However, the landscape in-between these two marsh segments is a dense swamp of willow and alder saplings and other woody plants. In most places it is too dense for human penetration. Nevertheless, the King Rail was heard in this specific swamp habitat in 1989, 1990, and 1991. The habitat overall is remarkably similar to Celery Swamp (Gamelands 151) and proposed Dam site D10-103 across Muddy Creek at the extreme east end of Moraine State Park in Butler County.

On May 25, 1993 I investigated Pennsy Swamp seeking evidence of Sandhill Cranes that were observed earlier. I immediately heard the consistent "kek-kek-kek" calls of an adult King Rail slightly north of the traditional pool of water west (left) of the pathway. This was about 0600 hours. The calls were answered by another King Rail slightly north of the dividing trail that separates the cattail marsh from the woody swamp. I never observed either bird but the calls continued off and on for another fifteen minutes, then ceased. I retreated to my vehicle and drove east to Celery Swamp (Gamelands 151) on Brent Road. At 0655 hours I heard the characteristic "kek-kek-kek" calls of one King Rail coming from the north side of Brent Road about 150 feet east of the gamelands parking lot which is located on the north side of Brent Road. There is a drainage ditch or channel with water moving from north to south through a culvert. It was along this drainage system, north of Brent Road, that the bird was heard. The King Rail called only three times about five minutes apart. I never heard a response from a second bird.

The north segment of Celery Swamp is similar in habitat to the southern part of Pennsy Swamp: dense cattails surrounded by large open pools of water. The dense cattails, in turn, have a backdrop of dense deciduous trees. The south side of Brent Road, on the other hand, closely resembles the habitat of the northern part of Pennsy Swamp: dense willow and alder thickets and other woody plants interspersed with dense clumps of grasses, sedges, smartweed, and jewelweed. It is uncanny, but the general habitat for the King Rail recorded in Pennsy Swamp, Celery Swamp, and Muddy Creek are practically identical in vegetation make-up and should be identified in other state wetlands as potential breeding sites for this endangered species.

Further, the combination of dense cattail marsh and woody swamp thickets is a natural attraction for other state endangered, threatened, and vulnerable species: Pied-billed Grebe, American Bittern, Least Bittern, Virginia Rail, Sora, Common Moorhen, American Coot, and Marsh Wren. All of these rare and restricted species were recorded consistently in the three wetlands identified in this report.

Preservation One of the rarest Pennsylvania breeding birds, the King Rail has been on the state's designated endangered list since 1985. Recent Atlas records (1983-1989) bear out the species' dire situation in the Commonwealth. As Daniel W. Brauning states: "We know of no regularly occupied nesting location for the King Rail in Pennsylvania" (personal communication, June 09, 1993). Furthermore, the breeding sites discovered during the Atlas period and since are by no means secure. Fortunately the former coal-mining operation west of Pennsy Swamp (Gamelands 284) in Lawrence County did not interfere with the King Rail's breeding there. Celery Swamp (Gamelands 151) seems to be secure for the foreseeable future. Proposed Dam site D10-103, on the other hand, is a different matter. According to those individuals who recall (Marguerite Giebel and Fred Lochner), Muddy Creek was a superb wetland for most of its naturally flowing course prior to the establishment of Lake Arthur. In fact, its general environmental conditions resembled what remains in miniature now at the east end of Muddy Creek Arm of Lake Arthur. King Rail, Virginia Rail, Sora, and bitterns were known to exist along former Muddy Creek and probably bred there. Today the only remnant of that former grand wetland exists precariously between the eastern boundary of Moraine State Park and the confluence of Muddy Creek and Lake Arthur, a distance of less than two miles in length.

Cursory field investigation leads me to suspect that the combination of slow-flowing to sluggish streams with marsh and swamp wetlands as illustrated by Pennsy Swamp, Celery Swamp, and Muddy Creek is a special attraction for the endangered King Rail and other vulnerable wetland species. All three wetlands are relatively large in acreage and apparently satisfy water level, cover, and food demands of the species during the breeding period. Natural conditions of habitat, such as flooding and drought, influence water level, cover, and food sources and surely have done so in the past. But it is a known scientific fact that marshes and swamps are among nature's best mechanisms for controlling and balancing such extremes as flooding and droughts. For resource managers to alter such a natural balance is ecologically unwise.

Managing Muddy Creek and adjacent wetlands as a free-flowing system would allow the richest biodiversity to continue. Biodiversity surely plays an important role in the life cycle of wetland birds such as the King Rail. Perhaps atlasers lacked sufficient field data when trying to identify proper wetland habitats as potential breeding sites for such endangered birds between 1983-1989. I suspect that we are dealing with specific microhabitat requirements throughout the breeding cycle that involve interconnecting processes and patterns among stream, marsh, and swamp. And until we know what these processes, patterns, and requirements are for each wetland species, the Department of Environmental Resources should proceed slowly and most cautiously with approving any proposals that would change such wetland combination systems as uncovered to date in Butler and Mercer Counties.

In sum, the Muddy Creek Dam site D10-103 constitutes the first known breeding record for the King Rail in Butler County. I strongly recommend preserving the area as a free-flowing stream and wetlands system. Further, I recommend setting aside research funding to investigate more thoroughly all wetlands in Western Pennsylvania while there is still time. The human has been slow to learn that often the best method of wildlife management is to allow nature to manage the resource in its own way. The Muddy Creek wetland system should be preserved as is.

**Pennsylvania Ornithological Records Committee**

**Voting Tabulation - Round # 1 of**

Species: **King Rail (Rallus elegans)**

Date of Sighting: **25 May 1993 to 7 July 1993**

Location: **MORaine STATE PARK**

County: **BUTLER**

Observer(s): **Gene Wilhelm**

Date of Submission: **1993**

Submitted by: **Gene Wilhelm**

Written Description: **YES**      Photo: **NO**      Specimen: **NO**

Recording: **NONE**

Member	Class I	Class II	Class III	Class IV	Class V			Abstain
					A	B	C	
F. Haas			X					
N. Pulcinella			X					
E. Kwater			X					
R. Ickes			X					
G. McWilliams			X					
P. Schwalbe			X					
J. Skinner			X					
<b>TOTALS</b>			7					
<b>DECISION</b>			X					

Comments:

Signature (Secretary):

*F. C. Haas*

Date:

3-31-95