

DEPOSITORY COPY

Do Not Remove From Library

"THE CLAPPER RAIL IN NEW JERSEY"

F. V. Schmidt and P. D. McLain

New Jersey Division of Fish & Game

New Jersey produces a great number of northern clapper rail (Rallus longirostris crepitans Gmelin) and, also, shares in their harvest. It was, therefore, desirable to better understand certain habits and requirements of this bird in order to form a management program. In 1948, an investigation of the nesting habits of the clapper rail was initiated by the New Jersey Division of Fish and Game. This study was a component of a Pittman-Robertson Research Project. During the following two years the investigation was expanded to include studies on population trends and hunter kill data. The purpose of this paper is to summarize and evaluate the results of the research on the clapper rail from the inception of the project until the present time.

A study area was selected on the tidal marshes at Ocean City, New Jersey. This area was particularly well suited for such a project and it was easily accessible. There was both ditched and unditched marsh, and most of the various plant associations indigenous to the tidal marsh were present.

Our observations indicate that the clapper rail migration arrives in New Jersey during March. Migration records maintained for over 20 years at Cape May by Witmer Stone (1937) indicate that March 15 is the average arrival date. Adverse weather may delay arrival until the end of March. Such was the case in

only copy
474.90
F537
1951b
copy 1

#2

1950. New Jersey is apparently within the northern limits of the clapper rail's winter range as sight observations have been recorded throughout the winter months.

Nest construction begins in late April and May. Dead vegetation is the material most commonly used. The nest itself is an elevated platform ranging in height from one to 16 inches. At the top, there is a saucer-shaped cavity about six inches wide in which the eggs are laid. Some nests, particularly those built high, have a ramp or runway leading from the ground to the cavity with a canopy of living grass intertwined over the top of the nest.

Although nests were found in various vegetational types, the clapper rail definitely shows a preference for salt marsh grass (Spartina alterniflora) at least two feet tall. One hundred ninety-two nests (82 per cent) of 234 nests found were located in this type. Salt marsh grass, in most instances, attains a height of two feet or more when growing along the banks of tidal ditches and creeks. When growing away from the immediate bank of a ditch it seldom exceeds 12 inches in height. Nests have also been found in black grass (Juncus gerardii), marsh elder (Iva frutescens), salt meadow grass (Spartina patens), and salt grass (Distichlis spicata). The close association of the tall salt marsh grass with a ditch or creek is also reflected in the fact that 181 (74.4 per cent) of 243 nests were located within 12 feet of water. The preference for this specific nesting cover enabled project personnel to locate nests with relative ease.

#3

Active nests, that is, those used for the deposition of eggs, have been found within 25 feet of each other. However, the interval between active nests is usually greater than 150 feet.

Dummy nests are constructed in the same nesting cover as the active nests. The ratio is about five dummy nests to one laying nest. Superficially they resemble the active nests, but usually lack the canopy and the tight construction characteristic of the active nests.

Egg laying commences as soon as the nests are built and continues at the rate of one egg per day until the clutch is completed. Observations indicate that the eggs are usually laid before 8:00 A.M. The number of eggs in a completed clutch has ranged from 4 to 14. The average number of eggs per clutch in 1948, 1949, and 1950 was 9.9, 10.00, and 9.3, respectively, based on 176 completed clutches.

Hatching of a complete set of eggs usually requires more than 24 hours. Therefore, incubation apparently begins 24 to 48 hours prior to the laying of the last egg. The incubation period based on observations of 11 nests has ranged from 18 to 24 days. The incubation period was considered as starting when the last egg was laid and ending when the first chick hatched. To date, we have not found a plausible explanation why the wide range in the incubation period exists.

During the first year of the study it was noted that the reaction of an incubating bird to human disturbance varied

#4

considerably. This led to the belief that both adult birds participated in the incubation duties. This was substantiated to a degree in 1950, when, on nine separate occasions, different adult birds were nest trapped on the same nest.

Twenty-four to 48 hours after pipping, the eggs hatch, The chicks dry in an hour and leave the nest within 24 hours. Applegarth (1938) working with the California clapper rail (Rallus obsoletus obsoletus) states "when the chicks have left the hatching nest, they usually do not return to it after the first or second day". Our observations indicate that one adult broods the chicks, while the other continues to incubate the remaining eggs. During the past three years, the height of the hatching period has occurred between the dates of June 10 and June 25.

As a result of nest trapping and banding adult rails, it has been determined that some birds which incubated and hatched successful clutches in June were retrapped in July incubating a second clutch. It is not known what percentage of the breeding population participates in this second nesting. This second nesting and renesting attempts account for a second hatching peak in late July and early August. Those birds that hatch in July and August may occur in the hunter's bag as flightless juveniles if the hunting season opens in September.

When compared with other game birds, the nesting success of the clapper rail is exceptionally high. In 1950, 78 (69 per cent) of 112 nests were successful. This figure is considerably below that of 1948 and 1949 when 89 per cent and 94 per cent

#5

of the nests hatched successfully. Nest mortality in 1950 was attributed to the late spring, which in turn, inhibited the growth of nesting cover. Many of the nests were, therefore, exposed and suffered predation by crows. Other sources of nest destruction are extreme high tides and egg hunters.

The clapper rail is well known for its persistent attempts at renesting. At times, two successive broods have been destroyed and renesting have been made (Bent, 1926; Pettingill, 1938). It is significant that the ultimate production of young on our census areas did not decrease in proportion to the increase of nest destruction. For example, in 1950, the production of chicks on one study area decreased 13 per cent and 10 per cent, respectively, when compared to 1948 and 1949. Nest destruction, however, increased 20 per cent and 25 per cent during the same periods.

Since the nests of the clapper rail are located with the chick production became apparent during the course of the study that an annual chick-production census could possibly furnish an index to population trends. Three permanent census areas, averaging approximately 40 acres, were, therefore, established near Ocean City. A search for nests was made at three-week intervals throughout the nesting season. This interval was selected in accordance with the average clutch size of 10 eggs laid at the rate of one egg per day and a minimum incubation period of 18 days. Each nest located was plotted on a base map and data on the number of eggs, nesting cover, distance of nest from water, etc.,

#6

was recorded. In general, the nests were observed daily until hatching was completed.

In computing the production of the census areas only chicks which hatched successfully were used. Eggs which did not hatch successfully were disregarded. Through observations on the successful nests, an average chick production per nest was established for each area. The few nests which hatched prior to being located were credited with the average production figure. As a result of this census, a chick production per acre of 2.4, .9, and 4.8 was computed for the three census areas.

Although the technique employed in this study permits an annual appraisal of clapper rail population trends it is believed that a nest census would be more practical and sufficiently accurate. Accuracy of the census would be enhanced by the addition of several other census areas.

In order to better understand the migratory habits of the clapper rail, a trapping and banding program was initiated in 1949. Incubating adult rails were easily nest trapped using a modification of the waterfowl nest trap described by Sowls (1949). One hundred seven adult rails have thus far been banded and released. Juvenile rails were occasionally caught with a crab net.

To date, the recoveries of three bands have been reported. Two were returned by rail hunters in New Jersey. One adult, banded on June 30, 1949, was shot on October 23, 1949, at

#7

Wassaw Island, Georgia. The lack of a suitable expandable leg band made it necessary to pass up an excellent opportunity of banding the newly hatched chicks. However, in 1949, 48 one-day-old chicks were banded on the leg with expandable celluloid bands. Two of these were recovered in the same area where they were banded. One bird was seven weeks old when captured, and it was not capable of flight. The other rail was ten weeks old when captured and was capable of flying. From this data and from field observations, we have reason to assume that the rails begin to fly about the ninth week after hatching.

In New Jersey the rail hunting season opens September 1 and continues until October 30. At low tide, some hunters walk the edges of the ditches and flush the rails from the dense cover. Dogs, usually spaniels or Chesapeake retrievers, are useful in flushing the birds and also in retrieving cripples. The most popular method of hunting rails is by boat during a storm tide. A storm tide will usually cover the marsh with one or two feet of water. During such tides the rails either seek higher ground, such as road embankments or woodland adjacent to the marsh, or they congregate in clumps of salt marsh grass and marsh elder, which protrude above the level of the water. Hunters push a boat to these clumps of vegetation and shoot the birds as they flush or swim away.

During the 1950 hunting season, kill data was gathered by personnel of the Division of Fish and Game. The 177 hunters that were contacted killed 1226 clapper rails. Those hunters

#8

who hunted from a boat at high tide killed 4.2 birds per hunter hour, while the hunters who walked killed only 1.5 birds per hunter hour. Two hundred six (16 per cent) of the rails killed were incapable of flights as their flight feathers were not fully developed.

Despite their abundance and the excellent shooting they afford, the clapper rail could be utilized to a higher degree as a game bird by the sportsmen of New Jersey. In 1950, an aerial count was conducted on the first two days of the hunting season. The flight included about 100 miles of rail habitat from Tuckerton to Cape May, New Jersey. A total of 33 and 27 hunters were observed on the first and second days, respectively. During the flood tide of September 11, 12, and 13, the hunting pressure was greatest. Unfortunately, low clouds made an aerial count impossible. However, personal contact with the hunters indicated that 49 (28 per cent) of 177 hunters contacted during the hunting season were afield these three days. They killed 574 (46.8 per cent) of the 1226 rails killed.

In concluding, it can be stated that the status of the clapper rail as a game bird could be enhanced by an effective , educational program. If the abundance and breeding potential of this species were brought to the attention of the sportsmen, the clapper rail certainly could become a more popular and widely utilized game species.

#9

Literature Cited:

Applegarth, John H.

1938. The ecology of the California clapper rail on the south arm of San Francisco Bay. Unpublished. Master's degree thesis, Leland Stanford University.

Bent, A. C.

1926. Life histories of North American marsh birds. U. S. Nat'l. Mus. Bull. 135. 490pp.

Kozicky, Edward L. and Schmidt, Francis V.

1948. Nesting habits of the clapper rail in New Jersey. Auk 66: 355-364.

Pattingill, Olin S.

1938. Intelligent behavior in the clapper rail. Auk 55: 411-415.

Schmidt, Francis V .

1949. An evaluation of the wildlife population on the Tuckahoe-Corbin City area. F.A.W. Quart. Prog. Report, Sept., 1949.

Schmidt, Francis V., et al.

1950. An evaluation of the wildlife populations on the Tuckahoe-Corbin City area. F.A.W. Quart. Prog. Report, Sept., 1950.

Stone, Witmer

1937. Birds studies at old Cape May. Two volumes. , Acad. of Nat. Sci. of Phila., 941pp.