

INCUBATION BY DRAKE WOOD DUCK IN ECLIPSE PLUMAGE

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In a summary of the behavior of surface-feeding ducks, Kendeigh (1952:186-187) states that the male usually "deserts the female after incubation gets well under way" but he also reports that this is not always so. For instance in *Aix* "the male is more faithful and may aid the female in caring for the young." Nevertheless it is quite abnormal for the drakes in *Aix* to incubate. Savage (1952:48) speaking of the Mandarin (*Aix galericulata*) says that "the drake takes no part in incubation," while Leopold (1951:215) in his careful study of nesting Wood Ducks (*Aix sponsa*) states "I have never seen the drake incubate the eggs. In fact, I have never seen the drake enter the nesting box at any time." The following note about a Wood Duck drake, which not only incubated eggs but did so in eclipse plumage, may therefore be of interest.

During the last week of June, 1955, a pair of Wood Ducks, at the World Bird Research Station at Glanton, Northumberland, England, deserted their second nest shortly after incubation had begun. At the beginning of the second week in July, when the drake of this pair was already passing into eclipse plumage, it was seen going onto the deserted eggs occasionally. By mid-July this had become more regular and it was noticed that it was usually in the afternoons that the male incubated the eggs. There was the possibility that it may also have stayed on the eggs over night on July 14-15. The bird by this time was almost in full eclipse plumage; it had dropped its flight feathers and the only breeding plumage remaining consisted of a few bright feathers on its head. After each period of incubation the drake covered the eggs carefully with the down which the duck had provided when it originally laid the eggs. On July 17 the drake deserted the eggs, leaving them uncovered and exposed. On July 19 it began periods of incubation again, covering the eggs once more on leaving, as it had done previously.

On July 20 a continuous series of all-day watches were begun and were continued until the bird finally gave up incubation. This was on July 26. After this date the drake was never seen to take any further interest in the eggs. It might be added that the duck, which accompanied the drake when it was off the eggs, had taken no interest in the eggs since the original desertion. The results of the all-day watches are shown in figure 1; the dark bars represent the periods when the bird was incubating.

Leopold (1951:214) states that normally the duck leaves the nest twice a day for periods from forty minutes to two hours. In the morning it leaves often "as early as an hour before sunrise when there is just a faint sign of dawn in the East." The approximate time at which this light appears is shown in figure 1 as "faint light." The position of sunrise is also shown. (The time from faint light to sunrise is longer in the higher latitude of Northumberland than in Iowa.) It will be seen that on the three occasions when the drake incubated overnight, it left the nest in the morning at the same time as ducks normally leave or are off the nest. In the evening the duck "usually departs between five and six o'clock and returns before seven," which latter time in Iowa is a little before sunset. Again it will be seen in figure 1 that in the three instances where the drake went to incubate in the evening it did so a little before sunset. It appears then, that in the main, the drake was observing the normal "duck" night incubation period. Whereas all incubating ducks are back on the nest within one to two hours of sunrise, the drake was very tardy in returning to the eggs. As already mentioned it was not until the afternoon that he was usually seen to go onto the nest and in two of the first three all-day watches it was still early afternoon before incubation was begun. However, in the second three all-day watches he returned in the forenoon. The earliest he returned to the eggs

was at 9:09 a.m. on July 25, when he remained on the eggs less than half an hour. The latest return was at 1:37 p.m. on July 22 when the bird remained on the nest until the following morning. On July 26 there was no attempt at daytime incubation; the bird went on the nest for the night period a little before sunset.

The periods on the eggs, commencing with the observations on July 20, were as follows: 20th, 11:16 a.m.—4:22 p.m.; 21st, 12:29—2:52 p.m.; 22nd—23rd, 1:37 p.m.—3:02 a.m.; 23rd, 10:31—11:06 a.m.; 23rd—24th, 7:42 p.m.—4:13 a.m.; 24th, 10:24 a.m.—4:38 p.m.; 25th, 9:09—9:33 a.m.; 25th—26th, 7:37 p.m.—2:53 a.m.; 26th, 7:56—11:42 p.m. This gives the maximum incubation period as 13 hours and 25 minutes (July 22—23). The average for 9 periods was 5 hours 18 minutes. The bird spent a total of 47 hours and 40 minutes on the eggs in a week.

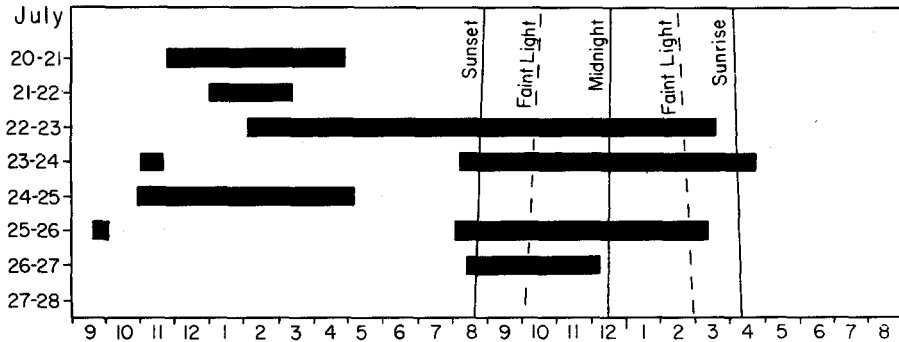


Fig. 1. Incubation periods of drake Wood Duck, shown by dark bars; the last incubation period ceased near midnight on July 26.

Although not concerned with ducks, Ryves (1943:10) has called attention to the fact that, in many species where males do not normally incubate, they may occasionally cover the eggs in the absence of the female. This behavior is characterized by the bird sitting "on eggs without the production of the requisite temperature to further their development" and by the periods on the nest being irregular and haphazard. He points out that this is not incubation and gives an instance of eggs being still almost cold after a male had covered them for more than half an hour. The Wood Duck drake not only covered the eggs but it also incubated them in the true sense of the word. Thus the eggs were warm after it had been on the nest; it normally replaced the down coverlet when leaving the eggs, and, however imperfectly, it appeared to be attempting at least a regular night incubation period.

The Wood Ducks were a pair kept for observation in an area of about three-quarters of an acre. The nest, in a wooden nesting box with a side entrance, was one which the drake investigated as a suitable nesting place for the second clutch. Originally the box had the hole facing upward and each time the drake went in it had to be liberated, as the hole was too small for the bird to jump out when it opened its wings. When it was certain that the drake was choosing this as a nesting place, the box was put on its side. The duck was never caught in the box in its original position, which makes it certain that it was the drake and not the duck which chose this nesting site. Both birds had partly clipped wings so that their flight was not full. Throughout the period of continuous observation, and for a time before this, the drake was completely flightless due to the normal total loss of flight feathers during eclipse. The bird gained access to the nest

by means of a log onto which it climbed. The birds found much of their food naturally in the area, which was mixed scrub and grass around a pool. They were also fed wheat bread and waste seeds.

Leopold (1951:215) remarks that "the duck evidently has no automatic release which prevents her from continuing to incubate eggs which are no longer alive," and he mentions a very bad odor from some broken eggs in the case of a duck which had sat for 62 days. The drake Wood Duck was similar in this respect. On July 25 one of the eggs burst while the drake was incubating. The drake leaped from the nest with his breast feathers smeared with odorous decaying egg. He went off to bathe. The remaining eggs (four) had to be washed and the nest cleaned. In spite of this the drake was back on the nest again in the evening. Originally there were seven eggs, but two were removed after the first desertion in June, leaving five until the egg just mentioned broke.

The pair of Wood Ducks had been in the Station at Glanton for over five years and up to 1955 had behaved normally. They behaved normally again in the succeeding year. The only known difference in the environment of the ducks in 1955 was that the summer was, for England, exceptionally hot and sunny, with a drought. In previous years the duck had several times deserted eggs and these, covered with down, had remained for long periods, at least up to September, in the nest. The presence of deserted eggs was therefore not new to the drake.

All the times given above relative to the Wood Duck at Glanton are in local apparent time, that is, time by the sun at the place of observation.

SUMMARY

A drake Wood Duck incubated deserted eggs in July when in eclipse plumage. It incubated during a "night"-time period similar to that recorded for normal female incubation. Its day-time incubation, however, was relatively fragmentary and commenced either late in the morning or early in the afternoon, instead of very early in the morning as recorded for normal female behavior.

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