

OBSERVATIONS ON THE NESTING OF THE MALLARD  
(Anas platyrhynchos platyrhynchos)

by

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## Contents

Introduction	page 1
Acknowledgements	1
Nesting Range and Local Distribution	2
Nest	
Location	2
Description	3
Contents	4
Sex Observed	5
Daily Observations and Developments	5-9
Summary	10
Literature Cited	11

### Introduction

This study is confined to the observations of one nest of a Mallard (Anas platyrhynchos platyrhynchos). The nest was completed and contained a complement of nine eggs at the time of discovery. It was not extensively studied until three weeks later at which time it was reported to the writer. From this time on until hatching, eight days later, the nest and activities of the duck were observed and recorded as completely as the circumstances would permit.

The material for this paper was recorded at the University of Michigan Biological Station located on Douglas Lake during the 1941 summer session. The equipment used to conduct the study was furnished by the Biological Station. The scales used in weighing the eggs and young were part of the equipment of the Ornithology Department and were used by other investigators during the same period of time. A blind was set up near the nest and the observations were made in it.

### Acknowledgements

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## Nesting Range and Local Distribution

According to Chapman (1937, p.117) the Mallard breeds from the Aleutian and Pribilof Islands, n.w. Alaska, to Upper Lower Calif., to s. Tex., se. Ill., se. Ind., s. Ohio, and n. Va. to Iceland. Van Tyne (1931, p.5) credits the Mallard as probably being the second most abundant breeding duck in the lower Peninsula of Michigan. Barrows (1912,p.78) states that the Mallard formerly bred wherever suitable conditions existed throughout the entire state. White, Kans. (1941, p. ) records American and Red-breasted Mergansers and Black ducks on the lake in the region of the nest, but she reports having seen no Mallards.

Mallards have been recorded nesting but twice since 1920 in the area about Douglas Lake (Blanchard and Nelson, Kans.), although young have been found more frequently. These two nests were both recorded in 1937. The first nest, discovered May 10, was destroyed shortly thereafter, presumably by some mammal, and the second nest, found June 21 is thought to have been an attempt at renesting by the same duck. Both nests were constructed on the ground and were well-built.

### Nest

#### Location

The nest was located 50 feet from Douglas Lake, six feet from the edge nearest the lake of a clearing measuring 210 feet by 85 feet, in a clump of Sand Cherry (Prunus maritima). The flora of the clearing in addition to Sand Cherry, consisted of grasses, sedges, and rushes and was separated from the lake by a narrow band of trees, mixed hardwoods, and pines, and a narrow sand beach. During the spring and early summer, at the time when the nest was constructed, some standing water remained in the open space. This disappeared leaving a moist, but not mucky soil.

The nesting site was not far removed from the cultural influences of man. The University of Michigan Biological Station was located one mile down the shore, and a summer camp was across a narrow bay

one-quarter mile distant. Fishermen, as well as individuals from these camps, frequented the area daily. The foot traffic through the marsh area became so great that a path nearly two feet wide passed less than three feet from the nest. Persons stopping to investigate the nest trampled much of the vegetation on two sides of the nest within a ten-foot radius of the nest before incubation was completed. Finally a trail running parallel to the lake shore passed through the woods 100 yards from the nest. Sounds of the motor cars and hikers on this trail were plainly audible at the nest on several occasions.

#### Description

The nest was built on the prostrate stems of the Sand Cherry and was poorly constructed. In such a location little or no depression could be formed to hold the nest and its contents. According to Barrows (1912, p.78) this is the usual manner of Mallard nest construction in Michigan. The nest was so poorly put together that it could not be removed intact from its place of concealment after the eggs had hatched.

The materials used in constructing the nest were dried leaves and twigs for the base, leaves and dead grass with a few twigs for the sides, or bowl, and a sparse lining of down from the duck covered the inside and top edge of the nest. All who observed the nest commented on the small amount of feathers used to line the nest.

Measurements were as follows:

outside diameter	38 cm.
inside       "	15 cm.
outside depth	9-10 cm.

## Contents

The nest contained nine pale greenish-blue eggs. The color of these eggs was noticed to have changed somewhat the day before hatching occurred. Instead of retaining their uniform pale coloration throughout the incubation period, the section of the egg occupied by the embryo became darker, thus clearly outlining the air space at the larger end.

These eggs were each given a number and their position in the nest recorded. Two of the eggs were in the center of the nest surrounded by a ring composed of the seven remaining eggs. The position of the individual eggs were changed from time to time by the duck, but always remained in same arrangement.

Weights and measurements of the eggs were as follows:

		July 2	
	Weights		Measurements
1	48 gms.	1	5.8 cm. x 4.24 cm.
2	46.10 gm.	2	5.8 x 4.18
3	46.66	3	6.0 x 4.14
4	47.15	4	5.9 x 4.26
5	47.23	5	5.9 x 4.12
6	48.20	6	5.9 x 4.24
7	47.61	7	5.9 x 4.15
8	48.55	8	5.8 x 4.28
9	48.40	9	5.8 x 4.20

Average weights--47.76 gms.

Average measurements--5.87 cm. x 4.21 cm.

### Nesting Observations

#### The blind

A small white canvas blind was erected July 2 to enable observation of nesting activities. The blind was located 13 feet from the nest partially behind a northern white cedar (*Thuja occidentalis*) in the band of trees between the nest and the lake. The greater part of the blind was clearly exposed to the Mallard when on the nest. It was located in such a way that entrance could be

gained from the lake side without flushing the bird on the nest. At no time did the Mallard show any concern about the blind unless unusual notice was made.

#### Time spent observing

Nesting observations began July 2 and continued through July 8. Slightly more than 20 hours were spent in the blind recording the activities of the duck on the nest and several more were utilized in surveying the area about the nest when the duck was not incubating.

#### Sex observed

All observations were confined to the female. At no time during the observation period was the drake seen. Apparently all nesting activities at this advanced stage were performed by the duck. This apparently is the normal procedure. However, Bent (1923 p. 38) records a Mallard drake seen by Mr. J. Hooper Bowles leading a brood of young. In this instance the duck was thought to have met with disaster.

#### Daily Observation

July 1 - The nest was reported to the writer who was then directed to it. Plans were made to set up the blind and began observations the following day.

July 2 - The duck flushed from the nest at 7:00 a.m. when a group of four individuals walked within 10 feet of the nest. She flew without quaking or feigning injury directly over the trees to the lake and alighted some 30 yards off shore. A few moments later she could not be seen, but was flushed an hour later down the shore 200 yards after the blind had been erected and the data recorded on the nest and eggs.

She did not return to nest again that day. The eggs were cold at dark and it was feared that the nest had been abandoned.

July 3 - The duck had returned to the nest during the night or early morning and was flushed from the nest about 9:00 a.m. Again she did not return to the nest during the day. Numerous small parties of people were in the vicinity of the nest during the day as they had been the previous day and her absence from the nest is probably due to their activities.

July 4 - The duck was incubating when the nest was visited at 8:15 in the morning of July 4. Thus, for the first time in three days, observations of the nesting behavior could be recorded. Observations had scarcely begun when the nest was approached by a human being.

She was sitting perfectly still, ~~preening~~<sup>preening</sup> her feathers occasionally, when she was noticed to become decidedly nervous. She then raised her head and looked in all directions. When the approaching person was located, she remained upright no longer, but immediately settled down as low as possible on her breast. In this manner she remained, allowing the hikers to pass along the edge of the clump of Sand Cherry bushes not 10 feet away.

After all was still again she relaxed and acted as she did on all other occasions when the nest was being observed. For the most part the duck remained perfectly still with slight movements of the head and neck at times. Again, on several occasions, she preened her feathers. Sometimes she pulled at the surrounding vegetation with her bill.

Two or three times when under observation the duck was seen shifting the position of the eggs with her bill. The downy lining of the nest was also rearranged slightly at various times, but never was she observed adding new down to the lining. Usually after rearranging the down or the eggs, she would change the direction



she faced on the nest. Generally she faced either east or west, but she was seen to face in other directions, too.

The duck paid no attention to Crows cawing in the trees nearly overhead, or to the chattering of a Red Squirrel in the same tree on numerous instances. Motor cars caused no reaction before the eggs hatched, but she showed concern about their noises after that time. The voices of people in the vicinity always attracted attention until they passed beyond hearing.

The duck was never seen leaving the nest. This no doubt was due to the advanced stage of the eggs and the fact that she was flushed and kept away from the nest for long periods when she could do what feeding was necessary.

July 5 - A human conversation clearly audible at the nest was carried on the beach near the nest. She rose from the nest and stood with neck outstretched throughout the conversation and remained in that manner for three minutes after the conversation had ceased.

The nest was observed between 8:20 and 11:15 a.m. and 2:20 and 5:00 p.m. without any new observations.

At 7:20 p.m. she was flushed from the nest. Her departure was accompanied by loud quacks and the dropping of feces in the shrubs by the nest. She alighted in the lake a short distance off shore, but soon rose and circled low over the nesting site three times, quacking all the while. It may be noted that she was gradually showing more and more concern about the activities around the nest as incubation progressed and the time for hatching drew near.

July 6 - The nest was visited in the morning from 9:05 until 11:00 o'clock without any new activities being recorded. She sat patiently on the nest all the while with only slight movements.

July 7 - Due to class work on this day the nest could not

be visited until 7:30 in the evening. The duck was flushed to see the developments in the nest during the day. Two eggs were found to be hatching. Only their bills were protruding through the crack in the middle of the egg shell. With some help they were soon free of their shells, but they were still attached to the yolk of the egg.

The weights taken 35 minutes after hatching were 37.67 grams for the stronger duckling which appeared first, and 36.95 grams for the other. No evidence of hatching in the other eggs was visible at this time. Since the night was raw accompanied with a slight rain, it was decided best to leave the nest and allow the duck to return.

The activities of the duck at this time were very interesting. She left the nest reluctantly, appearing as if she would light on the ground near the nest any instant. She quacked loudly, but dropped no feces. Her erratic flight continued 100 feet off shore where she alighted. Here she swam in small circles and up and down the shore calling. Gradually she worked her way to the beach and climbed out about one yard from the edge of the water still calling continuously. Presently she began preening her breast. Then for more than five minutes she stood perfectly motionless and quiet with her head up. At this time several individuals arrived to see the young ducklings, thus scaring her from the shore.

The calls given at this time were not the usual Mallard quacks heard when the Mallards are feeding or flushed from some slough, or even from the nest. They were much shorter, seemingly one-third to one-half as long as the ordinary Mallard quack. They were given very frequently, in fact almost continuously one after the other.

July 3 - Observations began at 3:40 the following morning before the nest or its contents could be seen. When the Mallard on the nest could be distinguished from the surrounding vegetation, she was seen to be sitting perfectly still on the nest. Thus she remained until 10:20 a.m. when the sun began shining directly on the nest. During this period she became alarmed at the slightest noise or disturbance in the vicinity of the nest.

From 10:20 a.m. until 11:15 a.m. when the nesting observations necessarily were forced to cease, the duck and the two ducklings became more active. She became restless, pulling at the surrounding vegetation with her bill and changing her position on the nest frequently. The young were completely dry by this time and ran about the edges of the nest and upon her back. Their peeps were clearly heard in the blind 13 feet from the nest.

Upon return to the nest in mid-afternoon the duck and two ducklings were gone from the nest, leaving behind the seven eggs which never hatched. The lake shore in the region about the nest and the area all around that end of the lake was carefully searched several times. Research workers and hikers frequenting the region were asked about the duck and two ducklings, but she was not reported seen again. Whether she was attacked by some predator, or led the ducklings completely out of the region to one with less disturbances is not known.

The duck is known to have remained with the two ducklings 15 hours after hatching waiting in vain for the remaining seven eggs to hatch.

Examination of the seven eggs in the laboratory revealed that all seven were fertile and development had continued up to within one week of hatching.

### Summary

1. All observations recorded here were taken from notes on one nesting Mallard.
2. The most unusual aspect of this study was the conditions which the duck tolerated to incubate the eggs.
3. On sex, the female, was seen throughout the study.
4. The nest was very poorly constructed.
5. The duck never feigned injury or defended the nest in any manner. Feces were dropped when flushed but one time.
6. The duck became more nervous as incubation progressed.
7. Only two of the nine eggs hatched. Death of the remaining fertile eggs is thought to have occurred about one week before hatching due to the exposure when the female was away from the nest for such long periods of time.
8. The duck is known to have waited more than 15 hours after the two eggs hatched for the remaining seven to hatch.
9. The duck permitted much trampling of the vegetation very close to the nest without abandoning the nest.
10. The history of the duck and ducklings after leaving the nest is not known.

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Mallard's Nest

Photo by

Dr. Olin Sewall Pettingill, Jr.