EXPERIENCES WITH HOME GROWN WOOD DUCKS

I was pleased to have a telephone call several months ago from Art Hawkins offering me an opportunity to join you here and to tell you something of my project involving nesting WoodDucks. In fact, it was Art and later Frank Bellrose, who got me started in this Hobby back about 1938 or 1939. Time is short so I won't reminisce but I have enjoyed the experience.

In the beginning I, of course, knew nothing about the subject and my tutors still had much to learn too.

My operating area comprises about a square block of town property located on a steep bluff rising about 120 feet above the main channel of the Mississippi. The ducks come here only for nesting purposes, there being no marsh or feeding or loafing water on my side of the river.

Across the channel a half mile or more away in Illinois, there is wild swamp land and timber where the birds live, feed and probably have their territories and rear their young.

To give you an idea of the chronology of my project, here is Table I which lists the years showing number of nesting attempts, number of available nest sites or boxes, total eggs for the year, total ducklings hatched and lastly, nests or broods lost to predations.

My nesting project has had substantial local newspaper publicity through a near neighbor who, for years, was editor of our daily paper. As a result, many citizens have become interested and erected nesting boxes. Our park superintendent must have thirty nesting sites, many of which are occupied each year. All told, there may be over a hundred boxes in or near Burlington. I attempted to get annual reports on these boxes but the data was not considered reliable enough to be acceptable. On request I mail a mimeographed instruction sheet containing instructions for making and erecting nest boxes and covering their annual minimum maintenance. I have shown my pictures and given a talk on Nesting Wood Ducks to perhaps

twenty-five groups in Burlington and surrounding towns.

The first birds arrive in my yard in late March and the last bring off their broods as late as late July. Each pair goes through three stages or three phases during their occupancy.

First, of course, is the period of nest site selection. The mated pairs arrive in my yard soon after sunrise, and leave by mid-morning. They sit around in the leafless trees just looking things over. Soon the hen will approach a nest box which she may enter, while her spouse awaits nearby. It is not unusual to have a half dozen or more pairs in sight so engaged at a given time. I have never seen the male enter a nest box. I'm sure a given hen will investigate several nest boxes. She will often scoop out a shallow depression in the litter in several boxes. Comes a series of warmer days and her first egg is laid, ending the nest selection period of perhaps five or six days.

Next, egg laying occupies 12 to 14 days followed by the incubation period which averages 30 days. So, a given hen or pair will be with me about 50 days before the hen departs with her brood if all goes well, hopefully to return a year later.

A study of egg laying shows that out of 297 potential egg days, only 13 days were skipped. In terms of percentage this means the "egg-a-day" expression is 96% correct, which from a practical standpoint, may be said to "prove-the-rule". The average clutch for early nests is 13.9 eggs. Later nests - usually second attempts - contain a lesser number and may go down to as low as a half dozen eggs.

The first four to six eggs are normally buried in the litter. Then there is the abnormal nest called a "dump nest" and in these the eggs are left exposed - unburied, excepting in some instances where one hen may get broody and drive the other egg layer out and proceed to incubate in a normal way. I have had"dump nests " in which as many as four eggs have been added in one day. Total egg count in "dump-nests" have reached the upper thirties in my boxes.

Getting back to normal nest procedures, the hen starts picking down from her breast with the fourth to the eighth egg. Coincidently, the eggs are no longer buried.

Egg laying is generally in the first hours of daylight. While the hen is busied in the box, the drake awaits nearby. When she has finished her chore for the day, the two birds depart - not to return until next morning.

An exception is often made during the time the last two or three eggs are being dropped. At this time the hen may return in late evening and spend the entire night in the box, presumably picking down. This overnight stay of the hen does not start development in the eggs. This development seems to require the continuous presence of the hen, both day and night. If this were not so, the eggs wouldnot all hatch the same day.

Those of you who have managed nesting projects in much wilder areas than my city, will probably marvel at my comparative freedom from predation. I know that when Frank Bellrose was most discouraged by his raiding predators in the 1950's, I was still practically free of predators.

My placement of boxes was early affected by the noticeable preference of the ducks for locations well away from the brushy edge of the bluff which rises from the river. The ducks used boxes located well into the rear in trees surrounded by cut lawn grass. Several most popular locations are less than twenty feet from the two homes. In fact, one box I located so I could seeit clearly through a window in my bedroom when my head rested on my pillow. It was occupied in the secondyear. I have also hung one box on the east wall of my home. No takers, as yet, but I wouldn't be too surprised if it were used. I hung it just below a bedroom window for easy inspection and for pictures when the time comes.

This very evident preference for nesting sites near dwellings must be based on an attempt to get away from predators. Certainly the ducks greatly fear people but their fear of predators must be even greater.

This brings up the whole question of why do "woodies" nest right in the middle of populated residential areas of cities where they persist in this suicidal procedure? I think it is in part because their forebearers have used these same areas through the centuries and we are the intruders, not they. In Burlington, and I'm sure we are no exception, these birds bring off broods year after year as far back as a mile, or even more, from the river or from the nearest water area. We can, therefore, safely assume that through the centuries birds nested that far away from rearing areas. For only those habits or customs which succeed are perpetuated through the natural law that we sometimes forget for the mement.

Note in Table I that for the first fourteen years no nests were destroyed by predators. Then gray squirrels started to destroy nest attempts. This operated in two ways. On one occasion I found a nest that was being incubated, where the eggs had been buried under nearly a foot of leaves. Hidden in and under the leaves I found and removed four live squirrels - adults - which I removed by grasping a tail and quickly heaving the animals overboard. The duck had deserted, probably several days earlier. This situation was never repeated. In subsequent years gray squirrels commenced removing and eating eggs. Usually several per day, repeating the raids. This was usually during egg laying period when the hen was not in the nest. The hen might continue to lay each day, until either the hen or the squirrel gave up. In 1961, five nests were destroyed this way.

In 1958 my first racoon problem appeared when a box lid was removed and all eggs destroyed in one day. Most were left in the box where they had been eaten quite clean. Two years later a similar occasion. Then, in 1963 a racoon killed an incubating hen and largely devoured her and the eggs in the box. This box was an old one with 4" diameter round hole. The same year presumably a horned owl killed and then devoured a hen on top of the lid of the nesting box. Eggs were undisturbed.

In 1963 I discovered a rat snake swallowing eggs, being incubated. Three eggs had already been devoured. I removed the snake. The hen returned and successfully hatched the eggs some days later. In 1965 a rat snake was observed entering a nest from which ducklings had departed that very morning. Two unhatched eggs remained, one of which the snake swallowed. As I was taking photos down into the box, a second rat snake climbed the oak tree, looked me in the face at a range of about 18 inches and joined its mate in the box. Both were removed and later released out in the country.

Racoons have trouble entering 3"x4" oval holes. Such holes are frequently heavily gnawed around the edges by frustrated predators. Successful hatches in boxes so gnawed have occurred in numerous boxes.

Ducks have never succeeded in driving off nesting screech owls from my boxes, but ducks have displaced screech owls that were using boxes as a daytime refuge only.

Winter screech owls seem to specialize on cardinals as prey. Duck boxes, used as havens during the day and as headquarters for dining on prey contain many cardinal feathers, mostly primaries and tail feathers, also mandibles clearly of cardinals. Bones are removed and disposed of elsewhere. Feathers of other bird species are also present, of course, but believe not in a mormal ratio with bird populations available.

INCUBATION

Incubation usually commences immediately after the last egg is laid. But infrequently the hen may take a day off before settling down to incubate.

Normal procedure during this period is for the hen to take two rest flights per day, very early morning and late afternoon. Forty minutes to an hour are usually devoted to this purpose. On departing the nest, the hen must join her drake at their territory for he normally accompanies her on her return. He seldom stops, usually turning about and returning to his marsh territory.

On first nestings he will attend the hen well into the fourth week of incubation. Breaking off the attendance of the drake may be due to the hen no longer seeking him out or may be due to his loss of interest, Probably the purpose of the attendance of the drake is that if her nest is destroyed, she will still have a mate ready to fertilize her eggs in the second attempt.

Duration of incubation varies from 27 to 33 days but about half the nests hatch in 30 days and 2/3 in from 29 to 31 days.

Observers interested in determining probable hatch dates can use this formula with fair chance of success. First, determine date on which last egg of the clutch is laid. Based on the probability of eggs being deposited at the rate of one per day, you require only oneobservation count/taken during egg laying period and a second observation after all eggs have been laid. Example - assume a first observation on April 10th revealed 8 eggs present, on April 20th 13 eggs are present, confirmed next day when 13 eggs are counted. Therefore, 5 eggs were laid after April 10th, making April 15th the probably date of last egg. Most clutches hatch in 30 days. Therefore, probable hatching date is May 15th. Since Wood Duck eggs are first pipped two days before they hatch, start meking nest inspections during rest flight period on May 13th and you will soon know the hatching date and, therefore, the date of exodus of the ducklings.

UNUSUAL INCUBATION OBSERVATIONS

In 1947 I observed a nest in a natural cavity containing 21 eggs on which incubation started on April 15th and continued without interruption until June 16th, a period of 62 days before the hen gave up. The floor of this nest was very broad and, in my opinion, the eggs spread widely enough to allow the outer eggs to chill and die, killing all embryos.

In 1965 a hen completed her clutch of 12 eggs on June 28th. I checked her almost daily beginning July 27th through August 27th when she failed to return; 59 days later. An examination of the deserted eggs appeared to

indicate none had been fertile. She was so late in the season, i.e., late June, that her drake had probably left her before her eggs were laid. Note only 3 days difference in the length of the period of warming the eggs in these two instances.

In 1949 I watched a nest which seemed normal during egg laying but at hatching time I discovered the carcass of a dead hen at one edge of the nest covering 5 or 6 spoiled eggs. Her flesh and intestines were almost all gone - only bones and feathers remained. While alongside, a second hen hatched and brought off 12 ducklings. She must have incubated right through the decay of the other carcass which touched her. Can ducks smell?

HATCHING AND DEPARTURE

It is difficult to get close time observations right at the time of actual hatching for the hen usually remains with her nest during this period. Normally I believe a period of 4 to 6 hours will span the time from the first to the last egg to hatch. Exceptions can be caused by an intruding hen depositing an extra egg in the nest duringthe first day or two of incubation. Such eggs, of course, would be correspondingly later in hatching.

The newly hatched young are, for a few hours, nearly helpless but they soon transform into vital little bodies of soft down. They become alert and in half a day they attain a remarkable degree of physical activity. A day later, they can run, dodge, dive under water for several yards, jump out of most any container you may try to gather them in, excepting a soft cotton sack which is what I use for such occasions.

Ducklings usually spend one night in the nest box before the mother calls them out. Normally on the day of exodus the hen takes a morning nest flight. An inspection of the nest while she is gone will show the young frozen in the nest. All heads are apt to be down and scarcely a quiver can be detected. The lighter markings on head and belly are hidden from view and most eyes closed.

The down, which may have been a layer 1½ to 2 inches thick, has mostly been solidified by contact with the wet bodies of ducklings. Most egg shells have been reduced to chip size and the sacks or membranes are hidden under the babies.

If this inspection is made with the hen at home, she will be defensive and several little heads may appear among her edge plumage, but no peeps.

When the mother returns from her last rest flight, she broods her young for an indeterminate period. Given a bright warm day, she may start preparations to leave within an hour or even less. However, on a chilly rainy morning, she tends to wait until the rain stops or the grass dries a bit and the temperature improves.

When she decides the time is propitious, she climbs to the entrance hole and surveys the area for signs of danger to her precious brood. A slammed door, a passing dog or person or any unusual sound or sight will discourage or frighten her so she drops back into her box. No sounds from the hen or her brood are heard at this point. This up and down procedure may be repeated many times or only a few times.

When she decides the coast is clear, she makes a few low calls which to me sound like kuk, kuk, kuk. She drops to the ground quite near the nest tree and continues her low calls. Very soon answering peeps come from the box. Ducklings climb to the opening and after a brief hesitation, they jump. This is not just a fall but a jump. Often they strike the ground four to six feet out from the tree.

When they alight on short cut lawn and hard ground, they may definitely bounce four to six inches high. Normally they are immediately on their feet peeping loudly to call the mother's attention. As quickly as they locate their mother, they run to join her and their predecessors.

When they make a bad landing, say on their back or their head, they seem stunned but this is usually only momentary. In watching many hundred jumps, I have seen only one killed by this experience.

Never have I seen a baby Wood Duck make the descent by any method other than this jump. Once or twice I have seen the hen re-enter the box after a few babies have jumped but she never, in any way, assisted the young in their descent. Once or twice a hen has calledout her young while she perched on a nearby limb, but she has dropped to the ground long before the last duckling was out.

If danger in the form of a dog or cat or person appears during the exodus, she will depart with the ducklings she has with her. If the danger is only momentary and she is still quite close, she may wait for laggards or return, in answer to their distress calls, bringing her little ones with her. Usually the young string out behind their mother more or less in single file, especially in open ground.

Occasionally where the hen departs before all the ducklings jump out, I put the young in a cotton sack immediately after the hen departs and proceed to the railroad track at the river bank. There I watch to see exactly where the hen and young cross the track at the river's edge which is against the rail embankment. When she has crossed, I quickly advance, being concealed in the ditch on landward side of the tracks and moving quietly to the exact spot where the brood crossed, take out a duckling, which is now peeping loudly. The hen being nearby, answers with her call. I, then, release all the ducklings and they scramble down the embankment and join up. This has worked many times for me.

Here is a successful way of joining orphan ducklings to a new mother. Often I receive telephone calls to the effect "I have X number of ducklings, can you help me"? If I happen to have a nest due to exodus next morning, I receive the orphans and either insert them in the nest box after dark, or if I plan to watch the exodus next day from my blind, I keep the ducklings overnight in a padded bucket on gas pilot burner or other improvised brooder. Next morning I take them to the blind and while the hen is calling out her brood from the box, I release my ducklings and

they join up. The hen will accept them.

Now and then I get a call advising me that someone has captured, not only ducklings, but the hen as well. A method of securing a calm and peaceful release of such a family will interest you. Put the young in one suitable thin cotton sack and the hen in a second sack.

Bring along a sizeable corrugated carton and a ball of string. Carry the whole to a suitable release area at the border of a swampy spot. Place the carton - open side to the ground - cut a six inch opening in the top of the box leaving one edge uncut to act as a hinge. Drop the hen first and then the ducklings through the hole into the box which will be black dark when the flap is closed. Fasten your string to the top front or release side of the box. Wait ten minutes for things to calm down. Then, standing off fifty feet behind the box, slowly pull the string. This raises the desired edge of the box to clear the ground. When the opening is sufficient, the hen quietly walks out with her ducklings following and you have a calm peaceful release of the entire family at a proper pre-selected spot.

Newly hatched ducklings may be lost in a variety of ways, as I found, to my great regret, several years back. In one nest, five healthy ducklings were deserted because they had not been able to climb to the hole, since the lumber from which I had built several new boxes was not rough enough to give them a secure toe hold. I watched for over an hour from my portable blind while the hen wandered around under the tree calling to the nestlings and followed closely by the ducklings that had succeeded in joining her. She finally had to leave the five young in the nest. Seeking to prevent a repetition of this tragedy, I decided to cut a strip of old carpet to serve as a gangplank up to the exit hole when the next brood was ready to leave. On this occasion I watched from my blind until the duck left her brood for her morning rest flight. Then I climbed to the nest and fastened the strip of rug in place with three small tacks,

each requiring only two or three light taps of a tack hammer. I immediately closed the lid and climbed down the ladder. As I removed the ladder, the first duckling appeared at the hole and jumped out. In a moment all 11 young were on the ground around me peeping loudly and scattering through the Lily-of-the-Valley foliage surrounding the tree. Very evidently the "freezing" reaction had broken down under the stress of the tack hammer blows on the box. The hen never found these scattered young.

Getting back to my typical brood. As soon as the last duckling emerges from the nest, the hen moves out toward water. In my case, this means the big river which lies 120 feet below my yard. Those broods hatched well back from the bluff follow a course which takes advantage of every bit of available cover. When openings must be crossed, the pace is rapid and the mother stretches her body as low as possible. At the next covert she slackens the pace to allow the trailing young to catch up.

The passage down the bluff is very rough and very steep. Then comes a single track railroad line. The hen rests her brood before tackling the crossing of the rails. Despite her fears, the ducklings jump over the rails quite easily. The river bank lies 15 to 20 feet below the track. In times of fairly high water, there is enough cover emergent from the water to give a feeling of security. But during periods of low river stage when a bare mud bank borders the water, the hen marshals her brood and immediately sets out to cross to the Illinois shore a 1/2 mile away. The young cluster close to her and some seem to engage their little toes in her plumage to get assistance. If the group is not forced to return to the Iowa shore by passing boats, large and small, they complete the crossing in about twenty minutes. Once across there is plenty of swamp and water with emergent cover to give a bit of security. I have watched pleasure craft pass quite close to broods as they made their crossing but in no case have the boat people showed any sign of noticing the ducks.

There is no practical way for me to follow the broods to their new homes so here ends my story.

TABLE 1. WOOD DUCK NESTING RECORDS FOR WOODEN BOXES ERECTED AT BURLINGTON, IOWA, 1943-65.*

	Nesting Boxes			Eggs			Nests Destroyed By Predators	
Year(s)	Available	No. Used	Percent Used	No. Laid	No. Hatched	Percent Hatched	No.	Predator(s)
1943	3	3	100	35	30	86	0	
1944	14	5	36	67	57	85	0	
1945	12	9	75	133	99	74.4	0	
1946	12	6	50	82	76	93	0	
1947	14	8	57.1	108	83	77	0	
1948	15	13	87	156	117	75	0	
1949	14	9	64	180	129	72	0	
1950	16	10	63	142	102	72	0	
1951	19	17	89	237	182	77	0	
1952	19	17	89	205	174	85	0	
1953	24	19	79	232	195	84	0	
1954	20	8	40	108	75	69	0	

Continued on next page

TABLE 1 (Cont.)

	Nesting Boxes			Eggs			Nests Destroyed By Predators	
Year(s)	No. Available	No. Used	Percent Used	No. Laid	No. Hatched	Percent Hatched	No.	Predator(s)
1955	22	5	23	61	61	100	0	
1956	21	7	33	83	76	92	0	
1957	19	9	47	116	102	88	1	Squirrel
1958	19	12	63	149	142	95	1	Raccoon
1959	17	16	94	214	188	88	0	
1960	22	18	82	257	152	59	1	Raccoon
1961	20	20	100	248	166	67	5	All squirrels
1962	17	20	118**	328	168	51	0	
1963	16	19	119**	258	178	69	3	Raccoon, owl, rat snake
1964	21	15	71	191	135	71	4	Raccoon (1), squirrels (2), ? (1)
1965	22	16	73	218	173	79	2	Squirrel, snake
TOTAL	398	281	71	3,808	2,860	75	17 (6%)	

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TABLE 1 (Cont.)

* In all but the first few years, F. Leopold made over 300 nest inspections per year. Conservatively, 7,000 inspections are involved. Four large 8½" x 11" notebooks are packed with data.

** Some boxes were used by different hens in the same season. Therefore, use of available boxes is over 100 percent. Boxes containing nests in late March and early April become available for second nests about mid-May. Many nests are started in May and some in June.