



Northern Cardinal by *Jack Bartholmai*

“From Field and Feeder”

Observations of unusual occurrences and/or interesting behaviors for American Woodcock, Northern Bobwhite, and Hooded Merganser, plus an experiment on winter feeding of oranges.

WOODCOCK NEST

June–July, 2004, La Crosse County—

On 16 June 2004 we discovered an American Woodcock (*Scolopax minor*) nest on our farm, inadvertently flushing the bird from three eggs while we were cleaning up fallen branches from a woodland edge trail. Gary was using a chainsaw and dropped a very small tree within 18 inches of the bird before she flushed, revealing the nest. In spite of the noise and physical activity in her immediate vicinity, she remained committed to her nest until the falling tree struck the ground. He removed the tree, his equipment, and himself from the vicinity as quickly as possible. On the morning of 19 June we walked the trail together; stopping 8 feet from the nest, we were able to view the incubating bird back on the nest. We left quickly without flushing her.

Both *A Guide to the Nests, Eggs, and Nestlings of North American Birds* by Baicich and Harrison (1997), and the Wisconsin Breeding Bird Atlas Handbook suggest that this is a late nesting. Since American Woodcocks more typi-

cally lay 4 eggs and are single-brooded, we assume this very wet spring or some other factor had caused this female to re-nest, resulting in the late egg date.

We continued to monitor our Woodcock nest by visiting the site every other day. We were able to locate the nest and brooding Woodcock from 8–12 feet away through binoculars without flushing her. Sometimes it took several minutes of scanning before we could confirm her presence by seeing her eye, or beak, or the pattern of breast feathers. Woodcock camouflage and nest placement are very impressive (Fig. 1)! On 30 June the female was still on the nest. Finally, on 2 July, she was gone along with her new family. Our best guess, based on the dryness of the empty egg shells, is that hatching occurred on 1 July. Each egg shell left behind was evenly opened and in place in the nest without any apparent disturbance that a predator would have generated (Fig. 2).—Gary and Jean Ruhser, rural Holmen, La Crosse County, WI.



Figure 1. American Woodcock nest.

**WINTER NORTHERN
BOBWHITE BEHAVIOR**
(*Colinus virginianus*)

28 December 2003–April 2004, Marquette County—Two days after the Marquette County Christmas Bird Count they arrived: 10 Northern Bobwhites; five cocks and five hens marching in single file across the backyard toward the feeders, looking so much like secret service agents as they nervously glanced here and there, up and down trying to detect if some type of mischief might befall them if they didn't stay close together.

During the 25-yard march to the

feeder, the leader would suddenly stop and the rest would pile into one another like a car-wreck on a foggy California freeway. Some would rapidly run back toward the large brushpile whence they came and others would sit "frozen" until the leader would venture forth once more. On his signal, those that were behind him would thaw from their stationery positions and follow, while those that retreated to the brushpile would rush to catch up to the covey.

It was December 28th when they first came to feeders and the ground was still bare of snowcover. For the next month, they would come on cue



Figure 2. Woodcock nest with hatched eggs.

each morning at sunrise, scratching at the feed that was spilled on the ground by Blue Jays and woodpeckers. The rest of their day was spent foraging around the outbuildings and weedy field behind the house and lounging in the sun on the south side of the brushpile.

The brushpile in question was created by me in December from limbs trimmed from some large maples in the front yard. It was about 40 feet in length, 10 feet in depth and 3 feet high. On January 8th, I added to the top of the pile with pine boughs to give the birds more protection from wind and cold nights.

According to *A Natural History of*

American Birds of Eastern and Central North America, winter cover, especially brushpiles, is crucial to Northern Bobwhite survival. The book's author, Edward Howe Forbush, states the following: "He who wishes to increase the number of the species should provide them with food and shelter in winter. For this purpose high brush piles should be built . . . the brush allows the sun and wind to enter the pile and makes a refuge into which the birds can creep. The brush must be strong so that no layer of heavy snow can crush it down. Probably no better feeding place and shelter than this can be devised."

On January 23rd, we received the

first significant snowfall of winter, about 4.5 inches. The following day, none of the birds came to the feeder and I feared they may have perished in the storm. To my delight, however, they came bright and early on the 25th and returned in the evening for more feed before retiring to the brushpile for the night. This was the first time in almost a month, that I observed the birds coming to the feeder in the evening.

The following evening, we received an additional 3 inches of snow, completely covering the top of the brushpile. I did not see them on the 26th and 27th and was sure they had moved on. Finally, on the 28th, I walked out to the brushpile, and to my consternation saw only weasel tracks. I assumed the weasel had roused them out of the brushpile and they were now elsewhere. However, at 2:00 p.m. all 10 came marching out of the pile to the feeders and fed heavily. I was amazed that those small birds could survive three days without eating.

The next morning they were there at sunrise and although the following morning, January 30th, the temperature was 17° below zero F, they arrived at sunrise which they did every morning for the next week. With the snow now too deep for them to walk, they would fly from the brushpile to the feeder and back. At no time had they foraged or strayed from the brushpile since the snowcover.

On February 6th nine more inches of wet snow fell, completely covering the brushpile and all the entrances. I took my shovel and cleared the two openings that the quail were using to enter and exit the brushpile, but none showed up even when the sun came out later in the day. By now, I was

quite used to this behavior the covey displayed of sitting tight a day or two following a storm.

Gene Woehler, a retired Wisconsin Department of Natural Resources wildlife biologist states: "That behavior (diminished activity during cold or snowy periods) is quite normal. They will stay bunched together only coming out when they are quite hungry or the temperatures warm. Other species as the Ring-necked Pheasant, cottontail rabbits, and squirrels also remain relatively inactive during cold spells."

This type of behavior doesn't seem restricted to bobwhites. Ty Baumann, naturalist at the Bay Beach Wildlife Sanctuary in Green Bay, WI., said, "I have observed similar behavior in grouse, Gray Partridge, pheasants, and waterfowl. They conserve energy during bad weather by remaining relatively inactive."

For the following four weeks, the bobwhites spent their entire lives between the brushpile and bird feeders. They would acquire grit by scratching at the bare ground under the brushpile and water from the melting snow on the south side. During all that time, however, they remained extremely wary, retreating into the brushpile long before the resident Cooper's Hawk would appear. They were also very intolerant of humans, flushing at the slightest movement in front of the window.

As February grew into March, the bare patches of ground became larger with the lengthening days and warming temperatures. On March 4th an overnight of mild temperatures cleared most of the snow and bobwhites decided it was time to forage afield. Ignoring the feeders completely, the 10 little birds walked, ran,

and then flew to the open fields to the north. After all those months cooped up in the brushpile, it seemed they were ready to exercise their freedom.

The next morning, March 5th, they returned, but only nine of them came to the feeder. One of the hens was missing. As if somehow realizing the dangers away from their secure home, the other nine stayed in the brushpile another month, foraging only at the feeder and around the yard.

It is obvious that the brushpile not only offered shelter in the winter, but was also good protective cover from predators in the spring. Forbush's comments concerning the building of brushpiles for bobwhites seemed well-founded.

In April, they began once again to forage afield. There was much calling by the five males as they vied for the remaining four hens. Throughout May and June, a few would come back down to the feeding areas to scratch at the fresh feed.

I hope they bring their chicks back with them this fall.—*Daryl Christensen, Marquette County, WI.*

WINTER ORANGES

Fall 2003–Winter 2004, Ozaukee County—Each spring around late April–early May we start putting out oranges and then later grape jelly. We do this, for the most part, to feed Baltimore, and sometimes Orchard, Orioles. Sometimes we will get other species to feed on them as well, such as Red-bellied Woodpeckers, Gray Catbirds, House Finches, and maybe a few others. My idea was to put out oranges not just during the spring and summer, but to put them out into fall

and even during winter. So as the 2003 summer ended, I kept putting out the oranges.

First it started out kind of slow. I think one reason is because the birds were not used to having an orange still around at that time of year. However, once the birds found them, they kept on eating them. With orioles and catbirds gone, it was mostly the Red-bellied Woodpeckers that would eat them. The House Finches also would still eat them. If snow got onto the top of the oranges, I would be able to just brush them off, and for the most part the birds would keep feeding on them. If the oranges would get frozen inside (the pulp), at that point I would put out a new one.

Overall the birds kept on eating them all of the winter. Then, of course, they kept on eating them going into the spring. I don't know if eating oranges during the winter is bad or good for the birds. However, I found it interesting that they still would eat them. This was just my own personal experiment, and it seemed to work out well. I plan on trying it again this winter as well.—*Seth Cutright, Ozaukee County near Newburg.*

WHAT'S UP WITH THE BLACK EGG?

Spring 2004, Dodge County—Well, everyone has a life-changing experience. You know, the part about missing a bus and catching a ride with your future spouse? Well, mine is nothing like that. Mine was a crooked pole—just that simple. Let me explain further. I maintain about 80 Wood Duck boxes in Dodge County. They are scattered about on several miles of the Beaver Dam River and its tributary



Figure 3. Hooded Merganser eggs, normal white egg with black egg from same nest.

ies. I do mainly winter checks of the boxes and try to record hatching success (about 50–60% successful nests) and clean out the boxes to get ready for the next nesting season. My reason for the winter checks is, it's just easier to get around the marshes when they are frozen and winter is a slow time for this birder/outdoorsman. So I can turn a slow time into pro-"duck"-tive time, so to speak.

One of the drawbacks of winter maintenance is if a pole is leaning or down, and frozen in the ice, it's there until spring. I got just about all of the winter check done this year and blew out my back so I had to wait a couple weeks to finish going back and righting some of these leaning ships.

On April 22 I went along Shaw Creek to take care of some of the

boxes. I came to box #15 and the pole was leaning badly, nearly at a 45% angle. I grabbed the pole and started to straighten it back up when a hen Hooded Merganser came flying out of the box. I decided to open the box and see what was inside. She was sitting on 11 eggs, and one of them was black (see photo of eggs in hat for comparison). It didn't appear to be mud. It was a thin layer, you could see scratches around the egg that were normal color, and it appeared to be the whole egg. Having just done the winter maintenance a couple of weeks before, I knew it wasn't a leftover egg from the previous year. So I asked on WisbirdNet, "Has anyone ever seen a black Hooded Merganser egg, and why is it black?" I received one reply about seeing such an egg. I posed the

same question to Roger Strand who sits on the board of the Wood Duck Society. The Wood Duck Society is dedicated to erecting nest boxes for Wood Ducks. They have about 350 members across the country. With Hooded Mergansers also using the same boxes, I thought I might get some feedback from them. Yes, they have had (3) cases of black eggs but no one could explain the event.

I sent off questions to WDNR, USFWS, Cornell University, Northern Prairie Research, Ducks Unlimited, and Delta Waterfowlers . . . nothing.

I tried searching the web but anything I came across about Hooded Merganser was a by-product of Wood Duck research. There just wasn't much information out there.

In early June I returned to the box to check to see if the eggs had hatched. Indeed, all 11 eggs had hatched including the black one. I found several fragments of the black egg, which I saved, along with a piece of a "normal" egg.

A friend of mine from the Horicon Marsh Bird Club, Jack Bartholmai, was monitoring a Hooded Merganser clutch of 18 eggs with 2 black eggs. Both of those eggs hatched also.

I sent the shell fragments to my brother who is a retired chemist (Ph.D.). He knew some people who could do some testing on the eggs to determine what the black was on the eggs. The following is what we found or didn't find:

Using SEM-EDS (Scanning Electron Microscope-Energy Dispersive Spectroscopy), it was noted that the black egg wasn't solid black, but mottled black on tan. It was noted that the normal egg had small black spots that were visible at higher magnifications.

Both dark and light spots on both samples were examined with the equipment.

This is what my brother had to say: The answer is not "cut and dried." In the optical microscope you can see there are layers in both samples. The black areas are blotches on the surface and they are very thin (5–10 microns). These black areas are in both samples. The difference is that the black one has very large areas that have these layers of black, whereas the "normal" egg has only very small areas of black. Using ESCA (Electron Spectroscopy for Chemical Analysis) which can tell you what elements are present, both have the same composition throughout the sample except at the surface. The shell is made up of calcium, phosphorus, sulfur, and carbon. (Personal interpretation—the chemicals are probably calcium carbonate, calcium phosphate, and calcium sulfate.) The black layers in both samples are the same except they have more sulfur and carbon, with traces of potassium and chloride. (Personal interpretation—because they are at the surface the potassium and chloride could be contaminants introduced after the eggs are laid. The most likely source of the coloration is sulfur, although carbon in the form of graphite would be black. I believe this would be very rare in a biological system.) Finally the black areas can be easily flaked off. Also the black areas have more surface texture, which contributes to the coloration.

And after further testing, my brother stated: The results I reported to you are still unchanged. Little more can be added. Let me try to summarize what was learned. The black phenomenon is only on the surface. The

interiors of both eggs' shells were the same. The white egg also had tiny black specks. The black layer on the black egg could be easily scraped off. The black spots on the white egg are the same as the black area on the black egg. There appears to be less phosphorus on the surface of the black egg in the white area than on the white egg surface. The top layer of the white egg viewed from the edge of the shell shows a higher amount of phosphorus and carbon than the black egg viewed 5–10 microns into the black portion of the black egg. Finally the black egg contains sulfur in the black areas of the black egg and the black spots on the white egg; and the white portions of the black egg and the white egg do not contain sulfur. There is some inconsistency with the carbon content on the surface of both eggs. My conclusion from this is that since there is no iron along with the sulfur, it is not a result of blood being exposed to the surface of the egg. I would speculate that this is the first egg, since the black layer is also there in the white eggs, but in far smaller quantities, therefore the first egg has all the black deposited on the egg. Maybe there is a higher concen-

tration of a sulfur-bearing protein in the oviduct that is "scoured out," or absorbed, by the first egg, and since the next eggs are produced in rapid-fire order, this protein doesn't build up enough to totally pigment the egg shell. Maybe this is caused by a delay in laying the first egg. If the egg is laid soon after it is formed, it may not be exposed long enough to be pigmented. Anyway that is my theory. Pass this by people who know about the egg laying metabolism.

Now for my opinion(s): If this is a "first egg of the year" event, then in theory every nest should have one black egg. If it relates to diet, then why wouldn't we see more of them. My theory is: It could be the first ever egg laid by a young hen. But after looking at Hooded Merganser nesting data (and there aren't many), I find no reference to any black eggs.

Which brings me back to square one . . . nobody knows why. If someone who knows nesting biology could put all the chemical facts together, we may have something here.

Anyone care to comment? I would like to hear opinions/theories on this.—*Jeff Bahls, Beaver Dam, WI., jbahls@powerweb.net*