

- 4) The throat and breast were white, lacking any of the yellow tones one would expect in northern parula.
- 5) The back was a uniform dark bluish-gray from the mid-crown to the mid-back, lacking the greenish triangular patch of a northern parula.
- 6) The feeding behavior was like that of a cerulean warbler—the warbler moved quickly from branch to branch. It never displayed the slower, probing feeding behavior of a northern parula, and it never hung upside down to probe leaf clusters, as parulas often do.
- 7) The shape of the bird looked more like a cerulean warbler.
- 8) As noted above, the warbler employed songs similar to both primary cerulean and northern parula songs, in addition to alternate northern parula songs. It readily responded to playbacks of both cerulean and northern parula warbler songs.

While we will likely never know for sure whether it was a hybrid or an aberrant-plumaged individual, I see evidence of both species in this interesting warbler, and my best guess is that the bird I observed on multiple occasions at Wildwood Preserve in Toledo, Ohio is a hybrid northern parula x cerulean warbler. 🌿

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Prothonotary Warblers at Hoover Reservoir

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One of the most splendid of the wood warblers, a male prothonotary warbler *Protonotaria citrea* is not shy about showing off his exquisite plumage as he forages along the margins of his territory, nor about declaring his reign from an exposed perch. His loud song rings through the air, a distinctive “sweet-sweet-sweet-sweet” on one pitch. A brilliant golden yellow, he is hard to miss, but that does not mean this species is easy to find. The prothonotary warbler is on the “Watch List” for Ohio birds and is usually found only in low numbers in suitable habitat around the state.

The cause of its scarcity is the loss of its habitat throughout the state. Prothonotary warblers prefer backwaters with a canopy of trees, damp and swampy river bottoms, and low-lying woods flooded at times and in which woodland pools are left by receding water. This type of land is often considered useless, and is destroyed for development and farmland.



This male prothonotary warbler at Hoover Reservoir should perhaps have been more grateful, but instead looks askance at the intrusion of benefactor and photographer Charlie Bombaci.

Prothonotary warblers are unique among the eastern warblers in nesting in cavities over or near water. They normally nest in natural cavities such as abandoned woodpecker holes in stumps 2-12 feet above water. While abandoned downy woodpecker holes are the sites most commonly chosen in Ohio, the warbler will nest in natural openings in dead branches or the broken top of a stump. When suitable cavities are unavailable, the birds will also nest in bluebird-type boxes located along narrow waterways. The availability of suitable cavities is the most critical habitat requirement for breeding prothonotaries.

Cavities are not, however, the only habitat feature required by the species. Generally essential for their presence are an abundance of willows and the proximity of water. Prothonotary warblers are rarely found far from the latter, whether a slow-running river or creek, a large wooded lake or—the species’ favorite—flooded bottomland forests.

These locations offer many decaying trees with nest cavities in flooded areas and the added benefit of lower predation by mammals at nest sites located over water. Insect food for the nestlings is usually abundant in flooded areas. This specialization adds to the difficulties of finding suitable nesting habitat in Ohio. The northernmost reaches of Hoover Reservoir in Delaware County, however, do provide large tracts of appropriate habitat for prothonotary warblers. In 1988 several individuals recognized the value of these areas, and persuaded the City of Columbus to create the Hoover Nature Preserve.

Michael Bailey, then a graduate student at The Ohio State University, led the effort that resulted in the creation of the Hoover Nature Preserve and the future protection of an area rich in varied habitats and plant and animal species. We owe Michael a great debt. Michael chose the prothonotary warbler for his graduate studies. Jim Fry, then the naturalist at Blendon Woods Metro Park, put Michael in contact with me because of my familiarity with the Hoover Reservoir area, and thus I became involved with the prothonotary warbler nesting project there. Michael went on to become a college instructor and I have continued the nest project.

In 1988 there were four known pairs of prothonotary warblers at the preserve. That year we began installing nest boxes made from milk cartons. The birds readily took to the newly available nest sites and slowly their numbers began to climb. Our problem with the milk cartons, though, was that they had a short life of from four to six years. Realizing there were stronger box designs that would work, we began replacing milk cartons with wooden boxes. These boxes have weathered well, and as the number of birds increased I decided to increase the opportunities for them.

In the mid-1990s I found a helpful source for nest boxes--Darlene Sillick of the Ohio Bluebird Society--and my commitment to working with prothonotary warblers became a mini-crusade. I installed additional nest boxes farther and farther from where I had started. Construction companies have a credo: build, and they will come. Mine is similar: install nest sites, and they will nest. The results have left me awed. In 2001 I surpassed 30 prothonotary warbler territories for the first time. During the period 2001 through 2004 water levels at Hoover Reservoir have stayed high throughout the nesting season. The boxes remained over water and hence predators were not a problem; the warblers have flourished.

In 2004 I have another Ohio State graduate student working with these warblers. John Kuenzli is a pleasure to work with. John was looking for a site with adequate numbers of prothonotary warblers in order to do his graduate project, and I told him I should be able to fill the bill. He and I installed 51 new boxes just prior to the 2004 nesting season, aiming to replace boxes lost in 2003 storms and to expand the range of box locations. This brought the number of boxes placed around the preserve to approximately 150.

In 2004 we located 51 prothonotary warbler territories at the north end of Hoover Reservoir. John has managed to band approximately 30 males to enable him to monitor return rates in 2005. The band colors used are a red band on one leg and a silver band on the other. In addition to using the nest boxes, the warblers continue to use available natural cavities. At one site a pair selected a natural cavity just two feet from a nest box. I told John they were too proud to accept subsidized housing. All told, approximately 40 percent of the birds have selected natural cavities.

Prothonotaries are usually first observed at Hoover Reservoir about 15-20 April. The males generally arrive first, stake out their territories, then patrol them, singing. The females arrive approximately 10 days later, by which time all the males have established territories. Their "sweet-sweet-sweet-sweet" songs can be heard all around the upper end of Hoover Reservoir.

The prothonotary warbler is a strongly territorial species. The males will drive off others of their species, as well as competitors such as house wrens, tree swallows, and eastern bluebirds. Their territories can take any of several configurations: long and narrow, or square, or triangular. Most commonly, they run along the shore and are anywhere from 200 to 500 feet long and about 100 feet wide. In several areas of the preserve concentrations of territories lie side by side, averaging only 50 to 75 feet along the shore and extending about 250 feet back into the swamp forest. Here boundary squabbles are constant as the males test the limits.

The male will build one or more incomplete nests, adding just a shallow layer of moss to cavities scattered within its territory. The female eventually selects a mate and one of the dummy nest sites. Her first order of action is to redecorate the bachelor pad. She builds the real nest with mosses, rootlets, twigs, and leaves.

Prothonotary warblers must contend with house wrens, tree swallows, Carolina chickadees, and eastern bluebirds for available nest sites at Hoover Reservoir. The chickadees and bluebirds are minor competitors. House wrens, on the other hand, are major adversaries. Aggressive and numerous, they cram many prothonotary nesting boxes with sticks. If noticed early, before egg laying begins, their nest material may be removed to make boxes available for the warblers. Only after the warblers have established a territory will they protect a nest site. I let the wrens do their thing once the warblers have done so.

Nest construction for the prothonotary warbler begins during mid-May and continues into the first half of June. In general, the first clutches are produced between 20 May and 10 June and the young fledge between 15 June and 5 July. Re-nesting attempts and second broods have been noted at Hoover Reservoir, but are unusual. During the 2003 nesting season the latest clutch was found in the first half of July, with fledging in late August.

The female lays the eggs each morning, one egg per day, until all are laid. She usually lays 4 to 6 eggs, but I have encountered clutches ranging from 3 eggs to one with 8. The eggs are cream-colored with brown blotches. Incubation continues approximately two weeks from the date the final egg is laid. The hatchlings are an orange-red when they emerge and remain in the nest for about ten days before they fledge. The fledglings are well adapted to their wet environment: should they fall into the water when leaving the nest they are able to swim to safety by flapping their wings on the surface to reach the nearest snag and climb up.

Both adults feed the young, at intervals of 10 to 20 minutes. They sometimes arrive together, and at other times in turn. The male often flies directly to the entrance, where he hesitates before entering. He often emerges with a fecal sac that he carries far from the nest site before dropping. The female usually lands behind the nest box or nest cavity

first, then moves carefully around to the entrance.

The main predators prothonotary warblers must contend with are raccoons, northern water snakes, and humans. Raccoons are dangerous predators for the warblers; when water levels are down they can easily reach nest boxes and eat eggs or young. Experience has shown that nesting boxes should be monitored only from a distance when the water level is so low that the area under the boxes is dry. Raccoons have learned to follow the scent trail left by people monitoring the boxes. Losses to raccoons can be very high if you are not careful about leaving scent trails.

Fall migration begins in late July and is in full swing about 10-20 August. Prothonotaries observed here after this date are most likely from populations nesting farther north.

I have enjoyed the company of many individuals who discovered they could see these warblers close to home in central Ohio. This year Jon Dunn of Wings birdwatching tours contacted me during his tour through Ohio on the way to Magee Marsh. His California birders were rewarded with a show put on by the prothonotaries and other species found at the preserve.

WHERE TO FIND PROTHONOTARY WARBLERS AT HOOVER RESERVOIR

Prothonotary warblers inhabit the northernmost end of Hoover Reservoir during the breeding season. The better locations to find them include:

1. **Front Street** (signed Area N): This area is behind the Galena Municipal Building. Front Street circles behind the main strip. Turn onto Front Street, park next to Big

Walnut Creek, and enter the old road beyond the chain barrier. There should be a Hoover Nature Preserve sign there. The road continues to an old bridge base. This area is wet woodland and swamp. In an average year four to seven pairs of prothonotary warblers nest here.

2. **Dustin Road:** Dustin begins at



A prothonotary warbler searches the vegetation at Hoover Reservoir for insect goodies. Photo by Charlie Bombaci.

Sunbury Road/Old Route 3C. Park in the space provided at the curve near the old railroad bridge (Area L) and walk along the Dustin Road's edge or down the old roadway. Prothonotary warblers nest along the water's edge. The old road, the small peninsula to the right, and along the Little Walnut Creek going north are good places to seek them. Usually three to four pairs may be located in this area.

3. **Wiese Road** (Area K): The entrance to the road is located across from the Blackhawk Golf Course on Old 3C Highway. Park at the barrier and walk the old road that parallels the shore (this is Area K). Usually two to five pairs are located here.

4. **East Shore Yacht Club/Old Sunbury Road:** The entrance is at the south side of Sunbury Road just east of Harlem/Woodtown Road. Park at the edge of the road, without blocking the entrance to the yacht club, then walk around the fence gate. The road forks quickly, and the dirt road to the left leads to a small inlet where several pairs are often located. If you go straight and follow the old roadway, the trail will continue for over a mile. Many sites for prothonotaries are along this roadway. The quickest way to locate them here is by song rather than by sight. In an average year there are ten to fifteen pairs along this stretch.

5. **Mud Hen Marsh.** This wetland is located at the intersection of Sunbury Road and Big Walnut Road. The entrance and parking lot are 100 yards west on Big Walnut Road. Mud Hen Marsh is an area of wetlands, controlled-succession forest, and swamp forest. The exit stream for the marsh goes under Big Walnut Road, and the bridge is a good area to look for prothonotary warblers. Along the shores near the bridge there are usually one or two pairs yearly.

6. **Oxbow Road.** Access is via Old 3C Highway and Tussic Road. Follow Oxbow Road across the causeway to the parking area at the end. Check the inlets on the north side and the wetland on the south side. Usually there are from three to five pairs present along Oxbow Road.

NEST BOX BASICS

Nest boxes come in many shapes and sizes, and choosing which to build or buy can be difficult. Be careful to select a design meant for prothonotary warblers. Features of a good wooden nest box for this purpose include: untreated wood (pine, cedar, or fir); thick walls (at least 3/4 inch); extended, sloped roof; rough or grooved interior walls; recessed floor drainage holes; ventilation holes; easy access for monitoring and cleaning; sturdy construction; no outside perches. General nest box specifications include: floor size 4x4 inches; height of box 12 inches; hole diameter 1 1/4 inches; height above water 3 to 5 feet.

Wooden nest boxes are successful in attracting prothonotary warblers. They can be attached to trees with galvanized wire, screws or long nails, or attached to poles. Most of my nest boxes are in areas with deep water, and I attach them to trees using galvanized wire placed through a hole provided at the top of the box and then looped around the tree trunk over a branch. A second wire is looped around the trunk through a hole at the bottom of the box. This allows for tree growth and does no damage to the tree. If the tree chosen is dead, I nail the top of the nest box to the trunk and loop galvanized wire around the tree at the bottom of the box. I paint my nest boxes with brown outdoor spray enamel. The enamel provides protection from the elements, and makes the coloration more to the birds' liking.

A second option is to build your own nest boxes out of milk cartons. Each box is constructed from two sealed, empty half-gallon coated cardboard milk cartons. The two

cartons are cut to specifications and then one is inserted into the other. The assembled nest box is painted inside and out with brown outdoor spray enamel. A hole 1 1/4 inches in diameter is made through the double layers of the milk cartons centered on one side, about three inches from the top. Small vent holes should be cut in the sides of the roof cap and drainage holes cut in the floor. The milk carton nest boxes are attached to trees with strong two-inch strapping tape. I suggest painting the tape to make it less obvious.

Assembly of milk carton nest boxes is easy and less time-consuming than that of wooden nest boxes. These nest boxes are also easy to carry and place as well as environmentally friendly. They are disposable and biodegradable. Milk carton nest boxes are readily accepted by the prothonotaries at Hoover Reservoir. In fact, our experience here indicates that prothonotary warblers prefer cardboard milk cartons to wooden boxes. The downside to milk cartons is that they are easily ripped apart by squirrels and raccoons, and their useful life is four to six years, whereas wooden boxes frequently survive for over a decade.

TIPS ON NEST BOX PLACEMENT

Make sure your nest boxes are in place well before the breeding season begins, by mid- to late March. Don't be discouraged if the birds do not begin nesting in your box immediately. Sometimes it takes time for the birds to find it. Proper nest site selection requires a bit of effort. Boxes should be set up in groups of four, spread over a potential territory. This will give the birds a choice of boxes, as males will prepare multiple false nests for females to look over. The boxes, each on its own tree or pole, should be placed about 35 feet apart and three to five feet above the high water level. The shape of the wooded area in which they are to be placed should determine the pattern in which the four boxes are arranged. Sites lacking underbrush are preferred; this will reduce the possibility of house wren nesting and predation.

Whether you attach your nest boxes to trees or use PVC pipes placed in the water, be sure your nest boxes are secure enough to withstand high winds and severe weather. Finally, nest boxes should be placed in such a way as to offer southern exposure and weather protection.

PROJECT PARTNERS: CARING AND SHARING

In many ways the future of the prothonotary warbler in Ohio is in our hands. Through conservation of habitat, nesting projects, and the sharing of experiences and techniques, we can achieve additional successes similar to those at Hoover Reservoir. I have given workshops for interested individuals and several county park systems through the Natural Resources section of the Columbus Recreation and Parks Department. I have begun to research data on prothonotary populations throughout the state via the internet, and provide information to many individuals interested in beginning their own nesting projects. I welcome questions and the sharing of information. Finally, the prothonotary warbler is on the Ten Most Wanted list of The Birdhouse Network project of The Cornell Laboratory of Ornithology, at www.birds.cornell.edu/birdhouse. Their web pages provide information on how to participate in this citizen science work on cavity-nesting birds. ♡

Grouses and little gulls: An Editorial

Some words used for birds seem to defy common sense. Plural formation is a good example. Many people say one robin and two robins, but one teal and two teal. Identical singular and plural bird names commonly used include those of nearly all the ducks, grouse, bobwhite, snipe, killdeer, and woodcock. Why?

You almost never hear passerine birds—flycatchers, thrushes, warblers, finches—treated this way, as “a pair of nuthatch,” or “a thousand swallow.” Many species whose plurals are identical to their singulars are birds that form flocks, and many are fairly large species, but the common thread is something else: they are all game birds. For confirmation, consider the plural forms of these species: “deer,” “fish,” or “moose.” This is the way hunters refer to these animals collectively, and a lot of the rest of us follow suit—understandably so, because so many of those who write about ducks and deer(s) are hunters and use hunters' lingo.

There are exceptions, but many of the names of animals taken as game have identical singulars and plurals. One is tempted to attribute this to an underlying assumption that these animals are somehow not properly regarded as individuals, but rather as undifferentiable flesh, or food—a commodity. Domestic animals regarded as commodities, however—perhaps because we live more closely with them—usually have separate plural forms: cows, pigs, chickens, etc., though we do not have “sheeps.” Many of them have different collective plurals: cattle, swine, fowl, with still other names, usually of quite different origins, for their flesh used as food: beef, veal, pork, lamb, mutton, etc. This is all very complicated, and fascinating to study or speculate about both psychologically and philologically, and English usage continues to evolve with our culture.

Scientists employ useful contrasts between singular and plural forms. Milton Trautman called his work *The Fishes of Ohio* because he treated species separately, reserving “fish” as a collective noun referring to fish of any or many species. This is a useful compromise, but the trend among words for birds—as fewer and fewer species are treated as game or food in English-speaking cultures—is toward standard plural forms. It would be odd to see a modern scientific work entitled “Pheasant of the World,” or “Feeding habits of scoter in Buzzard's Bay.” *The Ohio Cardinal* sides with the scientific trend, saying “teals,” “scaups,” “snipes,” and “killdeers” as plurals, even if they may strike readers as a little strange at first. Your editor, for example, is perfectly at home with all of them except perhaps “grouses,” and he's getting used to that.

While we are talking about usage in the *Cardinal*, it might be time to mention our style as to capitalization of bird names. It puzzles some readers. We do not capitalize bird names, or parts thereof, except as required by standard grammar. Thus, we do not capitalize “gadwall” unless it begins a sentence, or a list entry in column form. We use “Blackburnian warbler” because the first word is derived from a proper name, that of Anna Blackburne, an eighteenth-century English botanist. We avoid “Purple Martin,” its capital letters jarring as “House Cat” or “Dandelion” or “Honey Bee.”

Some have argued that capitalizations are useful in preventing ambiguity. There are actually very few examples among thousands of bird names, but “yellow warbler”