

we really don't have enough data to come to any definite conclusions. We are left with another conundrum—but one that could be resolved with a concerted group effort. Fall swift-watching projects are becoming quite popular—why not expand this coverage to include spring and mid-summer as well?

We offer one final summer conundrum for your consideration. We are all familiar with the notion that birds form and defend territories. These include feeding territories, winter territories, and of course, nesting territories.

Passerine birds typically use song to advertise their nesting territories, and to attract a mate. Many of our standard nesting season surveys use song to help gauge the populations of breeding birds, since it is generally easier for us to detect birds by song than by sight. But not all singers are equal. I have personally encountered this particular enigma here at our apartment complex in Norton, in southern Summit County. We have floaters. Lots of them.

Not those annoying little spots of vitreous debris that dart across your vision, or those buoyant bodies hauled ashore from the East River by the NYPD. No, I speak specifically of singing, but *non-territorial* males; unattached individuals who lurk on the sidelines, eagerly licking their chops in hopes that some tragedy should befall an attached male, causing a territorial opening to appear. Floaters seem to like it here in Norton.

Actually, floaters are probably present everywhere, but are simply not easily detected as such. They are, however, readily detected in the not-so-rich habitat surrounding our apartment, which consists of a thin strip of wet, dying woods behind us (about 25 yards deep), and a one-tree-wide border of large trees across the parking lot. I can sense your envy.

Typically, our floaters sing only once or twice, and then are never heard from again, as they wander past. Some are probably failed nesters, or late spring or early fall migrants, but most appear to be opportunistic ne'er-do-wells, awaiting their big chance to hit it big with a female on the rebound.

Even if no one else finds this interesting, I do, and therefore I will happily supply you with our entire June floater list. Behold: white-eyed vireo, 6/1/04; white-eyed vireo, 6/1/06; swamp sparrow, 6/6/06; wood thrush, 6/7-10/06; tree swallow, 6/10/04; rose-breasted grosbeak, 6/11/02; willow flycatcher, 6/11/05; brown thrasher, 6/12/04; yellow-throated vireo, 6/13/05; eastern wood-pewee, 6/15/02; great-crested flycatcher, 6/15/04; common yellowthroat, 6/17/02; scarlet tanager, 6/19/06; brown thrasher, 6/24-25/03; eastern wood-pewee, 6/28-30/05; blue-winged warbler, 6/28/06; Baltimore oriole, 6/29/06; and common yellowthroat, 6/30/05. I won't bother you with our July floaters. You can thank me later.

In a way, floaters represent a seldom detected, but viable contingency plan for nesting populations. A number of floater studies appear in the literature; a prominent example is provided by Robert E. Stewart and John W. Aldrich in their examination of a 40-acre plot of spruce-fir forest in northern Maine in 1949. First, the authors mapped the territories of males of all species between 6 June and 14 June, and determined that territorial males numbered 148. They then spent 130 hours removing, with 16-gauge shotguns, as many birds as possible from the area between 15 June and 8 July. By the end of the period, they had collected 302 territorial males from the plot, indicating that over twice as many males were ultimately removed as were present initially. "The rapid influx and establishment of new territorial males, following the removal of the former occupants, account for the large number of males collected..." report Stewart and Aldrich [see *The Auk*, 1951, 68:471-482].

That's a lot of floaters, or at least it was, before their abrupt "removal." Since I don't own a 16-gauge shotgun, I'd like to reassure any Norton-area floaters that they are welcome in my neighborhood. After all, what could be

## Historical Status of the Ivory-billed Woodpecker *Campephilus principalis* in Ohio

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**Abstract:** Ohio presents a unique problem in assessing the former range of the ivory-billed woodpecker *Campephilus principalis*. There are four pieces of archaeological evidence for the occurrence of the species in the state, but historical records of the species are lacking in the ornithological literature. One is left to determine the validity of the archaeological evidence for its past occurrence, and to continue the search for historical evidence in the early settlement literature. This paper assesses archaeological and written evidence for the occurrence of the ivory-billed woodpecker in Ohio – more specifically the three areas of Ohio with evidence (Cincinnati, Muskingum County, and the Scioto River Valley) and concludes that the bird was most likely present in the state during the early days of European colonization.

**Introduction:** A variety of evidence is adduced to support the past occurrence of the ivory-billed woodpecker in Ohio. Most comes from archaeological discoveries in Native American sites in the state. Other evidence appears in records of the species from neighboring states. The state of the evidence leaves the issue incompletely resolved, although the species does appear on the official state checklist (Ohio Bird Records Committee 2005). Peterjohn (2001) accepts the species to the Ohio avifauna based solely on archaeological finds. Jackson (2006) accepts the species for Ohio, but appears more hesitant about the value of the archaeological evidence.

Records of historical occurrences of non-game bird species are not always easy to recover. Succeeding in such a search requires a number of coincidences, most beyond the modern researcher's control. First, few early explorers or settlers had enough interest in wildlife to identify correctly various species, making credible records of many birds understandably difficult to find and evaluate. Second, a reporter had to have noticed an encounter with a species of current interest, rather than the edible game in which early visitors were usually most concerned. Third, in order for it to enter the historical record, the witness had to write the encounter down or tell someone who would record it. Fourth, and perhaps most unlikely of all, a modern reader with an interest in birds must have the good fortune to find and report such a written reference to a particular species. With all these eventualities separating the modern ornithologist from historical events, one should not be surprised that early records are difficult to find and, once found, often unclear. Those problems grow still more difficult when investigating a species' status at the edge of its known range.

Even with records in hand, evaluating the historical record of the ivory-billed woodpecker in Ohio remains a fascinating puzzle. In considering the historical occurrence of a species, it is useful to have a plan of what constitutes admissible evidence and what weight can be granted to each of at least eight kinds of evidence that can be entertained in a discussion of ornithological records from the past (both prehistorical and historical):

1. A well documented specimen held in an accredited institution—this is the standard for scientific physical evidence. Hahn (1963) located 413 specimens of ivory-bills in collections around the world, 13 of them in Ohio. A distressing number of these specimens, nearly all skins, lack adequate documentation. None is known to have originated in Ohio.



2. Other modern physical evidence - documented and curated photographs or sound recordings serve the purpose of physical evidence as well. However, as the history of the ivory-bill demonstrates (such as George Lowery's photographs in 1971 [see Jackson 2006] and the current debate), photographs and recordings can sometimes be hotly debated and therefore of little value in establishing a record.
3. An acceptably documented sight record - This is the strongest kind of anecdotal evidence, and requires peer review to verify a rare sighting for the state. Among other things, a clear indication of date, observer, habitat, and a thorough description of the species are necessary to constitute this level of evidence.
4. Archaeological evidence - This category of evidence needs to be applied carefully because of the difficulty in knowing how archaeological evidence arrived at its current position in the record. In the case of birds with religious significance, parts may have been acquired in trade from neighboring areas. The main difficulty arises in ascertaining which body parts had this sort of value. Evidence from non-ritual uses (i.e. food), such as remains found in a midden, constitutes a strong reference to past local occurrence. The context in which the evidence was found must guide ascertainment of its value.
5. A sight reference--This is still strong historical evidence, and it might include a description of the species (even if lacking the in-depth quality one would require of a modern sight record) or a simple statement that the species occurred in a given location, without data and without description (clearly a poorer kind of evidence than a personal description). Vagueness in this sort of evidence often makes it less than convincing.
6. Sight record in a neighboring area - This category demands the same information as 3, but in this case comes from a neighboring state.
7. Reference in a neighboring area - This category demands the same level of information as 5, but comes from a neighboring state.
8. Habitat suitability - In the case of species with very specific habitat needs, this can be a powerful factor in inferring past occurrence. The ivory-billed woodpecker's habitat needs are incompletely known, apparently ranging from relatively open old growth forest (Tanner 1942), to thick swamplands (Audubon 1842), to Cuban upland pine forest (Dennis 1948; an additional complication arises because the Cuban form of the ivory-bill may constitute a distinct species [Fleischer et al. 2006]). Dennis, complicating the issue, claims this woodpecker was a "disaster species" (1967) and tended to wander to sites with a sufficient supply of food. Prehistoric Ohio would have had large areas of mature forests, which could feasibly have supported ivory-billed woodpeckers. However, without more consistent and reliable information on the species' preferred habitat and more specific descriptions of pre-colonial forests, this category is not useful to the present study and will not be included in later discussions.

A combination of more than one of the above eight categories for a single location lends greater weight to a claim of past occurrence there. An area with a claim from only a single category, unless from the first four categories, does not constitute a very sound historical claim of past occurrence. In the following, evidence (both historical and prehistorical) from Cincinnati, Muskingum County, and the Scioto River valley is reviewed. As a quick reference point, the above category number(s) best describing the kind of evidence from a given area is provided.

**Cincinnati and vicinity (7):** The presence of the ivory-billed woodpecker on the list of Ohio birds depended for many years upon reports of the species in adjacent Franklin County, Indiana. The fullest report of the species' status in

Indiana comes from Butler (1892):

*Dr. Haymond notes it as a former resident of Franklin County, but says "none have been seen for many years." ...He informed me they formerly were found in the swampy woodland in the eastern part of the county about what were called the 'Beaver Ponds.' Prof. Evermann informs me that they were formerly found in Monroe County, also having been identified many years ago by the late Louis Bollman.*

This record from Franklin County has a long history in the literature (Haymond 1869, Langdon 1879, Wheaton 1879, Butler 1885, Butler 1886, Hasbrouck 1891, Butler 1892, Dawson 1903, Jones 1903). In addition, Audubon (1842) and Baird et al. (1874) make enigmatic reference to the species nesting in Indiana, but raising only one brood in that northern part of their range.

There is also an apparently unnoticed previous reference to the species from near Vernon in Jennings County, Indiana, southwest of Franklin County. S. A. Ferrall (1832) writes that just before fording the Muscatatuck River:

*I was awoke [sic] at sunrise by a 'white-billed woodpecker,' which was making the woods ring by the rattling of its bill against a tree. This is a large handsome bird, (the picus principalis of Linnaeus), it is sometimes called here the wood-cock.*

The names "white-billed woodpecker" and "wood-cock" are well represented in other early records (Catesby 1754, Filson 1784, Wilson 1828), suggesting the validity of this record. This reference also adds credence to those from Franklin County.

Opinion in the literature is split as to whether the species can be admitted to Ohio's list on these grounds. Hasbrouck (1891) includes this part of Ohio just barely within a map of the species' range, but Tanner (1942) and Jackson (2002) do not. While the Franklin County records do suggest the strong possibility that the species occurred across the current political boundary, no firm evidence of that has been obtained, and the species' occurrence in the vicinity of Cincinnati remains hypothetical.

#### **Muskingum County (4):**

One tarsometatarsus from an ivory-billed woodpecker was recovered near Philo, in Muskingum County. The bone was found in the Fort Ancient component of the site, which the authors suggest dates from 1170 to 1320 CE (Murphy and Farrand 1979). While the authors are unclear regarding the exact location of the find within the site, a previous sample from the site suggests it was a midden, a stratum containing cooking remains and other refuse from the village (Shane and Barber 1976).

The authors claim the find indicates a past range record for the species based on Wetmore's (1943) conclusion about a similar bone from Scioto County. They argue the foot was of no known interest to Native Americans,



**Fig 3.** This woodcut illustration accompanied Butler's 1892 account of the ivory-billed woodpecker in Indiana



and it was unlikely the entire bird would have been carried far from the place where it was killed. More recent reviews of Native American use of ivory-billed woodpeckers agree with the conclusion that legs were probably of no particular significance to the native tribes (Leese in press, Jackson 2006). A tarsometatarsus in a midden thus suggests more strongly that the bird was killed locally.

However, it is still necessary to rule out other possible explanations. For instance, one could also argue that the frequency with which leg bones have been recovered—three metatarsals in Ohio (see below) and one in Illinois (Parmalee 1967, Parmalee 1958)—suggests an as yet undescribed religious significance for ivory-bill legs. However, while ivory-billed woodpeckers certainly had symbolic religious significance among some Native American tribes, a review of their uses of ivory-billed woodpecker body parts in religious and cultural ritual supplies no evidence supporting special significance for ivory-bill leg bones (Leese, in press). Furthermore, the bone's position in a midden argues strongly against its religious significance since it was treated as common garbage.

Furthermore, with definite sight records from Kentucky (Mengel 1965, Leese 2006) and less definite records from West Virginia (Parmalee 1967, Hall 1983), one could argue that entire, dried woodpeckers were transported to the sites from these localities as food and that chance or some unknown practice has dictated the preponderance of leg bones in middens. Studies of similar sites in the Ohio Valley, however, have revealed no evidence of long-distance trade in foodstuffs from that era, although luxury or ritual items were traded (Griffin 1978), a pattern common across the continent (Bell 1947, Bryan 1964, Trigger 1978, Ford 1979). Also, the preponderance of metatarsals in the archaeological record is not surprising given that it is one of the larger, more durable elements in the avian skeleton. The simplest explanation for their presence is that the ivory-bill was killed and consumed locally like the rest of the animals whose remains were found in the midden. The Muskingum County record of the species seems very likely legitimate evidence of the species' former occurrence.

**Scioto River Valley** (4, 5, 6, and 7): The Scioto River Valley supplies the greatest amount of evidence for the past occurrence of the ivory-billed woodpecker in Ohio. Three archaeological finds, sightings of the species in nearby areas of Kentucky, and reference in local histories combine to present a strong case that the species once occurred in the area.

Three osteological finds from the Scioto River valley include a metatarsus from the Feurt Village site in Clay township, Scioto County (Wetmore 1943, Goslin 1945, McPherson 1950), a premaxilla (see Figure 1) found deeper in the middens at the same site (McPherson 1950), and another metatarsus from the Cramer Village site in Ross County (McPherson 1951). All three finds seem to come from the Fort Ancient culture and time period (Wetmore in his 1943 work treated this as fifteenth to sixteenth centuries CE, but recent studies suggest a wider time frame of 1000-1600 CE, [Griffin 1978]). As mentioned above, the presence of these bones in middens suggests they are

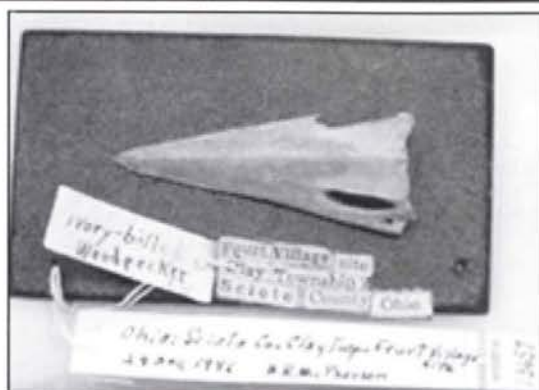


Fig 1. The premaxilla of an ivory-billed woodpecker from Scioto Co., now at the OSU Museum. The initials "A.W." are those of Alexander Wetmore.

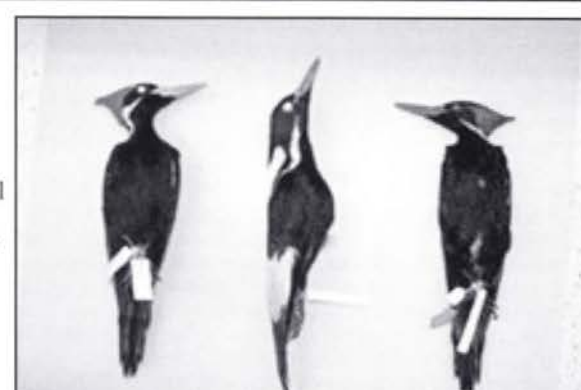
the regular castoffs of local hunting rather than a highly valued trade item imported from the south (McPherson 1950). Although a premaxillary bone may represent a castoff from working a bill for ceremonial purposes, McPherson (1950) reports there "is no evidence that the mandible was ever used as an ornament" or that the bill was worked "for ceremonial or utilitarian purposes." In contrast, a cache of nine modified red-headed woodpecker *Melanerpes erythrocephalus* mandibles was discovered at an earlier Hopewell site (circa 50 BCE – 350 CE), Mound City in Ross County (Seaman 1988), where the position and modification of those bills indicates a value attached to them not apparent in the case of these ivory-bill remains. All three ivory-bill recoveries in the valley therefore suggest that the species formerly inhabited the Scioto River valley, at least as a vagrant. Three samples make a much stronger case for including the Scioto River valley in the species' Ohio range than does the single recovery from Muskingum County.

This conclusion is further supported by references and records from Kentucky. There is a clear ivory-bill record from Col. William Fleming, who saw two ivory-billed woodpeckers in March of 1780 in what is now Lincoln County (McKinley 1958; Schorger 1949), a county well away from bottomland swamp habitat often associated with ivory-bills. Filson (1784, see Leese 2006 for a full description) makes another early reference to the species, and his work's overall focus on the area of Kentucky bordering the Ohio River suggests that the ivory-bill may have been found in nearby areas as well. Like the records from Indiana, these Kentucky observations cannot be the last word on the species' status in Ohio, but they are at least suggestive of the species' wider range.

There are also some unsatisfying but still intriguing historical references to the ivory-billed woodpecker in the Scioto River Valley. Evans, in his history of Scioto County (1903), includes the "White Bill Woodpecker - *Picus Principalis*" on his list of "the birds and fowls found in the country when first visited by white men." The names, though out of date even when the volume was published, clearly refer to the ivory-billed woodpecker (Catesby 1754, Wilson 1828). Evans offers no documentation, but no archaeological remains had yet been recovered, so apparently he was privy to reports or stories of ivory-bills in the area even if he himself did not have direct experience.

Other references are more conjectural. Howard Jones, an ornithologist from Pickaway County, reports that the species "had left the Ohio country before the days of my boyhood" (1915). One might take Jones's report to mean only that he assumed the species had previously lived in the state, but he seems too scrupulous a reporter to simply make such a conjecture.

One of the earliest lists of southern Ohio birds, that of Rev. W. F. Henninger, does not include the species on his list of the birds of Scioto and Pike counties (1902a, 1902b, 1905a, 1905b). However, Henninger appears to have been presenting a list of birds he had personally observed, and may not



Three ivory-billed woodpeckers at the OSU Museum. The female in the center has been lying on its back for over a hundred years, and the crest, which should be pointing the other way, has been pressed flat.



have been interested in historical records from others.

The archaeological evidence in the Scioto Valley, combined with records from nearby areas and references in works covering the area, make a strong case that the ivory-billed woodpecker once lived in the area, at least as a vagrant species. While an early record from pioneer literature would strengthen the case further, the ivory-billed woodpecker should remain on the list of birds once found in the state of Ohio.

**Conclusion:** Of the three areas with possible ivory-bill records in Ohio, the Scioto River Valley presents the strongest case. Three sets of archaeological remains, reports and references from a neighboring area, and references in the area's historical literature (which merit further investigation) all combine to make a strong case that the species once lived there, possibly up to and including the early settlement era. The Cincinnati records are in consequence perhaps more likely given that the Scioto River Valley contains so much evidence, upstream from Cincinnati and presumably closer to the northern limit of the species' range. The Muskingum County evidence is also strong, but is supported by only one piece of archaeological evidence. While better evidence, a historical record with a description of the species within the state, remains elusive if non-existent, the species should remain on the list of Ohio birds with its place now more firmly established.

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Ohio's four pieces of archaeological evidence are held in a number of museums throughout the country. The tarsometatarsus from Muskingum County (Murphy and Farrand 1979) is at the American Museum of Natural History in New York City (AMNH 11016). The premaxilla from Scioto County (McPherson 1950) is held at the Ohio State University's Museum of Biodiversity (#13657) and is pictured in Figure 1. The metatarsus from Scioto County (McPherson 1950, Goslin 1945, Wetmore 1943) is at the United States National Museum at the Smithsonian Institution in Washington, D.C. (USNM 346595). The author has not been able to find the current location of the metatarsus from Ross County (McPherson 1951).

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## An Ohio Bird Specimens Database

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**A**ves may be the best known of the classes of animals, with nearly all its 10,000+ species taxa already described for science. Aided for centuries by the largest cohort of enthusiastic amateurs in biology, ornithologists have amassed an impressive body of knowledge about bird distributions, populations, movements, and natural history. Rare indeed is the well-informed birder without numerous opportunities to contribute to data-collection projects involving these aspects of bird study. Still, one source of knowledge largely contributed by non-professionals has withdrawn into relative obscurity: the museum collection.

There are said to be over five million bird specimens in North American museums. Data from these organized collections of birds are permanent, verifiable, and well documented; they also provide unique historical perspectives available nowhere else. University-based researchers, and those who fund them, have increasingly tended to ignore entire organisms in their natural environments in favor of narrower aspects of their biology, often ignoring the treasure-trove of information specimens represent. Long gone are the days when most ornithological work took place among orderly trays of study skins, but however the tides of academic fashion may shift, museums should have an important role to play in biological research.

One of the authors recently learned from the curator of an Ohio museum that in recent years researchers had rarely consulted its collection of birds' eggs—one of the twenty largest in North America—except when interested in changes in the thickness of eggshells over time. This interest had doubtless been aroused by concern over the effect of DDT and related chemical contaminants on certain species. Such data were available in no other kind of setting, and this and allied research resulted in domestic bans on DDT, and consequent recoveries of raptor populations.

A largely overlooked use of museum collections involves bird records. Collections provide verifiable physical evidence of the historical occurrence of species, subspecies, age classes, and hybrids, color morphs, and other variants. They can supply extreme dates of occurrence, distributional changes over time, accidental or even first records, and ways to verify modern reports. Collections grow in importance in the current era of "splitting" because they verify the historical occurrence of newly-recognized forms (the cackling goose is an example). Identification problems that can be solved by the timing of migration and molt—among several shorebird species for example—are best studied among specimens. Regrettably, until recently most institutions had no searchable inventories of specimens to enable a ready source for such data.

Peterjohn relied upon published data for bird records for *The Birds of*