

# Twenty Years of Squandering an Opportunity to Save an Iconic Species

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During the past hundred years, the Ivory-billed Woodpecker (*Campephilus principalis*) has repeatedly been thought to be extinct only to be rediscovered. A study that began twenty years ago in Arkansas resulted in the first published report of these birds by ornithologists in several decades in an article that was featured on the cover of *Science* [1]. Despite a subsequent report of sightings in Florida by another group of ornithologists [2], the persistence of the species became controversial when nobody managed to obtain a clear photo. During the next few years, I obtained video footage in Louisiana and Florida [3–9] that should have resolved the issue, but there was a breakdown in open discourse after critics became entrenched in the position that the Ivory-billed Woodpecker is extinct. Some of the leading science journals had opportunities to foster an open discourse that might have brought the truth to light in the interest of science and conservation.

At the end of 2005, *Science* selected the Ivory-billed Woodpecker as one of the “Areas to Watch in 2006” [10]. Two months later, I had a flurry of activity during a five-day period in the Pearl River swamp in Louisiana. I had five sightings with excellent views of definitive field marks and flight characteristics. I heard the ‘kent’ calls of the Ivory-billed Woodpecker on two occasions, once coming from two directions at the same time. During one of the encounters,

I obtained video footage of a large woodpecker that was perched on a tree, part of which was collected for the size comparison appearing in Fig. 1. The tree specimen has widely-spaced forks that facilitated scaling relative to specimens of the two large woodpeckers that occur north of the Rio Grande. The woodpecker in the video dwarfs a Pileated Woodpecker (*Dryocopus pileatus*) specimen and is comparable in size to the largest Ivory-billed Woodpecker specimen in the Smithsonian collection, which is near the maximum size for that species. There is no overlap in the body masses of the two large woodpeckers, and the body of the woodpecker in the video appears to be larger than the body of any Pileated Woodpecker. The video was analyzed by an avian artist, Julie Zickefoose, whose depiction of the Ivory-billed Woodpecker had recently been featured on the cover of a leading ornithology journal [11]. According to Zickefoose, the large woodpecker appearing in the video has several behaviors and characteristics consistent with the Ivory-billed Woodpecker but not the Pileated Woodpecker [3]. Despite the fact that *Science* had recently expressed a high level of interest in this issue, which was becoming controversial, the Editor was dismissive when informed of the new observations and evidence.

In March 2008, I obtained another video a short distance up the same bayou of a large bird that flew beneath my observation position 75 feet up in a cypress. Since the bird and its reflection from the still surface of the bayou appear in the video, it was possible to pin down locations along the flight path to measure the flight speed and determine that the wingspan is well over 24 inches. The video shows several wingbeats during which the wings are folded closed in the middle of each upstroke. The two large woodpeckers are the only birds of the region with that wing motion and a wingspan over 24 inches. After digitizing the motion of the wingtips from the video and performing an analysis that he had previously developed and applied to other woodpeckers [12], an expert on woodpecker flight mechanics, Bret Tobalske, also concluded that the bird in the video is a large woodpecker [3]. The wingbeat frequency is about ten standard deviations greater than the mean for the Pileated Woodpecker, which

eliminates that species from consideration. The flight speed, narrow wings, and white trailing edges on the dorsal surfaces of the wings are consistent with the Ivory-billed Woodpecker but not the Pileated Woodpecker. The video documents that I tracked the flight of the bird for about ten seconds from a favorable vantage point for observing the definitive dorsal field marks as illustrated in Fig. 2.

Geoff Hill is the author of a book on the Ivory-billed Woodpecker [13] and one of the few living ornithologists to have observed that species. After the news came from Arkansas, he followed up on reports from Florida, had a sighting, and reported on a series of sightings and data obtained with his colleagues [2]. After seeing the video from Louisiana that *Science* had dismissed, Hill acknowledged that it was the best evidence that had been obtained up to that point, and he invited me to visit his study area. While working with his group in January 2007, I had an encounter with a distant pair of Ivory-billed Woodpeckers that lasted for more than twenty minutes. I saw definitive field marks of one of the birds through binoculars and watched in awe a series of spectacular swooping flights that were consistent with accounts by Audubon of a flight that is “graceful in the extreme” [14] and by Eckleberry of a landing with a “magnificent upward swoop” [15]. With a high-definition video camera, I captured several of the swooping flights, a double knock that is visible and audible, and takeoffs with deep and rapid wingbeats and loud ‘wooden’ wing sounds that are consistent with an account by Tanner [16]. It takes more of an effort to understand the 2007 video relative to the others, but it contains perhaps the most interesting footage of the Ivory-billed Woodpecker that has ever been obtained (no flights appear in the only existing historical film).

In August 2007, *Science* published a report on the status of this issue [17] that provided a platform for unsupported opinions and falsely stated that no new evidence had been obtained. There was no mention of the strongest evidence that has been obtained during the past several decades, which would have been more relevant to the debate than opinions such as the follow-

ing: “It’s just a perfect recipe for your brain to fill in the gaps,” Sibley says. “You get a brief glimpse and an impression, ... and your brain turns it into an ivory-billed woodpecker.” This characterization of sightings by an avian artist does not apply to any of my sightings, some of which are supported by video evidence that nobody has been able to refute; a more relevant opinion from an avian artist to include in the report would have been the assessment of the 2006 video by Zickefoose. The report also contains a critical comment by Hill on the video that was presented in the original paper. There was nothing wrong with including that comment, but it would have been more enlightening to include Hill’s assessment of the videos that were obtained in Louisiana and Florida. After studying those videos, Hill concluded that they are “very convincing.” In February 2010, *Nature* published a report on the status of this issue [18], which mentioned that a non-scientist had faked a photo but made no mention of the strongest evidence. The negatively biased reports that appeared in the leading science journals caused the issue to become deeply marginalized and made it nearly impossible to publish on this topic.

In the years that followed, it took more than forty submissions to get the strongest evidence published. Behind the scenes, critics used specious arguments to delay publication for a decade [6,9]. They also made unfounded assertions of fraud. For example, a submission to the *Proceedings of the National Academy of Sciences* in 2009 was rejected on the basis of an assertion that the speed of the 2008 video had been altered in order to double the apparent wingbeat frequency and flight speed (this amounted to a concession that the evidence cannot be explained away with logical reasoning). It would have been easy to confirm that the video is legitimate, but the Editor declined to check facts. After the eventual publication of the strongest evidence, critics avoided openly addressing it. The pattern of openly attacking a convenient target (the relatively weak evidence that was presented in the original paper) and making it the focus, working behind the scenes to delay the publication of the strongest evidence, and then avoiding any open discourse on the strongest evidence after its publication is suggestive of an agenda that has nothing to do

with seeking the truth.

The persistence of the Ivory-billed Woodpecker might have been established more than a decade ago if there had been an open discourse on the strongest evidence. Each of the videos shows field marks, body proportions, flights, and other behaviors that are consistent with the Ivory-billed Woodpecker but no other species. The videos provide a powerful body of evidence, but the dozens of sightings during the searches in Arkansas, Florida, and Louisiana should also be considered. The Ivory-billed Woodpecker is a large bird with distinctive and prominent field marks. It is not plausible to dismiss as a series of mistakes that many sightings of such a bird by observers who were experienced at identifying birds in the field, knowledgeable of the field marks of the Ivory-billed Woodpecker, and acclimated to southern swamp forest habitats and the species that regularly occur in them.

In September 2021, the U.S. Fish & Wildlife Service announced a decision to declare the Ivory-billed Woodpecker extinct [19]. The decision came in the wake of the most massive spike in published reports of sightings and evidence during the past several decades, and it was made without addressing the strongest evidence. In May 2023, there was a report of sightings and evidence from a different location in Louisiana [20], including videos that were purported to show Ivory-billed Woodpeckers on the basis of apparent white markings. The videos were obtained from above on sunny days. Under those conditions, apparent white markings often correspond to solar glare rather than actual field marks. In one of the videos, prominent white patches appear on both of the wings and on the tail, but both of the large woodpeckers have black tails. The bird in one of the videos has field marks and flight characteristics consistent with the Pileated Woodpecker but not the Ivory-billed Woodpecker [21].

The Ivory-billed Woodpecker has a long history of elusiveness, with the first rediscovery occurring exactly one hundred years ago [22]. The remarkable elusiveness of this bird is due to a ‘perfect storm’ combination of factors related to behavior and habitat [4,6]. During a study in

the 1930s, clear photos were obtained at one of the last known nests [16]. It would be desirable to obtain photos under a variety of conditions during such a study, but only a few poor-quality photos were obtained away from the nest. Nobody was able to obtain a clear photo during intensive, multi-year efforts in Arkansas, Florida, and Louisiana. Nobody is likely to obtain such ideal evidence unless a nest is discovered, but we already have evidence that should be sufficient to justify the establishment of the first-ever conservation program for this critically endangered and long-neglected species.

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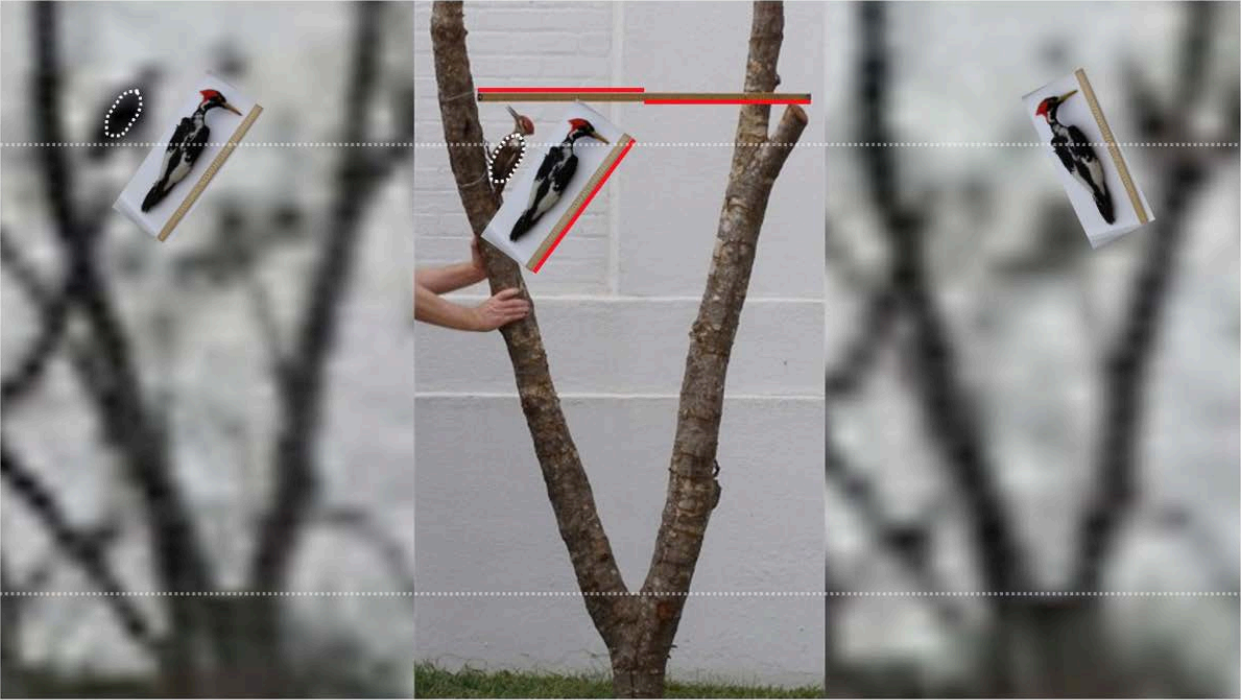


Fig. 1. Comparison of the woodpecker in the 2006 video with specimens of the Ivory-billed and Pileated Woodpeckers. Two forks in the tree specimen were used for scaling. The Pileated Woodpecker specimen and a meter stick were mounted on the tree specimen. The Ivory-billed Woodpecker specimen was photographed beside a half meter stick. A dashed curve was used to outline the body of the Pileated Woodpecker specimen and then cut-and-pasted over the body of the woodpecker appearing in the video. The woodpecker in the video dwarfs the Pileated Woodpecker specimen and is comparable in size to an Ivory-billed Woodpecker specimen that is near the maximum size for that species.

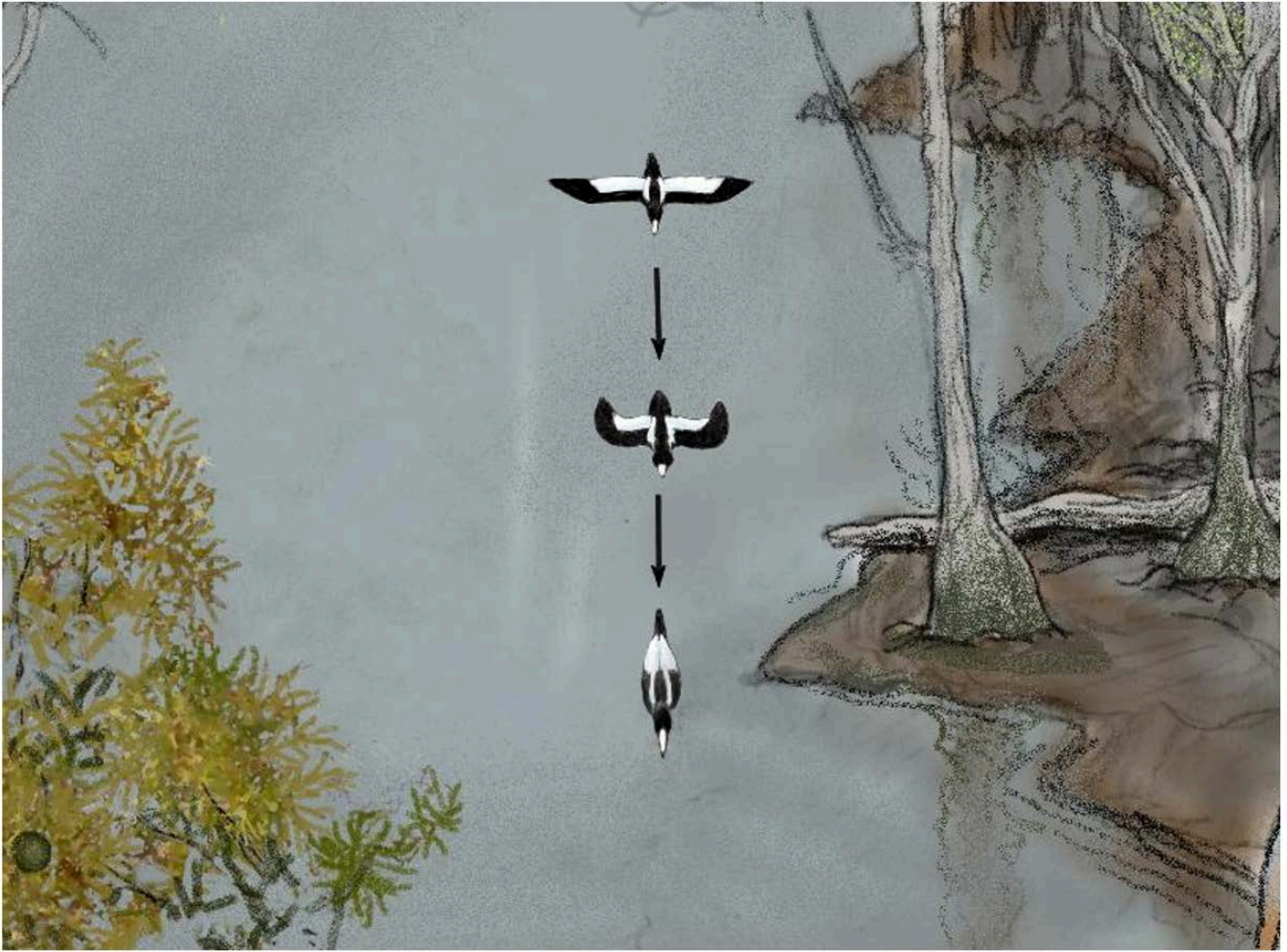


Fig. 2. Illustration of the view of an Ivory-billed Woodpecker that flew up the bayou and passed nearly directly below a tree that was used as an observation platform. It was an ideal vantage point for observing the two white stripes on the back and the black leading edges and white trailing edges on the dorsal surfaces of the wings. This illustration also shows the distinctive wing motion of a large woodpecker in which the wings are folded closed in the middle of each upstroke.