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Clarifications about current research on the status of Ivory-billed Woodpecker (*Campephilus principalis*) in Arkansas.—An invited article recently published in *The Auk* (Jackson 2006) presented a series of factual errors and poorly substantiated opinions about our work (Fitzpatrick et al. 2005) and our continuing research on the status of the Ivory-billed Woodpecker (*Campephilus principalis*) in eastern Arkansas. Despite being neither peer-reviewed nor fact-checked by the Editor, that article was treated as a scientific contribution by the public media, a perception actively fostered by its author in public appearances and interviews. Here, we correct and clarify the published record regarding the Ivory-billed Woodpecker rediscovery, our actions and motivations, and the conservation efforts now underway. All page references are from Jackson (2006).

Errors of fact.—Jackson is incorrect in suggesting (p. 2) that the timing of our original publication (Fitzpatrick et al. 2005) and book (Gallagher 2005) was “arranged to coincide with the announcement.” All members of the Big Woods Conservation Partnership had agreed for more than a year that no public announcement would occur in the absence of a peer-reviewed article accepted by a respected scientific journal, in which our evidence and interpretations would be available for technical and public scrutiny. Release of *The Grail Bird* (Gallagher 2005) was delayed indefinitely, and the publishing house (Houghton Mifflin) forwent advance publicity, pending acceptance and publication of our paper. Contrary to Jackson's account, announcement of the rediscovery and release of the book took a back seat to the scientific process and the timing thereof.

Jackson is incorrect (p. 2) in stating that any of the project's confidants “made the information available ahead of schedule.” The remarkable fact is that the rediscovery was kept out of the public eye for 14 months by upwards of 200 individuals (researchers, volunteer searchers, donors, professional colleagues, personnel of The Nature Conservancy and the Cornell Lab of Ornithology, agency officials, family members, etc.). On the evening of 25 April 2005, an individual not involved in the search learned about it inadvertently and posted news of the discovery on a nationwide listserv.

Jackson is incorrect in alleging that a “rapid path to publication for the *Science* article” (pp. 2, 8) compromised the peer-review process. Our article was fully peer-reviewed following standard editorial

procedures, including requests by *Science* editors that reviewers act quickly. During this process, we made the video evidence available to editors and reviewers via a confidential web site. We submitted the article on 5 April and received official acceptance plus editorial and referee comments on 26 April. Coincidentally, the latter date was the same day that news of the rediscovery, accompanied by a host of inaccurate rumors, spread rapidly over the Internet following the previous evening's leak (see above). Inundated with inquiries from colleagues, the media, and the public, we nevertheless believed it inappropriate to make any announcement before the scientific article was published and the evidence made publicly available. On the afternoon of 26 April—*after* the paper had been accepted following normal procedures—the editorial staff at *Science* graciously agreed to expedite the article's publication, provided that we comply with the editorial changes required. We worked diligently to complete all revisions in time for release via *Science Express* on 28 April 2005. We remain indebted to the editorial staff of *Science* for their significant efforts in accommodating presentation of our paper immediately following its acceptance, thereby allowing open examination of the evidence essentially simultaneously with the public's learning about the discovery.

Jackson (p. 7) is incorrect in stating that funds allocated by federal agencies toward the Ivory-billed Woodpecker recovery effort represented “a re-allocation of funds from other budgeted projects, including ongoing efforts on behalf of other endangered species (Dalton 2005), resulting in cutbacks to those projects.” In making this often-quoted misrepresentation, rather than consulting any spokesperson for the federal agencies involved in allocating endangered species funds, Jackson cites only a journalist's report (in a British publication) that contained numerous factual errors and exaggerations. We consulted the Regional Director of the U.S. Fish and Wildlife Service (USFWS) Southeast Region (S. Hamilton pers. comm.); the Ivory-billed Woodpecker Recovery Team Leader and Chief of the National Wildlife Refuge system, Southeast Region (J. Andrew pers. comm.); and the senior science advisor to then Secretary of the Interior Gale Norton (J. Tate pers. comm.), among other sources. All agree that no funds previously allocated for other endangered species projects by the USFWS were ever reallocated to the Ivory-billed Woodpecker project, and no endangered species project suffered “cutbacks.” The above-named sources explained that unallocated funds available for

preventing extinctions, species recovery, law enforcement, and migratory bird management within the USFWS FY 2005 budget—and not earmarked for other species—were allocated to initiate Ivory-billed Woodpecker recovery efforts.

Contrary to Jackson's description (p. 2), the seven best-quality sightings we reported (Fitzpatrick et al. 2005) included a 7-s and a 10-s view of the flying bird, both longer than David Luneau's 4-s video clip (Rosenberg et al. 2005). Although it is true that none was closer than the encounter captured in the video, Jackson fails to acknowledge that several of the sightings were by experienced biologists who noted the bird's field marks through high-quality binoculars. All sightings were by individuals who recently had seen and studied numerous Pileated Woodpeckers (*Dryocopus pileatus*) in the same area.

Jackson is incorrect (p. 2) in stating that acoustic recordings resembling vocalizations and double-rap display drums of Ivory-billed Woodpecker (Charif et al. 2005) were limited to the White River National Wildlife Refuge. Concentrations of such signals also occurred in the Cache River National Wildlife Refuge, within several kilometers of the original sightings.

Jackson noted (p. 3) that some double-rap acoustic signals we recorded in the Big Woods differed from Tanner's descriptions of raps typical of Ivory-billed Woodpecker in that the second blow was louder than the first. He is incorrect in implying that this feature of such displays by *Campephilus* woodpeckers is invariant. In fact, the second blow is louder in 21 out of 119 recorded examples of double-rap displays by seven *Campephilus* species we studied for comparison with the double-rap signatures recorded in the Big Woods. We have about 60 double-rap recordings from Arkansas, concentrated in two regions of the Big Woods. These are acoustically indistinguishable from those of the known *Campephilus* species.

Jackson is incorrect in asserting (p. 5) that only "attendant publicity and aura of authority" distinguish our case for the continued existence of the Ivory-billed Woodpecker "from the almost annual handful of sightings." No other case since the 1950s exists in which (1) a credibly detailed description of a sighting at close range was followed almost immediately by multiple additional sightings in the same area, including an instance of two experienced observers simultaneously and independently identifying the same bird; (2) systematic follow-up search efforts covered tens of thousands of hectares of habitat using standardized protocols and modern recording technology, yielding video and acoustic data that supported the original sighting; (3) scientific procedures were followed, including experimental reconstructions of circumstances to test the reliability of both the video and acoustic data; (4) evidence for the conclusion was accepted by a peer-reviewed scientific journal of impeccable international repute;

(5) documentation was submitted to, intensively studied by, and unanimously accepted by a state records committee. Indeed, the present case constitutes a far more scientific approach, and presents far more data for public scrutiny, than any previous case for the continued presence of Ivory-billed Woodpeckers since 1944, including those cases involving Jackson himself in the United States and in Cuba (reviewed by Jackson 2004).

Jackson is incorrect and naïve in suggesting (p. 5) that scientific efforts to locate Ivory-billed Woodpeckers in the "aftermath of a reported discovery" are not hampered by public attention. Every individual who contributed to intensive search efforts in the Pearl River area of Louisiana (January–March 2002) knows that the process was enormously impeded by persistent and energy-diverting requests for background information, visits, tours, and interviews, and by stray members of the public. We had similar experiences following announcement of the rediscovery, and continue to face the problem 11 months later. Having experienced a similar onslaught in 2002, this time around we chose to discuss the rediscovery publicly only after (1) completing a major field season of unimpeded research, (2) having a scientific paper accepted for publication, (3) carrying out certain crucial conservation measures, (4) helping public agencies prepare for the aftermath of the announcement, and (5) preparing ourselves for a justifiable obligation to communicate with the public and the media.

Jackson purports to debunk what he calls "myths" about the Ivory-billed Woodpecker, but he is in error on every count. Regarding the relative sizes of Ivory-billed and Pileated woodpeckers, which Jackson argues to be indistinguishable from a distance, all available data and numerous written descriptions by naturalists familiar with both species demonstrate that the difference is considerable. Jackson himself even noted the following in an earlier work, referring to side-by-side specimens of the two species (Jackson 2004:3): "By itself the pileated was impressive; next to the ivory-bill it was puny." On average, the Ivory-billed Woodpecker is ~80% heavier, is 15–20% longer, has 15–20% longer wings and wingspan, has a 35–40% longer bill, and has a significantly longer neck that was described as noticeably distinctive in flight by virtually every naturalist who wrote about the species (summarized in Lammertink et al. 2006). Moreover, because the southern race of the Pileated Woodpecker (*D. p. pileatus*) is substantially smaller than northern races, the size difference between Pileated and Ivory-billed woodpeckers in Arkansas is even greater than most reference-book measurements would suggest. These differences are as pronounced as those between a number of similarly plumaged species-pairs in North America in which size and proportions reliably contribute to field identification by experienced observers (e.g. Downy [*Picoides pubescens*] and Hairy

[*P. villosus*] woodpeckers, Common Raven [*Corvus corax*] and American Crow [*C. brachyrhynchos*], Greater [Tringa melanoleuca] and Lesser [T. flavipes] yellowlegs). More importantly, the observers who reported seeing an Ivory-billed Woodpecker had been seeing numerous southern Pileated Woodpeckers for days or weeks before the event; thus, their reports of the bird's larger size compared with the smaller Pileated Woodpecker were grounded in immediate, intensive field experience.

Every naturalist who ever wrote about the Ivory-billed Woodpecker in life commented specifically about the striking difference in flight characteristics between this species and Pileated Woodpecker. Jackson's (p. 11) suggestion to the contrary—selectively citing just one ambiguous passage from Tanner (1942)—is disingenuous, as Tanner actually commented in detail about the difference several times (Tanner 1941, 1942; reviewed in Lammertink et al. 2006).

Disputing our comment (Fitzpatrick et al. 2005) that "lifespans of large woodpeckers rarely exceed 15 years" Jackson (p. 11) cites a captive Red-cockaded Woodpecker (*P. borealis*) that died at age 17, and asks why larger woodpeckers might not achieve the "decades-greater longevity of similar-sized gulls or parrots." Data and theory help answer such questions. The oldest documented Black Woodpecker (*D. martius*) lived 14 years, according to data on hundreds of banded individuals and several separate studies (Blume 1996). The oldest known Pileated Woodpecker lived 10 years and is documented by several different studies as having annual survival values between 43% and 64% (Bull and Jackson 1995). Field studies on other North American woodpeckers yield similar estimates (most are between 50% and 85%; Poole and Gill 1992–2002). In regard to Jackson's specific example, based on enormous sample sizes, the annual survival of adult Red-cockaded Woodpeckers in the wild is 70–85% among males and 60–75% among females, with both sexes showing significantly declining survival after about age 6 (Khan and Walters 2002). It is reasonable to conclude from these life-table data that most free-living North American woodpeckers are <10 years old, and that individuals older than 15 years must be extremely rare (the oldest documented example appears to be a Hairy Woodpecker that was 15 years and 10 months; Clapp et al. 1983). Because clutch sizes and basic reproductive ecology of the Ivory-billed Woodpecker did not differ fundamentally from other North American woodpeckers (Jackson 2002), it is biologically unreasonable to imagine that their survival curves do.

Jackson (p. 11) implies that somebody—it is unclear who—regards the potential for recovery of the Ivory-billed Woodpecker as a certainty. We know of no such person or group. We stressed from the outset that our evidence of a single bird still existing in 2004 and 2005 by no means constitutes evidence that recovery is

likely. Indeed, all we did was present evidence for the persistence of what must be regarded as the world's most endangered bird species. Certainly, we believe steadfastly that accomplishing everything possible to provide an opportunity for this species to recover represents a globally worthwhile endeavor (see below).

Unsubstantiated claims.—We are puzzled by Jackson's assertion (p. 2) that the acoustic recordings we reported (Charif et al. 2005) are "not surprising." Citing no data, Jackson refers to the proximity of roads and campgrounds, the presence of Blue Jays (*Cyanocitta cristata*) and White-breasted Nuthatches (*Sitta carolinensis*), individual variation in bird voices, the potential for confusion with broadcast playbacks, the possibility that we recorded humans mimicking the double-rap sounds by hand, and even the notion that we may have recorded humans tooting in the woods with saxophone or clarinet mouthpieces. His implications seem to be that recording devices deployed in almost any forest in the Southeast would yield these sounds, and that we cannot distinguish between human-made and natural acoustic signatures. In fact, most of the intriguing sounds were recorded in only two, relatively remote areas of the Big Woods, well out of earshot of any potentially confusing human-caused sounds. Jackson ignored the fact that a similar but smaller deployment of autonomous recording units (ARUs) in the Pearl River area in 2002 produced no such detections. Many of Jackson's proposed alternatives were explicitly addressed in Charif et al. (2005), though we admit not having ruled out musical instruments (we since have done so, with the help of Dr. Richard Faria, a clarinetist from Ithaca College).

Our ARUs have indeed recorded distant playbacks of the 1935 Allen-Kellogg recording. Our research procedures include keeping an exhaustive log of the time and place of all such playback experiments, which we are conducting sparingly throughout our search efforts. In fact, we use the unmistakable signatures in pitch and cadence of those famous recordings to confirm the reliability of our ARUs and our follow-up analyses at picking up Ivory-billed Woodpecker signals within the forest. Jackson's hypothesis that we could mistake such playbacks for a living bird in the woods was made without conducting any investigation into our methods, and apparently without comparing the respective recordings himself.

Jackson (p. 3) reports having watched other woodpecker species perform double-rap display drums similar to those we recorded. Although stated authoritatively, this does not constitute scientific evidence and is supported by virtually no data from the woodpecker literature (e.g. Poole and Gill 1992–2002). Apparently associated with copulation and the nest site (Bull and Jackson 1995), double taps are rarely performed by Pileated Woodpeckers and are typically accompanied by other drums and vocalizations characteristic of the species (one such example exists in the

Macaulay Library's extensive collection of recordings for this species). Remote acoustic recordings we have obtained from elsewhere around southeastern North America contain thousands of recordings of woodpeckers and Blue Jays, but only in the Big Woods have we recorded the intriguing sounds reported in Charif et al. (2005). As we stated in our original report (Fitzpatrick et al. 2005), we continue to seek scientifically valid evidence as to the source and identity of the intriguing sounds in Arkansas. Anecdotes and hypotheses of the kind offered by Jackson provide little help.

Jackson's account (p. 4) of why Ivory-billed Woodpeckers should not occur in eastern Arkansas (a region well within the species' recorded range) represents a convincing case that the species is not common there. But we knew this already. Jackson fails to acknowledge that this area encompasses thousands of square kilometers of forest, including some of the most difficult-to-access regions of mature forest east of the Rocky Mountains. During the mid-1900s, the forests of eastern Arkansas were more extensive than today; some of the best hardwood tracts were cleared as recently as the soybean boom of the 1970s and 1980s. Extensive regenerating tracts that were cut earlier in the century are now approaching the ecological conditions that Ivory-billed Woodpeckers require (Tanner 1942, Shoch 2005). Given the relatively short distance separating the Big Woods and the Singer Tract (<250 km along the forested Mississippi River alluvial plain) and the presumed dispersal capabilities of Ivory-billed Woodpeckers, there is every reason to believe that eastern Arkansas could have served as a refuge for the species as forests to the south were logged.

Jackson's conclusion that absence of a reasonably good photograph or video is "not suggestive of a breeding population in the Big Woods" is self-evident, but irrelevant. Our report (Fitzpatrick et al. 2005) was strictly limited to evidence that a minimum of one bird existed there during 2004 and 2005. Although we expressed cautious hope that breeding pairs might exist, we presented no case that they do because we had no such evidence.

On dismissed evidence.—Jackson (pp. 7–10) dismisses our evidence for the existence of an Ivory-billed Woodpecker, but presents neither data nor analyses that support alternative interpretations. With a "curious comparison," for example, he concluded that the bird's wing in one of our figures (fig. 1 in Fitzpatrick, 2005) showed more white than in the woodpeckers filmed in 1935 or in "the art of Audubon or Wilson." Rather than making such comparisons by eye, we used a large sample of specimen measurements to show that the amount of white on the wing in the referenced figure is, in fact, fully consistent with an Ivory-billed Woodpecker (Lammertink et al. 2006).

Jackson reports (p. 8) having "seen several photographs of Pileated Woodpeckers with aberrant

white on the wings," and kindly made available to us two extremely poor-quality digital images of one individual that appears to be a normal Pileated Woodpecker. Although difficult to discern, the white bases to the remiges may be more exposed than usual owing to molt of the greater secondary coverts. Such a pattern would be consistent with several video and still images of at least three different Pileated Woodpeckers we encountered during field work in Arkansas associated with the search (Rosenberg et al. 2006). These are not plumage anomalies, and they do not remotely resemble the wing pattern of an Ivory-billed Woodpecker. We continue to search for documentation of plumage anomalies in Pileated Woodpeckers that could explain the numerous observations and the video from Arkansas. We have found none to date. Moreover, after discovering a nearly all-white Pileated Woodpecker with a red crest in the lower White River National Wildlife refuge (Rosenberg et al. 2006), our search team has relocated the bird easily and repeatedly. It is reasonable to expect that if Luneau had videotaped an abnormally plumaged Pileated Woodpecker, we would have encountered it repeatedly as well, given the amount of attention paid to that area since March 2004. Unsubstantiated anecdotes about plumage anomalies do not help explain the Luneau video.

After implying that the subject of the Arkansas observations and video could have been an aberrant Pileated Woodpecker, Jackson then opines that the video actually shows a normally plumaged one. Again, he presents neither data nor analyses. Instead, he cites a manuscript he co-authored, originally submitted for publication but withdrawn by its authors before being accepted. We call Jackson's attention to his own admonitions about what constitutes legitimate scientific process. After scrutinizing more than 60 videos of Pileated Woodpeckers in flight, and after thoroughly examining every alternative explanation presented to us (e.g. Sibley et al. 2006), we continue to reject the hypothesis that the bird in the Luneau video is a normal Pileated Woodpecker. Our evidence that the bird is fully consistent with an Ivory-billed Woodpecker is available for public scrutiny (Lammertink et al. 2006), and our discussion of the alternative viewpoint is peer-reviewed and published (Fitzpatrick et al. 2006).

After dismissing our records, Jackson nevertheless urges that "systematic searches should be made throughout the region." We agree, and we are coordinating the largest systematic effort in history to locate Ivory-billed Woodpeckers. Jackson questions whether bald cypress is the primary habitat for the species; so do we. Our search efforts involve a dozen major forest types in the Big Woods, with emphasis on old-growth stands of bottomland hardwood where standing dead wood and woodpecker densities are the highest. We are baffled by Jackson's statement

(p. 12) that our ARUs produced data of “minimal value,” followed immediately by his advice that we intensify our searching in areas where our units revealed double-rap displays. He calls for the very efforts we are engaged in as a follow-up to our published evidence, while deploring these same efforts as minimally valuable and unjustified by evidence.

On “selling” a story and the nature of science.—The most provocative of Jackson’s assertions is that those involved in the current Ivory-billed Woodpecker research have compromised the scientific process to “sell” a story that is not based on facts. As a lead exhibit, Jackson (p. 6) cites minor discrepancies in distance estimates by Tim Gallagher as evidence that descriptions of his sighting became exaggerated through time. Fact-checking on this issue would have revealed that Gallagher’s original estimate (“less than 80 feet”) was written for a book manuscript before he and Bobby Harrison measured the actual distance (about 68 feet). During various interviews taped in April and May 2005 (including the 60 *Minutes* interview, later broadcast in October 2005), Gallagher regularly used the round-number expressions “less than 70 feet” and “about 65 feet” more-or-less interchangeably. These were not exaggerations created to sell a story; they were efforts to speak accurately based on facts available at the time.

Jackson’s suggestion (p. 6) that organizations such as the Cornell Laboratory of Ornithology and The Nature Conservancy used the story of the rediscovery “as a strategy for fundraising” implies suspicion that these organizations are profiting from the story. In fact, the reverse is true. Pursuing their science- and conservation-driven missions, both organizations stepped up to assume immediate and very significant financial risk to undertake major new efforts in research and conservation focused on the Ivory-billed Woodpecker and restoring the Big Woods ecosystem. At this writing, both organizations have spent considerably more in carrying out these efforts than they have received, or expect to receive, in project-related donations. In this extraordinary case, the stakes make taking action worth the considerable expenses and risk. The fact that both organizations feature the story in communications with their members and the general public ought to be applauded, not ridiculed. We have no record of Jackson’s receiving the “solicitation” he references “within days of the announcement.” As a member of the Cornell Lab, Jackson received a letter from the director describing the rediscovery, mailed six weeks after our paper was published.

Jackson (p. 6) equates legitimate attention to a remarkable news story by not-for-profit institutions and by the news media with compromising the scientific process. He cites five “anonymous” authors in arguing that science was compromised, but these were opinion pieces written by journalists and bloggers.

None purported to be presenting a scientific case, and none was presented by anyone directly involved in scientific research. We agree with Jackson’s statement that “sound bites must not pass as science.” This is why we were flabbergasted by Jackson’s own use of the phrase “faith-based ornithology” in referring to our work. Who, exactly, is compromising science with sound bites here?

Good science involves objective data collection, thorough analysis, logical interpretation, and peer-reviewed presentation of evidence and conclusions. We have pursued this course in our research and writings about the Ivory-billed Woodpecker rediscovery (Charif et al. 2005; Fitzpatrick et al. 2005, 2006; Rosenberg et al. 2005). We also have made abundant ancillary material available for public inspection (Lammertink et al. 2006, Rosenberg et al. 2006). We welcome objective review and criticism of our work, as this is the essence of the scientific process, helps develop new interpretations and hypotheses, and moves knowledge forward. Jackson’s article did not discuss our evidence or procedures in ways that permit objective comparison between his interpretations and our own. Its failings remind us, among other things, that scholarly review and fact-checking at all levels also constitute essential components of good science.

Conservation effort should expand.—We trust that debate over the nature of the evidence will not jeopardize critically important search and conservation efforts now gaining momentum around the southeastern United States and Cuba. We agree, of course, with the axiom that good conservation depends on good science. For this reason, we continue in our efforts to obtain more and better evidence, to publish any evidence we obtain, and to discuss it openly and fairly with all audiences including those with whom we disagree (e.g. Fitzpatrick et al. 2006, Sibley et al. 2006). Fortunately, all parties in the discussion agree that intensifying the conservation efforts is worthwhile, even as the search continues.

Investments in good conservation routinely, justifiably, and often successfully proceed in spite of major knowledge gaps and incomplete data. Moreover, although critically endangered species have intrinsic values in their own right, their even larger global importance lies in their role as beacons that motivate and guide public attention toward ecosystem recovery. Conservation opportunities related to the Ivory-billed Woodpecker epitomize both of these points. First, tangible evidence that the species persists—however tenuous this evidence may be considered by some—ought to be sufficient to compel a long-overdue national effort to locate any remaining individuals and populations, and simultaneously to launch conservation and recovery planning that prepares us for potential new discoveries. Second, the good news about the Big Woods

of eastern Arkansas is that this region presents an extraordinary opportunity for recovery of old-growth southern bottomland forest on a vast scale, whether or not its signature woodpecker ultimately recovers. Conservation organizations, state and federal agencies, hunters, and anglers have cooperated for decades to expand and restore this functioning ecosystem, named in 1989 by the United Nations' Ramsar Convention as a "Wetland of International Importance" invaluable to migratory waterfowl and a host of other threatened and endangered species. Working confidently and unanimously to expand the goals of conserving and restoring this ecosystem, even as we continue searching for the woodpecker, should be a national priority for public agencies, private conservation groups, conservation-minded scientists, and woodpecker experts.—JOHN W. FITZPATRICK, *Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Cornell University, Ithaca, New York 14850, USA (e-mail: jwf7@cornell.edu)*; MARTJAN LAMMERTINK, *Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Cornell University, Ithaca, New York 14850, USA*; M. DAVID LUNEAU, JR., *Department of Engineering Technology and Department of Information Technology, University of Arkansas at Little Rock, Little Rock, Arkansas 72204, USA*; TIM W. GALLAGHER, *Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Cornell University, Ithaca, New York 14850, USA*; BOBBY R. HARRISON, *Department of Communications, Oakwood College, Huntsville, Alabama 35896, USA*; GENE M. SPARLING, *107 Stillmeadow Lane, Hot Springs, Arkansas, 71913 USA*; KENNETH V. ROSENBERG, *Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Cornell University, Ithaca, New York 14850, USA*; RONALD W. ROHRBAUGH, *Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Cornell University, Ithaca, New York 14850, USA*; ELLIOTT C. H. SWARTHOUT, *Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Cornell University, Ithaca, New York 14850, USA*; PETER H. WREGE, *Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Cornell University, Ithaca, New York 14850, USA*; SARA BARKER SWARTHOUT, *Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Cornell University, Ithaca, New York 14850, USA*; MARC S. DANTZKER, *Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Cornell University, Ithaca, New York 14850, USA*; RUSSELL A. CHARIF, *Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Cornell University, Ithaca, New York 14850, USA*; TIMOTHY R. BARKSDALE, *Birdman Productions, Post Office Box 1124, 65 Mountain View Drive, Choteau, Montana 59422, USA*; J. V. REMSEN, JR., *Museum of Natural Science, Louisiana State University, Baton Rouge, Louisiana 70803, USA*; SCOTT D. SIMON, *The Nature Conservancy, Arkansas Chapter, 601 North University Avenue, Little Rock, Arkansas 72205, USA*; and DOUGLAS ZOLLNER, *The Nature Conservancy, Arkansas Chapter, 601 North University Avenue, Little Rock, Arkansas 72205, USA*.

LITERATURE CITED

- BLUME, D. 1996. Schwartzspecht, Grünspecht, Grauspecht (Westart Wissenschaften, Magdeburg, Germany).
- BULL, E. L., AND J. A. JACKSON. 1995. Pileated Woodpecker (*Dryocopus pileatus*). In *The Birds of North America*, no. 148 (A. Poole and F. Gill, Eds.). Academy of Natural Sciences, Philadelphia, and American Ornithologists' Union, Washington, D.C.
- CHARIF, R. A., K. A. CORTOPASSI, H. K. FIGUEROA, J. W. FITZPATRICK, K. M. FRISTRUP, M. LAMMERTINK, M. D. LUNEAU, JR., M. E. POWERS, AND K. V. ROSENBERG. 2005. Notes and double knocks from Arkansas. *Science* 309:1489.
- CLAPP, R. B., M. K. KLIMKIEWICZ, AND A. G. FUTCHER. 1983. Longevity records of North American birds: Columbidae through Paridae. *Journal of Field Ornithology* 54:123–137.
- DALTON, R. 2005. Ornithology: A wing and a prayer. *Nature* 437:188–190.
- FITZPATRICK, J. W., M. LAMMERTINK, M. D. LUNEAU, JR., T. W. GALLAGHER, B. R. HARRISON, G. M. SPARLING, K. V. ROSENBERG, R. W. ROHRBAUGH, E. C. H. SWARTHOUT, P. H. WREGE, AND OTHERS. 2005. Ivory-billed Woodpecker (*Campephilus principalis*) persists in continental North America. *Science* 308:1460–1462.
- FITZPATRICK, J. W., M. LAMMERTINK, M. D. LUNEAU, JR., T. W. GALLAGHER, AND K. V. ROSENBERG. 2006. Response to comment on "Ivory-billed Woodpecker (*Campephilus principalis*) persists in continental North America." *Science* 311:1555.
- GALLAGHER, T. 2005. *The Grail Bird: Hot on the Trail of the Ivory-billed Woodpecker*. Houghton Mifflin, Boston.
- JACKSON, J. A. 2002. Ivory-billed Woodpecker (*Campephilus principalis*). In *The Birds of North America*, no. 711 (A. Poole and F. Gill, Eds.). Academy of Natural Sciences, Philadelphia, and American Ornithologists' Union, Washington, D.C.
- JACKSON, J. A. 2004. *In Search of the Ivory-billed Woodpecker*. Smithsonian Books, Washington, D.C.
- JACKSON, J. A. 2006. Ivory-billed Woodpecker (*Campephilus principalis*): Hope, and the interfaces of science, conservation, and politics. *Auk* 123: 1–15.
- KHAN, M. Z., AND J. R. WALTERS. 2002. Effects of helpers on breeder survival in the Red-cockaded Woodpecker (*Picoides borealis*). *Behavioral Ecology and Sociobiology* 51:336–344.
- LAMMERTINK, M., K. V. ROSENBERG, J. W. FITZPATRICK, M. D. LUNEAU, JR., T. W. GALLAGHER, AND M. DANTZKER. 2006. Detailed analysis of the video of a large woodpecker (the "Luneau video")

- obtained at Cache River National Wildlife Refuge, Arkansas, on 25 April 2004. [Online.] Available at www.birds.cornell.edu/ivory/rediscovery/support/intro.
- POOLE, A., AND F. GILL, Eds. 1992–2002. The Birds of North America. Academy of Natural Sciences, Philadelphia, and American Ornithologists' Union, Washington, D.C.
- ROSENBERG, K. V., M. LAMMERTINK, K. BRADY, S. BASS, AND U. SETIORINI. 2006. White Pileated Woodpecker documented in the Big Woods. [Online.] Available at www.birds.cornell.edu/ivory/field/from_field_html/whitePIWO.
- ROSENBERG, K. V., R. W. ROHRBAUGH, AND M. LAMMERTINK. 2005. An overview of Ivory-billed Woodpecker (*Campephilus principalis*) sightings in eastern Arkansas in 2004–2005. North American Birds 59:198–206.
- SHOCH, D. T. 2005. Forest management for Ivory-billed Woodpeckers (*Campephilus principalis*): A case study in managing an uncertainty. North American Birds 59:216–221.
- SIBLEY, D., L. R. BEVIER, M. A. PATTEN, AND C. S. ELPHICK. 2006. Comment on "Ivory-billed Woodpecker (*Campephilus principalis*) persists in continental North America." Science 311:1555.
- TANNER, J. T. 1941. Three years with the Ivory-billed Woodpecker, America's rarest bird. Audubon 43: 5–14.
- TANNER, J. T. 1942. The Ivory-billed Woodpecker. National Audubon Society Research Report, no. 1.

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