

A Tape Recording of a Possible Ivory-billed Woodpecker Call

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In spring 1971, John V. Dennis, long a student and known observer of Ivory-billed Woodpecker, *Campephilus principalis* (Dennis, 1948) and more recently the naturalist principally devoted to ascertaining whether the bird still exists (Dennis, 1967), sent to me at my request a copy of a tape recording of what he believed to be the voice of this woodpecker. Dennis had earlier donated a copy of his recording to the Cornell University Library of Natural Sounds, and the copy sent to me was dubbed from the Cornell copy through the courtesy of James Tate, then assistant director of the Cornell Laboratory of Ornithology. My interest in the Ivory-bill and its possible persistence in nature was sparked first when a report appeared in the *New York Times* (August 27, 1967) announcing that Dennis had rediscovered the species in the Big Thicket of eastern Texas. When I heard a rumor that Dennis had recorded the voice of a bird thought to be this woodpecker I was determined to hear his tape for myself and perhaps determine its authenticity with the audiospectograph. I spoke at length with Peter Isleib, a field companion of Dennis in Texas, who further convinced me that a study of the tape might prove valuable and then wrote to Dennis who agreed to have Dr. Tate make a copy for me.

CIRCUMSTANCES OF THE RECORDING

Dennis had kindly sent me the following account of the circumstances surrounding the hearing of the bird and the making of the tape recording

“At 07:30 on 25 February 1968, John V. Dennis, accompanied by his wife and Mrs. Peter Isleib, were approaching a heavily

wooded bluff overlooking Village Creek, a tributary of the Neches River, when the party heard the distinct “*hant, hant*” notes of an Ivory-billed Woodpecker. The tree from which the notes came was screened from view by a dense canopy of pine and other growth. Dennis, who was carrying an inexpensive tape recorder [Craig, model 2016], immediately turned on the recording switch. He succeeded in obtaining several minutes of the “*hant, hant*” sequence. The party listened for a while in the hope of hearing more call notes. Failing to do so, they followed a path to the edge of the bluff and tried to find the bird. Apparently by then it had flown, as nothing was seen of it. At the time of the recording the bird may have been only about 150 feet away. It was a foggy, still morning and a number of birds were singing nearby.”

The recording suffers greatly from system noise (electronic and motor noise of the recorder itself) and from the fact that it was made with an open microphone that has effectively picked up the sounds of all outdoors — as one would expect from the equipment and the lack of a directional microphone or parabola. Yet, the recording of familiar birds such as the Pine Warbler (*Dendroica pinus*) and Cardinal (*Cardinalis cardinalis*), also to be heard on the tape (and to be expected in the locality) are clear and undistorted; therefore the recorder was operating accurately in speed and frequency. The voice of the alleged Ivory-bill is perfectly clear to the ear, not just a distant faint sound.

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I have proceeded with the analysis of this tape recording and determination of the identity of the "mystery" voice with complete satisfaction that John Dennis is not only perfectly reliable as a field ornithologist, but that he is both absolutely honest and completely rational with respect to the events of the recording and the possible existence of the woodpecker. Further, after listening to the tape many times I see no reason to believe that it represents a fabrication or a recording of an earlier recording of the Ivory-bill in the Cornell Library of Natural Sounds. It is necessary to make these statements, because to be candid, Dennis' honesty and rationality have been questioned a number of times (though not in print) in recent years. Similar skepticism has greeted other evidence that has appeared in recent years regarding the existence of the Ivory-bill. I am indebted to Dennis for supplying me with the information that follows in this paragraph. Doubt has been cast upon the accuracy or trustworthiness of the following reports: an alleged sighting and a feather identified as that of an Ivory-bill taken from a roost hole in Florida (Agey and Heinzmann, 1971); Robert Manns, Southeastern representative of the National Audubon Society, reported a reply by a bird reputed to be an Ivory-bill when he played a tape recording of this species voice in the upper Santee Swamp in South Carolina (Charleston South Carolina *Evening Post*, Feb. 23, 1971); and on May 22, 1971 a pair of Ivory-billed Woodpeckers was seen and one of them photographed "somewhere in Louisiana" (Stewart, 1971 *vide* George H. Lowery, Jr.). So far as Dennis' recording was concerned the skepticism even extended to speculation that someone had fabricated the recording or that a practical joker had played a copy of the old Cornell recording which Dennis then re-recorded! None of my findings even remotely suggest that either of these possibilities took place.

James Tate reported to Dennis, correctly, that the tape was of poor quality, so poor in fact that it precluded accurate determination of the identity of the voice in his opinion. He added that he was perplexed by various background noises.

The recording *is* confusing; frustratingly the noise in it is in part of the same frequencies as the voice in question, so that at first no frequency control limitations could be applied to remove it without removing the voice too! Ironically, in this case the human ear has no trouble clearly distinguishing the bird's call but the audiospectrograph does quite the opposite of the usual circumstances.

The best recorded representation was finally achieved using the 7029A after first copying the

copy received from Cornell through an Advent Frequency Balance Control and attenuating by up to 12db low frequency noise below the lowest components of the bird voice. Figure 1B is the best "print" of the voice using the audiospectrograph. The original copy received from Cornell was also analyzed in the sound laboratory of the United States Department of Agriculture Agricultural Research Service Insect Attractants Research Laboratory in Gainesville. Dr. J S Webb, of that laboratory, plotted the relative amplitude of the component frequencies (Figure 2) utilizing a Signal Analysis Industries Corporation (SAICOR) real-time spectrum analyzer, Model Sal-52, the printout being accomplished on a Honeywell Model 540 x-y recorder. In the process, the frequencies were squared, the result being to emphasize the subject sound and deemphasize the noise of the same frequency, which was mostly of a lower amplitude. Thus it has proved possible to make both an audiospectrogram and an amplitude display of the calls that will permit comparison with representations of the voices of other birds. Those comparisons are discussed below.

DISCUSSION

A First Comparison

When I first heard the tape and compared it to the voice of the Ivory-billed Woodpecker to be heard on "A Field Guide to Bird Songs" (Kellogg, Allen, and Peterson, 1971) it was clear why Dennis was excited; although the voice was not identical to that on the phono-disc, it was close enough, allowing for individual variation and differences in recording quality, to make one believe that the mystery bird was an Ivory-billed Woodpecker. Dennis' recording was of a seemingly thinner, less resonant voice, yet the nasal false highnote of the clarinet description originally applied by Audubon (see Peterson 1947), was apt — the two recordings were of similar voices, to the ear.

Original Audiospectrographic Comparison with Known Ivory-bill Calls

When audiospectrograms were made of each call (narrow band, 80-8000 KHz, fl-1 bias) the resemblance was less striking (Fig. 1A, B). Note that the frequency characteristics of the two voices are similar, but that the duration of the call is longer in the mystery voice and the dominant frequencies from 1 to 2.5 KHz do not end in the terminal abrupt rising "blip." This difference is not apparent to my ears. Artifactual "resonance"

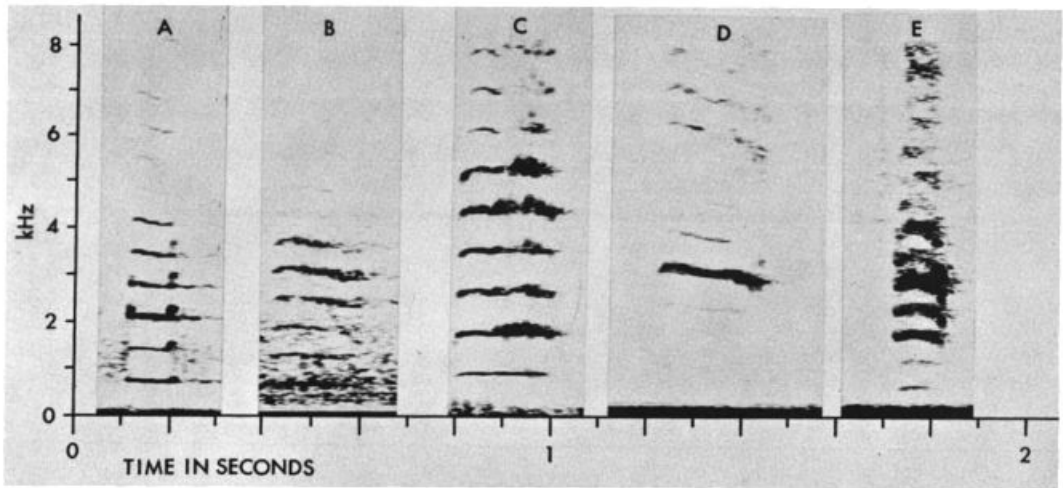


Figure 1. Audiospectrograms of callnotes of A, Ivory-billed Woodpecker; B, "mystery voice," possibly Ivory-billed Woodpecker; C, D, Blue Jay; E, White-breasted Nuthatch. See text for sources of vocal specimens.

(a sort of echo-chamber effect) can occasionally contaminate field recordings as a result of physical circumstances of the environment or character of the recording equipment, especially the microphone. Such echo can add a trailing impression to the basic sound. This almost certainly is the basis for the more prolonged character of the format frequencies in the Dennis recording.

Audiospectrographic Comparison with Vocalizations of Other Species

It was suggested by one listener that the calling bird might be either a White-breasted Nuthatch (*Sitta carolinensis*) or a Blue Jay (*Cyanocitta cristata*). The former has a metallic tin horn yank call and the latter is known for the remarkably large repertoire including imitations of other birds and individual variations that are quite lacking in species-specific character.

The mystery voice is probably not that of a nuthatch as shown by the comparison of that species' yank call note with the mystery voice (Fig. 1B, E).

In searching for similar Blue Jay vocalizations, I played recordings of all Blue Jay cuts (1-12) recorded between 1952 and 1961 in the Cornell University Library of Natural Sounds. First I came to a metallic two-note call repeated at length on cut 7. This had the general character I thought might afford a comparison of value. The resulting audiospectrogram (Figure 1C) shows more resemblance to the mystery voice — a re-

semblance I did not expect from aural comparison. On cut 11, however, a single note call proved (Figure 1D) to have still stronger aural and spectrographic resemblance to the mystery voice. Note however, that the Blue Jay call has one dominant frequency above the fundamental whereas there is no evidence in the mystery voice or the voice of the Ivory-bill of greater emphasis on one of the lower frequencies as compared to higher ones of the vertical series. Note that the interval between the frequencies is about 500 Hz in both Blue Jay vocalizations and less than that in the Ivory-bill voice. The pitch of the Blue Jay voice is higher as evidenced by prominence of frequencies above 3 KHz.

Comparative Amplitude Analysis

The results of an amplitude display analysis of Ivory-billed Woodpecker calls, the mystery voice, and Blue Jay calls are shown in Figure 2. These displays, as previously mentioned, were made using a spectrum analyzer and x-y recorder.

The displays in this figure are from the same series that produced the audiospectrograms in Figure 1 as follows: known Ivory-bill, 1A, 2A and D; mystery voice, 1B and 2B and C; Blue Jay cut 7, 1C and 2F; Blue Jay cut 11, 1D and 2E. Amplitude display for the nuthatch is not shown; it bore no resemblance to Ivory-bill calls. In Figure 2, amplitude of frequencies below 500 Hz is noise just as are the darkened areas immediately

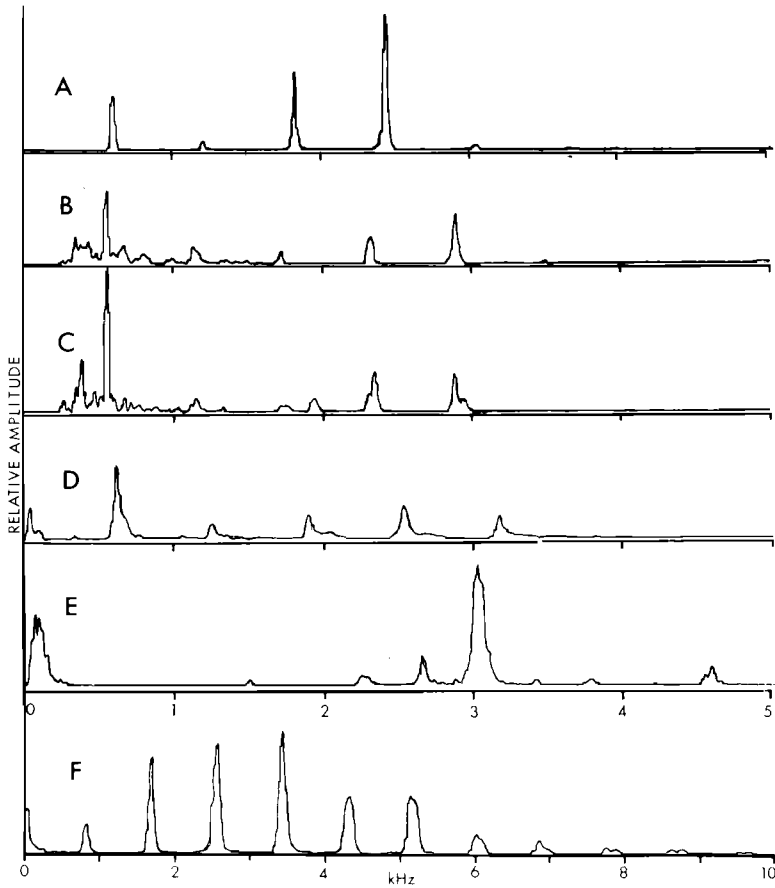


Figure 2. Amplitude displays of callnotes of A, D, Ivory-billed Woodpecker; B, C, "mystery voice," possibly Ivory-billed Woodpecker; E, F, Blue Jay. See text for sources of vocal specimens.

above the base line in Figure 1. The amplitude display confirms the resemblance of the mystery voice and known Ivory-billed Woodpecker. Figure 2A and D were purposely selected to show the range of variation in proportionate amplitudes of the frequencies in the sound of the known Ivory-bill. Allowing for the noisiness of the Dennis recordings that of course cannot be completely eliminated in the amplitude displays, there is as much difference between the two calls in spacing and amplitudes of frequencies as there is between either of these calls and the calls of the Dennis mystery voice. Contrastingly, the two Blue Jay calls are clearly outside this group, being in one case higher pitched and in the other composed of a series of tones, the frequencies of which form a symmetrical vertical series in amplitude peaking at about 3.5 KHz.

A perusal of voices of other species possibly responsible for the mystery voice has revealed

nothing of interest. (I have no recording of mammals such as squirrels that might profitably be investigated in this regard, but I frankly do not believe that the mystery voice is that of a mammal.)

Proponents of the Blue Jay origin of the voice are however persistent and at times insistent Paul Sykes (pers. comm.) states that he has heard Florida Blue Jays give calls that to his ear were far more like the calls of the Ivory-bill than the ones in my possession. He also points out, and Dennis and I agree with him, that Blue Jays are known to give sounds remarkably like those of birds in their own ranges. Thus the jays give calls resembling Red-shouldered Hawks (*Buteo lineatus*) and Cooper's Hawks (*Accipiter cooperii*) as shown in Figure 3, where they are sympatric with those species. If there is inherited ability in the jay to utter these calls, perhaps Ivory-bill-like calls from Blue Jays in Florida bespeak a former oc-

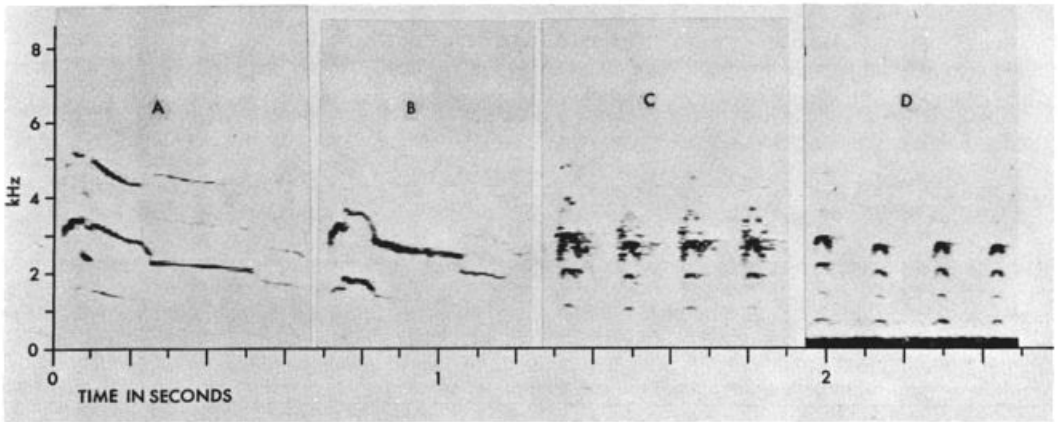


Figure 3. Audiospectrograms of callnotes of A, Red-shouldered Hawk; B, Red-shouldered Hawk-like call of Blue Jay; C, Cooper's Hawk; D, Cooper's Hawk-like call of Blue Jay. See text for sources of vocal specimens.

currence of the two together. The remarkable audiospectrographic resemblance of the Blue Jay and hawk calls in Figure 3 suggest that it is possible for the jay to produce a call so much like that of the woodpecker as to be uncertainly distinguishable using any known device for analysis.

SUMMARY AND CONCLUSIONS

I began this investigation with the opinion that a tape recording by John Dennis might be of an Ivory-billed Woodpecker. After listening to the tape and reading Dennis' comments, I entertained the opinion that the voice was very possibly that of an Ivory-bill and a new recording authentically made and possibly of some other bird — but I knew not what other species. After comparing audiospectrograms of the mystery voice and the known call of an Ivory-bill I decided that the resemblance was not sufficient to allow an unequivocal statement that the voice in question was that of an Ivory-bill.

After examining certain other vocalizations, I must conclude that the mystery voice may just as easily be of the Blue Jay, rather than of an Ivory-billed Woodpecker. I believe the voice is either the jay or the woodpecker and nothing else, and throwing scientific conservatism to the wind I will also state that my ear leans toward the Ivory-bill.

Specimens Examined and Analyzed Figures 1-3

Accipiter cooperii. Kellogg, Allen, and Peterson,

1962 (see lit. cit.) "Utah," no date given.

Buteo lineatus. Kellogg, Allen, and Peterson (op. Cit.), "New York," no date given.

Campephilus principalis. Kellogg, Allen, and Peterson (op. ict.), Singer Tract, Louisiana, no date given (1930's).

Cyanocitta cristata. Cornell U. Library of Natural Sounds, cut 2, Ithaca, N.Y., 5 May 1952 (Allen and Kellogg); cut 7, Ithaca, N.Y., 2 May 1956 (Kellogg and Stein); cut 11, Miami, Fla., 23 March 1962 (Little and Kimball); and Kellogg, Allen, and Peterson, 1971, phono-disc (see lit. cit.).

Sitta carolinensis. Borror, 1967 (see lit. cit.). Cut 1. "Ohio," "Oct."

"Mystery voice," see text.

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