Present status of the Ivory-billed Woodpecker in Texas: Results of a search from 2007 – 2009.

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Introduction

The Ivory-billed Woodpecker (IBWO) once ranged from southern North Carolina southward and westward through the Gulf states to the eastern one third of Texas (Jackson, Jerome A. 2002). A disjunct population in Cuba may not have been as closely related to the mainland population as has been thought (Fleicher, et al., 2006).

The last documented and fully accepted record for the species in the United States was at the Singer Tract in northeastern Louisiana by Don Eckleberry in April, 1944 (Eckleberry). The last documented record for Texas was made by Vernon Bailey in Liberty County when he collected two adult male specimens on November 26, 1904 (Oberholser 1974). Occasional claims of having seen, photographed, or heard Ivory-billed Woodpeckers within the historic range of the species in Texas have continued over the years since its disappearance (Appendix A). Sounds thought to be made by unseen Ivory-billed Woodpeckers have been made on several occasions (Hardy, 1975; Reynard and Garrido, 1988) but none of these has been fully substantiated.

On April 28, 2005 an announcement was made (Fitzpatrick, et al, 2005) that at least one male Ivory-billed Woodpecker was documented to have been present in east central Arkansas during 2004. This announcement generated a great deal of excitement in the ornithological community. The US Fish & Wildlife Service organized a survey of the historic range of the species to determine whether Ivory-billed Woodpeckers existed, where they were to be found, the size of any potential surviving population(s), and the characteristics of the habitat which supports any surviving birds. Several independent efforts to locate IBWO in parts of its historic range (e.g. Hill, et al., 2006) as well.

Acceptance of the findings of Fitzpatrick, et al. has not been universal (e.g. Sibley et al., 2006), but a Recovery Plan (USFWS, 2010) has been prepared using the data generated by the 2005 – 2009 search effort. The plan finds the data presented by Fitzpatrick et al. (2005) to be the most plausible interpretation of these data.

This report provides information on the results of a survey in eastern Texas carried out during 2006 through 2009.

Methods and Materials

The region deemed most likely to have any surviving populations remaining in Texas was the southeastern corner of the state along the lower drainages of the Sabine, Neches, and Trinity Rivers. This determination was made by studying USGS topographic maps, satellite imagery, ground reconnaissance, and personal over-flights of the region in a small, fixed-wing aircraft. Additionally parts of this area (historically referred to as the “Big Thicket”) had been the

source of a flurry of reports, photographs, and tape recordings alleged to be of the species in the late 1960s and early 1970s (Shackelford, 1998).

Since only public property (and private property with special permission) could be searched, the survey was primarily conducted in the Big Thicket National Preserve of the National Parks Service along the Neches River and its major tributaries, Village Creek, and Pine Island Bayou, and Village Creek State Park and Forks of the River Wildlife Management Area of the Texas Parks & Wildlife Department located at the confluence of the Neches and Angelina Rivers in Jasper and Tyler Counties.

Reconnaissance of the lower Sabine River revealed no accessible habitat that was suitable for Ivory-billed Woodpecker. Despite this, a significant amount of habitat that appeared suitable from the air exists under private ownership. However, we were able to spend several days surveying the privately owned Little Sandy Fishing and Hunting Club on the upper Sabine River in Wood County. The club was established in 1907 and its forest escaped the timbering wave that swept through the area in the early 20th century. Therefore the forest there may be one of the few tracts of primary bottomland forest remaining in the South. Fortunately the owners have entered into a conservation easement with the USFWS.

Along the lower corridor of the Trinity River we surveyed the Trinity River National Wildlife Refuge and Davis Hill State Park and did some reconnaissance on the Wallisville Lake Project, an Army Corps of Engineers property that is adjacent to the Trinity River NWR immediately downstream.

We used the survey methods specified by the Habitat Occupancy Model developed at the School of Forestry of the University of Georgia by Robert Cooper and collaborators. We divided the terrain to be surveyed into “patches” of approximately 500 ac.

(202.3 hec.) using GIS techniques. Of the patches created we surveyed 60% chosen at random. Each patch was searched a minimum of three times by different personnel each visit. We conducted searches in an effort to visit all parts of each selected patch to the extent that conditions allowed. GPS tracks of each search were entered into a GIS program (ArcGIS 9.1). We made GPS waypoints for suggestive sightings and noises and for possible Ivory-bill sign such as cavities and bark scaling. We searched visually, stopping at regular intervals in locations that afforded good visibility for 10 minute stationary playback-and-listen sessions of Ivory-billed Woodpecker vocalizations and/or artificially produced "double knocks" to simulate the drums of the species as described by observers in the 19th century.

Ground transportation was by four wheel drive pickup trucks, all terrain vehicle (ATV) and foot. In swamps or flooded forest we used canoes and kayaks. For rivers and larger streams we used a 14 flat-bottom boat with 10 hp motor. For observation we used 10 X binoculars and a 20 – 60 X Swarovski telescope. We carried a Sony TCM 5000 cassette tape recorder and ME 67 Sennheiser shotgun microphone for recording possible IBWO calls or drums. Playback was performed using portable CD players and powered speakers to play copies of the 1935 recordings of IBWO made in the Singer Tract in Louisiana by Arthur A. Allen and Peter Paul Kellog. To simulate the double-knock drums we used the ingenious "double-knocker" designed by Martjan Lammertink of Cornell University and built by personnel at the Congaree National Park.

For remote audio recording we deployed Autonomous Recording Units (ARU) developed by audio engineers at Cornell University Laboratory of Ornithology (CLO). These units were deployed at locations deemed high interest due to the quality of the habitat or historical and recent reports of IBWO by the public. The ARUs

were left recording for approximately two weeks and then were returned to CLO for analysis of the recordings.

Similarly, we deployed remote programmable Reconyx time-lapse video surveillance cameras that recorded digital time-lapse and/or motion-triggered images onto "flash" memory cards. These were set up on possible IBWO cavities or bark scaling. These cameras could be left recording indefinitely by changing the memory cards and batteries every few days.

We also visited each selected patch apart from the survey visits and constructed a habitat profile for each of 20 selected plots. Each plot consisted of a 52.7 foot (16 m.) radius circle randomly chosen so as not to be within 200 m. of another plot. Each profile consisted of measuring and identifying each tree over 10 inches (25.4 cm.) diameter at breast height (DBH). We then estimated the canopy cover of each tree species in the plot with at least one tree over the 10 in. DBH criterion. We recorded this information on data sheets in the field and later entered it into an on-line database created and maintained by the University of Georgia (http://128.192.47.43/~zhenyu/ivory.php) (ref). Most patches thus were visited 4-6 times in all.

Throughout the survey we interviewed members of the public who came forward with claims of having seen Ivory-billed Woodpeckers. These interviews followed the suggestions put forth by Rohrbaugh (unpublished) and were carried out in person where possible and by telephone and electronic mail where necessary. Most of these reports were obviously misidentifications of Pileated Woodpecker and no follow-up activity was carried out. In one instance we followed up on a particularly credible report by deploying an ARU in the vicinity of the reported sighting.

Results and Discussion

Reconnaissance by the PI and volunteers began in May 2006 and continued through that summer. Organized field work using protocols similar to those used in the Arkansas search effort in 2004-2005 began with field technicians in November 2006. In December 2006 we adopted the Habitat Occupancy Model (HOM) protocols developed by the University of Georgia, but habitat profiling did not begin until June. Thirty-six patches in the Neches River corridor were searched using HOM protocols. Twelve patches had already been searched one or more times using CLO protocols making a minimum of 7 visits for these patches.

The field team moved the Trinity River NWR on 28 February 2007 and searched patches there until 30 March. Habitat profiling, carried out by the PI aided by project personnel from USFWS and the Texas Parks & Wildlife Department (TPWD) some of the time, began in May 2007 and continued through November. Habitat profiling by the PI and a number of volunteers resumed in April 2008 and continued through June. Another team of field technicians was to have begun field work in September but were delayed by the threat and eventual reality of impacts from Hurricane Ike, which tracked right over the study area on 13 September. Since conditions for field work at the Trinity were impossible, we first surveyed the Little Sandy Hunting and Fishing Club on the upper Sabine River for a week and then relocated to the Trinity River NWR. Despite the damage to the forest the team both searched and profiled habitat there and at the adjoining inactive Davis Hill State Park property. In total, 38 patches were surveyed along the Trinity corridor.

We did not see any large woodpecker that could not be identified as definitely or probably a Pileated Woodpecker *Dryocopus pileatus*, a common species throughout the region, with one possible exception (see below), nor did we hear or record any sounds that we thought might have been produced by an Ivory-billed Woodpecker. On two occasions very loud blows of a

woodpecker striking a trunk were heard at different locations in the Big Thicket National Preserve. A description of such blows made by Ivory-billed Woodpeckers in the Singer Tract in 1938 is found in Peterson (1949). In each instance we were able to determine with certainty that a Pileated Woodpecker had made the sounds.

Working alone profiling vegetation in Patch 3 of the Trinity River NWR on 13 June 2007 at UTM coordinates 322600 and 335760 JCA heard heavy "wooden"-sounding wing beats approaching his position from behind. Expecting a White Ibis or a Black Vulture, both of which are common in the area and both of which make such "wooden" wing beat sounds, he looked to the left as the bird passed his position, flying behind screening vegetation. As it crossed a gap in the vegetation he glimpsed what appeared to be a large black-and-white woodpecker. He waited in the area for an hour and a half but neither saw or heard any thing more. Ivory-billed Woodpeckers were known to have loud, "wooden"-sounding wing beats (refs) while Pileated Woodpeckers' wing beats are essentially silent (refs).

Our failure to find other suggestive evidence that Ivory-billed Woodpeckers exist in the areas searched leads us to conclude that there probably is not a remnant population of the species in southeastern Texas. We surveyed an area estimated to be less than 10% of the remaining bottomland forest along the lower Neches and Trinity Rivers. There is a great deal of bottomland forest in private ownership in the region that we were not able to survey. The precise nature of the remaining forest is unknown to us except as seen from our aerial overflight at the beginning of the project and examination of aerial and satellite imagery available on the Internet. Based on these observations and ground visits to areas where privately owned forest adjoined public roads we believe that we surveyed the forest of the highest quality for potential surviving IBWO remaining in the region.

Coincidental to our surveys, both the Neches River corridor, in August 2005, and the Trinity River corridor in September, 2008, were heavily impacted by Hurricanes Rita and Ike respectively. Both areas lost high percentages of the larger canopy trees. Trees that were not blown down outright were often badly damaged, losing major limbs and leaving the remaining canopy very fragmented. Some of these damaged trees have since died creating a high percentage of recently killed snags in many areas. The damage to forest made ground surveying extremely arduous.

The working hypothesis gained from historical accounts is that IBWO is a species that moves in response to forest disasters such as hurricanes, tornados, and fires that leave large numbers of recently dead trees. Thus we assumed that these two very strong hurricanes in three years left what should be a boon for possible surviving IBWO. Our failure to find positive evidence that a very small population remains in the area is particularly discouraging given the seemingly ideal conditions.

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