FIRST DOCUMENTATION OF SHARP-SHINNED HAWK NESTING IN MISSISSIPPI

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Many references show the breeding range of the Sharp-shinned Hawk (*Accipiter striatus*) extending into the extreme northeast corner of Mississippi (e.g. Clark and Wheeler 1987, del Hoyo et al. 1992, Dickinson 1999). Nevertheless, no documented nesting records previously existed for this species within the state (Turcotte and Watts 1999). Here, I describe nesting by the Sharp-shinned Hawks at 2 sites in 2 consecutive breeding seasons. Rather unexpectedly, these records are not from the northeast part of the state, but the southeast.

Past evidence suggested that Sharp-shinned Hawks might nest in Mississippi. For example, Malcolm Hodges observed a calling adult on 11 May, 1988 in northeastern Lowndes County (Terry Schiefer pers. comm.). Such behavior and timing are consistent with breeding. Also, a juvenile was found injured in Claiborne County on 20 July, 1991 (*fide* Brian Wheeler). A bird in this plumage at this time of year was likely a very recent fledgling.

In the summer of 1997, I found evidence of nesting by 2 pairs of 2 Sharp-shinned Hawks in Jones County. Both were within the Chickasawhay Ranger District of DeSoto National Forest. The first site (hereafter "Site 1") is in the southeast corner of Jones County (T6N, R10W, section 13; 31°29' N, 88°57' W). On 1, 3, 4, and 6 August, I observed 3 juveniles at this location. These birds were capable of flight, but

remained within a small area (about 1 ha). At least 2 were still present on 9 August. They spent most of their time perched, but would occasionally fly from tree to tree. Once, an adult carrying prey appeared and was chased by the juveniles. During all observations, the birds called frequently. Their most common vocalization was a raspy, drawn-out "kreeee" reminiscent of the "wheep"call of a Great Crested Flycatcher, but they also gave a rapid, high-pitched "kee-kee-kee."

Sandy Whisler, Michelle Davis, and Carol Brown also observed the birds. We searched the area, but were unable to locate a nest. Because of the necessity of distinguishing these birds from Cooper's Hawks, Michelle and I made notes and sketches of their plumage and I recorded vocalizations using a Sennheiser K3U microphone and a Sony TCM-5000EV recorder. These materials were submitted to the Mississippi Bird Records Committee.

When I first told the Ranger District biologist, Carol Brown, about the birds, much to my surprise, she told me that she had found a Sharp-shin nest back on 24 June, 1997. On this date, she observed a calling adult near a possible nest in pine. This location (hereafter "Site 2") is 7.4 km northwest of Site 1 (T7N, R10W, border of section 22; 31°33' N, 88°59'W). Carol showed me the nest on 9 August, but no birds were present. It was about 10 m above the ground in a Loblolly Pine (*Pinus taeda*) about 25 cm DBH (diameter at breast height) and supported by branches slightly away from the trunk. The nest appeared to be 15-20 cm deep and 60 cm in diameter. Because Sharp-shinned Hawks molt during the breeding season, we searched for old feathers on the ground nearby. We found 2, a scapular and a secondary. Later, I compared these to feathers on specimens at the Mississippi Museum of Natural Science. They were

too small to have come from a Cooper's Hawk, but both matched the size and color pattern of feathers on male Sharp-shinned Hawks. I deposited the 2 feathers at the museum. To summarize 1997, there was strong evidence of breeding by Sharp-shinned Hawks at 2 sites though no active nest was found. At Site 1, there were 3 juveniles apparently just out of a nest. At Site 2, there was an old nest with Sharp-shinned Hawk feathers nearby. Though they do not often reuse old nests, Sharp-shins frequently nest in the same vicinity for several years (Johnsgard 1990). For this reason, I revisited both sites in 1998.

My first visit to Site 1 in 1998 was on 7 June with Sandy Whisler. We had an excellent view of a calling adult Sharp-shin (its size suggested a female), but we were unable to find a nest. I returned on 27 June and after a 2-hour search found it. The nest was very high in a pine and difficult to see from the ground. It was next to the trunk supported by branches. The following day, I returned accompanied by Mark Woodrey and Sandy Whisler and, with the aid of a 22X spotting scope, we were able to distinguish 3 downy nestlings. I next checked the nest on 4 July and the nestlings were large and almost fully feathered. Two were still on the nest while the third perched 1.5 m away on a branch.

On 19 July, the 3 juveniles were still present, but all had left the nest. Though often flying among the trees, they remained within 50 m of the nest. Like the juveniles present in 1997, they were highly vocal mainly giving the "kree" call and occasionally the "kee-kee-kee." The calls of one of the birds was noticeably lower in pitch than the other two suggesting that it was a female while the other 2 were males. Using a borrowed video camera, I recorded one of the birds at close range while it gave both call types. I returned the following day with Stefan Woltmann to find all 3 birds still

present. Once, an adult flew through the area and was immediately pursued by all 3 juveniles. On this day, I made notes and sketches of one of the birds while viewing it with a spotting scope. These drawings and a copy of the video were deposited with the Bird Records Committee. I also sent a copy of the video to Brian Wheeler, author of *A Photographic Guide to North American Raptors* and *A Field Guide to Hawks of North America*. He commented that the bird was "100% Sharp-shinned by head, legs, & tail; and by vocalizations."

The nest at Site 1 was in a longleaf pine (*Pinus palustris*) that was 48 cm DBH and 29.2 m high. The nest was 23.1 m above the ground. The shortest distance to an opening in the forest, in this case a dense planting of 2-m tall pines, was 210 m. These measurements were made using a 50-m tape, a DBH tape, and a clinometer. Before I was able to measure the vegetation characteristics of the site, it was logged. Many of the canopy trees as well as much of the understory was removed, but the nest tree still stood. Based on what remained after logging, the stand appeared to have been dominated by large longleaf and loblolly pines with a few hardwoods present, mainly tulip tree (*Liriodendron tulipifera*). The dense understory was dominated by yaupon (*Ilex vomitoria*), Dogwood (*Cornus florida*), and Sweetbay (*Magnolia virginiana*).

My first visit to Site 2 In 1998 was on 7 June with Sandy Whisler. We found that the timber there had been recently thinned, but, much to our surprise, we located an active nest within a few minutes. One bird incubated while another called nearby. I returned in the company of Sandy Whisler and Mark Woodrey on 21 June and we could see at least 2 nestlings on the nest. I returned on 1 and 4 July; by this time, the nestlings appeared to have reached full size and

they were mostly in brown juvenal plumage. On 18 July, I returned to find the nest empty with no hawks in the vicinity. I searched the ground and found a single primary feather. Later, I compared it to feathers on frozen specimens at the University of Southern Mississippi and finally deposited it at the Mississippi Museum of Natural Science. The feather matched the 6th primary of a female Sharp-shin in size, color pattern, and shape (notching and emargination).

The nest at Site 2 was in a slash pine (*Pinus elliottii*) 29.5 cm DBH and 17.7 m high. The nest was 12.4 m above the ground and supported next to the trunk by branches. The nearest forest opening, a recent clearcut, was 47 m from the nest tree. Approximately 70% of the ground was covered with gallberry (*Ilex glabra*) less than 1 m in height. This gave the understory an open, unobstructed aspect. I measured timber density in a circular plot with radius 20 m centered on the nest tree (which was the largest tree within this plot). Basal area of trees (DBH >5 cm) was 15.9 m^2/ha. Slash pine represented 94% of this basal area and 80% of individual trees present. The density of trees at least 10 cm DBH was 510 trees/ha; smaller trees had the same density.

There are documented nesting records for Sharp-shinned Hawk in all states bordering Mississippi (Imhof 1976, Shackelford et al. 1996, Nicholson 1997, Garner 1999). The species is an uncommon breeder in Tennessee and northern and central Alabama but is rare in Louisiana and southern Alabama (Nicholson 1997, Shackelford et al. 1996, Greg Jackson personal communication). It is also a rare breeder in Arkansas, but there are only records from the northeastern corner of that state (Garner 1999). The lack of previous records implies that the species is a rare breeder in Mississippi.

The habitat surrounding the 2 nesting sites in Mississippi

were both dominated by pines. Otherwise, they differed in several respects. Site 2 had substantially smaller trees; the nest tree there was one of the largest in the area yet its diameter was 18.5 cm smaller than the nest tree at Site 1. Furthermore, the understory at Site 1 was dense and 2-3 m high while nearly all of Site 2 understory was less than 1 m high. This feature gave Site 2 an open aspect similar to habitat where Sharp-shinned Hawk nests have been found in eastern Texas and western Louisiana. These areas were described as "pine savannah" with an understory of grasses (Shackelford et al. 1996). It appears that the most important habitat feature for Sharp-shinned Hawk nesting is the presence of pines. All recorded Tennessee nests were in pines except 1 that was in a cedar (Nicholson 1997, Steve Stedman personal communication).

Though it is difficult to determine the exact timing of nesting events from my observations, egg-laying almost certainly occurred in May. I first observed nestlings on 27 June at Site 1 and 7 June at Site 2. It was not possible for me to estimate the age of these nestlings accurately, but they were small and downy, probably 1-2 weeks old. Given that the species' incubation period lasts 30 days, egg-laying for both nests would have occurred in May. This timing is similar to Tennessee where egg-laying peaks 5-15 May (Nicholson 1997).

Sharp-shinned Hawks probably nest at very low density throughout much of Mississippi wherever pine forests are found. Their low numbers, secretive behavior, and relatively late nesting date make them difficult to locate. Searches for nests should be conducted wherever a calling adult is observed in late spring or early summer. However, the most conspicuous indicator of nesting Sharp-shins is the calling of young that have recently left the nest in July or early August.

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