NESTING CHRONOLOGY OF THE SHARP-SHINNED HAWK IN ALABAMA

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The Sharp-shinned Hawk (Accipiter striatus) has been reported as abundant throughout the United States, except in the extreme Southeast (Jones 1979). Although once regarded as a species of special concern in Alabama (Keeler 1976), the sharp-shinned has more recently been reported as fairly common and may be increasing in the State (Alabama Agricultural Extension Service 1984).

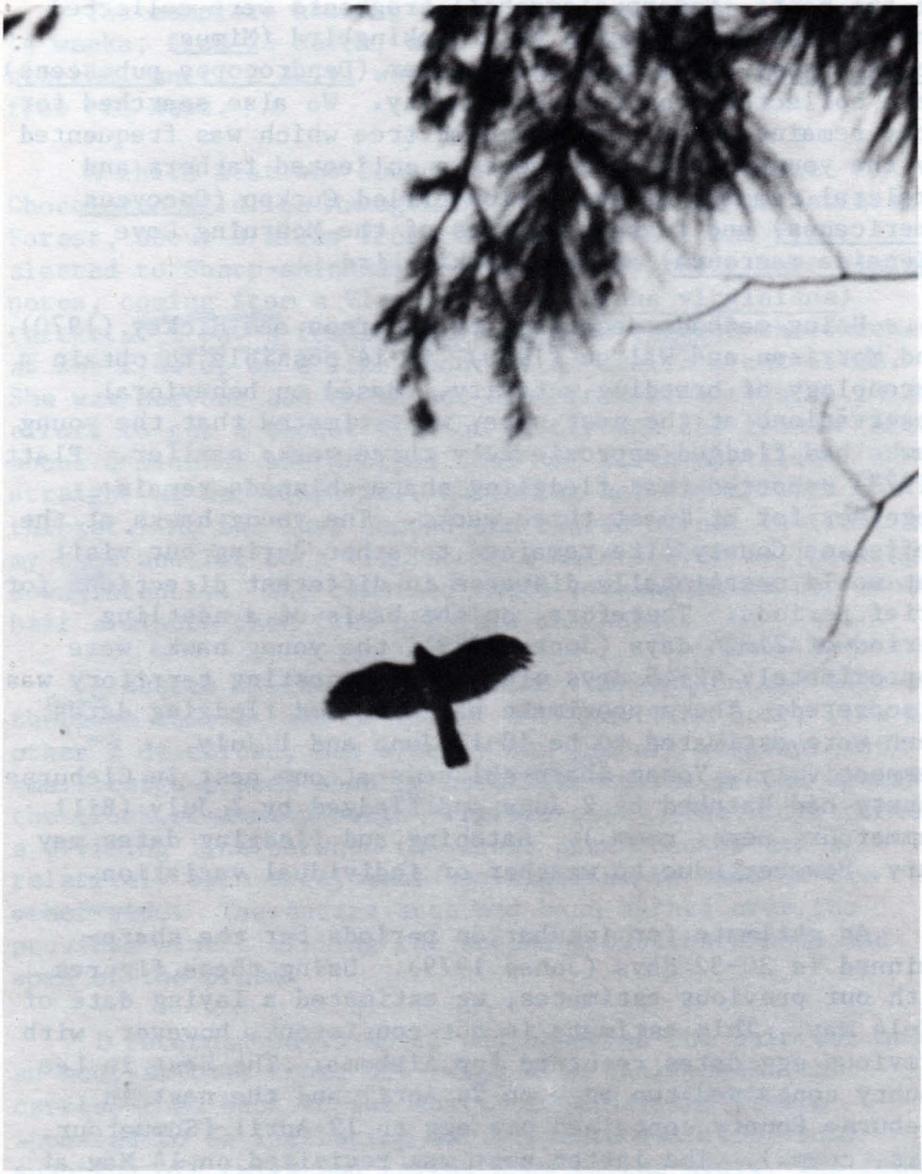
During the nesting season, the Sharp-shinned Hawk is most abundant in the eastern provinces of Canada (Brown and Amadon 1976). The species has been described as a locally common, permanent resident in the northern half of Alabama (Imhof 1976), yet records are available for only three nestings. Bill Summerour (pers. comm.) recorded a nesting for Lee County in 1954 and one for Cleburne County in 1967. Herein, we report on a nesting of the Sharp-shinned Hawk in Jefferson County, Alabama, during the 1985 nesting season, and compare with nesting chronology recorded elsewhere in the State and in other parts of the species' breeding range.

On 10 July 1985, GSW sighted a Sharp-shinned Hawk in immature plumage near Old Camp Cosby in Jefferson County. The bird was sighted in a partially cleared woodlot located on the east facing slope of a small ridge near Cosby Lake. The area appeared to have been recently logged, as several of the downed trees had been cut recently. The logged portion of the east slope of the ridge was approximately 8 ha in size. The uncut portion of the ridge wass dominated by hardwoods mixed with pines. Similar habitat has previously been reported as favored by nesting sharp-shinneds with nests usually placed in a conifer (Platt 1973; Hennessy 1978; Jones 1979). Approximately 14.2 ha had been logged on the west slope of the ridge immediately opposite the area where the immature sharp-shinned was sighted initially. An uncut portion was left standing along the crest of the ridgeline between the two logged areas.

A subsequent visit to the site was made on 24 July by the authors. Three Sharp-shinned Hawks in immature plumage were sighted, one female and two males. The female of each species of the genus Accipiter is known to be considerbly larger than the male (Snyder and Wiley 1976). Although sharp-shinneds have been reported to breed while still in immature plumage (Fischer 1984), the behavior which we observed was not typical of the aggressive response by breeding sharp-shinneds towards intruders (see Bent 1937). The young hawks circled over the ridge just above tree height (Fig. 1), and, except for an occasional call, appeared to be unconcerned by our presence. The calls uttered are best described as the "squealing cries" reported by Brown and Amadon (1978: 485) as a typical disturbance call or food association call. Similar calls are "wheep" uttered by the Great-crested Flycatcher (Myiarchus crinitus) and "pewee" uttered by the Eastern Wood-Pewee (Contopus virens) (National Geographic Society 1983; 282 and 284). One of the male sharp-shinneds frequently perched close-by and once allowed us to approach within 10-15 meters before taking flight.

Initially, we feared the nest tree may have been cut during the logging activities. However, the intact nest tree was discovered on the lower portion of the logged area on the east facing slope of the ridge. Nearby residents stated that logging operations were taking place in the nesting area from early June at least until 4 July. Sharp-shinneds prefer the lower portion of a nest-site slope in the western part of their breeding range as well (Hennessy 1978). The nest was placed approximately 17 m above the ground near the trunk of a short-leaf pine (Pinus echinata). The nest tree was 19.3 m tall with a diameter at breast height of 21 cm. The nest was constructed of pine twigs, and the nest cup was lined with pieces of bark and contained some pine needles. The nest appeared to have been constructed for the 1985 season and not one that had been used in previous seasons or by other birds as has been suggested for the species (Bent 1937; Jones 1979). An access road running parallel to the ridgeline was located within 30 m of the nest tree. Elevation at the nest site was approximately 960 feet above sea level.

The nest tree was climbed to investigate the contents



of the nest. Numerous eggshell fragments were collected and the skeletal remains of a Mockingbird (Mimus polyglottos) and a Downy Woodpecker (Dendrocopos pubescens) were collected from the nest cavity. We also searched for prey remains under a nearby dead tree which was frequented by the young hawks, and there we collected fathers and skeletal remains of the Yellow-billed Cuckoo (Coccyzus americanus) and feather remains of the Mourning Dove (Zenaida macroura) and the Mockingbird.

Using methods described by Anderson and Hickey (1970) and Morrison and Walton (1980), it is possible to obtain a chronology of breeding activity. Based on behavioral observations at the nest site, we estimated that the young hawks had fledged approximately three weeks earlier. Platt (1973) reported that fledgling sharp-shinneds remain together for at least three weeks. The young hawks at the Jefferson County site remained together during our visit but would occasionally disperse in different directions for brief periods. Therefore, on the basis of a nestling period of 21-24 days (Jones 1979), the young hawks were approximately 42-45 days old when the nesting territory was discovered. The approximate hatching and fledging dates then were estimated to be 10-13 June and 1 July, respectively. Young sharp-shinneds at one nest in Cleburne County had hatched by 2 June and fledged by 2 July (Bill Summerour, pers. comm.). Hatching and fledging dates may vary, however, due to weather or individual variation.

An estimate for incubation periods for the sharp-shinned is 30-32 days (Jones 1979). Using these figures with our previous estimates, we estimated a laying date of 12-14 May. This estimate is not consistent, however, with previous egg dates recorded for Alabama. The nest in Lee County contained two eggs on 26 April and the nest in Cleburne County contained one egg on 19 April (Summerour, pers. comm.). The latter nest was revisited on 14 May at which time four eggs were found in the nest. The average clutch size for the sharp-shnned is reported to be 3.5 (Jones 1979). Thus, our 12-14 May laying date estimate may actually represent an approximate clutch completion date for Alabama.

A south to north progression in time of egg-laying has

been reported for sharp-shinneds in the western United States, but not elsewhere (Jones 1979). In addition, Jones examined egg-laying dates reported by Bent (1937) for northeastern North America and found that laying dates ranged from late May to early June. Our estimates, together with Summerour's data, suggest that a south to north progression in egg-laying dates may also occur in eastern North America.

Summerour observed early nest construction and copulation by sharp-shinneds during the third week of March in Alabama. Jones (1979) reported that pair formation, nest construction and the initiation of copulation requires 2-4 weeks once pairs arrive in the nesting territory. On this basis, we estimate that breeding Sharp-shinned Hawks arrive on their nesting territories in Alabama sometime in late February or early March. Obviuosly, more detailed observations are needed on specific egg-laying, hatching and fleging dates throughout the sharp-shinned's southeastern range. Nevertheless, the nesting dates reported here provide a basis for future comparison.

Our 10-13 June estimate of hatching date for the Jefferson County pair indicates that eggs were still being incubated when the logging operations began. That the incubation period is a critical time in the reproductive cycle of raptors and other birds is well known. Not only is embryo development threatened by extreme fluctuations in ambient temperature, but parent birds may be forced to abandon the nesting effort due to disturbance. A disturbance early in the incubation period may not prevent recycling, but if abandonment occurs late in the incubation period renesting may not be attempted. Accipters have been known to desert their nests following a single visit by an observer or in response to logging or other prolonged activity nearby, and smaller species abandon less readily due to disturbance than do larger ones (Newton 1979). In one instance in Utah, a pair of Sharp-shinned Hawks continued incubation and raised young while a house was being constructed less than 50 m from the nest. The nesting territory had been occupied for 6 breeding seasons prior to the house construction but has not been occupied since (Joseph R. Murphy and David L. Fischer, pers. comm.). Nevertheless, we are amazed that the Jefferson County pair

were so tolerant to logging operations taking place literally right below the nest. Prolonged disturbance may not disrupt the latter stages of nesting activity but may cause breeding pairs to abandon a given territory in subsequent years.

The roadway near the nest was not recent and did not appear to have been cut to allow access for the logging operations. Numerous accounts of sharp-shinned nest-site characteristics have been published, but preferred forest types and geographic situations vary throughout the range, making generalizations difficult. One characteristic does appear to be found throughout the sharp-shinned's nesting range, however, and that is a preference to select a nest tree near roadways, trails or stream beds (Hennessy 1978; Jones 1979). Hennessy suggested these sites might be associated with prey availability and hunting strategy, but the matter has not been adquately addressed. Selection of nest sites near more open areas may be associated with delivery of prey to the nest by the parent birds. Roadways, trails, creek beds, streams, etc., provide natural corridors to the nest (Clayton M. White, pers. comm.). A parent bird using these corridors for unobstructed return to the nest would expend less energy in prey delivery than would be required to maneuver through the forest. On the other hand, the matter may simply represent a case of recurring coincidence. Most field observers frequently utilize natural corridors for ease of visibility. Thus, what appears to be a preference by the Sharp-shinned Hawk for selecting nest sites in the vicinity of natural corridors may actually be a reflection of observer bias. This phenomenon is another aspect of raptor ecology which needs to be addressed further, particularly for comparison of southeastern nest-site characteristics with those from other parts of the sharp-shinned's nesting range.

At no time were adult Sharp-shinned Hawks observed at the nest site. Parent males usually leave the nesting area when the eggs hatch and only return to deliver food, while parent females remain with the young until they are at least two weeks of age before spending considerable time away from the nest (Platt 1973; Jones 1979). The Sharp-shinned Hawk occurs in over 25% of the State during

the breeding season (Imhof 1976), and the species is probably a more common nester in Alabama than has been previously reported. Summerour has observed territorial sharp-shinneds frequently during April in Cleburne County for a number of years. Sharp-shinneds in the northwestern United States typically occupy nest sites for a maximum of 2-5 years (Platt 1973; Reynolds 1978). Nevertheless, its secretive nature, habitat preference and small size will continue to challenge even the most experienced field ornithologists who seek out the nest of the Sharp-shinned Hawk in the southeastern portion of its range.

In summary, the habitat preference and nesting chronology of Sharp-shinned Hawks breeding in Alabama can be characterized as follows: 1) adults arrive in the nesting territory sometime in late February or early to mid-March; 2) nest sites are usually chosen on the lower portion of easterly facing hillsides in stands of mixed hardwood-conifer forests; in some cases nest sites may be chosen near old roadways, trails, stream beds or similar natural corridors; 3) nests are usually placed in a pine, either loblolly or short-leaf; nest height varies from 6-18 meters above gground; nests are usually lined with small pieces of pine bark or other vegetation; 4) egg laying begins in mid to late April and clutches are usually completed by mid-May; 3 or 4 eggs are usually laid; 5) eggs hatch in early to mid-June and young fledge in early to mid-July; 6) sibling groups may be observed in the nesting territory up to three weeks prior to individual dispersal; 7) a south to north progression in breeding activity is indicated for the eastern portion of the range of the Sharp-shinned Hawk based on nesting chronology of the species in the southeast.

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NESTING RECORDS FOR THE SHARP-SHINNED HAWK (ACCIPTER STRIATUS) IN ALABAMA

Bill Summerour

Sharp-shinned Hawks (Accipter striatus) have been recorded in summer over the entire state except Mobile and south Baldwin Counties (Imhof, 1976) and nest wherever they occur during the spring and summer months. They are apparently nowhere abundant in Alabama during the breeding season from March through July, ranging from uncommon to fairly common in areas of favorable habitat. The species is statewide during the non-breeding season and is most