

lineatus), Swainson's (*Buteo swainsoni*), and Broad-winged (*Buteo platypterus*) hawks, the Purple Martin (*Progne subis*), and the Starling (*Sturnus vulgaris*). The hawks (Bent, 1937. *U. S. Natl. Mus. Bull.*, 167:65, 151, 185-186, 223, 240) variously use green leaves as lining material, around the rim, or in the nest with the young. Purple Martins (Allen and Nice, 1952. *Amer. Midl. Nat.*, 47:622) often line a nest with green leaves and may continue depositing green leaves during egg-laying and incubation. Starlings (Kalmbach and Gabrielson, 1921. *U. S. Dept. Agri. Bull.*, 868:10; Laskey, personal communication) may use green leaves dispersed throughout the nest or as lining, or they may deposit them in a nest cavity before the nest is begun.—KATHERINE A. GOODPASTURE, 408 Fairfax Avenue, Nashville, Tennessee, January 13, 1952.

Notes on some songs of a Pine-woods Sparrow.—In April, 1950, in southwestern Georgia, we recorded on magnetic sound tape the recital of a Pine-woods Sparrow (*Aimophila aestivalis*) who displayed considerable variety in his songs. The bird occupied a portion of a three-acre tung grove which was surrounded mainly by pine forest. He appeared to have several singing stations; one was in a tung tree near the edge of the grove, and there we placed our microphone while we sat by the recorder, some 300 feet away. The bird's activities were as variable as his songs; he did not consistently use the same twig in our tree as a song-perch. Sometimes he sang only three or four times before flitting away; sometimes he sang a dozen or more times. Each song lasted about 2½ seconds, with about 12 seconds' pause between songs. We recorded on several successive mornings, between 6:30 and 8 a.m. for a total of about 15 minutes' singing time, although much of the recording was marred in various ways.

In general structure, the songs usually consisted of a single long note, followed by five to nine notes uttered rapidly—almost a trill, the two parts of the songs being about equal in length. Rarely, the long opening note was omitted entirely. Our bird displayed surprising ability to produce different "song types" or "song patterns" each of which, however, maintained the major characteristics of the "family theme"; that is, every song could be recognized easily as belonging to a Pine-woods Sparrow. Although variations in the structure of the song were noted, his principal changes in the species song pattern were in the pitch of the two parts of the songs. The opening note sometimes was higher in pitch, occasionally of the same pitch, and sometimes of lower pitch than the second part. Sometimes the pitch of one portion of the song would differ but slightly from the pitch of the same portion of a preceding song. Usually the pitch of the opening note remained uniform; more rarely, the pitch of the opening note would change slightly; occasionally, this type of pitch change was displayed also in the second part of the song. The major changes in the structure of the songs usually occurred in the second part of the song, these including variations in the number of notes and their tempo; there was occasionally an apparent slurring or gliding in pitch, giving the impression of double notes.

In the great majority of our recordings, this bird repeated each song pattern twice before changing to another pattern. Occasionally he gave a song pattern only once, then changed to another pattern; more rarely, he gave a song pattern three times before changing to another pattern.

In clarity and sweetness, the recital was similar to that of the Field Sparrow (*Spizella pusilla*); however, the individual Field Sparrow usually confines himself to just one particular variation of his family "song pattern," whereas this Pine-woods Sparrow, in comparison, seemed capable of producing an almost endless variety of patterns.—JERRY AND NORMA STILLWELL, R.F.D. 2, Fayetteville, Arkansas, August 2, 1952.