Song Type Number	*Group*	*Transliteration*	*Number of times used*	
			Hugo	*Cimarron*
1	A	Cardinal-like *sweet*	15	8
2	A	Cardinal-like *cher-wheat*	4	3
3	A	Cardinal-like *weeta*	0	3
4	B	Chat-like *chug*	8	12
5	B	Chat-like *chut*	4	0
6	C	trills; low buzz	0	3
7	C	trills; Junco-like trill	1	4
8	C	trills; high, insect-like	7	9
9	D	single-note *toot*	12	10
10	D	single-note *churt*	1	9
11	D	single-note *chew*	0	1

With three exceptions, both birds began each song with Type 1 phrase. Seven of the 11 types (no. 1, 2, 4, 7, 8, 9, and 10) were used by both birds. Type 5 was used only by the Hugo bird; and Types 3, 6, and 11 were used only by the Cimarron bird. Type 4 was used eight times by the Cimarron bird as the second phrase in his songs; and Type 9 was used eight times by the Hugo bird as the second phrase in his songs.

A typical song of the Hugo Lark Bunting might be written: *sweet, sweet, sweet, sweet, sweet, sweet; toot, toot, toot, toot, toot, toot; chug, chug, chug; tr-r-r-r-r-r-r.*

A typical song of the Cimarron bird would be: *sweet, sweet, sweet, sweet, sweet; chug, chug, chug, chug; tr-r-r-r-r-r-r; toot, toot, toot, toot, toot; buz-z-z-z-z; churt, churt, churt.* —JERRY E. STILLWELL AND NORMA J. STILLWELL, *RFD #2, Fayetteville, Arkansas, December 11, 1954.*

Food-storing in the Sparrow Hawk.— The habit of food-storing in shrikes (*Lanius*) is well known and has obvious survival value. Sparrow Hawks (*Falco sparverius*) might be expected to benefit similarly from such a habit. The observations reported here indicate that food-storing is practiced by at least some Sparrow Hawks.

In February, 1949, I trapped a male Sparrow Hawk near Ann Arbor, Michigan. I kept this bird captive for six weeks, during which it became rather tame. On several occasions this bird stored excess food (usually beef heart) after it had eaten its fill. A typical incident was as follows: After feeding to repletion while on its perch in the living room, the bird flew to the kitchen with the remaining food in its talons. Here the hawk perched on a rod supporting some curtains and then, with actions which can best be described as furtive, placed the meat in the narrow space between the curtain and the wall. The hawk then flew back to its perch in the living room where I tethered it. The place in which the meat had been stored (and later removed by me) was not in sight of the hawk's perch. Twenty-four hours later I again released the falcon, having not fed it in the interim. It flew immediately to the curtain rod in the kitchen where it quite obviously searched for the meat, craning its neck and peering down behind the curtain. Pierce (1937. *Condor*, 39:140) has also reported storage of excess food by a captive Sparrow Hawk.

The behavior of the captive bird convinced me that wild Sparrow Hawks might store food, but proof of this was not obtained until recently. On January 8, 1955, David L. Hardy and I were trying to trap a male Sparrow Hawk near Lawrence, Douglas County, Kansas. This bird was hunting from a high tension line which crossed a 200-acre field

devoid of trees. From our car some 300 yards away, we saw the Sparrow Hawk fly to the ground approximately 90 feet north of the high tension line. The hawk remained on the ground for 10 to 15 seconds and then returned to its original perch on the wire with a mouse in its talons. It remained on the wire for half a minute, made no effort to eat the mouse, and then flew to the ground again near the point of capture of the mouse. The hawk hopped around for a few seconds and then flew up and hovered, first at approximately 30 feet and then at 70 feet, over the same spot on the ground. Returning to the high tension wire without the mouse, the hawk perched for 10 minutes. It then flew north again, hovered for 15 to 20 seconds over the spot, and finally flew 600 yards northeast where it perched in a tree.

We went into the field and after some searching found the warm, freshly-killed carcass of a male deer mouse (*Peromyscus maniculatus*) 84 feet north of the high tension line. The mouse was on the ground, belly down, tucked between coarse stems of a large clump of grass (*Panicum capillare*). There was no external evidence of injury although the mouse had the back of its skull crushed. The part of the field in which the mouse was captured and hidden had been planted with soybeans. Harvesting of the soybeans left a large amount of ground litter but little standing vegetation. The mouse was hidden in one of the most conspicuous clumps of grass. One interesting aspect of the hawk's behavior was the hovering over the spot where the mouse was stored. Possibly the hawk was memorizing the exact spot to make it easier to find the mouse when necessary.

On January 26, 1955, near Lawrence, Hardy and I saw a female Sparrow Hawk kill and store a male *Microtus ochrogaster* (weight, 15 grams; estimated age, three weeks). The hawk flew to the ground in two places before finally storing the mouse belly down, eight inches off the ground, in the top of a thick clump of a green grass, *Bromus inermis*. The storage site was almost 100 feet from the point of capture. The elapsed time from capture of the mouse until storage was approximately 45 seconds. The female falcon hovered over the hidden mouse after storing it, as did the male mentioned above.

The fact that the captive Sparrow Hawk mentioned earlier stored its food in an elevated place suggests that trees also might be used as storage places. If storage of surplus food is regularly practiced by Sparrow Hawks, the adverse effect on the birds of prolonged winter storms would be greatly reduced.—HARRISON B. TORDOFF, *Museum of Natural History, University of Kansas, Lawrence, Kansas, January 28, 1955.*

Size of home range in eight bird species in a southern Illinois swamp-thicket.— During the summer of 1950, William Hardy and the writer studied the ecology of a 13-acre tract of swamp and thicket in Jackson County, about one mile north of Murphysboro, Illinois. The study included a plot census of the breeding bird population (Brewer and Hardy, 1950. *Audubon Field Notes*, 4:303). By connecting successive points of observation as plotted on the study maps in such a way as to include the smallest possible area, it was possible to derive the minimum horizontal area utilized by many of the pairs of birds. Since plotted observations included all records of the occurrence of a pair and not merely records of actual or implied defense of a point (such as fights or scolding or singing birds), its seems better to designate the areas delimited in this manner as home ranges rather than as territories (Burt, 1943. *Jour. Mammalogy*, 24:346–352). There was evidence that in some cases the two areas were identical or nearly so.

The study tract consisted of three small ponds, each surrounded by a narrow zone of swamp dock (*Rumex verticillatus*) and mild water-pepper (*Polygonum hydropiperoides*)