to type as either S. *neglecta* or S. *magna*. My own field observations support Rohwer, and available audiospectrographic analyses offer additional credence to the rarity of intermediate song.

Credit is due to Raymond B. Goldstein, Creighton University, Omaha, Nebraska for his valuable assistance in all phases of this study. This work was conducted while the author was a student at the School of Life Sciences, University of Nebraska, Lincoln, Nebraska.

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NONRANDOM ORIENTATION OF ENTRANCE HOLES TO WOODPECKER NESTS IN ASPEN TREES

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Lawrence (1967) discussed the nonrandom orientation of nest entrance holes in Yellow-bellied Sapsuckers (*Sphyrapicus varius*), Common Flickers (*Colaptes auratus*), Hairy Woodpeckers (*Dendrocopos villosus*), and Downy Woodpeckers (*D. pubescens*) in central Ontario. She found that 43% of 89 nest openings faced eastward, 22% westward, 54% southward, and 10% northward. Other workers have found similar results (e.g., Pynnonen 1939 in Lawrence 1967, Blume 1961, and Dennis 1969). Dennis (1971) found that 73.5% of 362 nest entrance holes of Red-cockaded Woodpeckers (*Dendrocopos borealis*) in northeastern South Carolina faced westward and only 10% eastward. He suggested that the westerly orientation resulted from an attempt to expose resinous surfaces (resin diggings) near the opening to the longest periods possible of daylight sunshine and warmth. Presumably, this exposure would enhance the protective effect that Dennis had postulated. Two desert birds, the Cactus Wren (*Campylorhynchus brunneicapillus*) and the Verdin (*Auriparus flaviceps*), respond to seasonal changes in their thermal environment by changing the orientation of nest entrances. For the first brood in the spring, entrances of Cactus Wren nests face away from the cold winds; during the hot summer months, nest entrances are oriented toward the predominant afternoon breezes, which keep them from becoming too hot (Ricklefs and Hainsworth 1969). Austin (1974) discovered that the orientation of Verdin nests is important in fledging success. Nests oriented in the predominant direction for the season were more successful than those oriented in less commonly used directions. Nest orientation may be similarly important in the other species discussed above.

In the vicinity of the Rocky Mountain Biological Laboratory, Gothic, Colorado, Yellow-bellied Sapsuckers and Common Flickers excavate nest cavities in aspen trees. During the summer of 1973, I located 25 trees containing a total of 42 nests (36 sapsucker, 6 flicker). Twelve of these nests were active (10 sapsucker, 2 flicker) and the remainder were at least one year old. For each nest I recorded entrance-hole diameter, height of hole from the ground, diameter at breast height (dbh) of the tree containing the nest, and compass direction of the hole, measured to the nearest 5 degrees. Although winter roosting holes may have been included in the data, it appeared that all were nest holes. All but one were apparently completed nests; the exception was either a nest in construction or a "trial hole."

I found no significant difference in height of holes or in mean dbh of trees selected by the two species. Differences in sizes of entrance holes were used to identify which species constructed unoccupied nests. Entrance holes of sapsucker nests were usually about

TABLE 1. The number of nests and mean directions.

	No. of nests	Mean direction	s[a]	r[b]
All nests	42	186°	68.1°	0.2936
Sapsucker nests	36	170°	71.6°	0.2189
Flicker nests	6	182°	40.3°	0.7532
Sapsucker nests, west side of valley	3	52°	18.7°	0.9466
Sapsucker nests, east side of valley	33	175°	68.3°	0.2890

[a] "s" is a measure of dispersion, the mean angular deviation, calculated for a circular distribution. It has properties similar to the standard deviation (Batschelet 1965).

[b] "r" is another measure of dispersion, the concentration about the mean direction, from which "s" is calculated. Its values range from 0 to 1; the higher the concentration, the closer is "r" to the value 1 (Batschelet 1965).

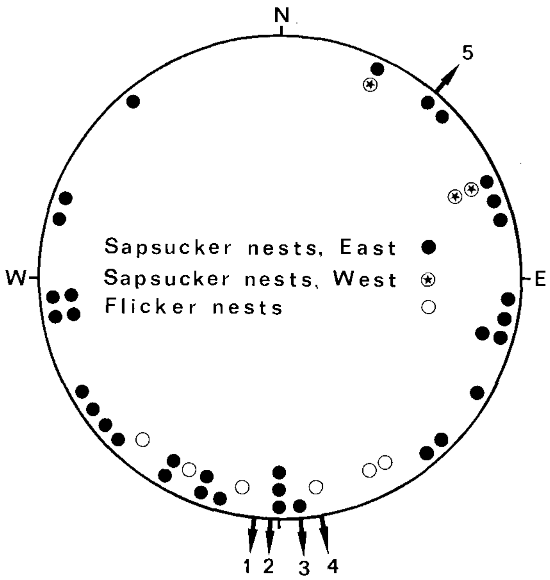

FIGURE 1. The circular distribution of nest entrance holes. Mean directions are indicated as follows. #1 = mean for all nests; #2 = mean for all flicker nests; #3 = mean for sapsucker nests on the east side of the valley; #4 = mean for sapsucker nests; #5 = mean for sapsucker nests on the west side of the valley.

3.5 cm in diameter, and did not exceed 4.0 cm. Those built by flickers were invariably 5 cm or larger in diameter.

Orientation of nest entrance holes was nonrandom (fig. 1). The mean orientation for all nests was close to due south (table 1). Because there was no prevailing wind in the study area, orientation was unlikely to correlate with wind direction, but may have been correlated with the position of the sun. The East River Valley runs principally north–south in the vicinity of Gothic. Thirty-nine of 42 nests were on the east side of the valley. The orientation of the three on the west side suggests that the mean orientation may have differed for nests from the east side of the valley and the west side (table 1). A tendency to nest along the edges of aspen forests or the edges of clearings also increased the amount of incident solar radiation.

By measuring temperatures inside the trunk of an aspen tree at an elevation of 9300 ft in Colorado, Derby and Gates (1966) determined that temperatures are significantly higher in the part of the tree facing the sun during daylight hours. The temperature difference between the two sides of the tree is as much as 12°C. Although these results were obtained before leaves emerged, enough difference might persist after the leaves grew to affect the thermal economy of adults and nestlings in hole-nesting species. The importance of direct solar radiation might also influence the choice of nest trees on the edges of forests. The benefit conferred upon incubating birds or nestlings by a nest that receives a maximum amount of sunlight through the entrance may thus be of some importance in their energy budgets.

Sapsuckers constructing a nest might also feed on the sap that flowed from around the hole. Sap flow would presumably be greatest on the warmer south side of a tree (Crafts and Crisp 1971, Canny 1973). Because insect food is presumably scarce early in the season when sapsuckers are beginning to build nests, sap may be an important source of food during the long task of nest construction.

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SHARP-SHINNED HAWK NESTING AND NEST SITE SELECTION IN UTAH

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During the breeding seasons of 1971 and 1972, I examined 27 nestings of Sharp-shinned Hawks (*Accipiter striatus*) in Utah. An additional 34 Utah nests have been described in the records of egg collectors and in published works (Johnson 1897, Osprey 1:150; Westbrook 1913, Oologist 30:66–67; Wolf 1928, Oologist Record 8:90–102; Behle et al. 1958, Univ. of Utah Biol. Ser. 11:1–92; Frost, pers. comm.).

The second-hand reports noted the kinds of trees used for the hawk nests. Of these, 44% were in coniferous trees (*Abies concolor, Juniperus scopulorum, Picea* sp., and *Pseudotsuga menziesii*), 21% in cottonwood trees (*Populus angustifolia*), 12% in maple trees (*Acer grandidentatum, A. glabrum*), 12% in oak trees (*Quercus gambelii*), and 12% in four other deciduous trees (*Acer negundo, Prunus virginiana,* var. *melanocarpa, Salix* sp. and "a bush").

I recorded data on community composition for the