The success rate of dives from hovers and interhovers under various weather regimes is shown in Fig. 1. Under all weather conditions combined, dives from hovers were 50% more successful than dives from interhovers, a significant difference ($p < .05$; $\chi^2 = 5.90$, $df = 1$).

A complete picture of the adaptiveness of hovering should account for the energetic cost of hovering *vis-à-vis* gliding flight. Unfortunately, I lack the information necessary for such a comparison. The size distributions of fish appeared similar under all weather regimes, whether caught from a hover or a glide. Thus, Ospreys which never dove from a hover would have to save approximately 50% of the energy expended by those diving from hovers to compensate for the hoverers' increased energy intake.

I thank G. H. Grubb and particularly W. M. Shields for field assistance, and K. Bildstein and W. M. Shields for commenting on an earlier draft.—Thomas C. Grubb, Jr., *Dept. of Zoology, Ohio State Univ., Columbus 43210.* *Accepted 13 Nov. 1975.*

Storage of piñon nuts by the Acorn Woodpecker in New Mexico.—The food habits of the Acorn Woodpecker (*Melanerpes formicivorus*) have attracted considerable attention (MacRoberts, Condor 72:196–204, 1970, and references therein). The most distinctive aspect of this behavior is the species' extensive dependence on stored mast. The nuts, generally acorns, are harvested by groups of birds in the fall, and placed in holes that are especially excavated for this purpose in dead trees, dead limbs of live trees, power poles, fence posts, etc. The stored mast is then communally used and defended from competitors by the groups during the rest of the year. However, most of the information about this and other aspects of the food habits of the Acorn Woodpecker has been obtained from studies of California populations. Relatively little is known about its behavior elsewhere.

As part of a study of the behavior and ecology of this species in the American Southwest, we periodically observed groups of Acorn Woodpeckers from December 1974 to August 1975 in Water Canyon, New Mexico. This canyon, located in the Magdalena Mountains near Socorro, contains riparian vegetation. Gambel's oak (*Quercus gambelii*) and the gray oak (*Q. grisea*) are present, and piñon-juniper (*Pinus edulis* and *Juniperus* spp.) forests are found along the sides of the canyon.

When our observations began, 7 out of the 10 groups of Acorn Woodpeckers which were studied held relatively large stores. Much of this mast consisted of acorns. However, in addition to acorns, we found that many piñon nuts also had been collected. When we examined a section of the storage tree of one of the groups in January, 84 out of 128 holes counted were found to contain piñon nuts, while 17 held acorns and 21 were empty. A recently fallen limb from the storage tree of another group had the remains of piñon nuts in 11 out of 33 holes, while the others were empty. In addition, during the winter and spring, woodpeckers often foraged among the piñon pines along the sides of the canyon, and birds consumed piñon nuts both on the storage trees and at "anvils" located among the pines. While the storage of acorns by southwestern populations of Acorn Woodpeckers has been reported by a number of authors (cf. Bent, U.S. Natl. Mus. Bull. 174, 1939), we know of no published reference to the use of piñon nuts by this species.

These observations suggest that piñon nuts, when available, form an important part of the diet of Acorn Woodpeckers in Water Canyon. California populations of the species have been observed to store other types of nuts besides acorns, including almonds, pecans, and walnuts obtained from orchards. However, according to Ritter (The California Woodpecker and I, Univ. of Calif. Press, Berkeley, 1938), the use of these nuts generally occurs

when acorns are in short supply. That this was probably not the case in Water Canyon is suggested by the fact that while piñon nuts were plentiful, the acorn crop also was good. The majority of the groups did not deplete their mast stores over the winter, and many acorns and piñon nuts remained in the storage trees through the summer.

Bock and Bock (Am. Nat. 108:694–698, 1974) recently proposed that the distribution and abundance of the Acorn Woodpecker are affected not only by the abundance of oaks within a habitat, but also by the oak species diversity present. Because there may be an occasional failure of the production of acorns in each oak species, fewer species in an area would increase the probability of a total acorn crop failure. The use of piñon nuts by the woodpeckers in Water Canyon would be significant since there are only 2 oak species present. If the storage and consumption of piñon nuts which we observed is common, it would suggest that the diet of the species in this area has been expanded to regularly include an additional resource. This in turn would increase both resource abundance and diversity, and if the Bocks' hypothesis is correct, would allow the population to both reach and maintain a higher size than would be possible with acorn storage alone.

We thank Carl Bock for his many helpful suggestions, and also Melisse Reichman, who assisted with the field work. L. Kilham and P. L. Stallcup gave valuable comments on the manuscript. Financial assistance was provided by the Chapman Fund of the American Museum of Natural History and the Kathy Lichty Fund of the University of Colorado.—PETER B. STACEY AND ROXANA JANSMA, *Dept. of Environmental, Population, and Organismic Biology, Univ. of Colorado, Boulder 80302.* *Accepted 8 Dec. 1975.*

Flocking and foraging in the Scarlet-rumped Tanager.—Efficiency in foraging may be an important factor in the evolution of bird flocks (Cody, Theor. Pop. Biol. 2: 142–158, 1971). In order to test this suggestion, it is desirable to have field data showing an association between flocking and foraging behaviors. This note reports data for these behaviors taken on the Scarlet-rumped Tanager (*Ramphocelus passerinii*) in Costa Rica.

Investigations were carried out during August, 1973 at the Tropical Science Center research station near Rincon on the Osa Peninsula in southwestern Costa Rica. Areas of forest edge along roadsides and river banks were searched for Scarlet-rumped Tanagers. The bushes and dense vegetation of these areas are the favored habitat of this tanager, and the close proximity of the forest provided opportunities to occasionally observe Scarlet-rumped Tanagers flocking with species of the forest interior. All observations were made between 05:30 and 11:30. Data were taken only on adult males as their striking plumage made them easier to follow than females.

It is important to differentiate between flocks and aggregations. A flock was defined as a multi-individual group of birds moving in an integrated fashion, i.e. birds moving together as a unit from place to place. An aggregation was a multi-individual group with individuals in close proximity to one another, but which did not move in an integrated manner. For each flock, data on 4 variables were taken: (1) group size—the total number of individuals in the flock. Groups with at least 2 species present were designated mixed-species flocks, groups with only Scarlet-rumped Tanagers were designated single-species flocks; (2) foraging rate—the number of feeding attempts in 15 sec intervals were counted. A feeding attempt was defined as a peck at fruit or insects. Use of an electronic timer and tape recorder allowed continuous observations. It was not possible to obtain an indication of success in these attempts; (3) foraging height—the height of the bird from the ground was estimated in categories of 5 m; (4) group move-