unknown) flew to the nestling and fed it. Again, the adult appeared to guide the young bird up the bole. At 4 m, the nestling stopped. The adult hitched up the bole a few meters in front of the nestling and then flew back down to it, calling all the while. After repeating this several times, without the nestling moving further, the adult flew off. Shortly thereafter, we placed the nestling back in the nest cavity. Both nestlings fledged a few days later.

The adult behavior may have served one of two functions. It is possible that the adults were attempting to guide the fallen nestling back to the cavity, suggesting the adults somehow sensed that it was too soon for normal fledging. Perhaps Red-cockaded Woodpecker nestlings falling from cavities occurs with enough frequency to have selected for such adult behavior. Alternatively, the adults may have been attempting to guide the young bird to cover in the crown of the tree. The use of various calls and motions is common parental behavior among birds and serves to encourage their young to follow them to safety. Unfortunately, the fallen nestling never reached cavity height.

Our observation of a male Red-cockaded Woodpecker feeding on pine logging slash is relatively unique. Red-cockaded Woodpeckers forage mainly on live pines, to a much lesser extent on pines that have died recently, and on hardwoods (Hooper and Lennartz, Auk 98: 321–324, 1981; Porter and Labisky, J. Wildl. Manage. 50:239–247, 1986). To our knowledge, there are very few reports in the literature of Red-cockaded Woodpeckers feeding on pine slash (Ligon, Auk 87:255–278, 1970; Hooper and Lennartz 1981). We have also observed Red-cockaded Woodpeckers foraging on windthrown pines on two occasions. If Red-cockaded Woodpeckers feed regularly on slash left during cuts made to treat southern pine beetle infestations, insecticides sprayed on slash during some treatments (Swain and Remion, USDA Agric. Handb. 575, 15 pp., 1981) could be harmful to the woodpeckers.

Acknowledgments.—We thank J. Walters, J. Jackson, and F. James for constructive comments on an earlier draft of this note.—RICHARD R. SCHAEFER, D. CRAIG RUDOLPH, AND RICHARD N. CONNER, *Wildlife Habitat and Silviculture Laboratory, Southern Forest Experiment Station, USDA Forest Service, Nacogdoches, Texas 75962.* *Received 5 Feb. 1991, accepted 1 April 1991.*

Wilson Bull., 103(3), 1991, pp. 515–517

Learned song variations in British Storm-Petrels?—The occurrence of dialects in the songs of Oscine songbirds is well known (e.g., Baker and Cunningham 1985) and usually is attributed to the prevalence of song learning among those species (Lemon 1975, Slater 1989). Vocal learning has been described in several other avian groups (e.g., Baptista and Schuchmann 1990, Sparling 1979) but not in the Procellariformes. It is, therefore, interesting that James (1985) has found geographical variation in calls of the Manx Shearwater (*Puffinus puffinus*) and also in the purring song that male British Storm-Petrels (*Hydrobates pelagicus*) produce in their nesting crevices during the breeding season. This song or purr-call consists of a rapid trill of brief clicks (the purr), followed by a flourish of wide frequency band noise, known as the breath-note. The purr is rather over 1 sec in length, and the breath-note lasts about 0.25 sec; a series of songs is produced in quick succession with only 0.01–0.03 sec between them. James found significant differences among four sites in the click rate within the purr, in breath-note length, and in the gap between songs. The most marked differences were between birds recorded on Puffin Island, S.W. Ireland, and Mousa in the Shetland Islands, N. of Scotland, two sites some 1100 km apart.

If these geographical variations stem from learning, we might also expect to find microgeographic variation in the song, as is usual in Oscines. For example, territorial songbirds often learn from their neighbors so that birds on adjacent territories have songs more similar than those farther apart (see Slater 1989 for a review). Features of song might also change with time. James (1985) found various aspects of Manx Shearwater calls to change in this way, but he could find no evidence for microgeographic variation in that species. Here I report on the results of recordings aimed at examining whether local differences in song could be found in storm-petrels and whether there is evidence for temporal variation.

The results are based on recordings of 37 individuals made on Mousa during August 1986. Recordings were made at 19 cm/sec with a Nagra IV-S tape recorder, between 23:00 and 01:00 h BST, the time when most song occurs. The microphone used was that of a QMC ultrasound detector as another aim of the research was to test whether petrels echolocate (Ranft and Slater 1987). Subsequent analysis was carried out using a Kay Digital Sonagraph 7800 with wide band setting, using one sonagram from each individual. Cadence (time from start of one song to start of next), breath-note length, and click rate within the purr were the main measures taken from these. Purr rate slowed during the song in all 37 birds. To allow for this, the measure used was the mean of that for a 0.5-sec period at the start and another just before the breath-note. The petrels recorded were nesting in dry stone walls so that their positions were arrayed along a single dimension and could be simply ranked in relation to each other. Two walls were examined, with recordings of 19 birds in one and 18 in the other. The sites were 550 m apart.

Click rate did not vary much among the birds (coefficient of variation [CV] = 5.3%), but the other measures varied more substantially (e.g., cadence, CV = 14.2%; breath-note length, CV = 12.6%; purr length, CV = 15.5%). Click rate did not correlate with purr length ($r = -0.096$), but the length of the purr and that of the breath-note were strongly correlated ($r = 0.581$, $P < 0.001$), showing that long songs tend to be long in both their main components. However, no evidence was found for any systematic variation in song within Mousa for any of the three measurements. There was no difference between the two sites on any of them (Mann-Whitney *U*-tests, $P > 0.10$), nor did birds with similar values nest closer together ($P > 0.05$). This was tested by scoring the value for each bird as being either above or below the median of all measurements and carrying out a runs test (Siegel 1956) to see whether high and low values tended to occur in series. While the breath-note of most birds had no clear structure, in 13 individuals there was a brief tonal section at its onset. Again a runs test was used to see if there was any evidence that these were clustered, but no significant effect was found ($P = 0.15$). Thus, although there was considerable variation among the birds, there was no suggestion that this was other than random in distribution.

These results have failed to find any microgeographic variation in storm-petrel song such as might be expected if song were learned from neighbors. It remains possible that it is learned before birds settle to nest and that they do so at random in relation to the songs of those round about them, an explanation also proposed by James for the lack of microgeographic variation in Manx Shearwater calls. On the other hand, as the storm-petrel sites examined by James (1985) are very distant from each other, another possible explanation for his results on this species is that the populations involved are almost totally isolated from each other so that the geographical differences have arisen without the involvement of learning. In Northern Bobwhite (*Colinus virginianus*), differences in the separation call sufficient to allow recognition of covey mates have arisen without the involvement of learning (Baker and Bailey 1987).

Changes in calls with time, such as James (1985) found in Manx Shearwaters, are also most likely to arise through vocal learning. A comparison with his data, collected in 1983, suggests that such changes may occur in storm-petrel calls as well. The mean purr rate found here was 8% lower than he reported for Mousa (38.1 vs 41.3 elements/sec: 2/35 birds recorded here showed higher rate than the latter mean, sign test $P < 0.001$), while mean song length was much higher (1.51 vs 1.31 sec: 8/35 lower, $P < 0.002$), as were breath-note length (0.24 vs 0.20 sec: 0/35 lower, $P < 0.001$) and the gap between songs (0.03 vs 0.01 sec: 2/35 lower, $P < 0.001$). My results are closer to those at his other sites than are those from his Mousa recordings on the measures that he found significantly different.

These results suggest that storm-petrel song does change with time, but it is necessary to be cautious. Such substantial changes over only three years seem unlikely and it is possible that they are accounted for by differences in equipment. The recordings from Mousa that James used for his analysis were made with much less sophisticated equipment than that used here and that which he used elsewhere. Very slight differences between recording and playback speeds on such equipment could lead to significant differences from other results. Thus the extent to which petrel songs show temporal variation must remain an open question, but it is certainly one which deserves further investigation. Geographic variation certainly does exist in storm-petrels, as James (in litt.) found significant differences among his other three sites, at all of which the same equipment was used for recording. The results reported here suggest that, as with Manx Shearwaters, this variation is not accompanied by micro-geographic differences within the breeding population.

Acknowledgments.—I am grateful to the Carnegie Trust for the Universities of Scotland for financial support and to D. Roche for help with sonagramming. Useful comments on the manuscript were provided by J. Graves, L. Baptista, an anonymous referee, and especially by P. James.

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P. J. B. SLATER, *Dept. Biology and Preclinical Medicine, Bute Building, The Univ., St. Andrews, Fife KY16 9TS, U.K.* *Received 8 Nov. 1990, accepted 1 Mar. 1991.*