tus; in both these cases long fibers are scarce. The pulling behavior is very similar to that shown by recently fledged birds that grip and pull back the paper lining of a cage floor but in that context the lateral component is absent.

The overall frequency of sweeping plus pulling varies among birds by a factor of $\times 5$. The relative frequency of pulling (out of the 2 foraging behaviors combined) varies among birds from 0 to 35% due to different frequencies of foraging in different substrates and to differences in behavior on a single substrate. These data are distributed rather erratically among birds and substrates so that an overall formal analysis is not possible.

The sweeping behavior of Song Thrushes in aviaries seems similar to that of the species in the wild and to that of the closely related European Blackbird. Thus Snow (A Study of Blackbirds, George Allen and Unwin, London, 1958) writes of *Turdus merula*: "as the bill comes down to flick, . . . , one foot comes forward to the level of the head and scratches vigorously backward." I have also observed this species pick up and throw aside individual leaves of Sycamore (*Acer pseudoplatanus*) which besides being large had become sodden and heavy. It would be interesting to examine other species of *Turdus* to determine if they share the range of foraging behaviors reported here and whether species of different body size use different behaviors in the same substrate.

In my aviary situation Song Thrushes found most of their food without sweeping and pulling and in many observation sessions these behaviors did not occur. Inspection of my original notes suggests that, when they did occur, sweeping and pulling could not be correlated with any change in environmental stimuli or placed at particular times in a sequence of hunting and resting. It is possible that field observations would reveal a more systematic organization of foraging and a lesser degree of individual variation. It would be of interest to examine in controlled operant situations how the frequency of these natural patterns of foraging behavior could be influenced by making the discovery of food more or less contingent on performance.

These observations were made during the course of work for a D. Phil. supervised by Professor N. Tinbergen and using the facilities of the Department of Zoology, University of Oxford, by permission of Professor Sir A. C. Hardy.—C. J. HENTY, *Dept. of Psychology, Univ. of Stirling, Stirling, Scotland. Accepted 18 July 1975.*

A late nesting attempt by Clark's Nutcracker.—On 1 June 1974 I observed a pair of Clark's Nutcrackers (*Nucifraga columbiana*) during an early stage of nest construction. The nest platform had patches of sky showing through and resembled the first-day structure described by Mewaldt (Condor 58:3–23, 1956). Placed approximately two-thirds up in a 20 m lodgepole pine (*Pinus murrayana*), the nest was located on an east-facing slope above Tioga Lake, elevation 2970 m, latitude 38°, in Inyo National Forest, Mono Co., California.

Between 12:40 and 13:30, the birds made 9 trips to the nest. Twigs were brought and set in place on 3 visits. Forty-five min after the last nest visit both nutcrackers returned to the vicinity of the nesting tree, one bird landing near the nest and the other perching in an adjacent lodgepole pine, each giving the soft, "musical" nesting call described by Mewaldt (1956). Although the intensity of nest-building activity did not match the rate observed by Mewaldt (1956) of one trip with nesting material per bird every 3 or 4 min, the use of territorial perches and nesting calls followed his description.

I observed the nest again on 20 June, 12:00, at which time the structure was a complete bowl with no holes in the bottom. After two hours of observation, there were no signs of an incubating nutcracker on the nest, nor were any nutcrackers seen in the vicinity. Again on 26 June, I saw no nutcrackers; and, I assume the nesting attempt was aborted.

Nutcracker nesting and egg dates from the literature—adjusted using Mewaldt's breeding chronology data (1956)—indicate that from British Columbia to California first-day nest construction dates range from 1 February to 18 May. Although the available nesting records support the premise that the nutcracker is an early nesting strategist, I suggest here that in some years nesting continues later into the season in response to local conditions. The onset and duration of the nesting season for this species probably varies regionally and from year to year. Local factors such as weather conditions and cone crop production the previous fall are probably the ultimate controls of nutcracker nesting.

I am grateful to Stephen I. Rothstein and L. Richard Mewaldt for reading the manuscript critically. Field work was supported by a Sigma Xi Grant-in-aid of Research.—DIANA F. TOMBACK, *Dept. of Biological Sciences, Univ. of California, Santa Barbara, 93106.* *Accepted 18 July 1975.*

Lek behavior of the Buff-breasted Sandpiper.—In the early part of June 1972 we observed a lek-like mating system of Buff-breasted Sandpipers (*Tryngites subruficollis*) at the Firth River, Yukon Territory (69° 23′ N, 139° 25′ W). Our observations were opportunistic, as time from other work permitted. While incomplete, they substantiate the developing picture of *Tryngites*' social behavior and add new details.

Study area and methods.—Most observations were made in an area approximately 3 km^2 adjacent to the Firth River and about 15 km from the coast of the Beaufort Sea. The topography was rolling tundra. Habitat varied from low marshy areas with many small ponds to higher drier slopes and knolls. During the display period Buff-breasts were found mainly in the better drained locations. Closely-spaced sedge tussocks approximately 20 cm high and 25 to 50 cm in diameter characterized these areas.

Although male Buff-breasts are larger than females (Oring, Auk 81:83–86, 1964), the sexes are not always evident in the field (cf. Pitelka et al., Am. Zool. 14:183–202, 1974). We called birds engaging in active wing-lifting display, males, and those that did not display in this manner, females. That this is not always correct is indicated by observations of females displaying while on migration (Oring, 1964) and occasionally on the breeding ground (R. T. Holmes, pers. comm.).

Breeding chronology.—We noted the first displaying Buff-breasted Sandpipers on 1 June, although display could have begun 1 or 2 days earlier when observers were absent from the area. On 3 June birds were displaying actively but by 7 June display had nearly ceased.

Males apparently left the breeding area soon after the courtship period. There was a marked decline in sightings of Buff-breasts after 7 June when display was last noted. Virtually all sightings after 7 June were of single birds, and few were observed on the display grounds. Those seen were usually in wetter, marshy areas and may have been birds away from nests.

We discovered the first of 8 nests on 10 June. All nests were on fairly dry slopes with numerous sedge tussocks; they appeared to be well scattered over suitable habitat. As Pitelka et al. (1974) and Parmelee et al. (Bull. Natl. Mus. Canada 222:1–229, 1967) also noted, there was no tendency for nests to be concentrated near display grounds. Each time an incubating bird flushed it flew off silently. We never saw 2 Buff-breasts in the vicinity of a nest. The presence of just one adult at nests and with broods (found to be a female in the 3 cases that the adult was collected) led Sutton (Arctic 20:3–7, 1967) to conclude that Buff-breasted Sandpipers were probably polygamous and that males deserted the females on termination of egg-laying. Bailey (Birds of Arctic Alaska. Colorado Mus. Nat. Hist., Popular Series No. 8, 1948) had previously reported that male Buff-breasts