

Displays of the Buff-breasted Sandpiper at Norman, Oklahoma.—The Buff-breasted Sandpiper (*Tryngites subruficollis*) is one of the least known and least frequently observed of North American shorebirds. Since Rowan's (*Brit. Birds*, 20: 190–192, 1927) observations from Edmonton, Alberta, little has been reported on the species, and I have found no published account of its displaying south of Edmonton. Milton B. Trautman (quoted by Hall and Clement, 1960, *A gathering of shorebirds*) observed large spring flocks along the Texas coast but saw no display. Since the birds display actively at Norman, Oklahoma, it appears likely that courtship activity begins soon after the birds move inland from Texas and continues during the journey to the arctic. Observations by Robert W. Storer (letter) of displays (1A, 2C, and 2D described beyond) at Lower Souris National Wildlife Refuge, North Dakota, support this hypothesis.

The Buff-breasted Sandpiper is a regular spring and fall transient at the small farm pond which backs onto the municipal airport runway at Norman, Oklahoma. Since my visits to the pond have been made mainly in spring, this paper is primarily concerned with that season. In 1961, 107 individuals were observed on 15 days from 23 April to 1 June. The number seen per day varied from 1 to 20 and no peak of migration was apparent. The pond was visited mainly in early morning and late evening. In 1962, 590 birds were seen on 17 days from 22 April to 26 May. Because I took care to note crippled birds, flock size, flock movement, and banded some birds, I think that little if any duplication occurred in the count. Daily counts varied from 1 to 215, and up to 140 birds were seen at once. The peak of the spring migration was 9–12 May when approximately 470 birds were seen. Observations in 1962 were made mainly during midmorning and midafternoon. I think that the change in time of observations was responsible for the marked increase in the number of birds seen in 1962 since very few were recorded before 1000 hours and after 1700.

Males are sufficiently larger than females so that the sexes can usually be distinguished in the field, at least at very close range. According to my observations of size and behavioral characteristics, as well as the collection of specimens, flocks in April and early May contained a preponderance of males, while those after mid-May often were composed solely of females.

Most birds arrived between 1100 and 1600 and remained from a few minutes to several hours. They usually came to the pond from fields to the northeast and northwest. Occasionally, while circling the pond, a few birds left the flock and darted up and down in amazing aerial evolutions. Nearly all birds landed along the south side of the pond, facing the prevailing strong southerly wind. They were very tame, usually not flying even when I shot one. When other shorebirds approached, they usually became aggressive. Wilson's Phalaropes (*Steganopus tricolor*) and Pectoral Sandpipers (*Erolia melanotos*) were generally the only shorebirds that were tolerated. Buff-breasted Sandpipers appeared to bathe more and feed less than any other shorebirds at the pond. The feeding that did take place was usually on the dry runway rather than at the margin of the pond.

Displays began a few moments after a flock alighted at the pond and continued intermittently until it left. Between feeding and display periods the birds rested on their tarsi. When one bird of a resting flock stood up it was only a few seconds until the entire flock was again feeding and displaying. Often a feeding or displaying bird stopped what it was doing, cocked its head sideways, and peered skyward. At other times, birds slowly opened and closed their bills almost as if they were catching insects in slow motion. A few times when only one Buff-breasted Sandpiper was at the pond, displays were observed. Males frequently displayed while no females were

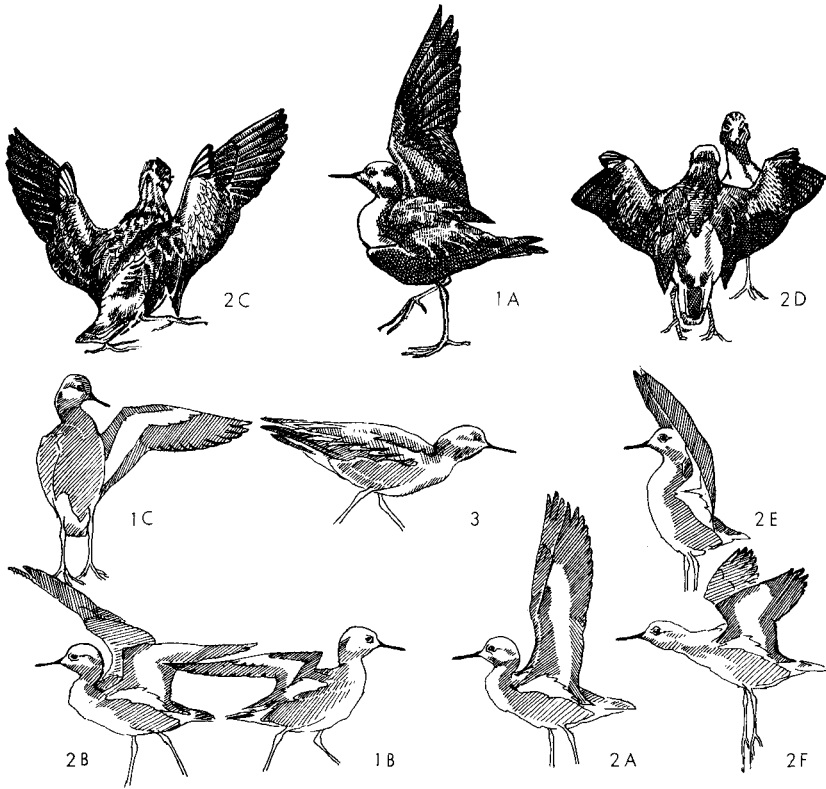


Figure 1. Displays of the Buff-breasted Sandpiper. Drawings by Peter Ward after photographs by the author. See text for definitions.

near. Contrary to Rowan's findings in Alberta, females did at times show interest in displaying males. Females were known to give only displays 1A, 2F, and 3 (see below).

Displays, while more frequent on the asphalt, were occasionally given by birds in water up to their bellies. This is of particular interest, since the species normally prefers dry areas.

On 10 May 1962, I saw several hundred displays among about 50 birds and in every case the birds had their backs to the wind. Displaying birds frequently lost their balance, probably because of their outstretched wings being struck by the 25-35 mph wind.

Displays.—Nine of the ten displays here defined involve one wing or both wings (Figure 1). One-wing displays are here indicated by "1," two-wing displays by "2," and the nonwing display by "3." Four, possibly five, displays included here have not been described in the literature. Two additional displays (B and F) described by Rowan (*op. cit.*) were not observed and are therefore omitted.

1A (Rowan's display D). One wing is raised directly overhead so that the outer primaries are perpendicular to the ground and the lining is fully exposed. The body

and tail are parallel to the ground and the neck is not extended. The unraised wing is lowered nearly beneath the bird and the bird leans toward the "non-display" side. All this causes one leg to appear shorter than the other. This display is shown briefly while the bird is either chasing another male, running by itself, or standing still. (If, for example, one male closely approaches another, the latter usually charges the intruder with head extended forward. The intruder then either turns and runs, or faces the charging bird. If he stands still, the attacking bird jumps into the air, striking the intruder with his wings or raises one wing in position 1A and pursues him. If pursuit occurs, the intruder may also raise a wing. If either bird drops his wing, the other follows suit and the chase is ended. The wing lining of a bird giving this aggressive display to another bird may or may not face that bird. If a male in this posture is able to gain a position in front of a female, he immediately goes into display 2D. Occasionally a bird repeatedly raises and lowers a wing, alternately lifts one and then both wings, 2A, above the head, or raises a wing that is slightly bent at the wrist.) Twice lone females were seen giving this display and on both occasions the display was apparently elicited by the sound of a movie camera.

Display 1A has also been observed once in the fall. At 1720 hours, 31 August 1962, W. Marvin Davis (pers. comm.) saw a single bird standing near a clump of grass 10 yards from the airport pond. As his car approached from the bird's left, it ran off with its right wing raised overhead for 35-40 seconds. This bird soon left the pond. Although Davis has seen considerable numbers of Buff-breasted Sandpipers here in August and September, including at least three small flocks on 31 August 1962, this is the only fall display he has seen.

By far the most common one-wing display at Normy was 1A, but it was still not as common as either 2C or 2D.

1B (Rowan's display C?). Either wing is held out from the body, nearly parallel to the ground, for a short time. The position of the body is similar to that in 1A, but the head is lower. 1B is also given while chasing approaching males or running about. The posture may correspond to Rowan's C (*op. cit.*): "the wing is spread while the bird runs around in circles." I have not seen a bird circling while giving display 1B.

1C (Rowan's display A). One wing is held away from the body, the outermost primary parallel to the ground, and the leading edge of the wing raised to a position almost directly above the trailing edge, thus exposing the wing lining anteriorly. The head is slightly raised and the back slants downward at an angle about 30° from the horizontal. This display is given for a few seconds before the wing is either lowered or the other wing raised, as in 2C. Rowan's figure 15 showed this position well.

2A (Not described by Rowan). Both wings are raised simultaneously overhead in the way that one wing is raised in 1A. A bird in this position may lower both wings at once or one at a time. I have only once seen a bird chase another bird while in this attitude, although the display appears to function in warding off other males.

2B (Rowan's display E). Both wings are held out from the body like the single wing in 1B, thus presenting an appearance similar to that of a bird alighting. This posture is occasionally used in chasing nearby males.

2C (Not described by Rowan). Both wings are raised just above head level, the leading edge above the trailing edge, the alula widely separated from the wrist, and the outermost primary pointing upward at about 40°. The wings are curved slightly forward, revealing the wing linings anteriorly. Males in this position stand nearly erect and usually look straight ahead. The attitude is assumed only when a male is alone. Occasionally such a male stands with his body perpendicular to the ground,

points his head straight up, and quivers all over. If a female approaches, the male immediately goes into display 2D. Höhn (*Auk*, 74: 213–214, 1957) recorded only this display on Banks Island. The birds he saw were silent, solitary, and had their backs to the wind as did those I observed in Oklahoma.

2D (Rowan's display G). Although this display is somewhat similar to 2C, certain differences are evident: (1) the wings are held lower and the outer primaries point downward slightly; (2) sharp notes (here rendered as *tick*) are frequently uttered; (3) the alula is more obvious, being nearly perpendicular to the last primary; and (4) the displaying bird is often on "tip-toes." Pointing the head straight up and quivering the body are much more common motions in this display than in 2C. The posture has various degrees of intensity, involving changes in the position of the head and legs. At the height of the display a bird is on "tip-toes," has its bill pointing nearly straight up, *ticks* two or three times per second, and shakes its entire body so that its wings move up and down vertically as much as an inch. At times the wings of a displaying male surround the nearest female. Once a bird in this posture rapidly circumscribed circles with its wings.

This display is nearly always preceded by 2C and is only given by males near females. I have observed displays by one, two, or three males to a single female and by one male to two females. In such group displays the birds are often so crowded that their wings touch. If a male is displaying to two females and one leaves, he turns to face the remaining one. Females respond to the display by (1) facing a male while standing on "tip-toes," back perpendicular to the ground, wings folded against the body (occasionally rubbing bills with him), or (2) by walking away. Displays 2C and 2D were by far the most common at Norman.

2E (Rowan's display H). Both wings are raised overhead and turned so that the wing linings face forward. The body is vertical, the tail horizontal, and the bird is sometimes on "tip-toes." This display was performed in silence by a solitary bird and was observed only on one occasion. Rowan considered this the most characteristic display at Edmonton and included a photograph in his figure 15.

2F (Not described by Rowan). One bird flutters silently over another, its legs dangling in air. The displaying bird usually takes off from one side of the bird to which it is displaying, and lands on the other side. This display is most common in large flocks of females.

3 (Not described by Rowan). Two birds face each other, their bills pointed forward, and their backs and tails parallel to the ground. Both birds alternately charge one another and then retreat. A chattering sound accompanies this display.

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American Widgeon and Shoveler breeding in Vermont.—Following development of the 2,000-acre (809.4 hectares) Dead Creek Waterfowl Area in Addison County, west-central Vermont, during 1953–56, small migrant flocks of American Widgeons (*Mareca americana*) began stopping there in fall. In the springs of 1960–62, one to two pairs of widgeons were known to be present on one particular impoundment well into each breeding season. Later on, only a lone male was observed loafing on a specific mudflat, suggesting the possibility of a nesting attempt in the