

sticks and decayed woody material from the old nest. Fresh sphagnum moss (*Sphagnum* spp.) was then placed on top of the entire structure to prevent rain from washing away the woody material. This moss is commonly found in Bald Eagle nests in Minnesota.

The eaglets were fed small minnows (*Chrosomus* spp.) and pieces of yellow perch (*Perca flavescens*) periodically until they were placed in the artificial nest at 08:15 on 28 June.

The female parent had flown over the nesting area on 25 and 26 June, but neither the female nor the male roosted in the area of the fallen nest at night. At 10:38 on 28 June the female flew by the nesting area out of sight of the nest and gave a series of calls. At 12:15 the male parent flew directly over the nest and showed no change in attitude or in normal flight. At 15:30 the female parent flew over the nest and gave a long series of calls while circling the area nine times then left. The male was observed stretching his wings and preening while on an alternate nest 350 m north of the artificial nest. He showed no interest in breeding activities. At 21:00 (20 minutes before sunset) the female returned to a favored perch near the artificial nest and was harassed by a Broad-winged Hawk (*Buteo platypterus*). She issued a continuous series of calls for 20 minutes and flew seven circle flights. At 21:25 she flew to the nest tree, perched on top of it, and peered down at the nestlings. She then dropped gently to the artificial nest and exchanged a series of soft calls with the young.

A thunder storm occurred the night of 28 June. On 29 June both young were present with bulging crops, fresh bullheads (*Ictalurus* spp.) and ciscos (*Coregonus* sp.) were in the nest, and both parents flew circle flights around the nest for the entire period that the senior author was present at the nest. Activity at the nest was observed on 29 and 30 June and parents brought food regularly. To our knowledge this is the first time that an experiment such as this has been recorded in the literature for this species.

Both birds successfully fledged from the nest and were seen flying in the vicinity of the nest during the month of October.

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Territorial conflict in the American Woodcock.—I reported in-flight, physical contact between two male American Woodcocks (*Philohela minor*) (in Sheldon, *The book of the American Woodcock*: 52, 1967). I believe that this was the first report of in-flight contact in this species although "tilting" has been reported in the European Woodcock (*Scolopax rusticola*) (Slater, *British birds with their nests and eggs*, V:106, 1898). This note presents additional details of the observation.

On 30 April 1961 I observed the courtship activities of two woodcock which had established singing grounds within 300 feet of each other in abandoned fields in Leverett, Franklin County, Massachusetts. The two males were displaying in an irregular sequence and the flights frequently overlapped in time. At 19:30 bird "B", whose ascending flight spirals had been gradually shifting on successive flights, flew directly over the spot where bird "A" had just plummeted to the ground. "A" flew without a pause after landing and ascended silently and nearly vertically (instead of in its normal gradual southerly flight route) to intercept the "B" bird. Physical

contact took place at an estimated height of 75 feet. The birds ascended perhaps another 25 to 50 feet while fluttering breast to breast. They then locked together and fell 50 to 75 feet before breaking apart. One bird flew off in straight level flight in a north-northwesterly direction, closely pursued by the other bird until they were lost in the deepening dusk. The entire encounter lasted only thirty seconds. Civil twilight ended at about 19:33; this coupled with a clear sky and rise of a full moon at 18:46 provided a good background against which the performing birds were clearly silhouetted.

After about five minutes a bird, that I believe to have been one of the original two birds, returned from the exact direction of departure and "peented" from the singing ground of bird "A." After its next flight it "peented" from the singing ground of the "B" bird. It continued to use these two grounds alternately. This alternate use, by a single bird, of both singing grounds continued for the next two evenings. For the remainder of the season only the singing ground of the "A" bird was utilized while that of the "B" bird remained untenanted. All elements of the performance except the in-flight contact have been described by others, although not in the complete sequence that I observed (Pettingill, *The American Woodcock, Philohela minor* (Gmelin): 287-291, 304, 1936; Pitelka, *Wilson Bull.*, 55:100, 105, 107-109, 113, 1943; Sheldon, *op. cit.*: 44, 62).

I use the term dual flight to describe the synchronized or responsive flight of two woodcock in close proximity in contrast to the normal courtship flight of the male when performed by two birds simultaneously (Bent, *U. S. Natl. Mus. Bull.*, 142:64, 1927) and the flight described by Forbush (*Birds of Massachusetts and other New England States*, I:388, 1925) which probably involved a female. Dual flight has been reported in the American Woodcock by Brooks (*Auk*, 52:307, 1935) the Speirs (Pitelka, *op. cit.*: 105) and perhaps best described by Bagg and Eliot (*Birds of the Connecticut Valley in Massachusetts*, 208, 1937). Pitelka (*loc. cit.*) has suggested that "double" flight is due to the accidental simultaneous initiation of song flight by two males. Dual flight in the European Woodcock has been reported by Bannerman (*The birds of the British Isles*, 9:110, 1961); Warwick and van Someren (*Scottish Naturalist*, 222:170, 1936) who believe dual flights to be those of male and female although as Pitelka (*loc. cit.*) notes there seems to be no clear evidence on the sex of participating birds and Slater (*loc. cit.*) who reports that "tilting" of two, or even three, birds together has been ascribed to pairing activities but Slater considers it playfulness since he observed "tilting" up to the end of May. However, Sheldon (*op. cit.*, 164) says the European Woodcock has two peaks of singing activity one in April and early May and one in July.

More work needs to be done on the problem of territoriality in the woodcock, but I believe that dual flight, at least in the American Woodcock, occurs too infrequently to consider it a normal part of pairing activity and too frequently to consider it as the coincidental initiation of song-flight by two males. Furthermore, dual flight differs from normal song-flight and in my observation coincidental flight is ruled out. I suggest that in the American Woodcock dual flight represents a high intensity aggressive confrontation between two territorial male woodcock that may be followed on rare occasions by actual in-flight combat.

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