SOME FEATURES OF BREEDING AND MIGRATION OF WOODCOCK IN SOUTHWESTERN QUEBEC

By Richard A. Wishart

The American Woodcock (*Philohela minor*) is a common breeder and popular game bird in southwestern Quebec. Although Sheldon (1967) documented migration movements and timing of nesting for the species in southern and central parts of its breeding range, little data exist for more northern upland areas. It was not known how much later in the spring that birds arrived in these regions and if significant differences in life cycle occurred as a result of this. The major objectives of this study are to document the periods of spring and autumn migration, determine the migration route used, and record the chronology of woodcock courtship and nesting. Recently Wishart and Bider presented information about habitat preferences (1976) and nocturnal activity patterns (1977) of woodcock in Quebec, and the present paper is based on the same studies.

STUDY AREA

The 1.6-km^2 study area is located in the Laurentian Uplands of Terrebonne County, Quebec (46° 09′ N, 74° 29′ W) 40 km from the northern border of the St. Lawrence Lowlands and 74 km northwest of Montreal Island. This hilly, glaciated region, supporting a mixture of old fields, pastures, and forest, has been described by Wishart and Bider (1976).

METHODS

Woodcock singing ground surveys (Clark, 1970) were made on Montreal Island and on the study area during the spring of 1972. Between 25 April and 11 November population surveys were conducted in forested habitat used by woodcock during the day at the study area (Wishart and Bider, 1976). These surveys provided information about migration and population density.

Woodcock were trapped with mist nets (Sheldon, 1960) and by spot-lighting (Rieffenberger and Ferrigno, 1970) on fields they frequented at night, and with 25 cloverleaf traps (Martin and Clark, 1964) set in forested diurnal habitat. Birds were leg banded with numbered aluminum bands and color marked with numbered nape tags (Nelson, 1955). Weather conditions were monitored at a meteorological station at the study area.

RESULTS AND DISCUSSION

Spring Migration

Woodcock begin to leave their southeastern United States wintering grounds in February (Glasgow, 1958) and migration northward may be prolonged over several months. Forty years of data (1914-1953) recorded by L. McI. Terrill (E. McI. Terrill

pers. comm.) and an additional 20 years of records (between 1954-1977) from the Quebec Society for the Protection of Birds show that, on the average, the first woodcock is observed in the Montreal area by 30 March. The earliest sighting was 11 March 1977 during an abnormally mild spring.

In 1972, woodcock were first observed at Montreal on 29 March (D. Conlon, pers. comm.) with up to 30 cm of snow still on the ground in most places. Large concentrations of birds arrived there between 9-16 April and remained for several days. However, the first woodcock was not observed or heard courting at the study area until 20 April with snow still 60 cm deep, and it was not until 25 April that they were present in large numbers. At this time birds were concentrated on the few snow-free seepage areas and wind blown south facing slopes in the region.

The Laurentian Escarpment appears to present a delaying barrier to woodcock migration further north. There can be a lag of at least 23 days in woodcock arrival between the Montreal and Laurentian areas, a distance of only 74 km. The difference in climate between the two areas, due to elevation and topography, is probably responsible. Because woodcock are ground-foragers, they require some surface area devoid of frost and snow.

The Breeding Season

At the study area in 1972, the first woodcock courtship activity was heard on 20 April. On 1 May, a 5.8-km singing ground survey showed a density of 26 territorial males, indicating that the area provided excellent breeding habitat. In 1971, courtship continued until 10 June, but the following year activity began to wane by 20 May and ceased on 4 June after a period of 46 consecutive days of male displaying.

McI. Terrill (*in* Pettingill, 1936) recorded 6 April as the earliest date for woodcock nest initiation in the Montreal area, with the average being 28 April. The average date for first observing hatched young was 10 May. Limited data from the study area (one nest and one brood) indicate that nest initiation occurred soon after arrival in the last week of April and first hatching between 17-24 May.

Young birds remained in forested cover until 28 June. After this date they began appearing regularly on night roosting fields frequented also by adults. At this time they were capable of strong flight and had reached 85 percent of adult weight. Juveniles and adults were indistinguishable by weight after the end of September.

Data presented by Sheldon (1967) show that, on the average, spring arrival, the length of male courtship, and timing of nesting of Massachusetts woodcock are similar to that of the Montreal area (although about 390 km further south). However, these events occur about 10 days later in the Laurentian Uplands. In spite of this delay and their earlier departure in autumn, there is no evidence that productivity of these birds is lower. Unfortunately there is no published information about the breeding limits and biology of woodcock in northern Quebec.

Fall Migration

Forty-six years of data recorded by L. McI. Terrill (E. McI. Terrill, pers. comm.) place the average date of last woodcock observed in the Montreal area as 1 November, the latest sighting being 28 November 1915. At the study area live-trapping resulted in 86 captures of 66 different woodcock (30 males, 34 females, 2 of undetermined sex). Weather data, woodcock surveys, recaptures, and band recoveries by hunters aided in bracketing the period of migration and route used by these birds.

On 9 October the daily mean temperature fell to 0°C and the first light snow of the season fell. After 13 October temperatures remained below 2°C. On 8 October a resident juvenile female was shot within 4 km of the study area. On 19 October an adult male, last recaptured on 26 June was observed on the study area in close proximity to five other unidentified woodcock. The group may have been flocking prior to migration. Later in the month (date not recorded by hunter) this bird was shot 83 km southwest of Charleston, West Virginia. On 28 October a resident juvenile female was shot 83 km west of Philadelphia, Pennsylvania. After 1 November no woodcock were observed on the study area.

From these data it appears that the major part of woodcock migration from the study area occurred between 9-31 October. The snow and freezing temperatures during this period would have reduced the availability of invertebrate food, thus substantiating the theory (Sheldon, 1967) that these proximate factors stimulate departure.

Glasgow (1958) and Sheldon (1967) speculated, without supporting data, that Quebec woodcock migrate south along the western side of the Appalachian Mountains (Central Route). Based on the two band recoveries mentioned above, as well as a third two years later (shot 24 October just west of Gettysburg, Pennsylvania), these birds instead probably move south along the eastern edge of the escarpment (Atlantic Route) as do birds breeding in the Maritime Provinces and northeastern United States. More birds must be banded in western Quebec to permit this route to be substantiated and to allow identification of the overwintering areas used by this population.

SUMMARY

Spring records (1914-1977) show that, on the average, American Woodcock arrive in the Montreal area of southwestern Quebec by 30 March. Observations in the Laurentian Uplands in 1972 indicated cold weather and snow delayed arrival there by 23 days. Nest initiation in the Laurentians was in late April, and hatching occurred after mid-May. Courtship ceased by 10 June and young birds appeared on nocturnal roosting fields after 28 June. Although breeding activities were delayed by about 10 days compared to more southerly populations, productivity did not seem to be affected. Autumn migration departures lasted from 9-31 October, coincided with freezing temperatures, and occurred along the Atlantic Route. Additional banding programs in Quebec would aid in further delineating migration routes and wintering areas.

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