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Spencer G. Sealy

Gloria C. Biermann

Heidi E. Den Haan

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Spring Migrations of Alder and Yellow-bellied Flycatchers in Southern Manitoba

Spencer G. Sealy, Gloria C. Biermann

and Heidi E. den Haan

Department of Zoology

University of Manitoba

Winnipeg, Manitoba R3T 2N2

Three species of *Empidonax* flycatchers occur regularly on the forested dune ridge that separates Lake Manitoba and the Delta Marsh, Manitoba. The Least Flycatcher (*Empidonax minimus*) occurs as a migrant (Sealy and Biermann 1983) and a population also breeds there in high numbers (MacKenzie *et al.* 1982). The Alder (*E. alnorum*) and Yellow-bellied (*E. flaviventris*) flycatchers are migrants and some individuals stop over in this forest during their spring and fall migrations. The migrations of the Yellow-bellied Flycatcher are known from only two studies from Ontario (Hussell 1982a, b). Almost nothing has been published on the migrations of the Alder Flycatcher (but see Phillips *et al.* 1966; Graber *et al.* 1974; Crawford 1976) because until recently this species was not distinguished from Willow Flycatchers (*E. traillii*), in the "Traill's" Flycatcher complex (see Ely 1970).

We studied the spring migrations of Alder and Yellow-bellied flycatchers on the forested dune ridge in 1977, and 1980 through 1983. Almost daily mist netting from mid-May through the spring migration periods permitted us to determine the timing of the spring migration periods in the Alder and Yellow-bellied flycatchers in southern Manitoba.

Study Area and Methods

Our study area is a 3-km portion of the forested dune ridge, Delta Marsh, Manitoba (study area described in Sealy 1980, MacKenzie 1982) located on the properties of the University of Manitoba Field Station (Delta Marsh), about 5 km west of Delta (50°11'N, 98°19'W), Manitoba, and the Portage Country Club. All of the birds that we banded in the present study were caught in 6-10 mist nets set at ground level and operated almost daily during 1977 (14 May-16 August), 1980 (15 May-26 June), 1981 (10 May-6 October), 1982 (21 May-24 October), and 1983 (17 May-30 October).

Yellow-bellied Flycatchers do not nest in the dune-ridge forest or in other woodlands adjacent to the Delta Marsh. Thus, all of the individuals we examined and banded were migrants. The status of the Alder Flycatcher in the dune-ridge forest is less clear. *Empidonax traillii* (as in A.O.U. 1957) has been recognized to consist of two species (Stein 1963): Willow Flycatcher [*E. traillii* (Audubon)] and Alder Flycatcher (*E. alnorum* Brewster). The Alder Flycatcher

is "the generally more northern bird, of the boreal forest region [of eastern United States, Alaska, and Canada], whose vocalization has been interpreted as 'fee-bee-o' " (A.O.U. 1973). Stein's (1963) distributional records of song types of the two species showed that the Alder Flycatcher is the species that most likely occurs in southern Manitoba. This has been confirmed recently (Cuthbert and Jones 1979, Taylor 1983), and we have heard only this song type on our study area.

The Alder Flycatcher has not been found nesting in the ridge forest during the 14 years Sealy and co-workers have studied the breeding birds there; however, Robertson and Norman (1977) reported one unconfirmed nest of a "Traill's" Flycatcher in the ridge forest several km east of our study area. The southern border of Manitoba lies near the designated northern limit of the Willow Flycatcher in central North America (Stewart 1975), but there are scattered recent records of individuals from south-central and southwestern portions of the Province (Gardner 1981, Taylor 1983). Thus, this evidence suggests that the individuals of the "Traill's" Flycatcher that we examined during spring migration in the dune-ridge forest were Alder Flycatchers.

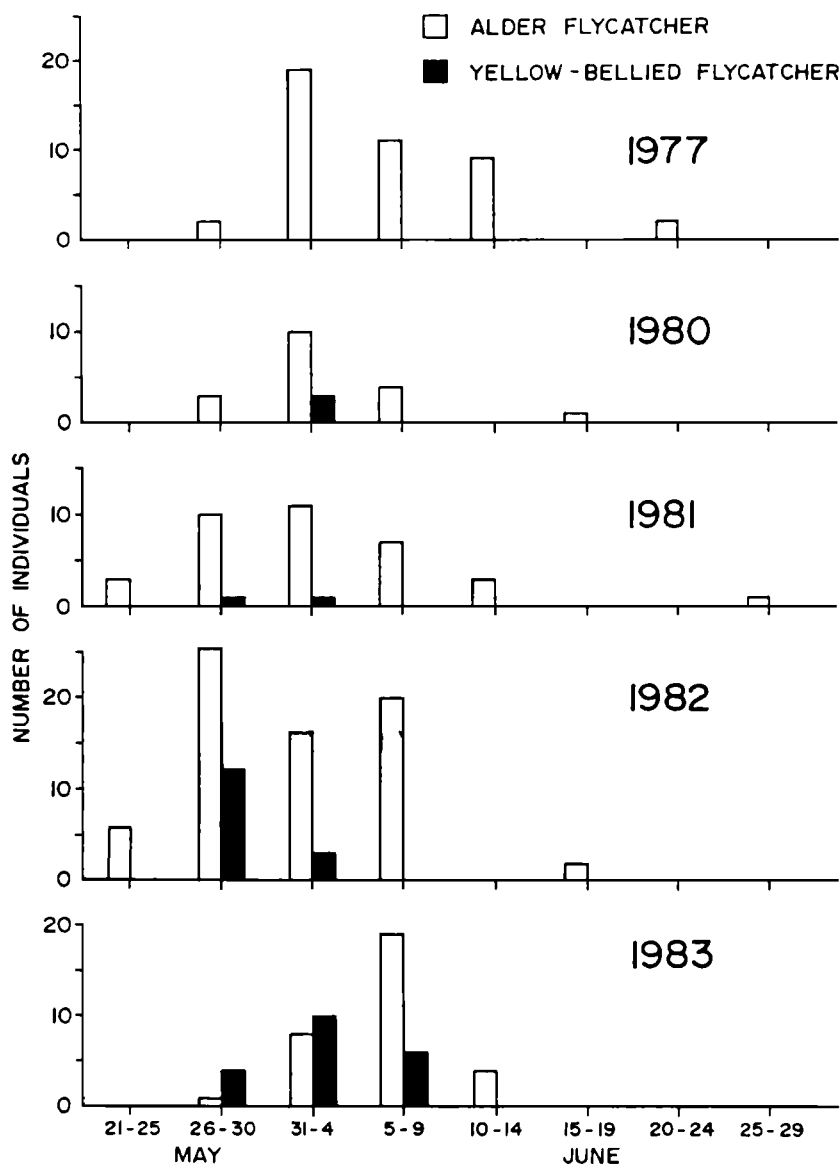
Each netted bird's exposed culmen and flattened wing were measured to the nearest 0.1 mm and 0.5 mm, respectively, and a numbered aluminum band was placed on each individual. Individual Least, Yellow-bellied, and "Traill's" flycatchers were separated according to the criteria of Phillips *et al.* (1966) using primarily flattened wing length, and the lack of emargination of the 6th primary when separating Least and "Traill's" flycatchers. The following voucher specimens of the Yellow-bellied and Alder flycatchers taken on the study area have been deposited in the University of Manitoba Zoology Museum (UMZM): *E. flaviventris*, UMZM 718, HY ♂, 3 August 1975; UMZM 714 and 716, AHY ♀♀, 28 May 1976; UMZM 717, AHY ♂, 24 May 1976; UMZM 715, AHY ♀, 30 May 1976. *E. alnorum*, UMZM 709, AHY ♀, 25 May 1976; UMZM 708 and 713, AHY ♀♀, 30 May 1976; UMZM 711, AHY ♀, 5 June 1976; UMZM 712, AHY ♂, 10 July 1976. The Alder Flycatchers were keyed out according to Stein's (1963) formula; this lends credence to the identification of individuals that we banded.

Results and Discussion

Migrating Least Flycatchers are the first of the *Empidonax* flycatchers to appear in dune-ridge forest in spring; they arrive in early May. The first of the returning residents return about mid-May or slightly later (Sealy and Biermann 1983). The Alder and Yellow-bellied flycatchers begin arriving in most years in the last week of May (Fig. 1). Fig. 1 shows the number of Alder and Yellow-bellied flycatchers mist netted and banded in 5-day periods during spring migration in 1977, and 1980 through 1983. Fewer Yellow-bellied Flycatchers were netted each year (none in 1977) compared to the Alder Flycatcher. In 1982 and 1983 (when sample sizes were larger), captures of Yellow-bellied Flycatchers spanned only 10 and 14 days, respectively, compared to 17 and 18 days in the Alder Flycatcher. Ely (1970) reported a spring migration period of about 30 days (12 May - 12 June, 1967-1969) for the

"Traill's" Flycatcher (i.e., possibly a mixture of Alder and Willow flycatchers) in Kansas. However, about 87% of the birds Ely captured were taken between 20 and 25 May. Spring migration (1966-1968) of Yellow-bellied Flycatchers at Long Point, Ontario, peaked in early June and spanned 22-23 days (1966, 16 May - 6 June; 1967, 20 May - 22 June; 1968, 15 May - 6 June) (Hussell 1982b), a period almost twice as long as the migratory period we observed for the Yellow-bellied Flycatcher in Manitoba.

Figure 1. Numbers of Yellow-bellied and Alder flycatchers captured on the dune-ridge forest, Delta Marsh, Manitoba, during the spring migration periods of 1977, and 1980 through 1983. Total numbers of individuals captured each year: Alder Flycatcher, 1977 ($n = 43$), 1980 ($n = 18$), 1981 ($n = 34$), 1982 ($n = 67$), and 1983 ($n = 32$); Yellow-bellied Flycatcher, 1977 ($n = 0$), 1980 ($n = 3$), 1981 ($n = 2$), 1982 ($n = 15$), and 1983 ($n = 20$).



Wing-length measurements for our sample of Alder Flycatchers migrating in spring suggest that the longer-winged males (see Stein 1963) migrate ahead of the females [Fig. 2, F test: $F(4,113) = 2.68$, $P < 0.05$]. The sample sizes of Yellow-bellied Flycatchers (Fig. 3) are too small to permit a similar analysis. Hussell's (1982b) larger sample of wing-length measurements of migrating Yellow-bellied Flycatchers from Ontario, however, suggests that males in this species also tend to migrate earlier than females.

Figure 2. Distribution of flattened wing lengths of banded Alder Flycatchers in relation to date during spring migration on the dune-ridge forest, Delta Marsh, Manitoba. Vertical broken lines indicate median wing lengths. Data from 1980 through 1982 are combined. Data from 1977 (an early year phenologically speaking) and 1983 (a late year) are not included.

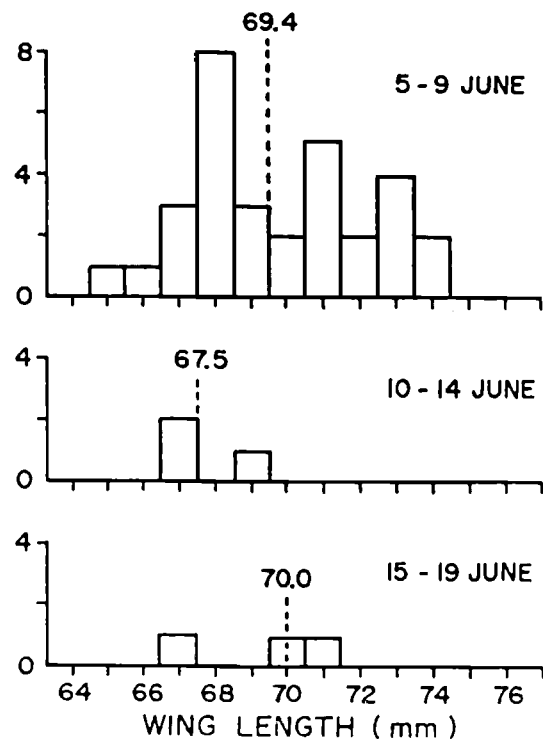
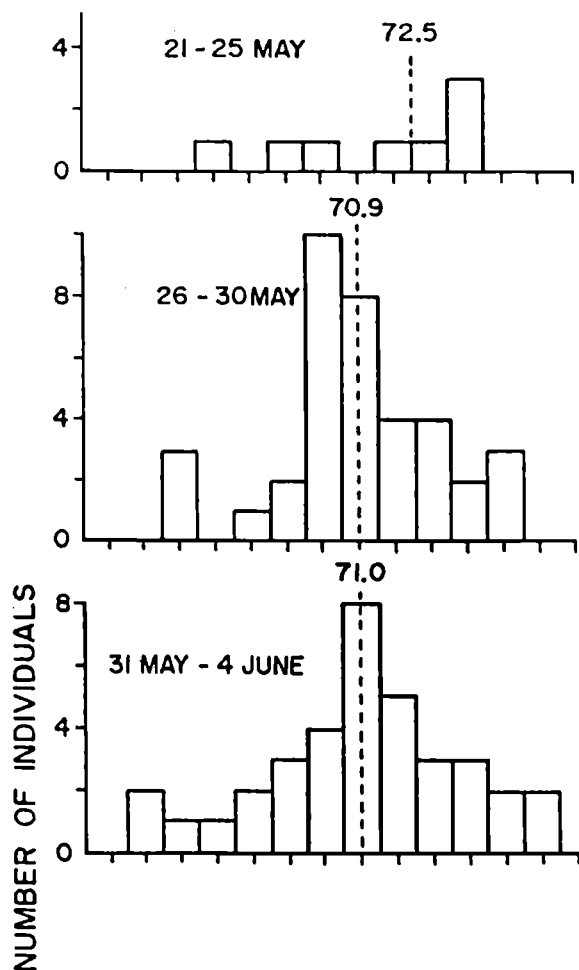
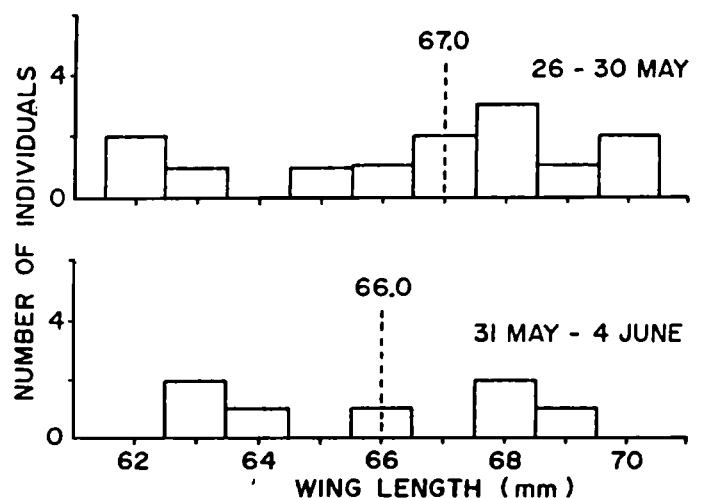


Figure 3. Distribution of flattened wing lengths of banded Yellow-bellied Flycatchers in relation to date during spring migration on the dune-ridge forest, Delta Marsh, Manitoba. Vertical broken lines indicate median wing lengths. Data from 1980 through 1982 are combined for reasons outlined in Fig. 2.



Acknowledgments

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