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# ILLINOIS BIRDS: Tyrannidae

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Department of Registration and Education

NATURAL HISTORY SURVEY DIVISION

# OAK STADS



Fig. 1. — Routes traveled (1957-1972) to study breeding distribution of Illinois birds. The encircled areas were special study areas where daily censuses of migrants and nesting populations of birds were carried out, 1967-1970.

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## ILLINOIS BIRDS: Tyrannidae

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THIS IS THE FIFTH in a series of papers designed especially to bring together and summarize the widely scattered and often almost inaccessible published data on Illinois birds. The papers also include unpublished information gained from the authors' continuing field studies, and information contributed by a number of excellent observers from several areas of the state.

Much of the quantitative data presented on migration and nesting represents special study areas (Fig. 1). Our policies on interpretation and presentation of data have been discussed in the earlier papers (Graber et al. 1970, 1971, 1972, 1973), each of which deals with a different family of birds. Two points concerned with the presentation of data that were not considered in the earlier papers deserve mention here. Unless otherwise stated, references to time of day are to central standard time. Also unless otherwise stated, measurements of wing length refer to the wing chord, and measurements of bills refer to the distance from the anterior edge of the nostril to the tip of the bill.

This paper deals with the flycatchers of Illinois, a group that presents some particularly difficult problems of identification. Though the species are biologically distinctive, some of them, especially species of the genus *Empidonax*, are all but identical in appearance. Five *Empidonax* flycatchers (yellow-bellied, Acadian, willow, alder, and least) occur regularly in Illinois, and there are a number of errors in the Illinois ornithological literature that probably stem from misidentification of these and other even less similar flycatchers. Except for the yellow-bellied flycatcher, the Illinois *Empidonax* flycatchers are not identifiable in the field unless they sing or are associated with a nest and a particular habitat. Even the yellow-belly can easily be confused with other *Empidonax*, particularly in the fall (Mengel 1952), but because we have studied many collected specimens of *Empidonax* flycatchers we believe we can usually identify the yellow-bellied flycatcher in the field if we see the bird at close range. Such field identifications are tentative at best, however, and it is not easy to identify *Empidonax* flycatchers even when they are in hand (Phillips et al. 1966).

In our censuses of the migration we counted nonsinging (silent) *Empidonax* flycatchers, other than yellow-bellies, simply as unidentified *Empidonax*. Singing birds or collected specimens were counted under the appropriate species, and even with yellow-bellies most of our identifications were based on songs or call notes. We identified many more *Empidonax* in the spring than

in the fall, because birds sing more in the spring than in fall. Other methods of study, such as bird netting, are essential for this group particularly. In dealing with published records, we have generally accepted identifications of *Empidonax* flycatchers as given unless the record seemed clearly in error. Such errors are discussed briefly in the species accounts. Where problematical identifications were involved, we based our judgements, to the extent possible, on data from collected specimens. The available collections are woefully inadequate.

Recently the American Ornithologists' Union Committee on Classification and Nomenclature (1973) recognized the existence of two species of Traill's flycatchers. The populations which for many years had been considered one species, Traill's flycatcher (*Empidonax traillii*), are now considered to comprise two distinct species — the willow flycatcher (*E. traillii*) and the alder flycatcher (*E. alnorum*). The two forms differ slightly in song and nesting habits (Stein 1963), but are so similar in appearance that many specimens (in hand) cannot be specifically identified with certainty. Despite the extreme subtlety of the differences between the two forms, we have followed the A.O.U. Committee's new nomenclature, where applicable, but have also used the old name (Traill's flycatcher) in reference to the complex of populations when specific identification was not possible.

For the flycatchers, as for other groups, vocalizations are interesting but also very difficult to treat in writing. Consequently we have placed little emphasis on this aspect of Illinois ornithology. The phonetic interpretations of vocalizations which we and others use may be more misleading than helpful, as there are perhaps as many interpretations of a song or a call as there are interpreters. For example, we have never been able to hear the commonly used phonetic "fitz-bew" as the song of the willow flycatcher. To our ears there are definite "rrr" sounds in the song which the phrase "fitz-bew" simply does not convey. Audiograms of bird vocalizations are more precise, and unquestionably superior for technical studies of song, but they are probably of little or no more help than phonetics to students who have never heard the song or call. There is no real substitute for hearing and learning the song in the field.

For help, particularly with the acquisition of data for this report on the flycatchers, we especially thank Mrs. William Carroll of Woodstock, James and Loraine Funk of Liberty, L. Barrie Hunt of Eastern Illinois University, Richard A. Anderson of St. Louis, Peter C. Petersen of Davenport, David Hayward of Carbondale, Lawrence G. Balch of Chicago, Mark Swan of Oregon, Michael D. Morrison of Sparta, Noel P. Lane of Edwardsville, William G. George of Southern Illinois University,

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Vernon M. Kleen of the Illinois Department of Conservation, and H. David Bohlen of the State Museum at Springfield.

Virginia Engelhard of the Cornell University Laboratory of Ornithology kindly provided us with an audio spectrogram of an alder flycatcher song recorded in Illinois, and compared the Illinois record with records in the Cornell collection.

Dr. Glen C. Sanderson provided valuable criticism of the original draft, and the final manuscript was edited by O. F. Glissendorf.

## EASTERN KINGBIRD (*Tyrannus tyrannus*) (Fig. 2 and 3)

### Spring Migration

In tropical latitudes the migrations of eastern kingbirds are often spectacular diurnal movements involving large flocks of birds (Skutch, in Bent 1942). Youngworth (1950) observed similar migrations of kingbirds in August in western Iowa, but the migration of this species has apparently never been witnessed in Illinois. Both Cooke (1888) and Gault (1898) inferred



Fig. 2. — Eastern kingbird at its nest in a winged elm (*Ulmus alata*). Photo taken 5 miles north of Golconda in Pope County.



Fig. 3. — General distribution of the eastern kingbird. The outlined range may include large sections in which populations of the species are thin or even absent because of the nature of the terrain and paucity of suitable habitat.

that the spring migration of kingbirds in Illinois was nocturnal. In Pope County on May 5, 1967 we witnessed what may have been a migration arrival, when kingbirds suddenly appeared about 11:00 a.m. in areas where there had been none earlier.

The first few eastern kingbirds begin to appear in southern Illinois about mid-April, and in central and northern Illinois in late April (Fig. 4). Adcock's (1922) March 21 record for central Illinois is either erroneous or accidental. Even records as early as April 8-10 (Cooke 1884, Widmann 1907, Kleen & Bush 1972b) are extraordinary and most observers do not detect the species until about May 1. Peak numbers of kingbirds reach southern Illinois by May 8, and central and northern Illinois about May 20 (Fig. 4). In northern and central Illinois the migration probably extends into the first week of June.

In 20 years of observation (1903-1922) in east-central Illinois, Smith's (1930) earliest spring record for the eastern kingbird was April 20, and the median arrival date was April 27. A more recent 25-year record (to 1971) of arrival dates for kingbirds in west-central Illinois by Loraine and James Funk (personal communication) shows slightly earlier arrivals — the earliest being April 17 and the median date April 25.

During the peak of migration kingbirds are often encountered in flocks of 10-40 or more birds. Though they are usually perched on fences and power lines or in trees, on cool days it is not uncommon to find them on the ground, particularly on plowed fields (Hancock 1888, Graber unpublished notes).

#### Distribution

The general distribution of the eastern kingbird is shown in Fig. 3. For such a conspicuous species there are surprisingly few actual nesting records for Illinois, but the June distribution indicates a fairly uniform nesting population throughout the state (Fig. 5). In addition to plotted records on the map, there are recent June records (no specific locality given) for Jersey and Monroe counties (personal communication from D. Anderson), and there are specimens establishing old nesting records for two counties — Winnebago County (U.S. National Museum specimens), and Warren County (Chicago Museum of Natural History specimens).

#### Nesting Habitats and Populations

The eastern kingbird could be characterized as a savannah species, nesting in a variety of woody cover, surrounded by or adjacent to open country, from farmsteads to forest edge. Pastures, shrub areas, and orchards have been considered favorite habitats (Graber & Graber 1963, Ridgway 1887, Nehrling 1883). Population densities in suitable habitats vary from about two to nine kingbirds per 100 acres (Table 1). In a study of hedgerows in Ford County, we found only two pairs of kingbirds in about 5 miles of roadside hedge. In southern Illinois Brewer (1958) found that the younger successional growths of trees and shrubs (6-20 years) after strip mining had kingbirds, whereas an older stand (21-24 years) did not.

Barnes (1890) believed that the kingbird was not particular in its choice of nest sites. Both Barnes (1890, 1897) and Coursen (1947) found nests in dead trees standing in water, and other nests over water were found in live willows. Gates (1911) considered the kingbird to be a bottomland species, but there are no population measurements to show whether the species has a definite preference for lowland or upland habitats. Kingbirds definitely nest in both situations. Most of the recorded nests in Illinois were found in apple trees (*Malus*), though oaks (*Quercus*), willows (*Salix*), and osage orange (*Maclura pomifera*) were also commonly used as nest sites. Heights of nests have varied from 3 to 40 feet, most commonly from 10 to 20 feet.

Swink's (1960) study of perching sites of kingbirds also gives an impression of the species' habitat. The most frequently observed perching sites were telephone wires (11.5 percent), fences (8.5 percent), various species of oaks (11 percent), apples (8.5 percent), willows (8.5 percent), and cottonwoods, *Populus deltoides*, (4.5 percent).

Kingbirds show some tolerance of humans. Ridgway (1915) had a pair on 8 acres of suburban residential area

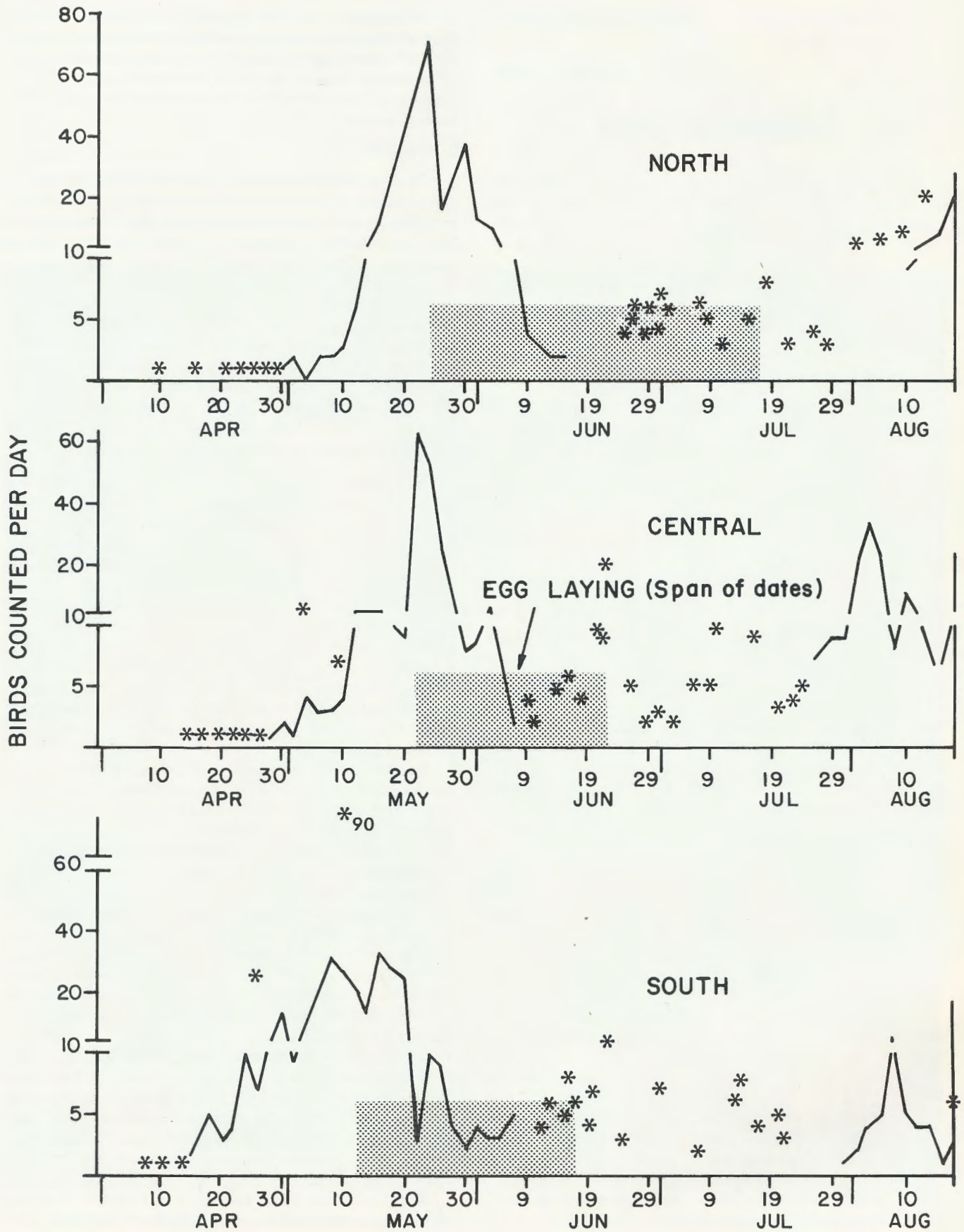
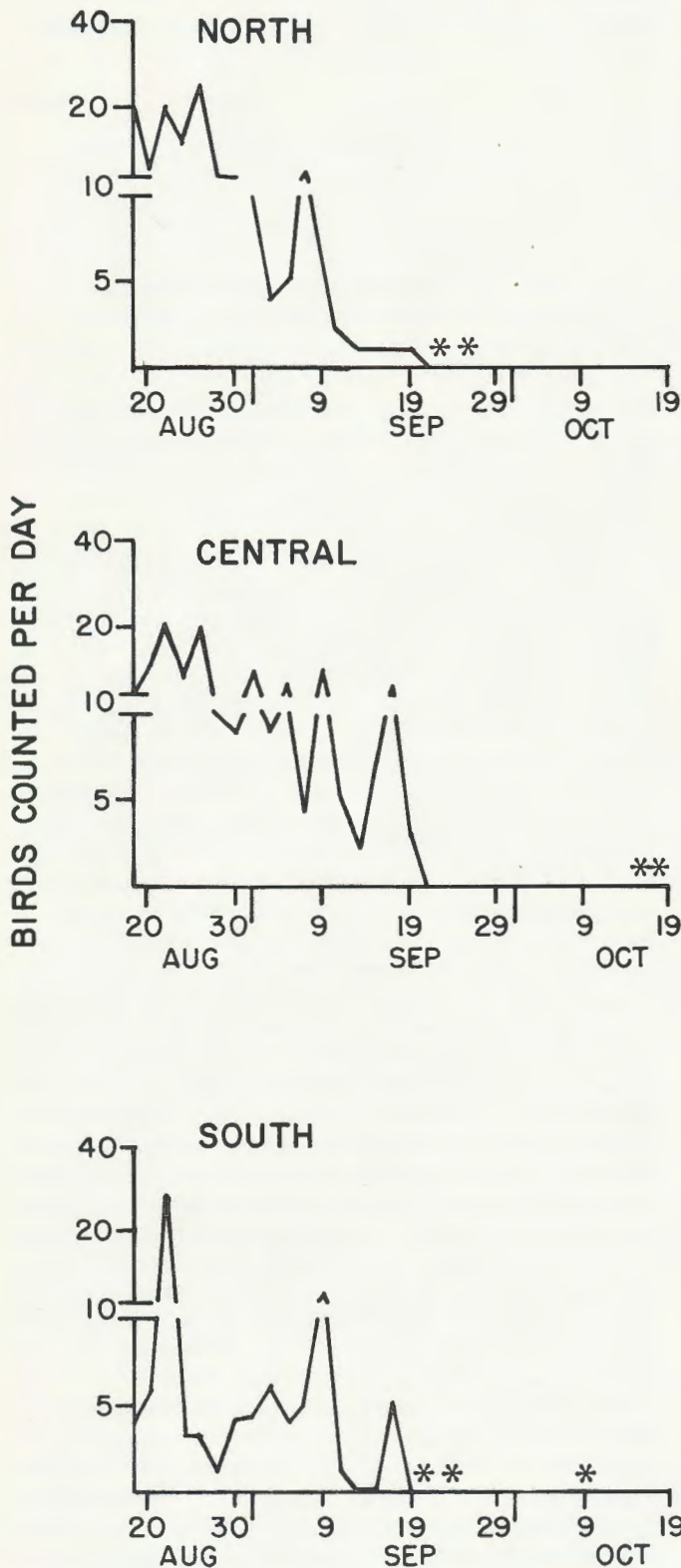


Fig. 4. — Egg-laying and migration seasons of the eastern kingbird in different areas of the state (see Fig. 1). Spring and fall graph lines (1967-1970) show highest daily count of each 2 days (left scale). Asterisk symbols represent counts made in other years or by other observers. Shaded areas show the span of dates during which egg laying has been recorded.



### EASTERN KINGBIRD BREEDING RECORDS

- NESTS OR YOUNG
- 1950 -
  - ▲ 1900 - 1949
  - BEFORE 1900
- PAIRS OR SINGING MALES (JUNE)
- 1950 -
  - △ 1900 - 1949
  - BEFORE 1900

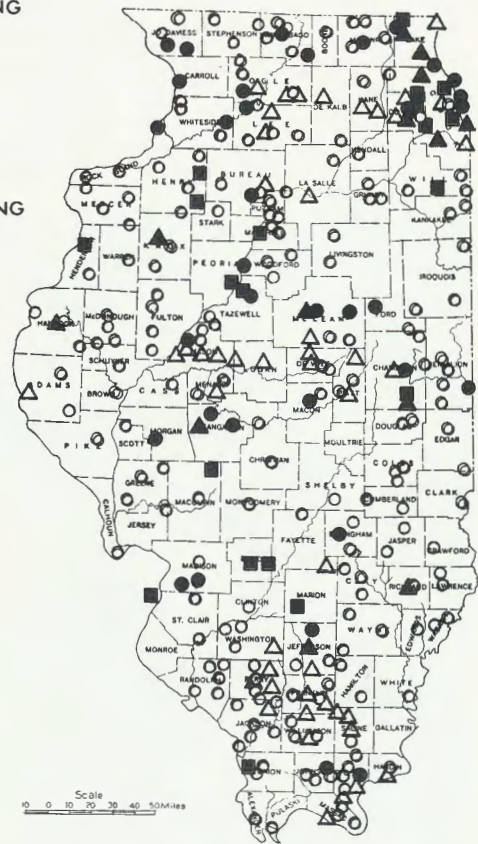


Fig. 5. — Breeding records for the eastern kingbird in Illinois. Singing male records cover the period June 1 to early July.

in Olney, but we know of no significant recent populations in urban habitat. Eiseman & Shank (1962) witnessed a nesting attempt by kingbirds in Chicago that was aborted apparently because of the commotion of human traffic.

From the statewide censuses of birds, we concluded that the state population of eastern kingbirds declined about 50 percent between 1907 and 1957, and that the loss was particularly great in southern Illinois (Graber & Graber 1963). We attributed the decline to large acreage losses of two important kingbird habitats — pastures and orchards. Eifrig (1937) also believed the kingbird population was declining, but attributed the change to reduced fly populations.

No territories of kingbirds have been measured in Illinois. The species is renowned for its aggressive behavior toward some other birds, including species of hawks, crows (*Corvus brachyrhynchos*), nighthawks (*Chordeiles minor*), red-winged blackbirds (*Agelaius phoeniceus*), and others (Ridgway 1889, Hankinson 1915, Musselman 1933, Back 1934-35). It is also surprisingly tolerant of some other species. The orchard oriole (*Icterus spurius*) sometimes nests in the same tree with the eastern kingbird in southern Illinois. There are

TABLE 1. — Breeding populations of eastern kingbirds in various Illinois habitats.

Habitat	Acres	Birds Per 100 acres <sup>a</sup>	Years	Type of Census	Region or County	Reference
Orchard	45	7	1907-1909	Strip	South	Graber & Graber 1963
	78	4	1957-1958		South	
Shrub areas	32	9	1957-1958	Strip	North	Graber & Graber 1963
	50	8			Central	
	129	1			South	
Late shrub	21	4	1966	Nest	Vermilion (C)	Karr 1968
Swampy prairie	67	9	1941	Nest	Sangamon (C)	Robertson 1941
	64	3	1942		Sangamon (C)	Robertson 1942 <sup>a</sup>
	193	5	1909		North	Graber & Graber 1963
Pastureland	442	3	1907-1909	Strip	Central	
	882	2			South	
	279	6			North	
	172	2			Central	
	56	4			1957-1958	
Upland second growth hardwoods	56	4	1942	Nest	Sangamon (C)	Robertson 1942 <sup>b</sup>

<sup>a</sup> All figures were converted to read birds per 100 acres (territorial males or nests X 2).

no referenes on intraspecific aggression or spacing of kingbirds.

### Nesting Cycle

The Illinois literature is essentially devoid of information on the nesting cycle of the eastern kingbird, and we can add little. Egg laying begins as early as May 12 in southern Illinois, and lasts at least through July 17 in the north (Fig. 4). Bent (1942) gives May 2 as an egg date in Illinois, but we do not know the source or locality for this record.

Data on 34 nests from the Illinois literature and our own field notes show clutch sizes for the kingbird as follows: 6 eggs — 9 percent, 5 eggs — 12 percent, 4 eggs — 41 percent, and 3 eggs — 38 percent. As most of these were nests without complete histories, the clutch data are crude. Better clutch data are needed particularly in view of the number of reports of nests with only one or two young. The implication is that this species has either low hatchability, or an unusually high loss of eggs or young even in successful nests.

There have been no measurements of the incubation period in Illinois. Nestling life at one nest in central Illinois was 13 days (Finley 1917), but this may represent the short extreme, as, in general, flycatchers tend to remain in the nest as long as possible. Finley (1917) also studied feeding rates of nestlings. Between 4:15 a.m. and 8:00 p.m. the adult birds made 163 trips to a nest with three young about 6 days old. Peak rates of feeding came at 6:00-7:00 a.m. and 5:00-6:00 p.m. and the lowest rate was at noon. The food of nestlings has not been recorded. We doubt Eaton's (1878) statement that kingbirds raise two broods in northern Illinois, but there are insufficient data to settle the question.

In view of the kingbird's aggressive nature, it is surprising that the species is ever parasitized by cowbirds (*Molothrus ater*), but we know of two instances in which Illinois kingbird nests were parasitized. A nest collected on June 11, 1885 by Elmer Pierce near Meacham (DuPage County), Illinois contained two cowbird eggs. A

nest found July 7, 1967 near Havana (Mason County), Illinois held one large cowbird, which probably fledged successfully.

### Fall Migration

The fall migration of kingbirds, as in the spring, has apparently never been witnessed in Illinois. Youngworth's (1950) observation of diurnal migration of kingbirds in Iowa is possibly indicative that the same kind of migration occurs in Illinois. The migration that he saw starting early in the morning of August 28, lasted 5 hours and involved loose flocks of from 40 to nearly 100 kingbirds flying southwest. Other large flights have been seen in Iowa (Brown 1962). If such spectacular migrations occur in Illinois, why have they gone undetected? Another observation is indicative of *night* migration of kingbirds in Illinois, for among hundreds of night migrants killed at a television tower in Sangamon County on the night of September 16-17, 1958 there was a least one kingbird (Parmalee & Parmalee 1959).

Just when the fall migration begins is also unknown. There is evidence of some movement of kingbirds as early as July (Nolan 1956). Our fall counts show various peaks in August and early September, but none consistent from region to region (Fig. 4). It is our impression that notable kingbird migrations often come between August 20 and 25, and September 6 and 10. By mid-September kingbirds have essentially disappeared from Illinois. October records are probably exceptional even for the southern Illinois area (Anderson 1966), and the latest fall records known to us were those of a bird seen October 17, 1906 by Alfred Gross (unpublished notes) and one seen on October 16, 1971 (Kleen & Bush 1972<sup>a</sup>), both in west-central Illinois.

The ratio of the spring to fall counts of kingbirds in Illinois does not account for any productivity. In northern and central Illinois the spring-fall ratio was almost exactly even, and in the south the ratio was about four kingbirds in the spring to one in the fall. These figures suggest that much of the fall migration may have



been overlooked. It would be easy to miss the kingbird's fall migration if it occurred in just a few days on a very narrow front. One migration of the sort observed by Youngworth (1950) in Iowa would account for a large number of kingbirds. It is also possible, if improbable, that the eastern kingbird's fall migration largely misses Illinois. We cannot explain the poor counts of kingbirds in the fall, but feel that the counts may not be realistic.

#### Food Habits

Gross & Forbes (1909) roughly summarized the food of the eastern kingbird in Illinois as being about 90 percent insects taken on the wing and a modest amount of wild fruit. Forbes' (1878, 1881, 1882a) studies on the food of the kingbird are sketchy, involving only a few specimens, and being uncharacteristically poor in details. At an orchard in Tazewell County with a heavy infestation of cankerworms, about 25 percent of the food of three kingbirds was cankerworms, and nearly 70 percent was beetles, especially scarabs. Stomachs of nine kingbird specimens presumably taken in Illinois (dates and localities not given) also showed beetles to be prominent in the diet, which also included unspecified Lepidoptera and Orthoptera and some Hymenoptera and spiders. Nelson (1876-1877) recorded an instance in which a kingbird captured aquatic insects (unidentified) by plunging into a stream somewhat in the fashion of a belted kingfisher (*Megaceryle alcyon*). This method of feeding is suggestive of the kingbird's method of bathing by plunging kingfisher-like into a pool of water (Craigmile 1937). The food habits of this species are obviously much in need of study.

#### WESTERN KINGBIRD (*Tyrannus verticalis*)

(Fig. 6 and 7)

The western kingbird has been extending its range eastward in the past century, and now nests regularly as close to Illinois as western Iowa and western Missouri. There are about 40 acceptable records of the species in Illinois, including three definite breeding records.

The western kingbird was first recorded in Illinois June 6, 1924 when a male specimen was found dead on a road in Lake County (Coale 1924). The 1930's brought more western kingbird records to Illinois, and the number of records increased in succeeding decades. In recent decades it is quite likely that at least a few western kingbirds have been occurring in Illinois every year, but most of them go undetected because of the paucity of capable observers. Western kingbirds have been reported in Illinois virtually every year since 1964 (Dillon 1973; Fawks 1965, 1966a, 1973; Petersen 1966, 1967; Princen 1969, 1970; Kleen & Bush 1972b, 1973).

June and July records of the western kingbird in or very near northeastern Illinois in 1924, 1935, and 1938 (Coale 1924, Sanborn 1935, Work 1939, Ford 1956) may have been indicative of nesting even in those early years. Work's (1939) record is particularly suggestive because of the sighting of several kingbirds together that may have

been a family group. The first certain breeding record of the western kingbird in Illinois known to us was a nest found one-half mile north of Kilbourne (Mason County), Illinois, and reported to Dr. William Starrett in June, 1965. On June 9, 1965 Frank Bellrose and Jean and Richard Graber visited the site and observed the nest, which was near the top of a signal light post by the C & M railroad tracks in open country. Though the contents of the nest were not seen, one of the birds was observed on the nest. Both birds also demonstrated vociferously when

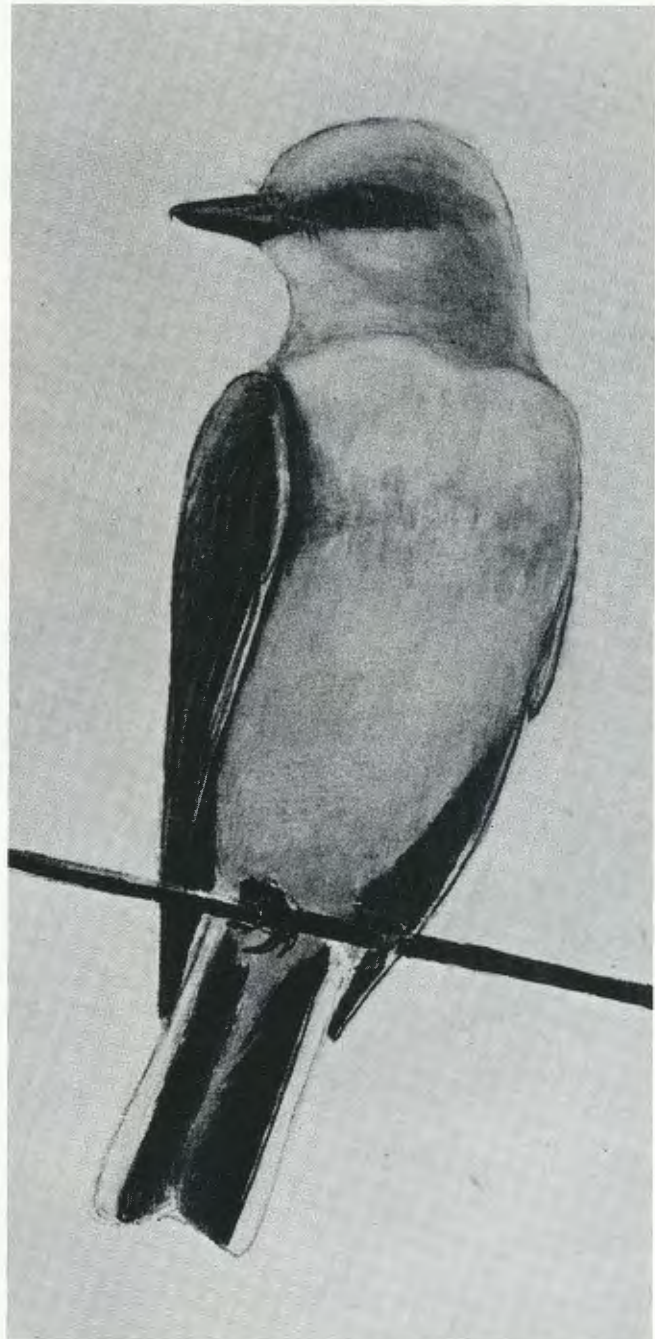


Fig. 6. — Western kingbird, a species similar in size and shape to the eastern kingbird, but with yellow belly and gray head and back. Also note white outer webs of tail feathers.

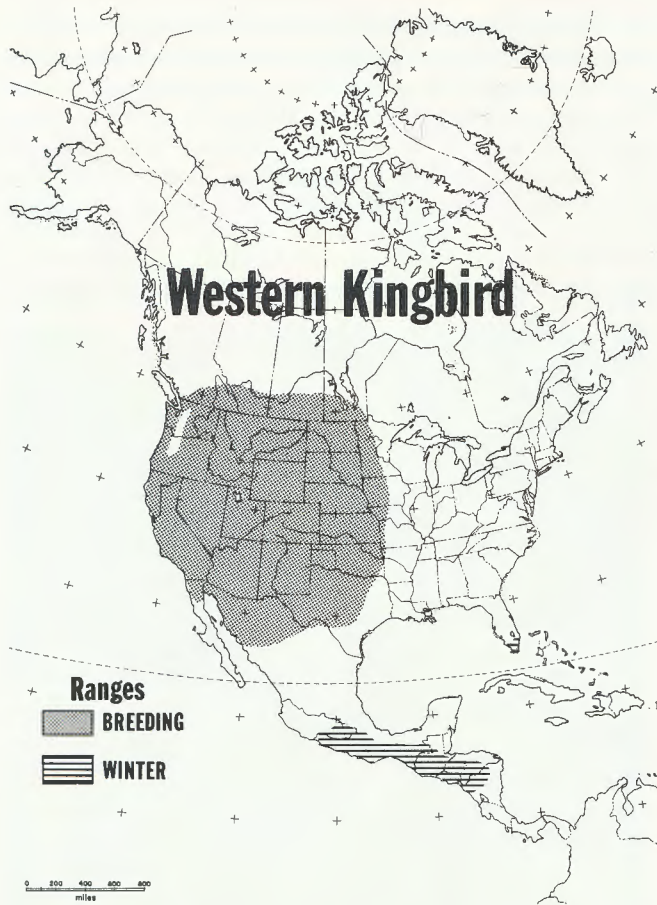


Fig. 7. — General distribution of the western kingbird. The outlined range may include large sections in which populations of the species are thin or even absent because of the nature of the terrain and paucity of suitable habitat.

the nest site was approached. The ultimate fate of the nest was not determined.

Another breeding record for the species was obtained only about 4 miles northwest of the Kilbourne nest on August 14, 1967 when Robert W. Guth (personal communication) found a family of western kingbirds 2 miles east of Bath, Illinois. Two young were being fed by both adult birds, and a third young was found dead on the road nearby. A family of western kingbirds with young found near Winnetka, Illinois on August 13, 1970 was almost certainly another Illinois breeding record (Petersen 1970b).

Despite these nesting records, we did not include Illinois within the regular North American breeding range of the species (Fig. 7) because of our stated policy (Graber et al. 1970) of drawing the range limits conservatively to indicate areas of regular occurrence of dependable populations.

There are widely scattered records of western kingbirds in the state (Fig. 8), and the relatively large number of records for northeastern Illinois may only reflect the greater number of observers in that area.

The seasonal distribution of Illinois records of the western kingbird is shown in Fig. 9. The earliest spring

## WESTERN KINGBIRD DISTRIBUTION RECORDS

### NESTS OR YOUNG

- 1950 —
- ▲ 1900 — 1949
- BEFORE 1900

### PAIRS OR SINGING MALES (JUNE)

- 1950 —
- △ 1900 — 1949
- BEFORE 1900

### S SPRING RECORD

### F FALL RECORD



Fig. 8. — Distribution of the western kingbird in Illinois.

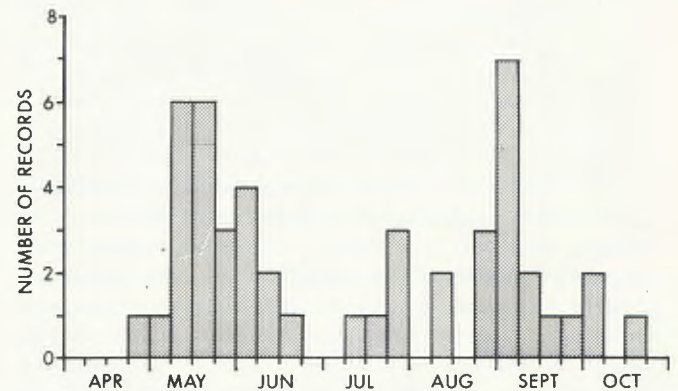


Fig. 9. — Seasonal distribution of the western kingbird records in Illinois, showing the weekly distribution of all dated records for the species (1924-1971).

record was a bird seen near Fairbury, Illinois April 26, 1965 (Fawks 1966a), and the latest fall record was of a bird at Springfield, Illinois October 23, 1948 (Mayfield 1949a). The peaks of records in the spring and fall (Fig. 9) seem to indicate that most of the Illinois records of this species represent migrants. The ratio of spring records to fall records is almost exactly one to one.

**SCISSOR-TAILED FLYCATCHER**  
(*Muscivora forficata*)  
(Fig. 10)

The scissor-tailed flycatcher can no longer be considered of merely accidental occurrence in Illinois. There are at least 21 reports for the species in the state,

including 15 since 1965. In addition to these sightings, at least one more has recently been reported from a contiguous area near St. Louis, Missouri (Petersen 1970a).

The scissor-tailed flycatcher was first reported in Illinois near Peoria in 1885 by W. E. Loucks (unpublished notes). It was next seen in 1902 by Craigmile



Fig. 10 — Scissor-tailed flycatcher, female. Side view (lower left) shows tail length; males have longer tails.

(1934-1935) in La Grange, Cook County. There were no further records until 1933 when it was again recorded in Cook County by W. Dreuth in Lincoln Park (Clark & Nice 1950). In 1947 a scissor-tail was seen at Wolf Lake, Indiana, within one-fourth mile of the Illinois boundary (Bartel 1947), and in 1954 one was seen south of Chicago (Nolan 1954).

There were only two state records outside of the Cook County area for about a decade preceding the 1960's. One scissor-tailed flycatcher was seen in Jackson County in 1949 (Mayfield 1949b) and another was seen in Vermilion County in 1958 (Bursewicz 1958). More recent records are those for Havana (Graber & Graber 1965); Neponset (Fawks 1967a); Lacon (Fawks 1967a, 1967b); American Bottoms between St. Louis and Chester (Hamilton 1969, Fleig 1971); Fultz, with at least five reports from this area, (Anderson 1968); Dixon Springs Agricultural Center (Seets, personal communication 1972); Elmwood (Princen 1968, 1969); Anna (Fawks 1970); Sibley (John Hudson, personal communication 1972); Sparta and Valmeyer (R. Anderson, personal communication 1969, 1972). The preponderance of earlier records for the Cook County area can in part be explained by more thorough coverage of the area by a number of competent observers. However, the overall pattern of Illinois records (Fig. 11) suggests that the

species is increasing in occurrence and that the dispersal pattern is from southwest to northeast. Illinois typically has a predominant southwest flow of wind that could facilitate movement of this flycatcher from its breeding range (or center of distribution) in the southwest toward the northeast.

Of the Illinois records, the earliest is April 15 and the latest is August 7, with three occurring in April, four in May, three in June, four in July, and one in August. Two of the June records may be of the same bird, and there are two reports that did not specify dates other than "spring" or "summer." The presence of both sexes in Illinois in summer and the fact that the species is extending its breeding range to the northeast (Graber & Graber 1965) appears to presage the nesting of this bird in the state in the future.

## GREAT CRESTED FLYCATCHER

(*Myiarchus crinitus*)

(Fig. 12 and 13)

### Spring Migration

Crested flycatchers are presumed to be night migrants on the basis of their occasional occurrence among the species of birds killed at television towers (Stoddard & Norris 1967). This does not preclude the possibility that they also migrate by day.

Crested flycatchers have been seen as early as April 12 in southern Illinois, and April 20-21 in the central and northern regions (Fig. 14). The influx of crested increases conspicuously after April 20 in southern Illinois, April 28 in central Illinois, and May 6 in the north. The numbers remain high throughout May and the first week in June. As also reported by Widmann (1907), we have found crested flycatchers to be very consistent in the timing of their spring arrival.

Our spring counts show the migrant populations of crested to be consistently higher on the western side of the state than on the east (Fig. 14). We cannot explain this difference.

### Distribution

The crested flycatcher's breeding range is essentially the eastern half of the United States and adjacent southern Canada (Fig. 13). The Illinois distribution of this species is poorly known; though we suspect that the species nests in every Illinois county, actual breeding records are still lacking for some counties (Fig. 15).

### Nesting Habitats and Populations

The great crested flycatcher is essentially a forest species that frequents the upper canopy of foliage (Ridgway 1889, Hankinson 1915, Twomey 1945). It nests in forest interiors as well as forest edge and in upland forest as well as bottomland (Gates 1911; Carpenter 1935; Kendeigh 1941, 1944; Table 2). Cresteds are also found

## SCISSOR-TAILED FLYCATCHER DISTRIBUTION RECORDS



Fig. 11. — Distribution of the scissor-tailed flycatcher in Illinois.



Fig. 12. — Great crested flycatcher. (Gray throat, yellow belly, and reddish tail are field marks for this species.)

in orchards and shrub areas and in residential habitat (Ridgway 1887, 1889). Because crested flycatchers nest in cavities about 6 inches in diameter, shrub areas and orchards may be primarily foraging rather than nesting habitats. Our statewide censuses (Graber & Graber 1963) showed no crested flycatchers in orchards in more recent years, though they were present in this habitat in 1907 and 1909. The statewide censuses also showed measurable populations of crested flycatchers in urban residential habitat only in southern Illinois (Table 2), whereas the Illinois literature contains a number of records of cresteds nesting in northern urban areas (Meany 1945, Work 1936, Wilson 1906, Ford 1915, and

others). Ridgway (1887) called the crested rare "in town," but later (1915) recorded a high density of crested flycatchers (50 per 100 acres) in suburban habitat in southern Illinois. This figure may be exaggerated because of the small acreage covered (Table 2). If, however, Ridgway's 1915 figure was accurate, the implication is that populations of cresteds in residential areas were much higher in Ridgway's time than in recent years.

Barnes (1890), Loucks (1891), and Gates (1911), all of whom worked on or near the Illinois River, believed the species to be most plentiful in bottomland areas, but high breeding populations of crested flycatchers have also been found in upland forest (Table 2). The theses of

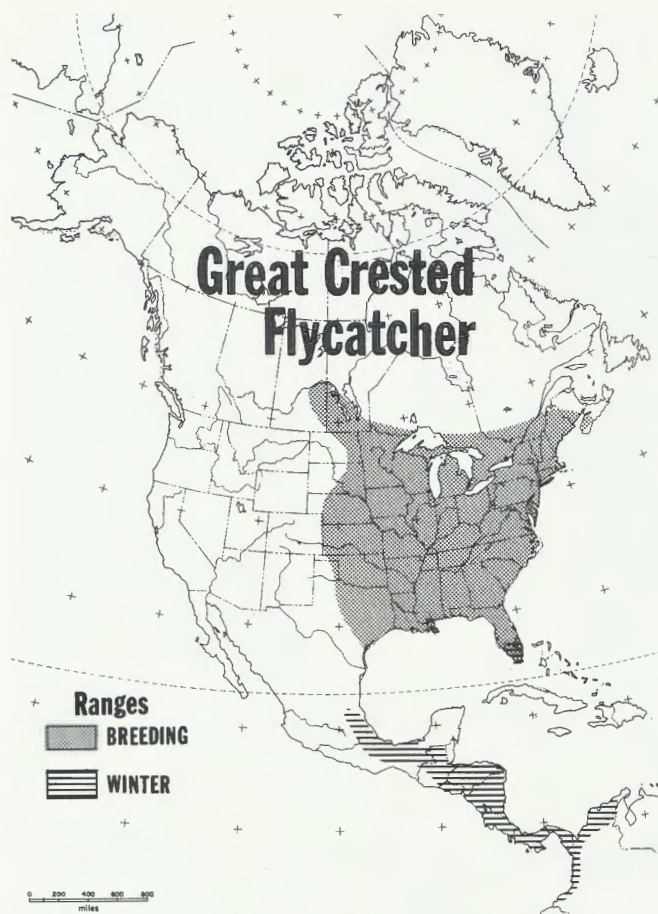


Fig. 13. — General distribution of the great crested flycatcher. The outlined range may include large sections in which populations of the species are thin or even absent because of the nature of the terrain and paucity of suitable habitat.

Holmes (1950) and Weise (1951) provide the best direct comparison of upland versus lowland populations of the crested flycatcher. In Piatt County on and near the Sangamon River, Holmes (1950) found 14 pairs of cresteds per 100 acres in the floodplain forest, and 5 pairs per 100 acres in upland forest, thus supporting the Illinois River data, but Weise (1951) found more pairs (9) in upland than in lowland forest (3 pairs). Cahn & Hyde (1929) considered the crested flycatcher to be a breeding species of cypress swamps, but populations have not been measured in this habitat. Johnston's (1947) data on two forest areas in Champaign County suggest that the crested may be either predominantly a forest edge or a forest interior species, varying from place to place. In their long-term study of Trelease Woods (Champaign County) Kendeigh (1944) and his students found the crested to be primarily a forest interior species.

Older censuses for the crested flycatcher tended to be higher than more recent censuses, implying that the species has declined in Illinois since 1900. Ridgway (1878) considered the crested to be the most abundant flycatcher around Mt. Carmel, but there are no comparative data for recent years. More census data are needed for all areas of the state, but especially so for southern Illinois.

In northeastern Illinois, Swink (1960, 1965) found that the crested flycatcher showed a definite preference for oaks, and the few available data on nesting trees also indicate this preference (as the most frequently used species were oaks), and that willows were the second choice. Other species of trees used by cresteds for nesting were elms (*Ulmus*), apples, sycamore (*Platanus*), and hackberry (*Celtis*). Unidentified dead trees with peeled bark were actually used as nest trees as often as willows. We have data on only 21 nests, and many more records are needed to evaluate the importance of different species.

Allison (1947) found that territories of crested flycatchers were very closely spaced so that all available area was used by the birds in a Piatt county forest with a high breeding population (25 pairs per 100 acres). Published measurements of 26 crested territories in central Illinois forests ranged in size from 0.6 to 4.6 acres and averaged, in different years and different places, about 3.1 acres (Fawver 1947*b*) and 1.5 and 3.0 acres (Calef 1953). Twomey's (1945) measurements of territory are apparently based on a different interpretation, as he gives figures of about 11 and 14 acres for crested territories in central Illinois.

#### Nesting Cycle

Little has been recorded (nothing in southern counties) on the nesting of the great crested flycatcher in Illinois. The song most often heard is a loud and rather unmusical "wheep" or "creep" with rising inflection, sometimes prolonged with a series of staccato notes at the end. In Illinois the song has been heard from the time of arrival in April to mid-September. In Piatt County, Fawver (1947*a*) noted that singing was much reduced in July but increased briefly in early August; we have observed the same pattern in southern Illinois.

Homing by the crested flycatcher is indicated by the return to Lisle, Illinois on June 13, 1936 of a bird banded there May 30, 1934 (Cooke 1937).

There are no data on the duration of the nesting cycle, or any phase of the cycle. The nests, which are built in deserted woodpecker holes, or other natural or man-made cavities, are composed of grass, cedar bark, feathers, hair (including fur of small animals), and snake skin (Dickinson 1897, Ridgway 1889, Ford 1932). Nest heights in natural sites have varied from 34 inches above ground to about 50 feet, with no obvious dominant height range.

In earlier years, crested flycatchers sometimes placed their nests in crevices of buildings (Ridgway 1887, Loucks 1895), sites which now are usually occupied by house sparrows (*Passer domesticus*) or starlings (*Sturnus vulgaris*). Though crested flycatchers have been considered tyrants toward other species of birds (Ridgway 1889), and have even driven sparrows, starlings, and purple martins (*Progne subis*) away from nest boxes (Meany 1945), in the long run they are apparently no match for the starling (Zeleny 1969). This relationship must have had some effect on crested flycatcher

populations in urban habitat, but there are no good data to show the effect. Red-headed woodpeckers (*Melanerpes erythrocephalus*) have also dominated crested in competition for a nesting cavity (Ridgway 1915). On the other hand, at an established nest in northern Illinois, a crested flycatcher fearlessly attacked red-headed woodpeckers, blue jays (*Cyanocitta cristata*), and yellow-shafted flickers (*Colaptes auratus*) (Pattee 1931). These few observations on competition for nest sites, etc. involve urban habitat. There are no data on the question of competition in natural habitats.

Musselman (1932) noted crested flycatchers taking possession of nest boxes in central Illinois as early as April 30, and Gault (unpublished notes, 1899) witnessed nest building in the north as early as May 18. There is little information on the season of egg laying. In central Illinois, the region for which there is the most information, egg laying extends from at least May 17 to July 12 (Fig. 14).

Data on 25 clutches of crested flycatcher eggs from central and northern Illinois showed the following distribution of clutch size: 7 eggs — 4 percent, 6 eggs — 32 percent, 5 eggs — 36 percent, 4 eggs — 24 percent, and 3 eggs — 4 percent. These data may not be truly representative of the species, as they are nearly all from

old oological collections and old literature. There is one record of cowbird parasitism of the crested flycatcher in Illinois (Blocher 1936).

Nesting success, productivity, causes of nest failure, and, in general, the basic biology of the crested flycatcher in Illinois, are unknown for any population.

### Fall Migration

The fall migration of the crested flycatcher is unspectacular to the field observer (Fig. 14). As with a number of other species, the crested population seems to slip away almost unnoticed. In northern and central Illinois we have seen crested that were nearly through the postnuptial or postjuvinal molt as early as August 18, and others apparently in fresh plumage on August 26. The fall migration probably begins at least as early as mid-August.

Most observers record the last crested of the year in mid- or late September (Fig. 14), with little variation from region to region (Clark & Nice 1950, Dillon 1968, Schafer 1917-1918, Cooke 1888). Our peak fall counts occurred in August and September, and we have no Illinois records of the crested later than October 1. The fall counts are very low, particularly in the south, but they are actually more uniform than the spring counts,

TABLE 2. — Breeding populations of great crested flycatchers in various Illinois habitats.

Habitat	Acres	Birds Per <sup>a</sup> 100 Acres	Years	Type of Census	Region or County	Reference
Suburban residential	8	50	1916	Nest	Richland (S)	Cooke 1916, Ridgway 1915
Urban residential	98	5	1958	Strip	South	Graber & Graber 1963
Oak-maple forest	55	7-40 (avg 20)	1927-1972	Nest	Champaign (C)	Kendeigh 1944, Kendeigh & Stubbs 1951
Oak-maple forest	64	19	1947	Nest	Champaign (C)	Johnston 1947
Maple-elm forest	63	22	1950	Nest	McLean (C)	Calef 1953
	63	19	1951		McLean (C)	
Upland second growth hardwoods	56	32	1941	Nest	Sangamon (C)	Robertson 1941
	56	21	1942		Sangamon (C)	Robertson 1942b
	56	21	1944		Sangamon (C)	Robertson 1944b
	46	14	1948		Sangamon (C)	Robertson & Snyder 1948
Second growth hardwoods	15	27	1937-1938	Nest	Rock Island (N)	Fawks 1937, 1938
Grazed bottomland woods	93	24	1955	Nest	Macon (C)	Chaniot & Kirby 1955
Virgin floodplain forest	77	12	1948	Nest	Sangamon (C)	Snyder et al. 1948
Floodplain forest	50	20	1946	Nest	Piatt (C)	Fawver 1947b
Upland oak-hickory forest	24	4	1967	Nest	Hancock (C)	Franks & Martin 1967
Scrub oak forest interior	40	4	1968	Nest	Mason (C)	Johnson 1970
Unmodified woodland	27	15	1937	Nest	Lake (N)	Beecher 1942
Modified woodland (human housing)	28	7	1937	Nest	Lake (N)	Beecher 1942
Forest (all types including edge)	98	3	1958	Strip	North	Graber & Graber 1963
	97	8	1957		Central	
	117	5	1958		Central	
	20	20	1907		South	
	40	28	1909		South	
	174	5	1957		South	
	166	1	1958		South	
Late shrub	21	14	1966	Nest	Vermilion (C)	Karr 1968
Shrub areas	17	11	1907	Strip	South	Graber & Graber 1963
	39	2	1909		South	
	67	3	1957		South	
Orchard	19	5	1907	Strip	South	Graber & Graber 1963
	26	4	1909		South	

<sup>a</sup> All figures were converted to read birds per 100 acres (territorial males or nests X 2).

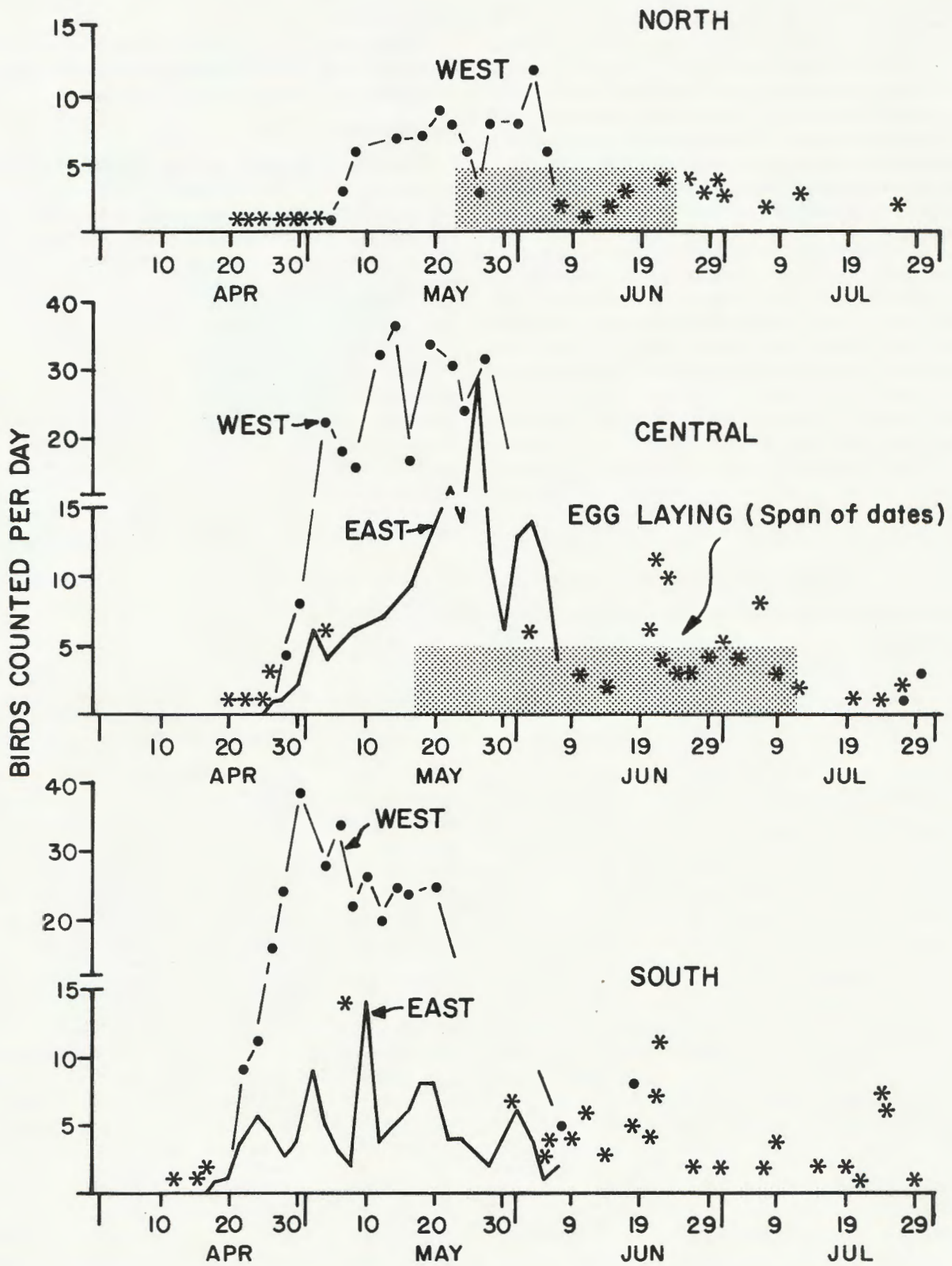
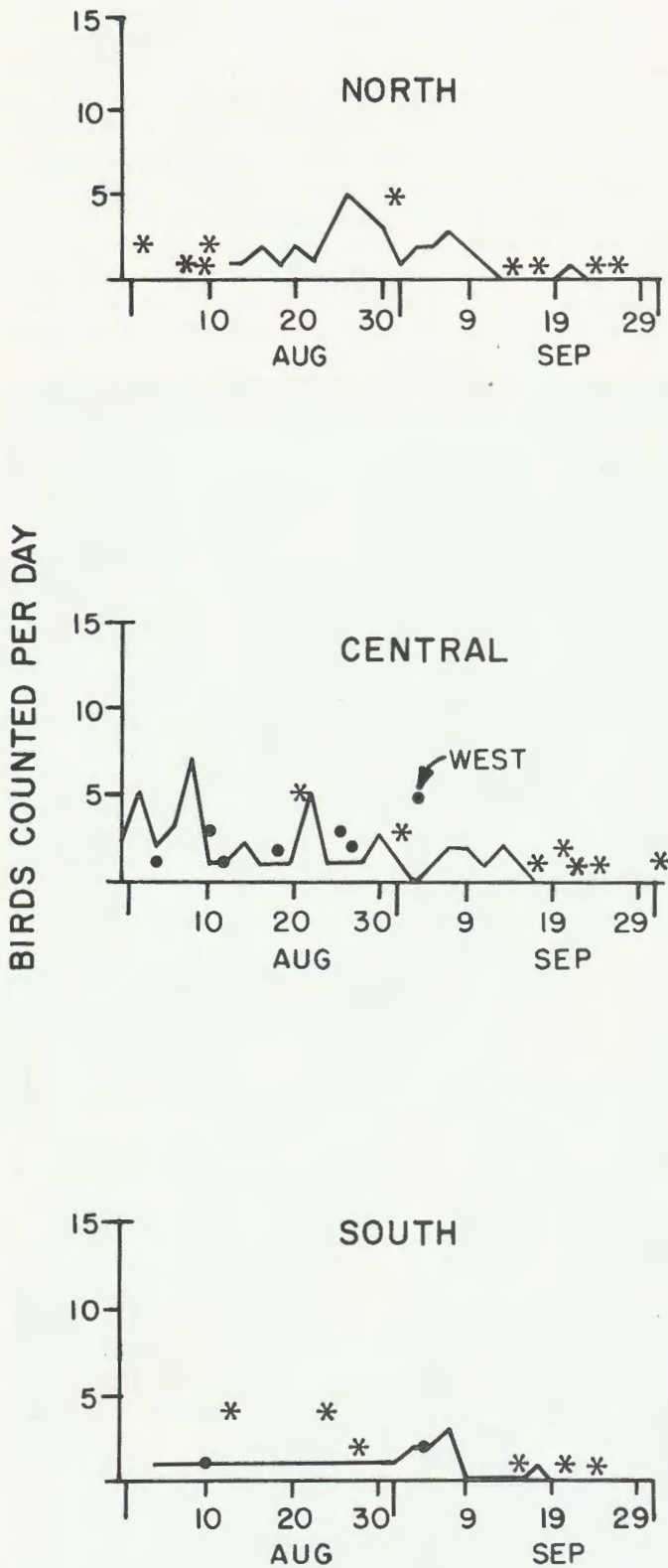


Fig. 14. — Egg-laying and migration seasons of the great crested flycatcher in different areas of the state (see Fig. 1). Spring and fall graph lines (1967-1970) show highest daily count of each 2 days (left

scale). Asterisk symbols represent counts made in other years or by other observers. Shaded areas show span of dates during which egg laying has been recorded. The species nests commonly in southern Illinois, but egg



## GREAT CRESTED FLYCATCHER BREEDING RECORDS



dates have not been recorded. Dot symbols represent counts made on the western side of the state; lines without dots represent the eastern side.

### NESTS OR YOUNG

- 1950 -
- ▲ 1900 - 1949
- BEFORE 1900

### PAIRS OR SINGING MALES (JUNE)

- 1950 -
- △ 1900 - 1949
- BEFORE 1900

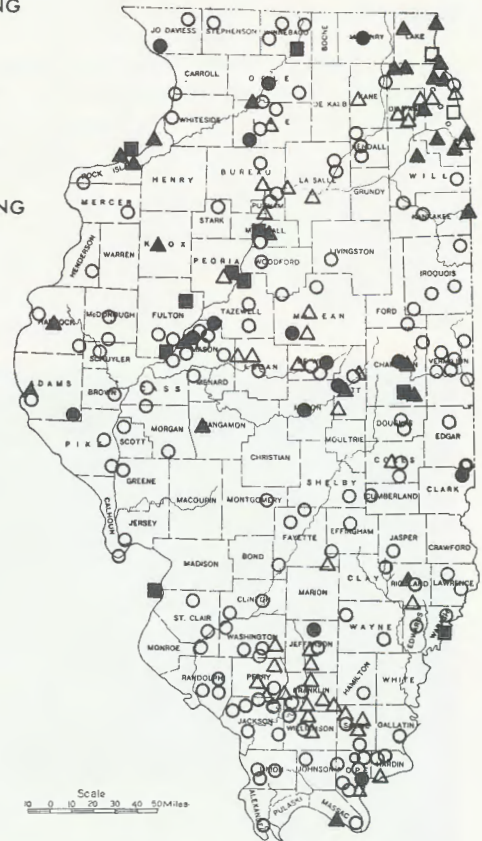


Fig. 15. — Breeding records for the great crested flycatcher in Illinois. Singing male records cover the period June 1 to early July.

and the spring-to-fall ratios show a marked progression from northern Illinois (3.8 crested in the spring to 1.0 in the fall) to central (8.1 in the spring to 1.0 in the fall) to south (33.9 in the spring to 1.0 in the fall). The fall migration of the crested flycatcher goes largely unseen.

Crested flycatchers are rare victims of the television towers. We know of only five crested specimens among the many thousands of night migrants killed at central Illinois towers. These crested were killed between September 2 and 21. There is an apparent geographic pattern to the crested kills, for all of the specimens have been found at towers west of Champaign County, despite the fact that thousands of birds of other species have been picked up at towers in Champaign and Vermilion counties. We cannot explain this distribution.

### Food Habits

The stomach contents of five crested flycatcher specimens constitute virtually all of the available data on the species' food habits in Illinois (Rice 1946, Twomey 1945). Obviously, much more study is needed. The food was nearly all insects, with unspecified Diptera, Hemiptera, Hymenoptera, and Lepidoptera making up most of the sample. Pattee (1931) also saw that young crested in a nest were being fed insects, including a large butterfly.

**EASTERN PHOEBE (*Sayornis phoebe*)**  
(Fig. 16 and 17)

**Spring Migration**

There are no data from which to judge whether the migration of the phoebe is nocturnal, diurnal, or both. Phoebes occur in Illinois in winter, but the winter population is almost negligible, and the possibility of confusing a winter bird with early spring migrants seems remote. Spring arrivals for the eastern phoebe have been recorded as early as February 1 and 15 in southern and central Illinois, and February 26 in the north (Ridgway 1915, George 1968, Musselman 1921*b*, Ford et al. 1934). We observed more conspicuous influxes of phoebes on

March 6 in the south, and around March 20 in the central and northern regions (Fig. 18).

Compared with the migration of many other species, the phoebe's migration is rather inconspicuous. Observers often detect the first few phoebes to return in spring, but in general no large numbers of transient phoebes are seen. It is exceptional to see even as many as 10 per day (Fig. 18). The species tends to be solitary, and we have never seen what could be called a real flock of phoebes in the spring. Our counts show great daily variation, but there is no consistent pattern in the spring counts from region to region. The central Illinois data show peak numbers in mid- and late April (Fig. 18), but with more years of observation Ekblaw & Ekblaw (1916) found peak



Fig. 16. — Eastern phoebe in fresh fall plumage. This species is without bright colors. Photo taken at Urbana in Champaign County.

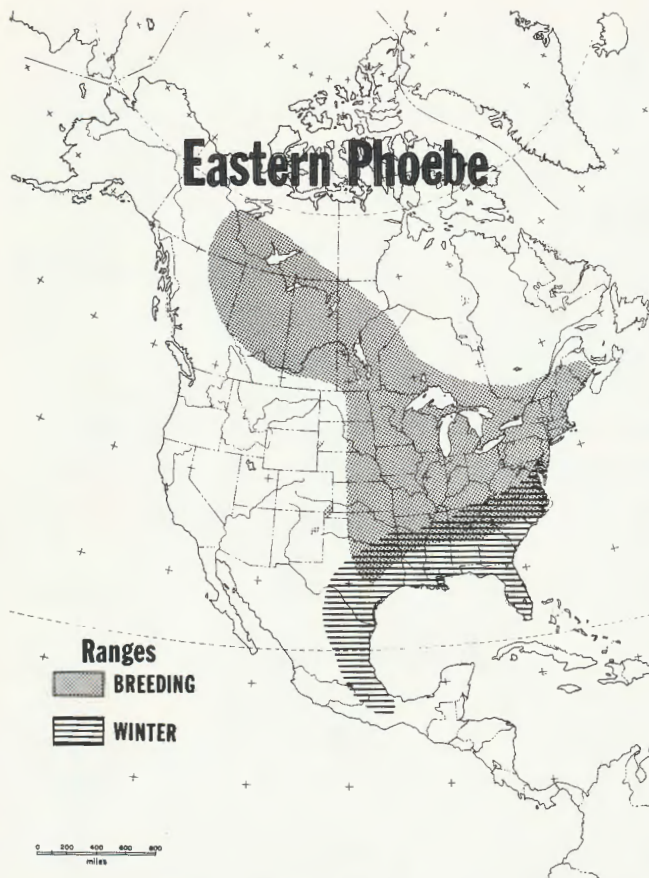


Fig. 17. — General distribution of the eastern phoebe. The outlined range may include large sections in which populations of species are thin or even absent because of the nature of the terrain and paucity of suitable habitat.

numbers in east-central Illinois between March 22 and 25. In northern Illinois there is evidence of a peak in the phoebe migration in late March (Brownell 1916, Rogers 1914), but Swink [1965] called April the month of greatest concentration of phoebes. In southern Illinois our highest spring counts of phoebes came in mid-March and early and late April.

### Distribution

The eastern phoebe has an extensive breeding range in eastern and central North America, and a winter range in southern United States and eastern Mexico (Fig. 17). In Illinois the phoebe probably nests in every county, though there are a number of counties in which breeding must still be verified (Fig. 19). In addition to the records plotted on the map, there are June records for recent years in Jersey and Madison counties (personal communication from Dick Anderson, no specific localities given).

### Nesting Habitats and Populations

Brewer (in Ridgway 1889) felt that phoebes were attracted to two kinds of places — the vicinity of dwellings and the vicinity of water. An important factor

omitted from his statement is the need for some kind of woody cover, something more than just a hedgerow. We have never found nesting phoebes more than a few yards from substantial woody cover, even where there were excellent nesting sites and good streams. This means that there are sizable (and expanding) tracts of agricultural land without nesting phoebes.

Gates (1911) considered the species to be common in bottomland forest. Robertson (1941, 1942a, 1944a) found one pair of phoebes nesting each year on about 64 acres of "swampy prairie" in Sangamon County. This "prairie" habitat did, however, contain some woody cover. Fawks (1937) found one pair in 15 acres of upland woods near Rock Island. In Piatt County Fawver (1947b) found two pairs of phoebes per 100 acres in floodplain forest, and determined the size of one territory to be 0.7 acre.

Because of the phoebe's requirement of a shelf or wall of some sort for nest placement, phoebe territories are often not contiguous. Usually there is but one pair (if any) nesting at a bridge or a farmyard, for example, and the spacing of phoebes may thus often be more dependent upon the spacing of bridges than upon the size of the territory of the bird. This spacing is not true however of rocky bluff areas, where numerous nest sites may be available through miles of continuous forest habitat. In such situations phoebes may be closely spaced. At One Horse Gap in Pope County, where there are extensive rock bluffs in forest areas (Fig. 20), we found six contemporaneous nests in an area of about 30 acres. The two most closely spaced of these nests were about 270 feet apart. This area had a particularly dense population of phoebes. Other rock areas we visited in southern Illinois had only one or two pairs in 30 acres. Some large areas (100 acres or more) of suitable-looking habitat were without phoebes. Phoebe habitat has never been precisely defined, and we cannot account for the variation in populations. We suspect that there may be a relationship between the humidity in rock canyons and phoebe populations, but this suspicion needs testing.

Away from rock bluff areas, the usual nesting places are bridges, culverts, and buildings. Phoebes nest both on and inside buildings. They appear to choose nest sites offering some measure of overhead shelter, and nests on rock walls are nearly always placed under an overhang (Fig. 21). As the phoebe's nest contains a large amount of mud, protection from rain may be essential to keep the nest from washing away. Some naturalists feared that phoebes might suffer a great loss of nest sites as bridges with iron I-beam girders gave way to cement culverts (Ford 1956), but phoebes adapted to the cement structures successfully (Blocher 1933).

Phoebe nests in natural rock settings vary in height from about 2½ feet to more than 20 feet, but are generally under 6 feet. Nests on buildings are usually about 7-9 feet high, the height of porch braces. The heights of bridge and culvert nests are similarly incidental to the birds' choosing.

Swink (1960) observed that hawthorn (*Crataegus*),

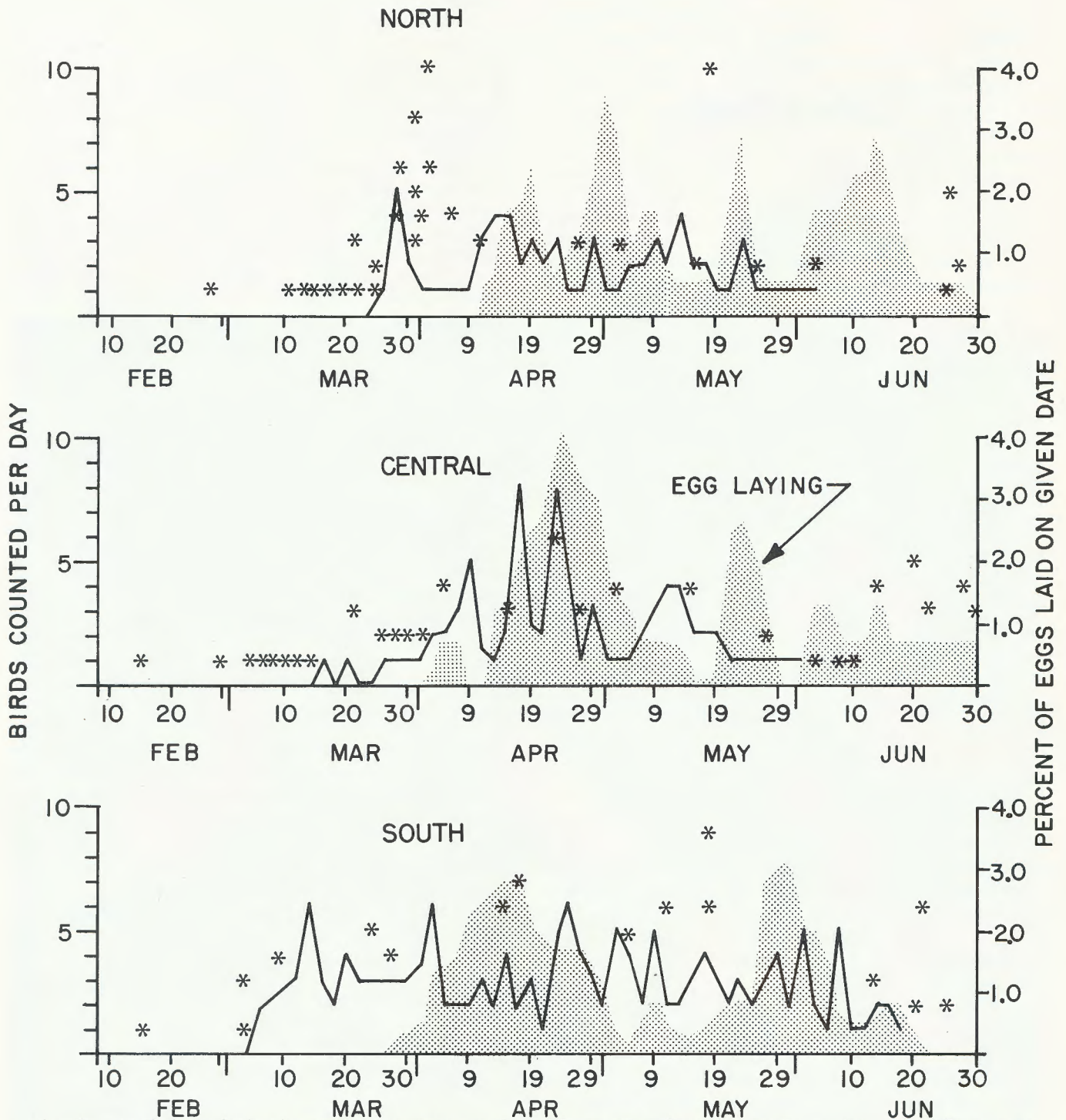
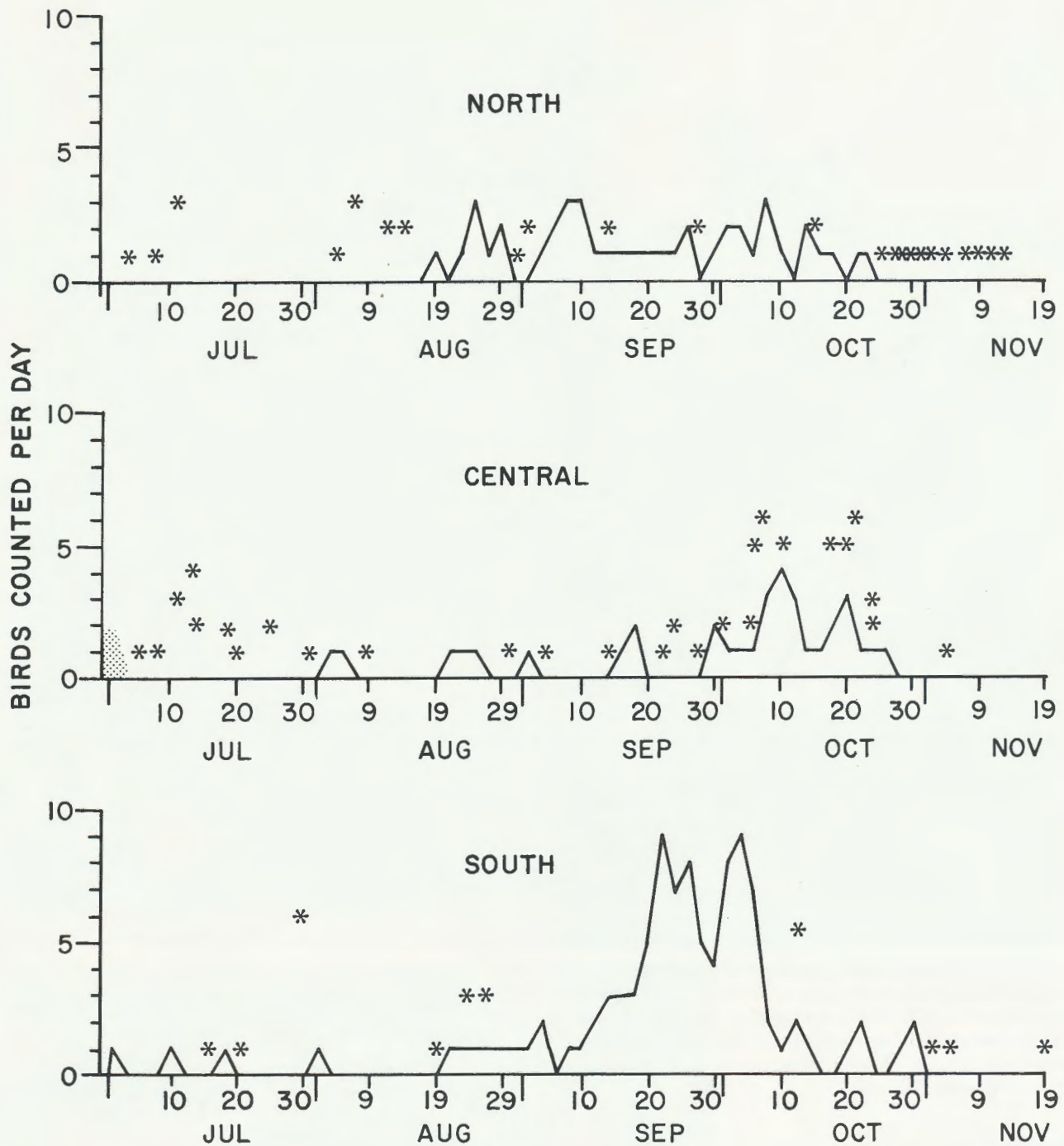


Fig. 18. — Egg-laying and migration seasons of the eastern phoebe in different areas of the state (see Fig. 1). Spring and fall graph lines (1967-1970) show highest daily counts of each 2 days (left scale). Asterisk symbols represent counts made in other years or by other observers. Shaded areas show the percent of eggs laid on a given date (right scale).

willow, black cherry (*Prunus serotina*), and apple were the most frequently used perching sites of phoebes in northeastern Illinois.

Phoebes appear to be very tolerant of humans, often nesting on the porches of rural homes in forested areas.

They also nest in towns and cities, but despite the availability of numerous nesting sites in cities, phoebe populations appear to be consistently very low in urban areas. Barnes (1912) believed that the phoebe population was declining, and attributed the decline, at least in part,



to house sparrows driving phoebes away from nest sites on buildings. If true, this competition with sparrows could be an explanation for low phoebe populations in urban residential habitat. In recent years we have also seen the use by house sparrows of phoebe nests under bridges.

If the phoebe population of Illinois is showing a trend in either direction, decreasing or increasing, present data are not adequate to show the trend. Through the years a

number of authors have reported the phoebe population to be declining in Illinois, and there appear to be periodic population "crashes" in this species (Mayfield 1951, Nolan 1958) similar to those seen in the bluebird (*Sialia sialis*) population (Graber et al. 1971). Hodges (1953) estimated that there was a 70-percent decline of the phoebe population in 1953 in the Rock Island-Davenport area. James' (1960, 1961) analysis of population data

## EASTERN PHOEBE BREEDING RECORDS

### NESTS OR YOUNG

- 1950 -
- ▲ 1900 - 1949
- BEFORE 1900

### PAIRS OR SINGING MALES (JUNE)

- 1950 -
- △ 1900 - 1949
- BEFORE 1900

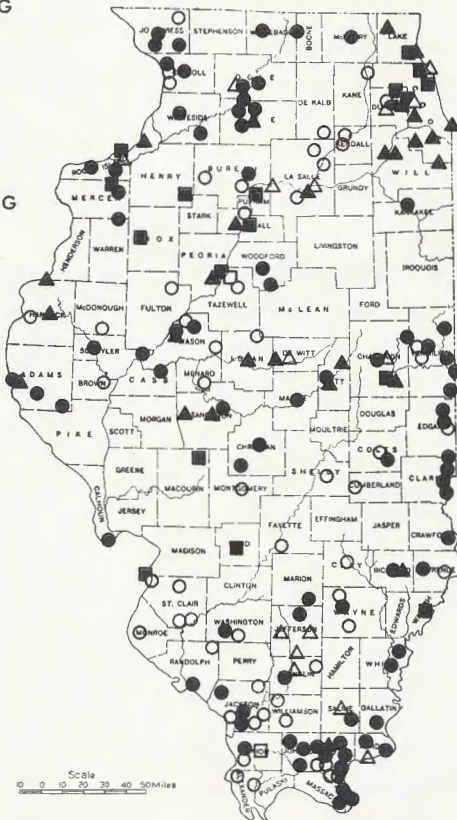


Fig. 19. — Breeding records for the eastern phoebe in Illinois. Singing male records cover the period June 1 to early July.

from the wintering grounds of the phoebe indicated that the phoebe population crashes represented actual mortality related to severe weather on the wintering grounds. Schafer (1921) recorded weather-induced mortality of phoebes in April. The phoebe population that crashed badly in parts of Illinois in 1957 appeared to be completely recovered by 1960 (T. E. Musselman, personal communication). Such crashes are a different phenomenon perhaps than any long-term changes that may be occurring. We need annual surveys of several nesting populations at locations throughout the state to determine if the phoebe population is increasing or decreasing over the years.

### Nesting Cycle

Phoebes are already in song when they arrive in spring, but whether this is true of local breeding birds only, or also of transients passing through, we do not know. The song, phonetically, is slightly different than the sound of the name, and at different times sounds like "fee-burt" or "fee-bree" with emphasis on the first syllable. Phoebes also utter a rather soft but emphatic "chip," apparently an alarm note heard often near the

nest, and a chattering call, the function of which we do not know. Silloway (unpublished notes, 1923) observed a kind of flight song performance by this species on April 12, 1923 in Peoria.

There are no published band returns to indicate the incidence of homing by phoebes to nest sites in Illinois. The same nest sites are often used over and over through the years, but such use cannot necessarily be interpreted as homing by the same birds either in different years, or for different nestings within a year. Farwell (1919) recorded phoebes nesting on her house in northeastern Illinois at least 15 years in succession. The same sites on rock overhangs are also re-used year after year (Bonnell 1917). One possible implication of these observations is that good phoebe nesting sites are in short supply.

We have found completed new nests as early as March 23 in southern Illinois, and nest-building probably begins there at least as early as March 15. In central Illinois the earliest completed nest known to us was March 27. In the north, nest construction by phoebes must not begin much before the first of April, but we have no firm observations on this. There are no accurate measurements of the time required for nest construction of early nests. We have observed nests, both from an early stage of construction and virtually completed, to go 5-11 days before the first egg was laid. Several seemingly completed nests in all regions of the state remained empty 7-9 days before the first egg was laid. Construction of complete new nests later in the season (second nestings) was faster, the shortest time being 7 days before the first egg was laid (Fig. 22). One nest that was merely refurbished was empty only 4 days before a new clutch was started, but more often the interval was 6-13 days (Fig. 22).

Phoebe nests are durable and the structures often last from one year to the next, but we know of no instance in which a year-old nest was used again without being essentially rebuilt. The nests are composed of mud, grass, bark fiber, and moss, lined with hair, wool, and plant fibers (Silloway 1906; Sanborn & Goelitz 1915; William Loucks, unpublished notes). The structure is distinctive and attractive (Fig. 23) with its covering of green moss. Phoebes occasionally use old nests of barn swallows (*Hirundo rustica*), but add at least a little moss to the structure (Fig. 24). The phoebe does not appear to compete directly with the swallow, but merely uses an abandoned swallow nest.

Egg laying begins as early as March 28 in southern Illinois, April 4 in the central region, and April 12 in the north (Fig. 18). There are at least two conspicuous peaks in egg laying in all regions of the state, and the implication is that the phoebe attempts to raise at least two broods. The two major peaks in egg production occur about mid-April and late May in southern Illinois, late April and late May in central Illinois, and early May and early June in northern Illinois (Fig. 18). The egg-laying curves include data from re-nestings following nest failure, which tends to skew the main peaks and produce secondary peaks (Fig. 18).

Most phoebe nests in Illinois receive 5-egg clutches



Fig. 20. — (Above.) Natural habitat of the eastern phoebe, cliffs with overhang in forest. Photo taken at One Horse Gap in Pope County.



Fig. 21. — (Left.) Eastern phoebe nest on wall (near observer's hand) of cliff shown in Fig. 20.

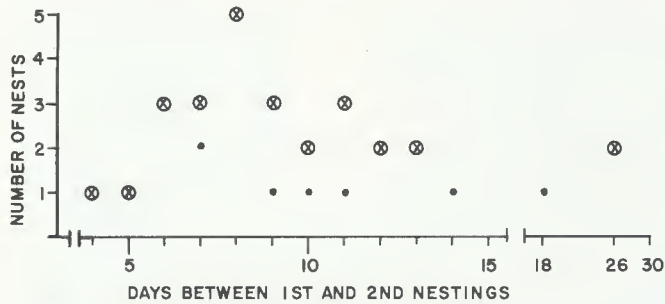


Fig. 22. — Number of days between the end of the first nesting and the beginning of the second nesting of eastern phoebes. Circled symbols represent re-use of same nest structure used in first nesting. Dot symbols represent new nests constructed near site of first nesting.

(Table 3), even in second nestings. At a bridge in Clark County, where at least three phoebes attempted to occupy the same territory, two contemporaneous nests were built, one of which received 7 eggs and ultimately fledged one young. Two females probably contributed to the clutch. Clutches of more than 6 eggs are abnormal and even 6-egg clutches are uncommon. Though we have found many nests with 2 and even only 1 egg, all were cases in which predation may have occurred. Phoebe eggs are usually immaculate white, but some clutches are faintly speckled with reddish brown.

The phoebe is a common victim of cowbird parasitism in most of Illinois. Phoebe nests for which we had relatively complete histories showed an incidence of about 14 percent in the north, where Blocher (1936)



Fig. 23. — Typical eastern phoebe nest in rock niche.





Fig. 24. — Eastern phoebe at nest built in old barn swallow nest built on an electrical insulator.

TABLE 3. — Clutch sizes of eastern phoebes in different regions of Illinois.

Region	Months	Number of Nests	Average Clutch	Percent of Nests by Clutch Size			
				6 Eggs	5 Eggs	4 Eggs	3 Eggs
North	April-May 15	14	4.9	7	71	21	0
	May 16-June	20	4.7	0	70	30	0
Central	April-May 15	17	5.0	6	88	6	0
	May 16-June	13	4.7	0	77	15	8
South	March-May 15	31	5.0	13	74	13	0
	May 16-June	32	4.5	0	53	47	0

reported an incidence of 50 percent. Our data exclude nests that had phoebe eggs perforated (probably by cowbirds) but in which no cowbird eggs were laid. Our nest records showed a higher rate of parasitism in central Illinois (29 percent) than our nests in the north, but the highest rate (33 percent) occurred in the northern counties of the southern region (north of Franklin County). On the other hand, in extreme southern Illinois south of Saline County where we studied 73 nests we did not find one parasitized nest.

Of the 10 parasitized nests for which we had complete data, only 1 produced a phoebe (one phoebe plus one cowbird), 3 produced only cowbirds, and 6 failed completely, though not necessarily due to the parasitism.

Incubation periods that we determined at several nests in different parts of the state were 15-17 days, usually 16, and nestling life was also 15-17 days. Nestling phoebes tend to remain in the nest as long as possible and often cling to the edge of the nest until their combined growth appears to exceed the capacity of the nest to hold them. In a nest with only two young the nestling stage was prolonged to at least 20 days. Upon fledging, phoebes usually fly well, but not with the competence of fledging swallows. A good first flight for the phoebe is probably important, because many phoebe nests are over water. At one nest we observed that at least some of the fledglings returned to the nest the first night.

The nesting cycle for a first nesting, from onset of nest-building to fledging of young for a nest with five eggs, would be about 45 days: 9 days for nest building including the delay before the first egg is laid, 4 days for egg laying, 16 days for incubation beginning with the fourth egg, and 16 days of nestling life. Nest building can be at least as short as 7 days, reducing the cycle to 43 days. In renesting the time could be reduced by 5 days, as refurbishing a nest can be done in 4 days or less (Fig. 22). Reducing the clutch size also reduces the cycle time by 1 day per egg. Thus, the cycle could be only 38 days for a nest with 3 eggs.

Even with such a long nesting cycle the possibility exists that a female could produce three broods in a year, as the egg-laying season is also long (Fig. 18). We suspect, however, that three broods would be exceptional. Estimating from the early laying dates (Fig. 18), the first fledglings could be expected about May 1 in southern Illinois, where we have seen grown young independent of their parents as early as May 26. At the other extreme, in central Illinois where the last eggs were laid July 2, nests with young could theoretically still be found as late as the first week in August. We have never found active nests later than July 18. We rarely observed postfledged young.

Nesting success of phoebes was lower than we had expected in view of their protected nest sites (Table 4). In the northern and central regions, and in the northern counties of the south, success (30-43 percent of eggs fledged) in our samples of nests and eggs tended toward inverse correlation ( $r = -.763$ ) with cowbird parasitism. Significantly, most of these nests failed during the

egg-laying or early incubation phases of the nesting cycle, which is also indicative of cowbird interference. Because none of the nests in extreme southern Illinois were parasitized by cowbirds, we expected higher success in these nests, but they were even less successful than nests in more northern populations (Table 4). The unsuccessful nests in extreme southern Illinois failed about equally during the incubation stage and the nestling stage. The least successful nests and eggs (17 percent of eggs fledged) were the second nestings in extreme southern Illinois.

We have too little data to quantify the causes of nest failures. The cowbird was probably a significant factor in all but the extreme southern counties (see above). Hatchability of eggs in unmolested, carefully checked nests appeared to decline with latitude. In the north, hatchability was an amazing 97 percent, but in the central region it was only 83 percent. Eggs in early nests in extreme southern Illinois showed a hatchability of 80 percent, but only 71 percent of the eggs in second nests hatched. Flooding of nests because of rising streams was a serious problem, especially in the south. Falling nests were also probably a significant mortality factor, but such incidences cannot definitely be differentiated from nest dislodgement by predators, human vandals, or livestock. The effect is the same in any case.

Nests in extreme southern Illinois appear to be much more subject to predation than more northern nests. In the south we saw evidence of nest predation from birds on both eggs and young, and in at least one case the predator was probably a blue jay. In central Illinois Musselman (1933) found a house wren (*Troglodytes aedon*) removing 4-day-old phoebes from their nest, and in the north we saw one phoebe nest taken over by house wrens, but do not know whether there was real predation in this case. Snakes — in one case a black rat snake (*Elaphe obsoleta*) (Ridgway 1914) — have also been recorded as predators on phoebe nests (Bowie Hannah, personal communication). Death of nestlings from heavy infestations of lice or mites occurred in at least two nests in the south (see also Hunter 1935), and the death of one brood of phoebes appeared to coincide with roadside spraying of herbicides near the nest.

### Fall Migration

As do many other species, phoebes become particularly inconspicuous in late summer. One nesting population of phoebes that we studied at a rock bluff area in Pope County disappeared entirely by July 8, though the last young had fledged only 9 days earlier. The population had surely not migrated, but had probably either dispersed or moved its center of activity. This movement may be fairly typical, as most phoebes appear to quit their nesting areas in July.

We have seen independent young phoebes as early as May 26 and newly fledged young on July 18 in southern Illinois, but there are no data to show when any of these young birds or their parents begin fall migration, or what

TABLE 4. — Fledging success of eastern phoebes in Illinois.

Region	Years	Months	Number of Nests	Percent Fledged		Percent of Nests with Cowbird Eggs
				Nests	Eggs	
Northwest	1968	April-June	22	57	43	14
Central	1969, 1972	April-June	21	57	41	29
South:						
North of Franklin Co.	1972	April-June	16	47	30	33
South of Franklin Co.	1967, 1970-1972	April-June	60	36	29	0
		April-May 15	30	45	38	0
		May 15-June	30	23	17	0

they do until they start migration. The time of day when migration occurs is also unknown. We have not found phoebes among the thousands of night migrants killed at Illinois television towers.

We have only scant data on the molt. We have seen young in the post-juvinal molt on August 5 in central Illinois, and a "flock" of six phoebes in fresh plumage on July 29 in southern Illinois.

The onset of the fall migration in this species will probably not be known certainly without careful studies using banded birds, or telemetry. Swink's (1960) counts of phoebes in northeastern Illinois, and ours for the northwest and other regions of the state (Fig. 18) show that September-October is a period of notable activity for phoebes. Our counts, though highly variable from region to region, suggest that the migration may begin in late August and that it is largely over by the end of October, with highest peaks occurring in September and October (Fig. 18). Phoebe records as late as November 10 and 13 for northern Illinois (Cooke 1908b, Lyon 1933), November 4 for central Illinois (Graber 1962), and November 19 for southern Illinois (Graber, unpublished) could be interpreted either as late fall migration or early influx of winter birds.

Neither Swink's (1960) counts nor ours for spring and fall account for any productivity. The ratio for all regions (1.04 to 1.00) of spring (March-April) to fall (September-October) counts actually shows more birds in the spring. The ratio was 1.2 phoebes in the spring to 1.0 in the fall in northern Illinois, and 1.8 to 1.0 in central Illinois. Only in the south where the largest numbers of phoebes were seen was the fall count higher (1.0 in the spring to 1.3 in the fall).

### Winter Records

The eastern phoebe has been reported in the winter (at least 15 records) in all three regions of the state (Fig. 25). Nearly all of these records fall between December 18 and January 1, and most of them are from recent (since 1950) Christmas censuses. There are almost as many reports from northern Illinois as from the southern region, probably reflecting the distribution of observers rather than of birds. In recent years especially, phoebes have been reported in the winter in the Christmas counts

### EASTERN PHOEBE

#### WINTER RECORDS

DEC. 1 - FEB. 1



Fig. 25. — Winter records of the eastern phoebe in Illinois. The three regions of the state, as referred to in the text, are shown by the heavy lines.

of many northern states, including Vermont in 1965 and 1972 and Maine in 1967. It is still questionable whether phoebes actually winter through and survive in these northern areas, including Illinois.

The earliest mention of the phoebe in winter is that of Cooke (1885) for southern Illinois. Recent checklists of birds indicate that the phoebe is generally absent from southern Illinois from mid-December to mid-February

(George 1968, Kleen & Bush 1971c), and this corresponds to our observations. Though Ridgway (1915) suggested that the phoebe actually wintered near Olney, the winter phoebes in Illinois may actually be late stragglers of the fall migration and/or early spring migrants. The question still remains to be settled. The literature contains nothing on the habitat phoebes occupy in the winter, but Richard Thom (personal communication) observed one on December 27, 1972 near Stringtown in flooded bottomland grown up to maple (*Acer*) saplings.

### Food Habits

The food of Illinois phoebes is essentially unknown. Both Forbes (1878) and Gault (unpublished notes, 1889) noted the dominant item in a few phoebe stomachs to be beetles (unspecified). In central Illinois in October we have seen phoebes eating pokeberries, and the bird in Fig. 24 is feeding a skipper (*Hesperiidae*) to its young.

Among the most interesting observations of phoebe food habits were those of Dr. Lewy (Jung 1926) and Binford (1957), both of whom observed the same behavior at the same place but 30 years apart. They saw phoebes catching and eating small fish at a lagoon in Jackson Park, Chicago. From Binford's account, the birds perched about 2 feet above the surface and peered into the water. The fish were massed in a large school and when they came to within 2-3 inches of the surface, a phoebe would dive and catch a fish in its bill. Only the bird's head and upper breast touched the water. Two phoebes caught seven fish (1½-2½ inches long) in 20 minutes.

This method of fishing is very suggestive of the flycatchers' method of bathing, diving at the water from a perch above and hitting the surface with the breast and head.

### SAY'S PHOEBE (*Sayornis saya*)

There are two or possibly three records for Say's phoebe in the state. According to Nelson (1876-1877) two specimens were collected by Kennicott at West Northfield in Cook County prior to 1876 and were listed in the catalog of birds at the museum of Northwestern University at Evanston. The specimens were not in the collection, however, when Nelson examined it. The only other record for the species is a sighting December 30, 1966 at Joppa in Massac County by Bob Montgomery and Larry Hood (Petersen 1967). This species has been reported from Porter County, Indiana (Pitelka 1938) and from the St. Louis, Missouri area (Comfort 1953). There are a number of fall-winter records (see Audubon Field Notes or American Birds) for northeastern states (particularly New York, New Jersey, and Massachusetts) and a few for southeastern states (Louisiana, Alabama, Florida, and North Carolina). A western species, the nearest nesting Say's phoebes are in extreme northwestern Iowa (Bryant & Youngworth 1962).

## YELLOW-BELLIED FLYCATCHER

(*Empidonax flaviventris*)

(Fig. 26)

(For an illustration representing this flycatcher, see Fig. 37.)

### Spring Migration

The yellow-bellied flycatcher is known to be a nocturnal migrant; though diurnal migration is unknown in the species, it would be a difficult thing to prove, pro or con.

As they return from their wintering grounds in Central America, the first yellow-bellied flycatchers may reach Illinois by the end of April (Walter & Walter 1904), but most of them come later (Fig. 27). The species is usually not detected before May 6-8 in the south (Cooke 1908a), May 14 in central Illinois (Smith 1930), and May 15-17 in the north (Ford et al. 1934, Clark & Nice 1950). We observed peak numbers of yellow-bellies on May 12 in southern Illinois, May 22 in the central region, and May 28 in the north (Fig. 27). Petersen (1965) found that the yellow-bellied flycatcher outnumbered other *Empidonax* at Davenport, Iowa, where 41 were captured with a mist net between May 25 and 31, 1968 (Petersen 1968b).

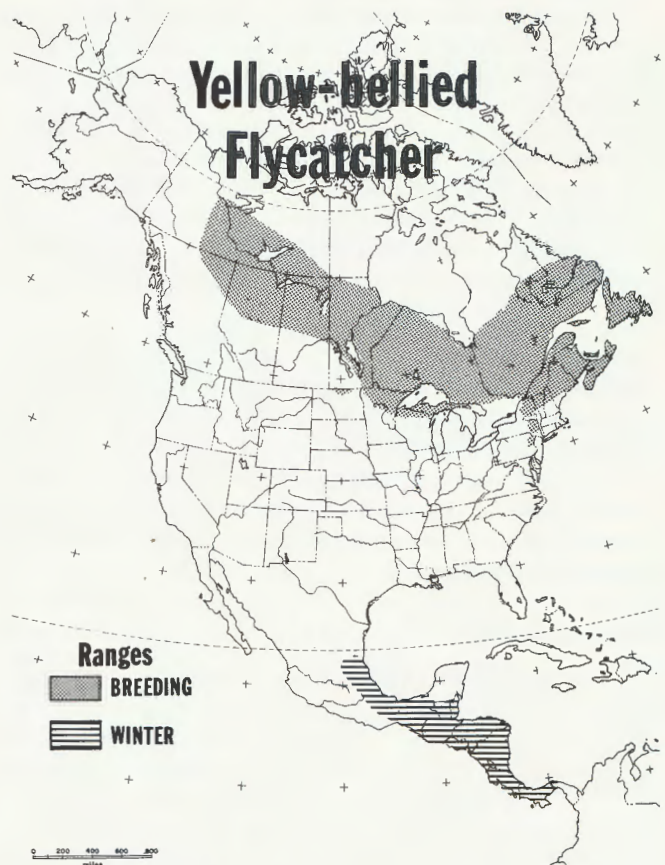


Fig. 26. — General distribution of the yellow-bellied flycatcher. The outlined range may include large sections in which populations of the species are thin or even absent because of the nature of the terrain and paucity of suitable habitat.

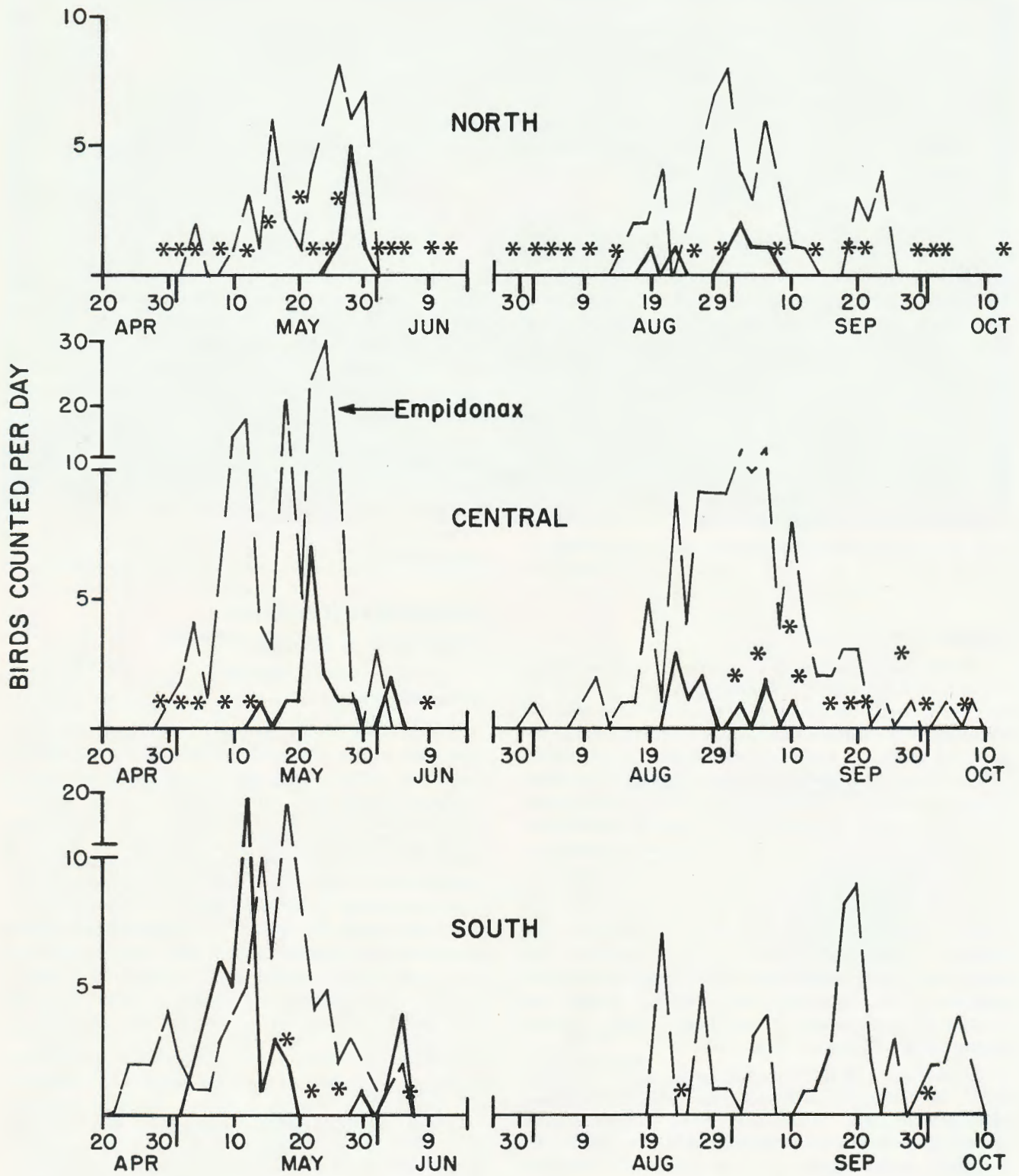


Fig. 27. — Migration seasons of the yellow-bellied flycatcher in different areas of the state (see Fig. 1). Spring and fall graph lines (1967-1970) show highest daily count of each 2 days (left scale). Asterisk symbols represent counts made in other years or by other observers. Dash line represents counts of unidentified *Empidonax* flycatchers; solid heavy line represents counts of identified yellow-bellied flycatchers.

Yellow-bellies probably occur throughout Illinois in migration, but the variation in populations from place to place is not known.

Though we did not often hear yellow-bellied flycatchers sing, we did hear them in all regions of the state, including the extreme south. The song was a softly uttered "too-reet" or "too-weeet," with only slight emphasis on the rising second syllable. More often from yellow-bellies, we heard a call — "che-bunk" — similar to a single song phrase of the least flycatcher (Robbins et al. 1966).

The relatively large number of yellow-bellied flycatchers we identified in the south, versus central and northern Illinois, may indicate that we were confusing yellow-bellies with Acadians, a species particularly numerous in the south. However we do not believe this to be the case, because most of our identifications were based on calls. Yellow-bellied flycatchers were particularly vocal in the spring of 1970 when we were in southwestern Illinois, and the relatively high counts in the south may have been annual variation rather than regional variation.

The spring migration of the yellow-bellied flycatcher regularly extends into June even in the south (June 6), and at least as late as June 12 in the north (Ferry 1908).

The yellow-bellied flycatcher does not nest in Illinois (Fig. 26), and a specimen found dead near Palatine, Illinois on June 24, 1948 (Ford 1956) should be considered an abnormally late migrant.

### Fall Migration

As do other species of *Empidonax*, yellow-bellied flycatchers begin their fall migration relatively early. Specimens have been found in northern Illinois, which is not more than 200 miles south of the southern edge of the breeding range, as early as July 29 and 30 (Brodkorb 1928, Bush 1920). They are of fairly regular occurrence in their migration through Illinois from early August (Ford et al. 1934, Brodkorb 1927) through September, with at least a few lingering into October even in northern Illinois (as late as October 12, Ford 1956). The earliest fall record known to us for central Illinois is August 23, and for the south it is August 25 (George 1968), but earlier August records will probably be recorded for both regions in view of the number of earlier records for the north (Ford et al. 1934, Clark & Nice 1950, Brodkorb & Stevenson 1934, Coursen 1947). George (1968) has records for the species in southern Illinois between August 25 and October 1 (Fig. 26).

As explained in the introductory paragraphs of this report, the fall counts of *Empidonax* flycatchers are even more problematical than the spring counts, partly because there is relatively little identifying vocalization by the birds in fall. Thus our fall counts of identified *Empidonax* are low (Fig. 27), and they probably do not accurately reflect the actual migration patterns. Our few fall observations suggest that the peak fall migration of the yellow-bellied flycatcher comes in late August and

early September (Fig. 27), but the tower-kill data indicate strong migration even in late September.

At least 15 specimens of yellow-bellied flycatchers have been picked up from kills of night migrants at central Illinois television towers, on dates from September 2 through October 7. During the one night of September 26-27, 1972, five yellow-bellies were killed at towers between Monticello and Springfield, Illinois (David Bohlen and James Seets, personal communications).

Because *Empidonax* flycatchers can be identified in the hand, netting operations seem to offer a better method than direct field observation for the study of the migrations of these small flycatchers. In the Davenport, Iowa area between August 20 and September 25, 1971 Petersen (1971) banded 22 yellow-bellied flycatchers, about half of his spring catch (41 birds) for this species in 1968 (Peterson 1968b). For such netting studies to be useful for comparisons of spring and fall or other populations, however, it is important to have continuous daily coverage.

### Food Habits

One yellow-bellied flycatcher specimen examined by Forbes (1882b) had eaten beetles, which comprised half of the stomach contents, and also Lepidoptera adults and caterpillars.

## ACADIAN FLYCATCHER

(*Empidonax virescens*)

(Fig. 28 and 29)

### Spring Migration

The Acadian flycatcher regularly arrives about the third week of April in southern Illinois, the last of April in central Illinois, and the second week of May in northern Illinois. The earliest recorded arrival dates are April 22 in the south, April 28 in central Illinois (Strauch 1917), and May 6 in northern Illinois (Gault 1901). The peak of the Acadian's spring migration appears to occur about May 18 in the south, May 24 in central Illinois, and May 26-28 in the north (Fig. 30).

In the southern part of the state more Acadian flycatchers were counted in the spring on the western side of the state than on the east, in a ratio of about 3 (west) to 1 (east). The difference probably reflects an actual difference in the amount of lowland forest in the two areas censused.

### Distribution

The Acadian flycatcher is a bird of the eastern United States (Fig. 29). Acadians may nest in every county in Illinois, but as yet the distribution is poorly known (Fig. 31). The species is common in southern and central Illinois in suitable habitat, but is rather rare in the north. The limit of its fairly common occurrence to the north seems to be the Illinois River. Excellent lowland forest in



Fig. 28. — Acadian flycatcher on its nest. Photo taken in Pope County. Like other *Empidonax*, Acadians have whitish wing bars (just visible over rim of nest) and a light eye-ring.

central Lee County supports populations of less than 1 per 100 acres.

In addition to the plotted records (Fig. 31), there are reports of nesting, without specific localities given, for Calhoun, St. Clair, and Madison counties (Richard Anderson, personal communication).

#### Nesting Habitats and Populations

The Acadian flycatcher particularly favors damp forests with understory in bottomlands. Forested streams of almost any size are used by Acadians, and they follow even the small spring branches well up into wooded hills, i.e., upland woods. Deep flooding of many major river valleys in Illinois in 1973 did not appear to deter Acadians, as we observed good populations in flooded forests where the water depth was at least 10 feet, and no ground was visible for a quarter of a mile or more. Floods that kill the trees, however, destroy Acadian habitat, which is generally well-shaded, often with high mosquito populations. Acadians occupy the lowest tree canopy and understory layers of the forest. Tree size and age requirements of the habitat have not been studied, but shrub habitat is definitely not suitable for Acadians.

Published population figures for the Acadian flycatcher are mainly for central Illinois (Table 5). In 40 years of summer censuses of upland Trelease Woods near Urbana, Kendeigh and his co-workers found this species present only 9 years (Table 5). Not far away, in bottomland forest along the Sangamon River in Piatt County, Acadian populations varied from 8 to 32 birds

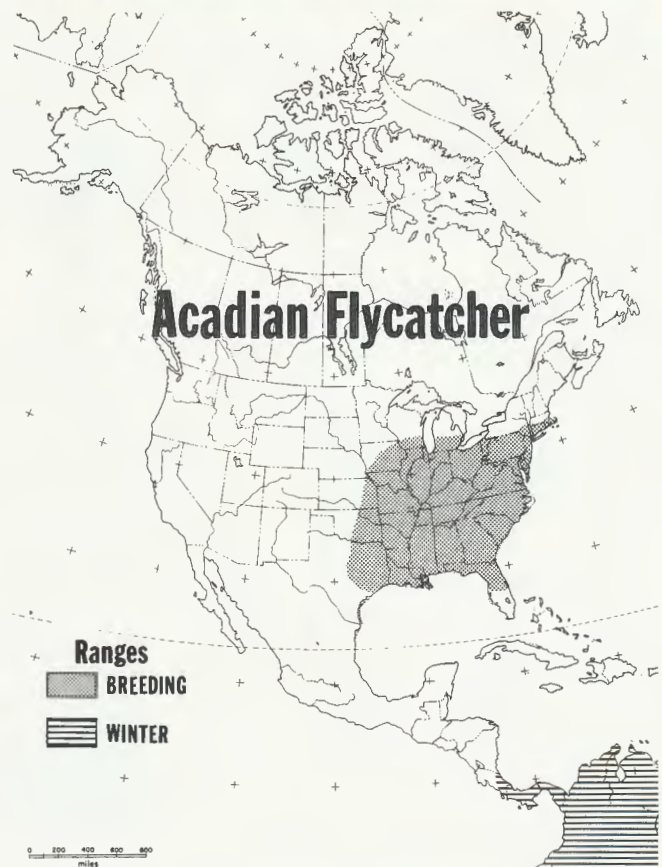


Fig. 29. — General distribution of the Acadian flycatcher. The outlined range may include large sections in which populations of the species are thin or even absent because of the nature of the terrain and the paucity of suitable habitat.

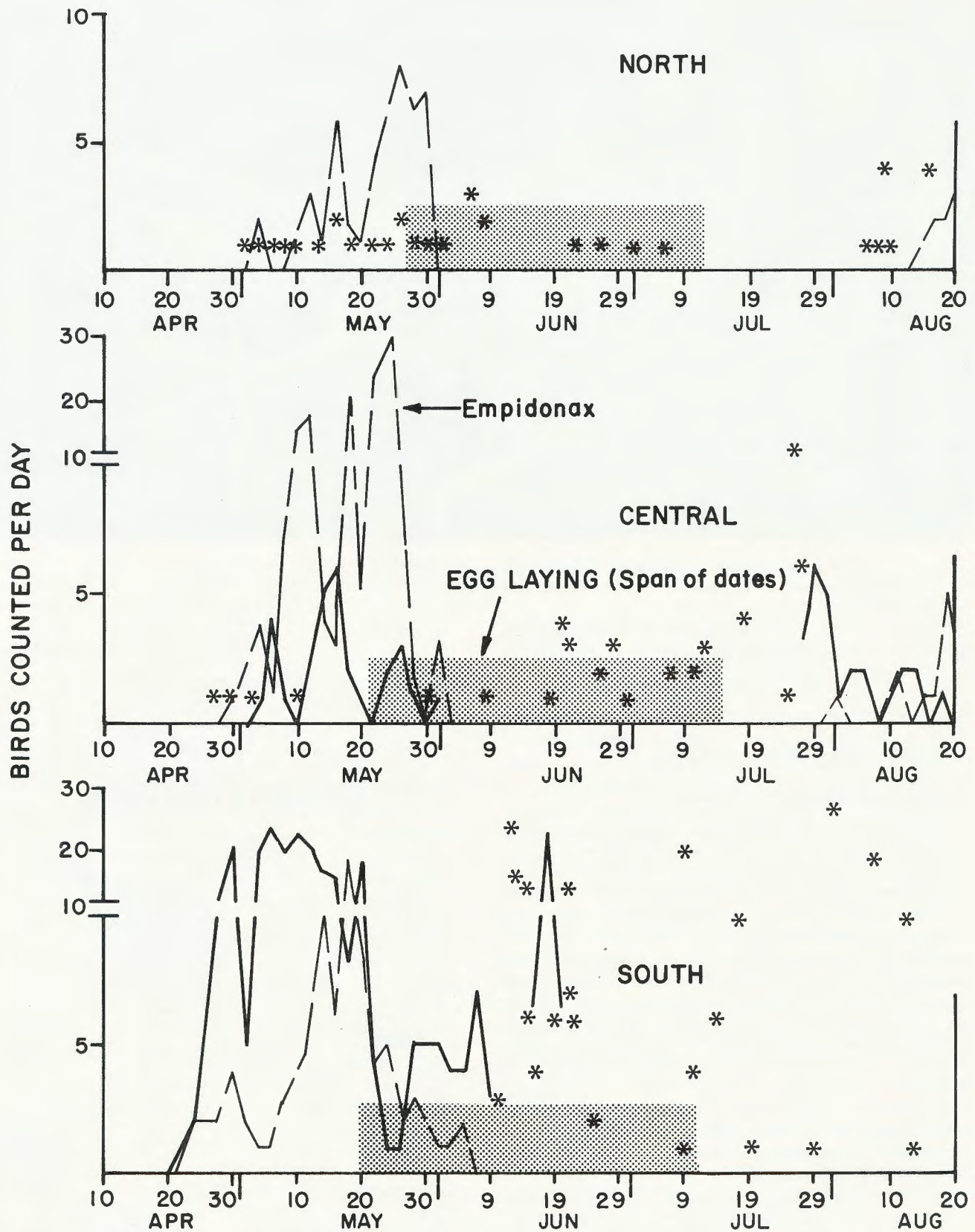
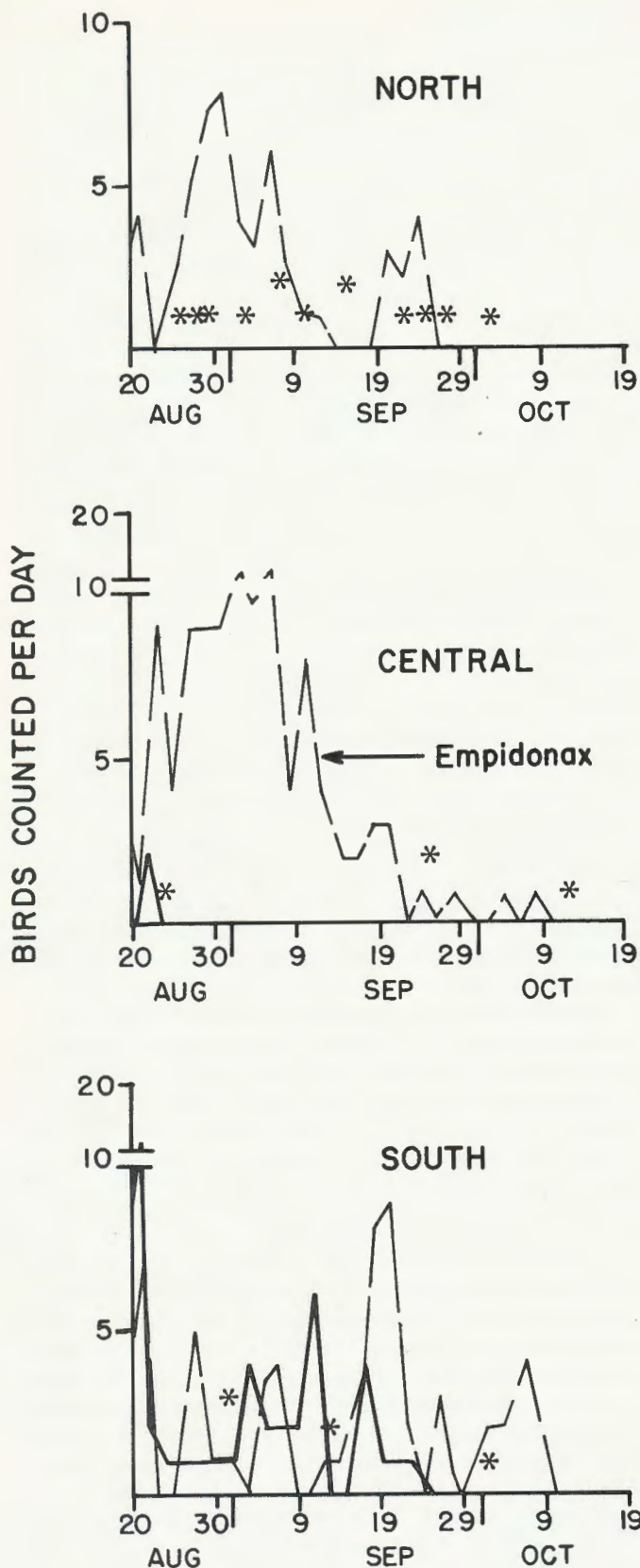


Fig. 30. — Egg-laying and migration seasons of the Acadian flycatcher in different areas of the state (see Fig. 1). Spring and fall graph lines (1967-1970) show highest daily counts of each 2 days (left scale). Asterisk symbols represent counts of Acadians made in other years or by other observers. Shaded areas show span of dates during which egg laying has been recorded. Dash line represents counts of





unidentified *Empidonax* flycatchers; solid line represents counts of identified Acadian flycatchers.

### ACADIAN FLYCATCHER BREEDING RECORDS

#### NESTS OR YOUNG

- 1950 -
- ▲ 1900 - 1949
- BEFORE 1900

#### PAIRS OR SINGING MALES (JUNE)

- 1950 -
- △ 1900 - 1949
- BEFORE 1900

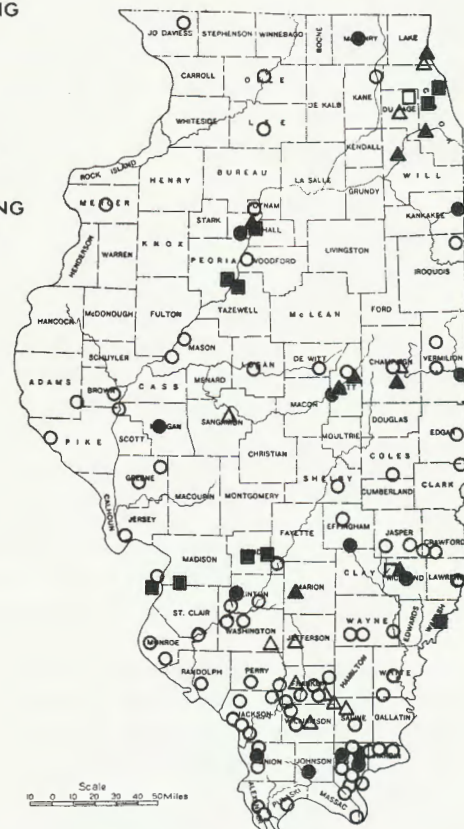


Fig. 31. — Breeding records for the Acadian flycatcher in Illinois. Singing male records cover the period June 1 to early July.

per 100 acres in different years, with adjacent upland forest populations as high as 24 Acadians per 100 acres (Fawver 1947b, Holmes 1950, Weise 1951). In excellent bottomland forest habitat in southern Illinois we have recorded Acadian populations as high as 32 birds per 100 acres (Table 5).

Four territories of Acadian flycatchers measured in floodplain forest in Piatt County varied in size from about 1.7 acres to 4.3 acres, averaging about 2.6 acres (Allison 1947, Fawver 1947b).

The Acadian flycatcher has undergone some notable population changes in the past century. Gault's unpublished notes of 1884-1927 indicate that the species was fairly common in DuPage and Cook counties. Woodruff (1907) also considered it not uncommon in northeastern Illinois. Ford (1956) called the Acadian an uncommon summer resident in the Chicago region. Judging from the frequency of reports of Acadians in literature, a population decline of the species took place in northern Illinois in the 1930's. In 1968, with extensive fieldwork in Whiteside, Carroll, and adjacent counties, we did not record a single Acadian flycatcher. The species may always have been rare (or absent) in northwestern Illinois, as up to 1904 Burtis Wilson had

TABLE 5. — Breeding populations of Acadian flycatchers in various Illinois habitats.

Habitat	Acres	Birds Per 100 Acres <sup>a</sup>	Years	Type of Census	Region or County	Reference
Virgin floodplain forest	77	18	1948	Nest	Sangamon (C)	Snyder et al. 1948
Floodplain forest	50	8	1946	Nest	Piatt (C)	Fawver 1947 <sup>b</sup>
Bottomland woods	15	46	1968	Nest	Vermilion (C)	Karr 1968
Bottomland woods	13	32	1973	Strip	St. Clair (S)	(This paper)
	10	30			Washington (S)	
Floodplain forest	16	6	1973	Strip	Franklin (S)	(This paper)
	20	10			Clinton (S)	
	21	14			Jackson (S)	
Oak-maple forest	55	2	1948	Nest	Champaign (C)	Kendeigh 1948
	55	4	1949		Champaign (C)	Kendeigh & Fawver 1949
	55	4	1950		Champaign (C)	Kendeigh et al. 1950
	55	4	1953		Champaign (C)	Kendeigh et al. 1953
	55	4	1956		Champaign (C)	Kendeigh & Brewer 1956
	55	4	1958		Champaign (C)	Kendeigh & West 1958
	55	+ <sup>b</sup>	1964		Champaign (C)	Kendeigh & Brooks 1964
	55	4	1966		Champaign (C)	Barnett & Balda 1966
	55	4	1970		Champaign (C)	Kendeigh & Clemens 1970
Forest (all types including edge)	79	1	1957	Strip	North	Graber & Graber 1963
	97	5			Central	
	174	17			South	
	166	12	1958		South	

<sup>a</sup> All figures were converted to read birds per 100 acres (number of territorial males or nests X 2).

<sup>b</sup> Less than one.

recorded only one Acadian flycatcher in the Davenport, Iowa area (Hodges 1954). The Acadian population may now be increasing in the north. Petersen (1964) reported that the species was spreading into new areas near Chicago, and Gauthreaux (1971) stated that the species is making a recovery in northeastern United States.

Acadian flycatchers almost always place their nests near the end of a horizontal limb of a sapling, often along a rivulet or stream and sometimes over the water.

We have nest-site data on 41 Acadian nests in southern (mainly) and central Illinois. Over half the nests (22) were in maples, particularly sugar maples (*Acer saccharum*). Six nests were in ironwood (*Ostrya virginiana*), five in oaks (*Quercus stellata*, *Q. alba*, *Q. muhlenbergii*), four in blue beech (*Carpinus caroliniana*), two in elms (*Ulmus rubra*), and two in willows (*Salix* sp.). Whether the high proportion of sugar maples used represents definite selection on the part of Acadians, or only a high incidence of that tree species in the habitat we cannot say.

Nest heights varied from 5 to 35 feet, and averaged 12 feet.

### Nesting Cycle

As there are no published banding data on the Acadian flycatcher in Illinois, homing has apparently not been demonstrated for any Illinois population.

The Acadian flycatcher has at least two song forms. The most commonly heard is an unmusical, quick, high, emphatic "flee-deet" or "flee-eetit" of two or three syllables often so run together that they sound like one, with rising inflection on the second part. The earliest

Acadian arrivals sing this song, and we have heard it as late as September 25 in southern and central Illinois.

The second song is part of an entrancing display, and consists of a prolonged, high, soft, twittering sound, or trill, uttered by the male as he flies a somewhat circular course through part of his nesting territory, alighting here and there, usually briefly, on twigs as he goes. The flight is distinctive, a kind of fluttering, slow-motion flight, and the song is not interrupted when the bird perches.

Besides the songs, Acadians commonly utter a sharp call note, a "quip" or "squeep" sound, which is probably an alarm note. It is most often heard near the nest.

Nesting activity must begin shortly after the females arrive, as we have observed nest building as early as May 5 in southern Illinois. The nest, constructed of grasses, fine branchlets, forest duff, moss, spider web, and sterile oak catkins, is unique in form (Fig. 28). Though Acadian nests are often rather fragile looking, they have a tough, rigid construction from the interlacing of branchlets which are almost wire-like. The nest is almost always somewhat pensile, suggesting the structure of a vireo nest, but shallow. It is usually placed in one of the terminal forks of a horizontal branch of a sapling. Some Acadian nests are so thin walled that the nest contents can be seen through the bottom from below the nest. Some Illinois nests also have a much more massive, thick-walled construction, like nests of the species from the southeastern United States, as illustrated in Bent (1942). There is almost always some trailing material hanging from the nest. The material, usually grass stems, may hang as much as 1-2 feet below the nest (Hess 1910). This

gives the nest an unkempt appearance, which, significantly, resembles the debris left hanging in trees after a flood. The structure of the Acadian's nest may thus be a kind of mimicry, related to the regular spring flooding of Illinois streams, and may also account for the regular location of nests within the floodplain.

The time requirement for nest construction is not accurately known. One nest in southern Illinois was largely completed in 6 days.

Mumford (1964), who worked with a banded population of Acadians in Michigan, found that both nest building and incubation were carried out by the female alone.

The egg-laying season extends from May 20 or earlier in central and southern Illinois and May 28 in the north to at least July 12-15 in all regions of the state (Fig. 30). Considering the laying dates for 62 eggs, we judge that the peak of egg production in southern Illinois comes between May 28 and June 7. The few laying records available for central and northern Illinois indicate a peak during the period of June 1-15.

During incubation some female Acadians are very tenacious to the nest, and will snap their bills at human observers, often refusing to move even when touched.

The most frequent clutch size for the Acadian flycatcher in Illinois is 3 eggs. Twenty-seven clutches from nonparasitized nests in all regions of the state showed the following distribution: 5 eggs — 1 (about 4 percent), 4 eggs — 4 (15 percent), 3 eggs — 21 (78 percent), 2 eggs — 1 (4 percent). We suspect that 2-egg clutches are actually more frequent, and 5-egg clutches less frequent, than these figures indicate. The 5-egg set was collected by P. W. Smith, Jr. in Bond County in 1885; we have never found a clutch this large. On the other hand, we have seen a number of nests with 2 eggs, but none which we observed from the onset of laying.

H. M. Holland (in Bent 1942) determined the incubation period at one central Illinois nest to be 13 days. In Michigan Mumford (1964) and Walkinshaw (1961) recorded incubation periods for the Acadian flycatcher of 13-15 days, most frequently 14.

Nestling life lasts at least 13 days. At a nest in southern Illinois, two 13-day-old nestlings which we inadvertently frightened from the nest could not sustain flight and merely fluttered to the ground. Thus for a species that often nests over water, 13 days would seem an inadequate nestling period. In Michigan Walkinshaw (1961) determined 14 days to be the most frequent nestling period.

Considering the observations above, we estimate that one nesting cycle, from the onset of nest building to the fledging of three young, requires about 36 days.

We have laying histories for only 12 Acadian nests, all in Pope County. The incidence of cowbird parasitism in this sample was high — 50 percent. Cowbird parasitism of Acadians has been recorded in all regions of the state, but there are too few nests with known histories to evaluate the effects of the cowbird on a population basis.

Data on one of the Pope County nests indicates that host young do not survive in a successfully parasitized nest. In this nest two Acadians and one cowbird hatched on the same day, but only the cowbird survived to fledge. Mumford (1964) witnessed much the same thing at a nest in which a cowbird hatched more than a day ahead of three Acadian young. The Acadian nestlings died, apparently from neglect, because the cowbird usurped the food supply. Though Acadians raise some cowbirds, they also apparently resist parasitism to some degree. Bendire (in Friedmann 1963) described an Acadian nest in which a second floor had been built to cover a cowbird egg. An Acadian nest in Piatt County was deserted with four cowbird eggs and one host egg (Allison 1947).

There are no adequate data on nesting success for any Illinois population of Acadian flycatchers. In our small sample of Pope County nests, only 25 percent fledged flycatchers and 10 percent fledged cowbirds. The causes of nest failure are also largely unknown.

A stub-tailed juvenile Acadian collected in southern Illinois August 11 (U.S. National Museum 60892) is probably indicative of the end of the nesting season. Fawver (1947a) last saw an adult male on territory in east-central Illinois on August 7. In southern Illinois we have seen singing males still on territory at least as late as September 25.

### Fall Migration

The fall migration of Acadian flycatchers may begin as early as late July and early August (Fawks 1968b). As discussed earlier, identification problems make the study of fall migration of *Empidonax* very difficult. Based on the relatively small numbers of *Empidonax* identified, the peak in fall numbers of Acadians came between August 20 and September 20 (Fig. 30), but the actual pattern of the Acadian's fall migration is essentially unknown and better techniques of study, such as netting operations, are needed.

The last dates Acadians have been reported are October 3 in northern Illinois (Gault, unpublished notes 1888), October 12 in central Illinois, and October 2 in the south (George 1968).

Though there are a few reports of Acadian flycatchers being killed at television towers (Parmalee & Parmalee 1959, Parmalee & Thompson 1963), the identity of the birds is in question. All tower-killed specimens that we have examined to date have proved to be either leasts, yellow-bellies, or Traill's. Gastman (1886) writes of an Acadian killed on an electric light tower in Decatur on September 29, but it has not been possible to verify the identity of this specimen.

### Food Habits

Five stomachs of Acadian flycatchers examined by Forbes (1878) all contained insects, Coleoptera being the principal item. Obviously more complete studies are required.

## TRAILL'S FLYCATCHER Complex—

WILLOW FLYCATCHER (*Empidonax traillii*)

ALDER FLYCATCHER (*Empidonax alnorum*)

(Fig. 32 and 33)

### Spring Migration

Determining the migration patterns of any *Empidonax* flycatcher is difficult because of the identification problems. The Traill's flycatcher complex

is even more complicated than the rest, because the two species are so nearly identical.

The most distinctive characteristic of the two is the song, often phoneticized "fitz-bew" for the willow flycatcher, and "fee-bee-o" for the alder flycatcher. Morphological characteristics of the two forms overlap greatly, and even with specimens in hand we have been uncertain about identification of some specimens. This dependence on the birds' singing for identification complicates the study of migration of the two forms,



Fig. 32. — Traill's flycatcher at its nest. Like other *Empidonax*, Traill's have a light eye-ring and whitish wing bars.

because neither is strongly vociferous in migration. The songs are not loud, and as Traill's flycatchers are late spring migrants, arriving when many other species are in full song, there is a good possibility that Traill's songs are often "covered up." However that may be, the vast majority of *Empidonax* seen are not singing, and cannot be assigned a specific population identity. If, for example, we state that the more northern-ranging alder flycatcher is a later spring migrant than the local breeding willow flycatcher, the statement does not take into account the possibility that the silent *Empidonax* could be predominantly alders.

Prior to now the Illinois literature has treated the Traill's complex as one species (see explanation of recent classification in the introduction of this report), and very few authors who discussed Traill's flycatchers mentioned the song form. In our discussion, we also treat the complex mainly under the name of Traill's flycatchers, and the reader must bear in mind that two very closely related species are included.

Traill's flycatchers of both species are known to be night migrants in Illinois. Arrival of Traill's flycatchers in Illinois as early as April 24 (Musselman 1934-1935) is

probably exceptional, and even April 29 (Widmann 1907, Fawks 1956) is early for the species. The earliest spring specimen we've examined (U.S. National Museum No. 108366), from Warsaw in central Illinois, was taken May 3 and is a willow flycatcher. Widmann (1907) found Traill's flycatcher to be very regular in its appearance in the St. Louis area on May 4 or 5. We suspect that the early arrivals are likely to be willow flycatchers. Most of the Traill's population, however, arrives after May 12 in southern Illinois, and after May 20 in central and northern Illinois (Fig. 34).

The spring migration of Traill's regularly extends well into June, and possibly into July, even in the south (Fig. 34). The consistent peak in numbers of Traill's flycatchers in the three regions in early June (Fig. 34) includes local breeding birds (willow flycatchers) and probably also passing transients of both the "fitz-bew" (willow) and "fee-bee-o" (alder) song forms. In the St. Louis area both forms have been heard in May, the alders being present only about a week while passing through, with the willow flycatchers remaining throughout the summer (Jones 1953). James Funk (personal communication) has heard the alder song in southern Illinois (Union County) on May 20, and in central Illinois on May 28 (Adams County) and June 3 (Champaign County). Robert Russell has observed that the willow flycatcher usually arrives in northern Illinois by the second week in May, while the (singing) alders arrive about the end of May and reach peak numbers June 6-8, when Russell heard as many as six singing (Kleen & Bush 1971a). An alder which we found in Iroquois County on June 22 appeared to be on territory but subsequently disappeared, leaving only nesting willow flycatchers in the area. This June 22 record may not be particularly late migration in Illinois for either population, as we have recorded willow flycatchers arriving on nesting territories in early July in east-central Illinois. We also have a female specimen of the alder flycatcher (INHS #7) taken June 25, 1967 in central Illinois.

In summary, the spring migration of willow flycatchers in Illinois lasts from about May 1 to July 1, and the migration of alders from as early as May 20 into July.

### Distribution

The general distribution of Traill's flycatchers is shown in Fig. 33. The alder flycatcher is the more northern-ranging of the two species and the willow flycatcher the more southern- and western-ranging. Where the breeding ranges of the two forms overlap both in Canada and the United States (Stein 1963) the species apparently retain their integrity.

The breeding distribution of Traill's flycatchers in Illinois is shown in Fig. 35. All of the nesting "Traill's" which we have observed in Illinois, in all regions of the state and in all habitats, have proven to be the willow flycatcher.

Alder flycatchers have been known to nest as close as

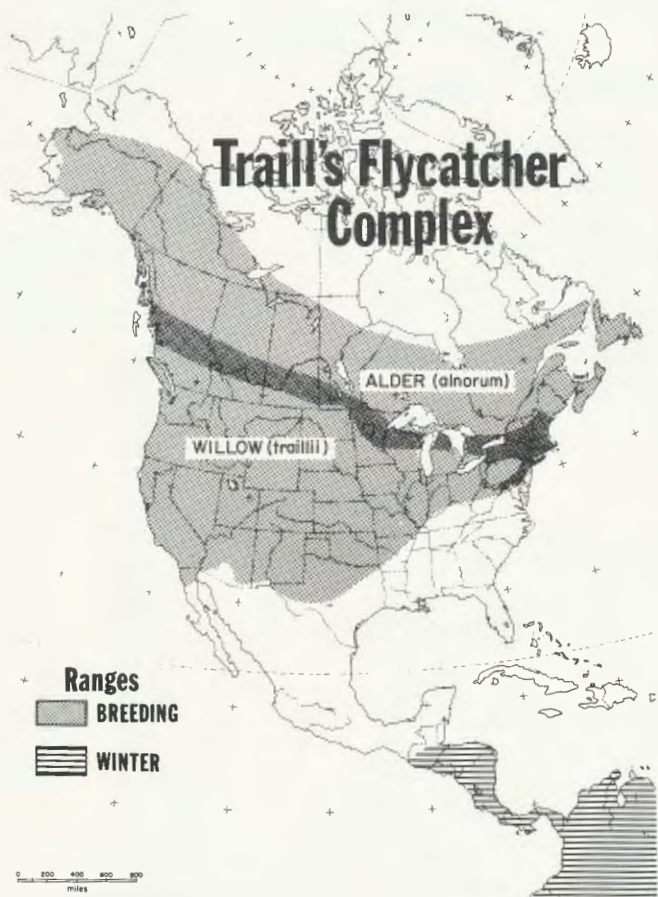


Fig. 33. — General distribution of Traill's flycatchers. The outlined range may include large sections in which populations of the species are thin or even absent because of the nature of the terrain and paucity of suitable habitat. The ranges of the two species of Traill's flycatchers are poorly known. The two are sympatric at least in places along the double-shaded band.

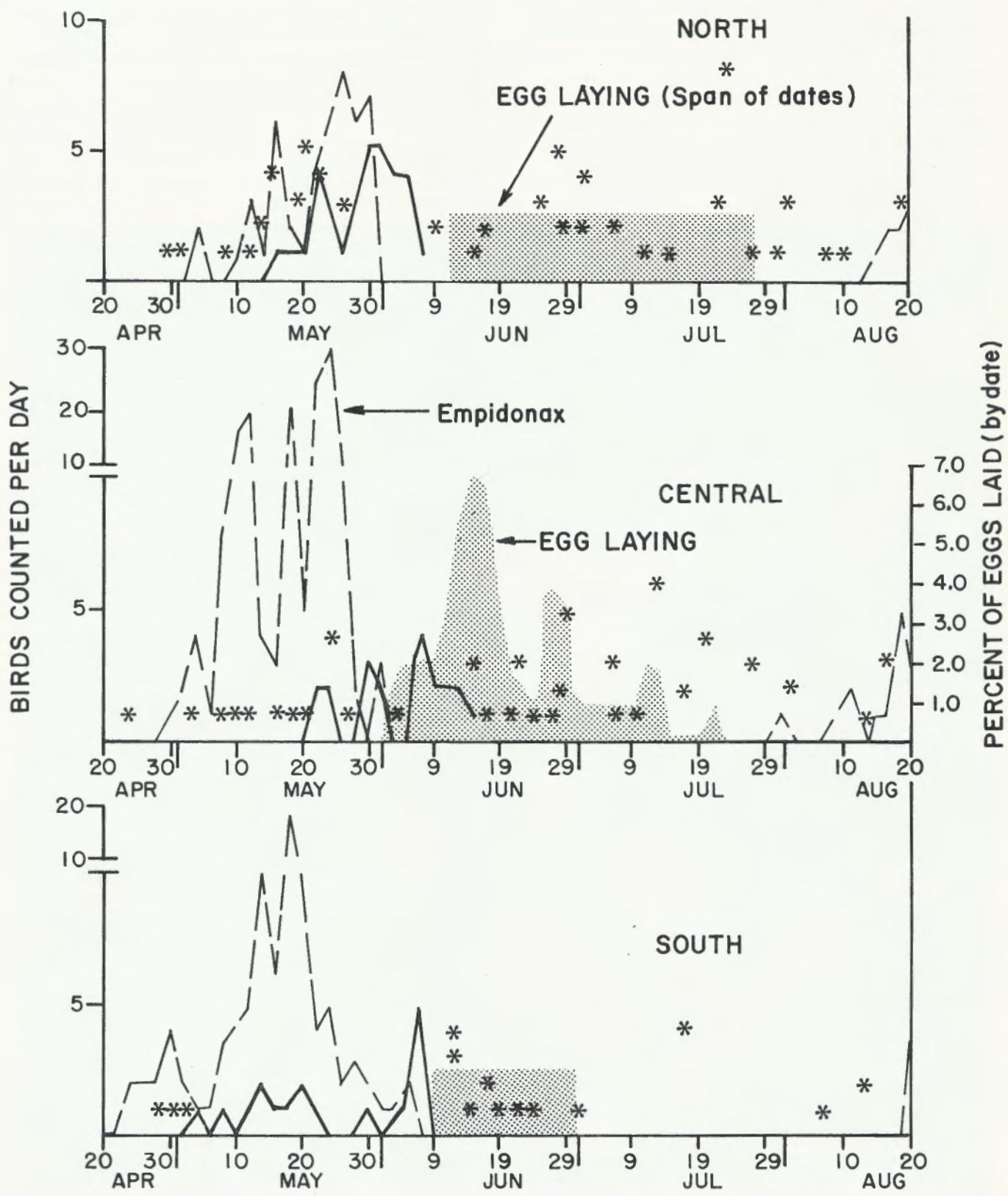
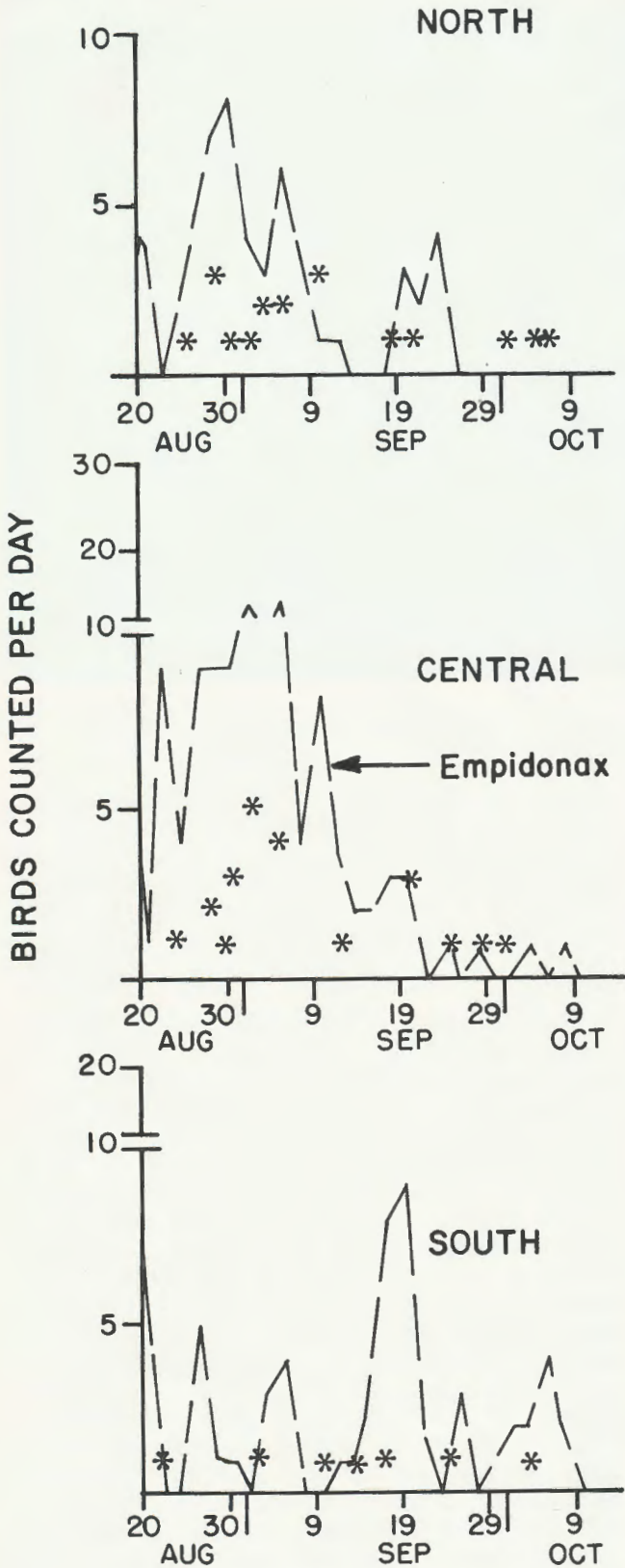


Fig. 34. — Egg-laying and migration seasons of the Traill's flycatcher in different areas of the state (see Fig. 1). Spring and fall graph lines (1967-1970) show highest daily counts of each 2 days (left scale). Asterisk symbols represent counts made in other years or by other observers. Shaded areas show the percent of eggs laid on a given date (right scale), or the span of dates during which egg laying has been



recorded. Dash line represents counts of unidentified *Empidonax* flycatchers; solid heavy line represents counts of identified Traill's flycatchers.

### TRAILL'S (WILLOW) FLYCATCHER BREEDING RECORDS

- NESTS OR YOUNG
- 1950 -
  - ▲ 1900 - 1949
  - BEFORE 1900
- PAIRS OR SINGING MALES (JUNE)
- 1950 -
  - △ 1900 - 1949
  - BEFORE 1900



Fig. 35. — Breeding records for the Traill's flycatcher in Illinois. Singing male records cover period June 1 to early July.

central Wisconsin, and Stein (1963) suggested that the alder formerly nested in northern Illinois. The alder flycatcher may yet be found nesting in Illinois, but to date there is no firm proof of breeding for this species in the state. The presence of an alder flycatcher singing in Iroquois County in late June, as mentioned above, we have interpreted as representing late migration. One other observation is suggestive of alder flycatcher nesting: In a population of Traill's flycatchers nesting at the edge of Spring Lake (Carroll County) in 1968, one nest was built which had the structure and appearance of a nest of the alder flycatcher (Fig. 36). The eggs, however, were typical willow flycatcher eggs, and no song of the alder flycatcher was heard in this population. Thus, despite the appearance of the nest, we concluded that it belonged to a willow flycatcher.

The willow flycatcher may nest in every county in the state, but the breeding distribution is spotty and very poorly known.

#### Nesting Habitats and Populations

In Illinois the willow flycatcher most often nests in shrub areas or clumps of young trees. Widmann (1907) described the original habitat as trees bordering rivers,

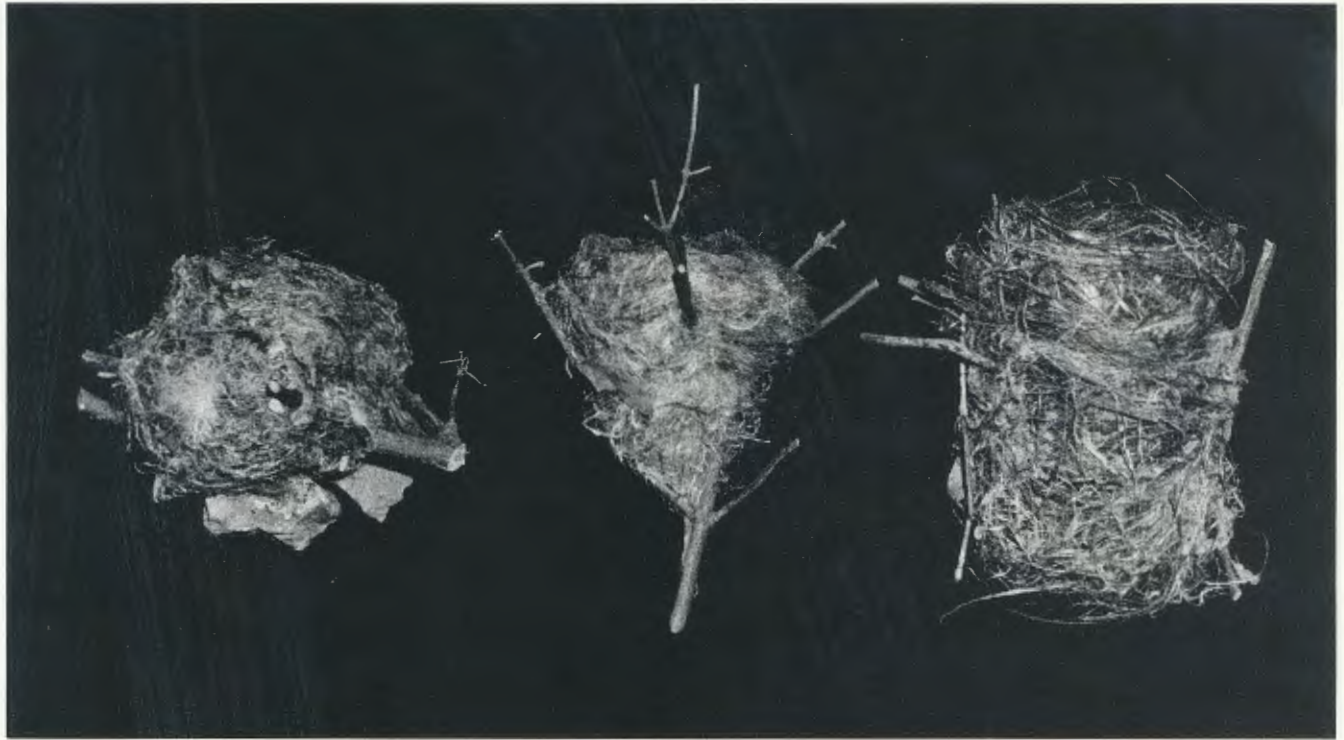


Fig. 36. — Variation in nest structure in a single population of Traill's flycatchers in Carroll County. The population occupied lowland willow habitat, and was of the "fitz-bew" (willow) song form. Nest at right resembles alder flycatcher nest.

creeks, and lakes, or willow clumps in swampy places, and added that the species has adapted to orchards, city parks and cemeteries as well as trees and shrubs along country roads. Ridgway (1889) in the south and Barnes (1890) in central Illinois both considered Traill's (willow) flycatcher to be especially an orchard species, yet the later statewide censuses indicated that Traill's flycatchers were not at all common in Illinois orchards (Forbes & Gross 1921, Graber & Graber 1963). The Ridgways (1889, 1915, 1923) also had Traill's flycatchers nesting on their suburban estate in southern Illinois one season (Table 6) and suggested that the species was quite tolerant of humans. Loucks (unpublished notes, 1889) and Goff (1932) both found nests in cities (Peoria and Rockford) but there is probably no urban population of Traill's flycatcher in Illinois now, perhaps because cities have changed in character a great deal since the 1930's.

During the nesting season, we have almost always found Traill's flycatchers in open (nonforested) country in the following situations: (1) willow clumps in low-lying or flat land — stream bottoms, drainage ditches, marshes, etc., (2) upland shrub areas, and (3) roadside shrubs and hedges, both upland and lowland. In southern Illinois south of the latitude of Jackson County we have found breeding Traill's flycatchers only in lowland habitat, not in the ample areas of shrub-covered hills, a situation used regularly by Traill's to the north. On strip-mined land, Karr (1968) found good populations of Traill's in central Illinois (Table 6), but Brewer (1958) found none in this type of habitat in southern Illinois. There are no measurements of Traill's flycatcher populations for

southern Illinois. In lowland willow clump habitat in Cook County, Herbert Stoddard estimated the June 1924 population of Traill's flycatchers to be 25-30 pairs per square mile, the equivalent of 8-9 birds per 100 acres (Ford 1956). Traill's flycatchers are usually absent from, or at best uncommon, in the forest edge habitat; Weise (1951) recorded 2 birds per 100 acres in forest edge in Piatt county.

Hedgerows of osage orange were often considered an important habitat for Traill's flycatcher. Silloway (1894) and Willard (1898), respectively, defined the favorite habitat to be untrimmed hedges of two to four seasons growth, and hedges not more than 15 feet tall. In west-central Illinois (Knox County) Harold M. Holland (unpublished notes, 1942) recorded six pairs of nesting Traill's flycatchers in about one-fourth mile of osage hedge (48 birds per mile). In east-central Illinois (Ford County) we found much lower densities in about 5 linear miles of osage hedge — four pairs in 1958 (1.5 birds per mile), and three pairs in 1959 (1.2 birds per mile). Our searches of hedgerows in other areas of Illinois have led us to believe that the population densities observed in Ford County are quite representative of recent populations of Traill's in this habitat. We have seen no population that compared with the 48 birds per mile observed by Holland, yet we believe his observations to be true and feel that all of the observations indicate a general decline in population of Traill's flycatcher over the years. We have already mentioned the change in orchard populations. Where we found low populations in east-central Illinois hedges, Hess (1910), like Holland in



TABLE 6. — Breeding populations of Traill's flycatchers in various Illinois habitats.

Habitat	Acres	Birds Per 100 Acres <sup>a</sup>	Years	Type of Census	Region or County	Reference
Early shrub	21	38	1966	Nest	Vermilion (C)	Karr 1968
Shrub grown areas	15	7	1957	Strip	North	Graber & Graber 1963
	17	6	1958		North	
	15	7	1957		Central	
Suburban residential	8	25	1915	Nest	Richland (S)	Ridgway 1915
Swampy prairie	64	6	1942	Nest	Sangamon (C)	Robertson 1942a
Marshland	29	3	1957	Strip	North	Graber & Graber 1963
Upland second growth hardwoods	56	4	1944	Nest	Sangamon (C)	Robertson 1944b

<sup>a</sup> All figures were converted to read birds per 100 acres (territorial males or nests X 2).

west-central Illinois, found Traill's to be an "abundant" species in hedgerows and orchards. We cannot explain the change. In addition to the declining population densities in hedgerows, the hedges themselves are rapidly being destroyed. There is no evidence to indicate that Traill's populations in the lowland willow habitat have undergone declines similar to that of the hedge populations.

The specific identity of the Traill's flycatchers that nest in hedgerows is something of a mystery. This population has largely disappeared in recent years, and the song form was apparently never recorded. From the open nature of the habitat and the geographic range we had expected the hedgerow population to be willow flycatchers, but nests and eggs of Traill's flycatchers in the State Museum collected by H. M. Holland from hedgerows in west-central Illinois are not typical of the willow flycatcher. These specimens show some characteristics (e.g. whitish, finely spotted eggs; coarsely constructed nests) of the alder flycatcher. These features are highly variable in willow flycatcher populations, however, and we suspect that the hedgerow populations will prove to be willow flycatchers. The question needs to be resolved with careful study soon, before the hedgerow flycatchers disappear completely.

The list of plants recorded as nest sites for Traill's flycatchers in Illinois (Table 7) is probably incomplete. Most nests have been recorded in osage orange and willows. The high number of nests recorded in osage particularly is probably not representative of the actual distribution of nests by plant species, but more likely reflects the fact that hedges were convenient places for oologists to search for flycatcher nests, especially in past decades. We do not know how the state population of Traill's is distributed by habitat.

On the heights of Traill's flycatcher nests Silloway (1894) and Willard (1898) agreed that nests in west-central Illinois were usually 3-10 feet high, rarely higher. Records of nest height, including our own, show a range from 3 to 25 feet, with the greater height being rare. Twenty-three nests in northern Illinois averaged 6.2 feet in height and 37 nests in central Illinois averaged 6.6 feet.

Territory size for the Traill's flycatcher has

apparently never been measured in Illinois. The clumps of shrubs that serve as nest sites are often surrounded by acres of open-field habitat of one sort or another, so that nesting pairs are often naturally spaced by the vegetation. Neither the minimum distance between nests nor the spacing of nesting vegetation has been measured precisely.

#### Nesting Cycle

There are no published banding data to show homing by Traill's flycatchers in Illinois.

Silloway (1894) rarely found Traill's flycatchers on their territories in Macoupin County before the second week of June, and we have observed equally late or even later arrivals (early July) of nesting Traill's flycatchers to hedgerows in east-central Illinois.

Much has been written about the variation in song of Traill's flycatchers (see especially reviews by McCabe 1951, and Stein 1963). Though we have never witnessed the song flight described by McCabe, our observations in

TABLE 7. — Plants used by Traill's flycatchers as nest sites in Illinois.

Species	Number of Nests (Total 73)
Osage orange ( <i>Maclura pomifera</i> )	35
Willow ( <i>Salix</i> sp.)	10
Mulberry ( <i>Morus</i> sp.)	6
Dogwood ( <i>Cornus drummondii</i> )	5
Elderberry ( <i>Sambucus canadensis</i> )	3
Maple ( <i>Acer negundo</i> , and sp.)	3
Alder ( <i>Alnus</i> sp.)	1
Apple ( <i>Malus</i> sp.)	1
Basswood ( <i>Linden</i> sp.)	1
Elm ( <i>Ulmus</i> sp.)	1
Grape ( <i>Vitis</i> sp.)	1
Hawthorn ( <i>Crataegus</i> sp.)	1
Hazel ( <i>Corylus americana</i> )	1
Honey locust ( <i>Gleditsia triacanthos</i> )	1
Honeysuckle ( <i>Lonicera</i> sp.)	1
Plum ( <i>Prunus</i> sp.)	1
Shingle oak ( <i>Quercus imbricaria</i> )	1

Illinois are in general agreement with those of McCabe for Wisconsin. The song of Illinois breeding populations (willow flycatcher) is the so-called "fitz-bew" type, and sounds the same in all regions of the state. Each student seems to have his own phonetics for this song (McCabe 1951), and though we have used the more or less standardized phrase "fitz-bew" in referring to the willow flycatcher song, we prefer our own version of the phonetics ("pit-beer" or "fitz-your"). To us the song seems to have an "r" ending. This song phrase is very often preceded by a quick, angry note — "frit," or "creet," as McCabe has described it. This "frit" note may or may not be part of the song. Sometimes it is the only note we hear from territorial birds, and it may be uttered over and over again, with pauses between notes. Thus, uttered by itself, it seems more like an alarm note than a song. In conjunction with the usual song phrases, this "frit" note is usually uttered only once (sometimes two and rarely even more times). If it is considered to be part of the song, then the song may have from two to four, or even more phrases, but usually it is either "pit-beer" (the basic song) or "frit — pit-beer" with a slight pause between the first and second phrase. When we record the song and play it back to nesting birds they almost invariably respond quickly by approaching our position. Often the recording does not induce singing, but only the "frit" call note, which suggests that it is an alarm note. Another note often heard from Traill's is a rather soft "whit," or "whip" as McCabe (1951) designates it. This also seems to be an alarm note for nesting birds, but it is also uttered frequently by unidentified migrant *Empidonax* flycatchers, and we do not know that it is exclusively the vocabulary of Traill's.

There are no published data on the time requirements for the nesting cycle of Traill's flycatchers in Illinois. One northern Illinois nest that we observed was completed from an early stage of construction in 5 days, before the first egg was laid. Another nest which lacked only a lining went 4 days before the first egg was laid. The incubation and nestling periods combined for one nest that fledged four young in northern Illinois was 27 days. From these data, one nesting cycle for a Traill's nest with four eggs would require about 35-36 days. Goff's (1932) data indicated that nestling life was at least 13 days. There are few actual nest records for southern Illinois, and essentially no data on the nesting cycle for that region.

Traill's nests are either built in an upright fork of a shrub or tree, or saddled on a horizontal branch (Fig. 32 and 36). According to Silloway (1894), Willard (1898), and Loucks (unpublished notes, 1889), Traill's flycatcher nests are made of grayish bark fibers, dried weed stems, fine grass, feathers, and gossamer, with a lining of fine grass, horse hair, and feathers. Nests of more recent years generally lack the horse hair. The nests often have a silvery appearance (Fig. 36), and resemble nests of the yellow warbler (*Dendroica petechia*), and goldfinch (*Spinus tristis*). We have seen one Illinois nest (Fig. 36) that closely resembled the alder type, as illustrated by Stein (1958). The variation in nest structure that we saw

in a single population in northwestern Illinois near Savanna (Fig. 36) was as great as we have encountered in the entire state.

Egg laying by Traill's flycatchers has been recorded in central Illinois between June 3 and July 21, and in northern Illinois between June 11 and July 27 (Fig. 34). The peak of laying occurred between June 11 and 19 in central Illinois (Fig. 34) and is apparently only slightly later in the north (Beecher 1942).

Data from the literature, old museum records, and our own notes on 48 Traill's flycatcher nests with eggs show that the clutch size in central and northern Illinois is almost always either 4 eggs (about 70 percent), or 3 eggs (about 30 percent). The average for all clutches was 3.7 eggs with no significant difference between central and northern Illinois nests. In central Illinois, Strumberg (1883) also found that most Traill's nests (65 percent) received 4 eggs, but Silloway's (1894) data showed a predominance of 3-egg clutches (76 percent of all nests with eggs), perhaps reflecting annual variation. In 1885 and 1886 in Bond County, P. W. Smith, Jr. found at least two nests with 5-egg clutches (Chicago Museum of Natural History Set Nos. 9386 and 9387), but such large sets must have been exceptional even then. Strumberg (1883) also reported a nest with 7 eggs, apparently the work of two females.

Traill's flycatcher must be very uncommonly parasitized by cowbirds in Illinois, as we know of but one other record (Poling 1889) than the one reported by Friedmann (1963).

We see no evidence that Traill's flycatchers try for more than one brood. Though the egg-laying curve for central Illinois shows minor peaks in late June and July (Fig. 34), these peaks probably represent re-nestings following nest failures, as they are not spaced adequately to be second broods. Silloway (1894) also believed that only one brood was reared.

There are no published data on nesting success or productivity for any Illinois population of Traill's flycatcher. We have histories on only 16 nests, mainly for northern Illinois in 1968, and they had poor success: 31 percent of nests (27 percent of eggs). Causes of nest failure were unknown, but most nests failed in the egg stage. A nest that Goff (1932) observed lost two of its four young in a windstorm, but ultimately the remaining two were successfully fledged. Gross (1925) mentioned that he found high mortality (in three out of four nests) of nestling Traill's flycatchers in central Illinois from heavy mite infestations.

### Fall Migration

The problem of field identification of silent *Empidonax* flycatchers has already been discussed (in the introduction and in the section on the yellow-bellied flycatcher) and we have relied primarily on captured or collected specimens for the fall graph points in Fig. 34.

In central Illinois Varner indicated, apparently from netting observations, that the peak of the Traill's fall migration came in late July and early August (Fawkes 1966b, 1968b), but other observations indicate a

decidedly later fall migration for the species. Just how late Traill's flycatchers may be found on their nesting territories has not been determined, but considering laying dates as late as July 27 (Fig. 34) we might expect that at least a few Illinois birds would still be occupied with nesting until about September 1. In Wisconsin McCabe (1951) found that regular singing by Traill's flycatchers ended August 9-11. We have heard the Traill's flycatcher song (species ?) but once in September, on the 5th at Urbana, Illinois.

At least 15 specimens of Traill's flycatchers have been picked up, with other nocturnal migrants, at television towers in central and northern Illinois on dates between August 31 (INHS specimen), and October 7 (Petersen 1959). We have examined 12 of these specimens, and all but one appeared to be alder flycatchers. This is in keeping with our general impression that in tower kills northern forms tend to be more prevalent than southern forms. On one night, September 1-2, 1972, at least 5 alders, all immatures, were killed at towers in central Illinois. A kill on the night of September 20-21, 1966, produced two immature alders and one adult willow flycatcher.

We do not know if there is a difference in the timing of the fall migration of the two species. For the Traill's complex, the peak of the fall migration probably occurs in late August and early September, or possibly even later (Fig. 34). The northern Illinois specimen of October 7 is the latest Illinois record of which we know.

Both adult and immature specimens taken in September show only very few pin feathers in the body plumage, most notably the throat, suggesting that the molt may be largely finished in August. One adult male, taken August 31, was in worn plumage however, with no molt in evidence. We could not certainly identify the bird as to species.

#### Food Habits

Two specimens of Traill's flycatchers examined by Forbes (1882*b*) had eaten insects exclusively, one fourth being canker worms, and one-third Ichneumons. Another one-fourth of the stomach contents was beetles, and about one-tenth was ants and other Hymenoptera.

### LEAST FLYCATCHER (*Empidonax minimus*)

(Fig. 37 and 38)

#### Spring Migration

The earliest recorded arrival dates of least flycatchers in Illinois, April 11 for southern Illinois (Fig. 39) and April 12 for the north (Walter & Walter 1904), are probably exceptional, and the alleged arrival date of March 30 for the north (Abbott et al. 1933) is probably an error. Usually least flycatchers are not found in the state until late April or early May, with peak numbers occurring April 28-May 10 in the south, May 7-16 in central Illinois, and after May 10 in the north (Fig. 39). The migration in central and northern Illinois extends into June, and in the north a relatively small number

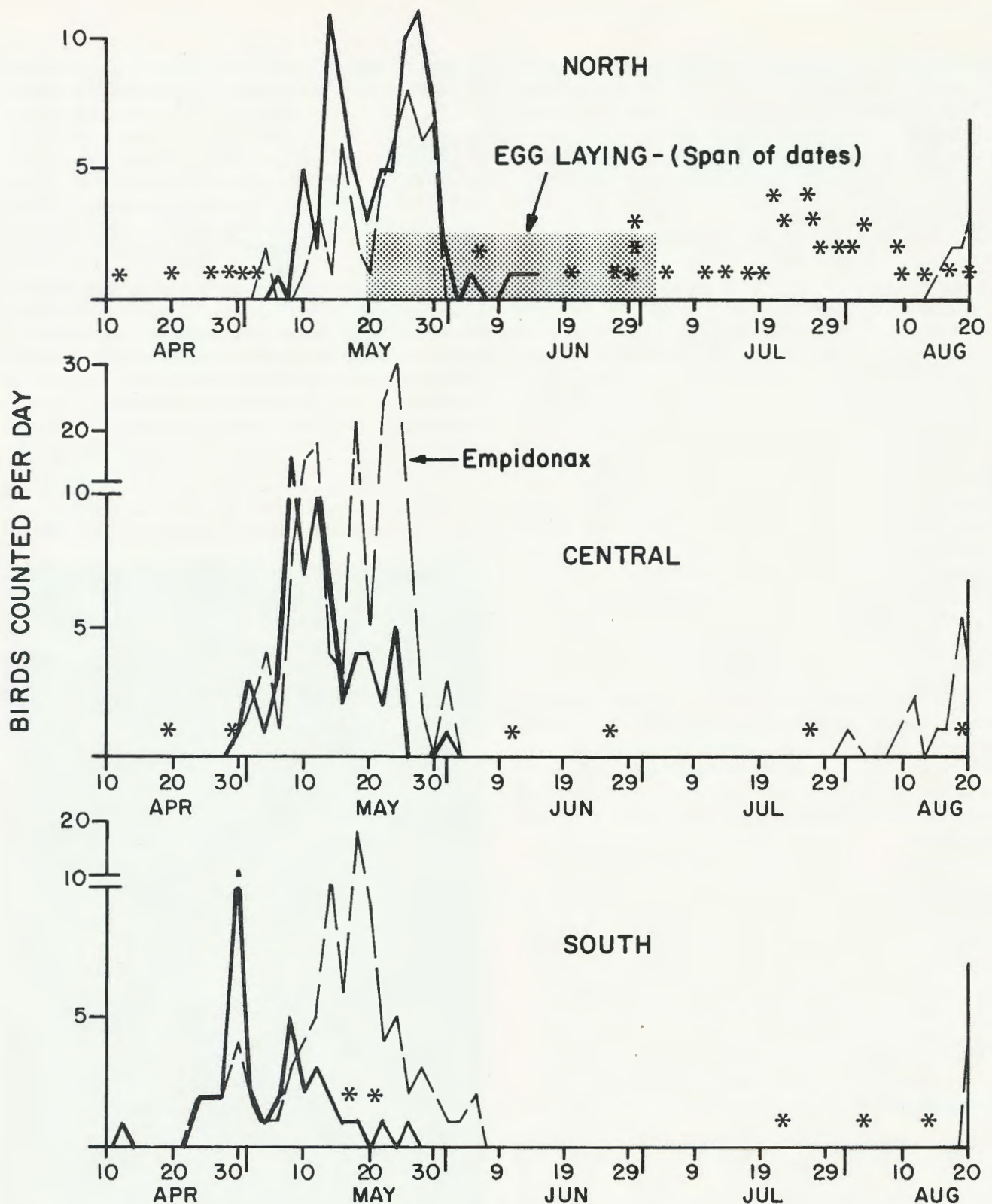
remain to nest (Fig. 39). The species has also been recorded in the St. Louis area as late as June 3 (Widmann 1907).

#### Distribution

The least flycatcher is a nesting species of the northern United States and Canada. It winters in Mexico and Central America (Fig. 38). In Illinois the species may nest as far south as Marshall County where Barnes found a nest in 1910 (Illinois State Museum specimen) and Iroquois County where we have found singing territorial males in recent years (Fig. 40). There are no authentic records of nests in central Illinois. The listing of this species as a breeding bird in Hancock County (American Ornithologists' Union 1957, George 1971) is apparently based on the fact that Worthen collected it at Warsaw during the "breeding season" (Widmann 1907). The McLean County record (American Ornithologists' Union 1957) and a Clinton County record (Anonymous 1917) lack substantiation. The listings of the species in the breeding bird census at Decatur (Chaniot & Kirby 1955) and in "summer census" at Urbana (Wandell 1948) are



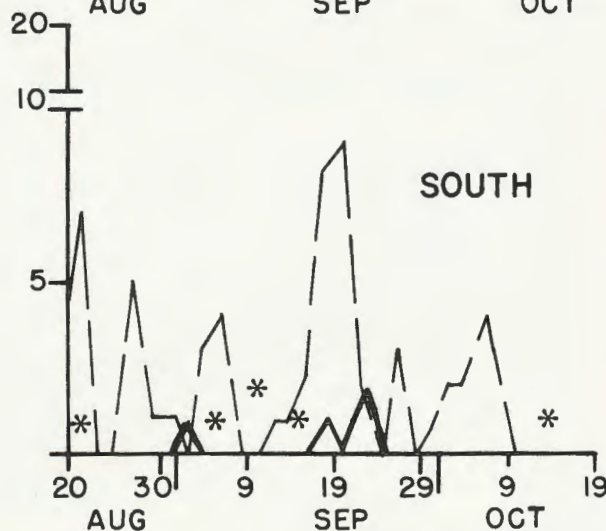
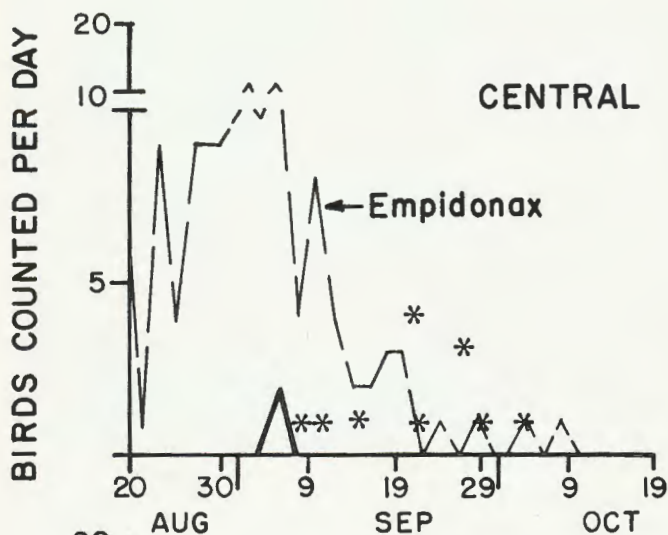
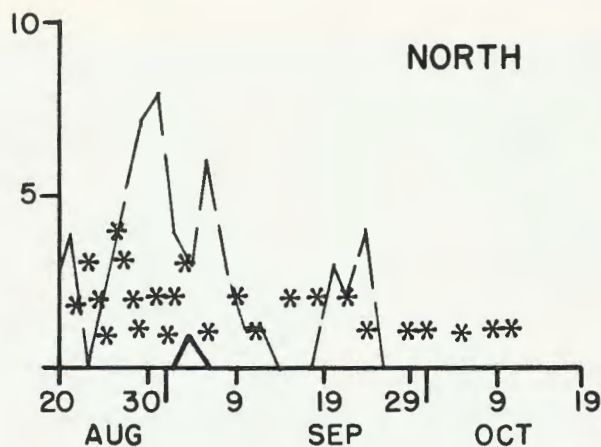
Fig. 37. — *Empidonax* species. This small flycatcher is representative of the genus, species of which are best identified in the field by their song.



probably due to the fact that study periods cover time during which the least flycatcher is migrating. This is certainly true of Finley's (1917) report which lists this bird as a summer bird at Normal but has recorded it May 5-11. The paucity of least flycatcher records in northwestern Illinois (Fig. 40) may only reflect inadequate exploration.

#### Nesting Habitats and Populations

The least flycatcher in Illinois is a bird of the ecotone, forest edge, and places of similar form such as open shrub areas, parkland, well-planted residential areas, and, in the past at least, orchards. The only actual measurement of a least flycatcher population in Illinois was that of



Beecher (1942) who found two nests in 27.67 acres of modified (residential) woodland.

Nelson (1876-1877) considered the least flycatcher to be a common summer resident in northeastern Illinois. The last breeding record for Chicago, according to Ford & Dumont (1949) was in 1904. Ford (1956) called the species uncommon, and formerly more common. Nice

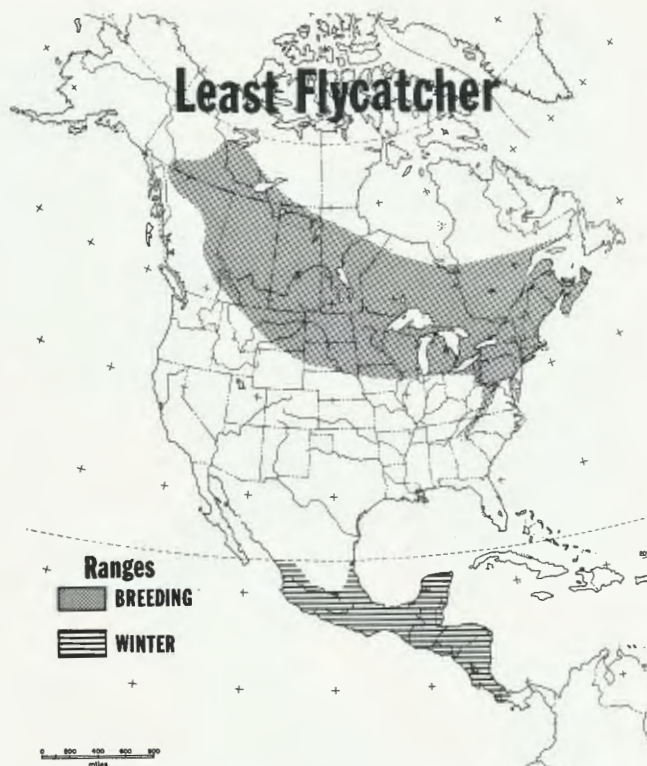


Fig. 38. — (Above.) General distribution of the least flycatcher. The outlined range may include large sections in which populations of the species are thin or even absent because of the nature of the terrain and paucity of suitable habitat.

Fig. 39. — (To left, graph starting on page 44.) Egg-laying and migration seasons of the least flycatcher in different areas of the state (see Fig. 1). Spring and fall graph lines (1967-1970) show highest daily counts of each 2 days (left scale). Asterisk symbols represent counts made in other years or by other observers. Shaded area shows span of dates during which egg laying has been recorded (north only). Dash line represents counts of unidentified *Empidonax* flycatchers; solid heavy line represents counts of identified least flycatchers.

(1945) considered the species endangered in Illinois. Accurate population trends cannot be determined without more actual population measurements.

### Nesting Cycle

Little has been published on the breeding biology of the least flycatcher in Illinois, and a thorough study of the species here at the southern edge of its range is definitely needed.

The distinctive song, phrased "che-bec," is heard in all regions of the state as soon as the bird arrives. The transients may sing only hesitantly, repeating the song only a few times, but the nesting birds in the north repeat the song quickly over and over again.

The time requirement for nest construction is unknown. The nest, which superficially resembles a Traill's flycatcher nest (Fig. 36), is often placed in a small tree near the end of a limb. Nest heights have been recorded from 2 to 20 feet above ground. Only three nest trees have been identified — apple, oak, and willow.

Egg laying has been recorded from May 20 to July 3

## LEAST FLYCATCHER BREEDING RECORDS

### NESTS OR YOUNG

- 1950 -
- ▲ 1900 - 1949
- BEFORE 1900

### PAIRS OR SINGING MALES (JUNE)

- 1950 -
- △ 1900 - 1949
- BEFORE 1900



Fig. 40. — Breeding records for the least flycatcher in Illinois. Singing male records cover the period June 1 to early July.

(Fig. 39). The average clutch size for 11 nests, all having either 3 or 4 eggs, was 3.6 eggs.

The time requirements for incubation and nestling life have not been determined, nor are there quantitative data on nesting success or productivity.

### Fall Migration

Records for adult least flycatchers in southern Illinois (well south of the breeding range) on July 22, August 4 (Kleen & Bush 1971b), and August 14 (U.S. National Museum specimen) indicate how early the fall migration of this species begins. The two August specimens were both adult females, and the August 4 specimen still showed a brood patch and slightly enlarged ovary (2.5 x 5mm). It was also in worn breeding plumage, though showing some signs of the molt on its body. Despite these remnant signs of breeding, we believe the bird to be definitely a migrant. This seeming haste to initiate the fall migration is puzzling, especially as the species' migration is also quite prolonged in the fall.

Migration of least flycatchers is apparently nocturnal. At least 11 specimens (both sexes, adults and immatures) have been picked up from bird kills at television towers in central Illinois in 5 different years (Brewer & Ellis 1958; Parmalee & Parmalee 1959; unpublished records, 1966, 1968, 1972). The dates of kills for least flycatchers were

from September 10 to 29. Four females (two adults, two immatures) were killed at two towers in Piatt and Champaign counties on one night, September 20-21, 1966. The peak of the fall migration for the least flycatcher, as for other *Empidonax*, cannot be determined from our field censuses because of the problem of making specific identifications. The least flycatcher's fall migration probably regularly extends into October, with records as late as October 9-10 in northern Illinois (Ford 1956, Coursen 1947, Mark Swan personal communication, 1971), and October 14 for the southern region (Cooke 1888). A record for October 29 in northern Illinois (Dillon 1968) is an exceptionally late departure.

### Food Habits

Almost nothing is known of the food habits of the least flycatcher in Illinois. Forbes (1878) examined 10 stomachs of leasts, but provided no information on dates or places of collection. All of the birds had eaten insects — Coleoptera were found in 8 stomachs, Hymenoptera in 2, and Lepidoptera in 2. No specific identifications were provided. Gault (unpublished notes) examined the stomach of a May specimen from Cook County and found it filled with beetles, but here also more specific identifications are lacking.

Clearly, all aspects of the biology of the least flycatcher in Illinois are badly in need of study.

## EASTERN WOOD PEWEE (*Contopus virens*) (Fig. 41 and 42)

### Spring Migration

The eastern wood pewee is a nocturnal migrant in Illinois, as indicated by specimens killed at night at central Illinois television towers. We know of only one killed in the spring — on the night of May 27-28, 1963. Whether pewees also migrate by day is apparently unknown.

Returning from the wintering grounds, the first wood pewees do not usually reach Illinois until after April 20 (Fig. 43), and though there are a number of published records for the pewee earlier than April 15, even for central and northern Illinois (Silloway 1902, Hess 1910, Kauffman 1917, Bartel & Reuss 1932, Abbott et al. 1933, Duncan 1934-1935, Smith 1942), we suspect that these records are erroneous or accidental. To some extent these excessively early records for the "pewee" may stem from a confusion of names. Particularly in the older literature, the name "pewee" was often applied to the eastern phoebe. It is also possible that some of the early records were based on "pewee" songs uttered by starlings, which are excellent mimics of the pewee.

Even for southern Illinois, records for the wood pewee as early as April 12 and 14 (James Funk, and Michael Morrison, personal communications) are probably exceptional, and late April or early May arrivals are more representative (Fig. 43, Cooke 1888). In central Illinois the wood pewee has been detected as early as April 20 and 22 (L.B. Hunt personal communication, Smith 1930),



Fig. 41. — Eastern wood pewee on its nest. Photo taken in Pope County. Slightly larger than *Empidonax* flycatchers, this drab flycatcher has wing bars but lacks a distinct eye-ring.

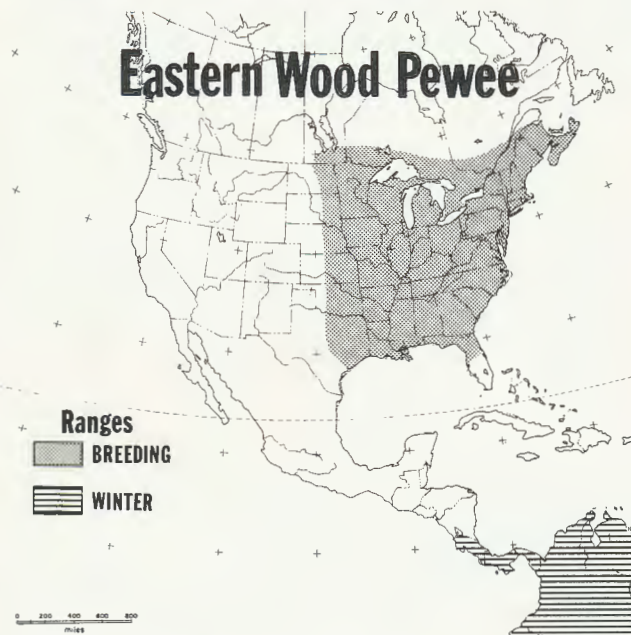


Fig. 42. — General distribution of the eastern wood pewee. The outlined range may include large sections in which populations of the species are thin or even absent because of the nature of the terrain and paucity of suitable habitat.

but in most years the arrival is first noted in early May (Smith 1930, Musselman 1921a). In northern Illinois Walter & Walter (1904), and Johnson (1936) recorded pewee arrivals on April 27 and 28, but the species is more often first detected after May 5 (Brodkorb 1926a, Bartel 1932, Ford et al. 1934, Clark & Nice 1950).

Our counts showed peaks in the spring population between May 8 and 18 in southern Illinois, May 20 and 26 in central Illinois, and May 28 and June 3 in northwestern Illinois (Fig. 43). The spring migration probably extends into June even in southern Illinois.

As in the case of the crested flycatcher, the spring population of the wood pewee was low in the northwest by comparison with those in central and southern Illinois. We did not see consistent differences in the spring populations of pewees between eastern and western Illinois, though our highest counts of this species, in contrast to the crested, tended to be in the east.

#### Distribution

The breeding range of the eastern wood pewee is the eastern half of the United States and adjacent southern Canada (Fig. 42). In Illinois the pewee almost certainly nests in every county, but actual nesting records are still lacking for some counties (Fig. 44).

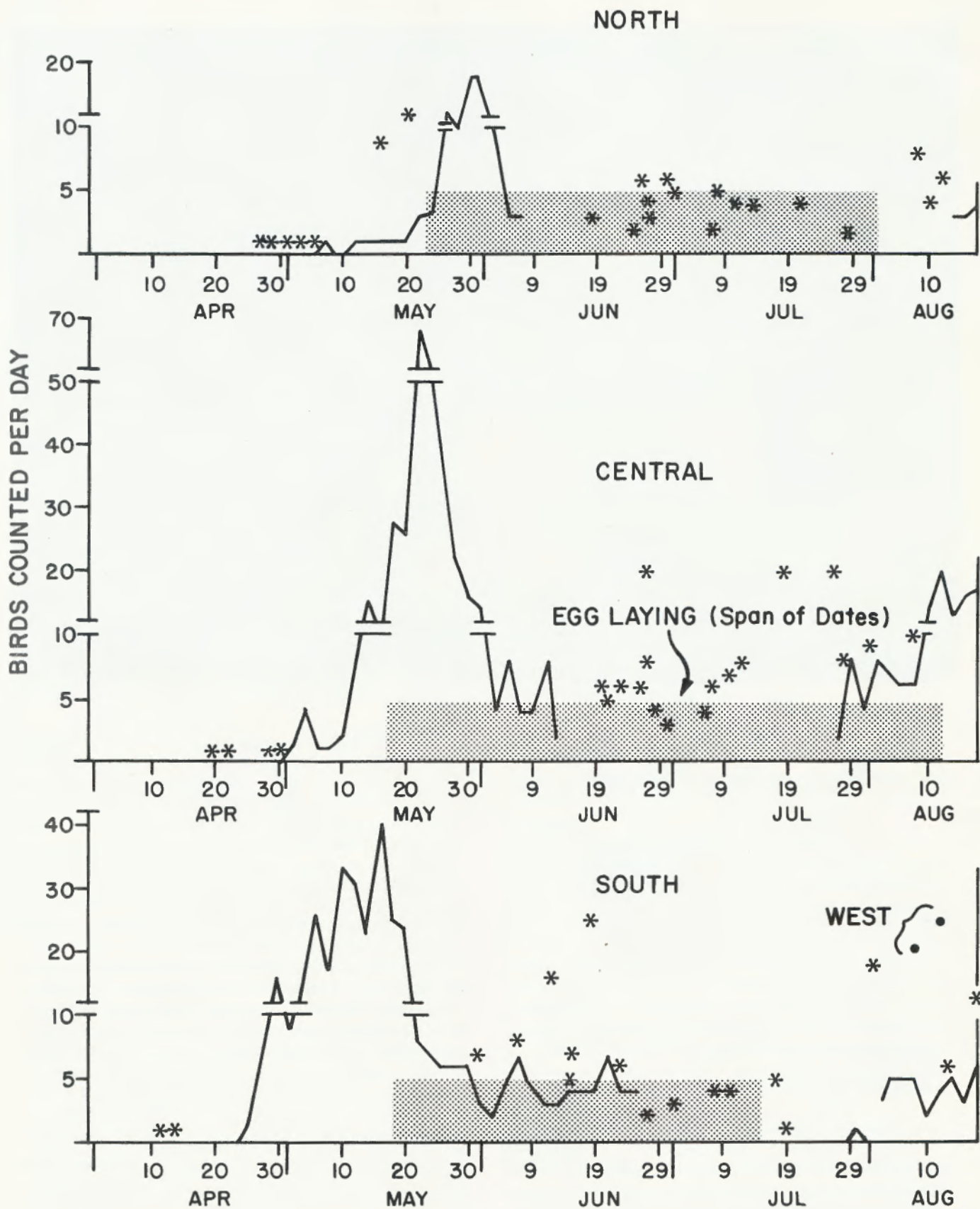
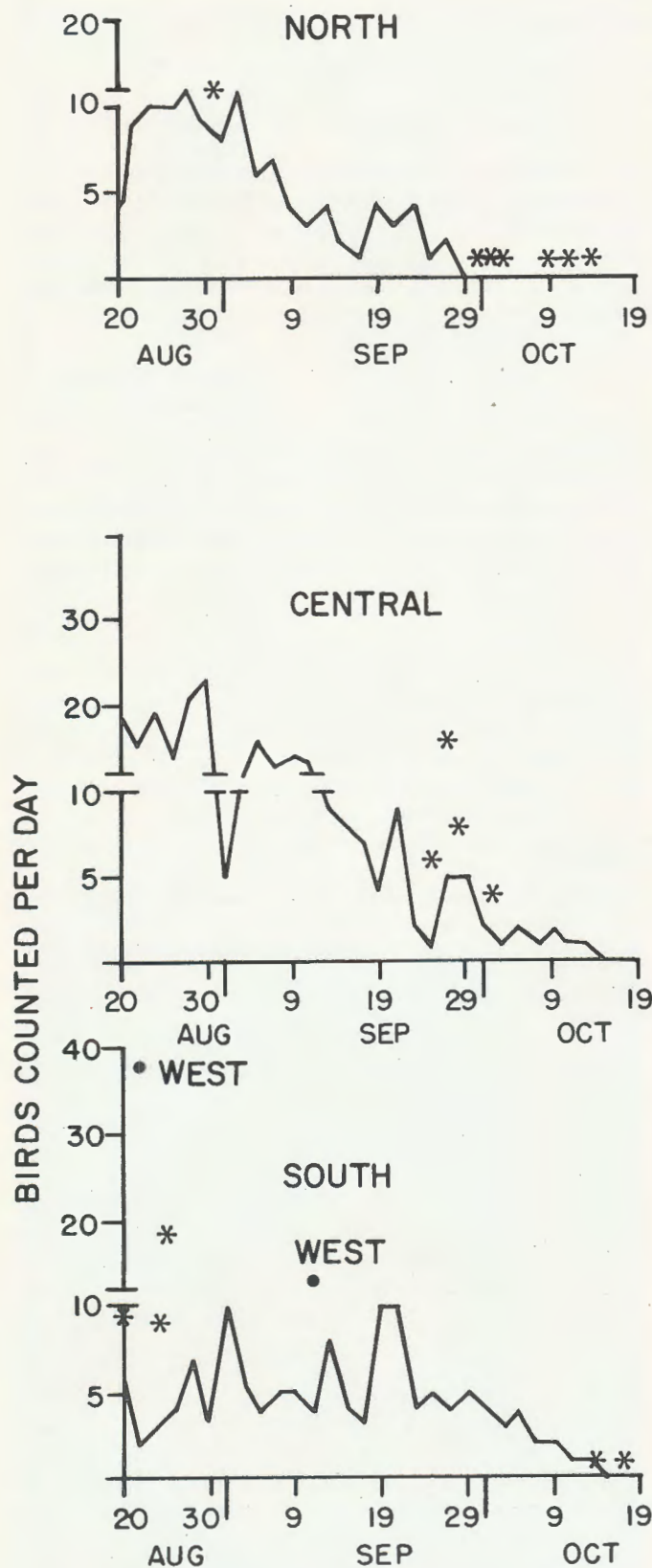


Fig. 43. — Egg-laying and migration seasons of the eastern wood pewee in different areas of the state (see Fig. 1). Spring and fall

lines (1967-1970) show highest daily counts of each 2 days (left scale). Asterisk symbols represent counts made in other years or by other



## EASTERN WOOD PEWEE BREEDING RECORDS



observers. Shaded areas show span of dates during which egg laying has been recorded.

### NESTS OR YOUNG

- 1950 -
- ▲ 1900 - 1949
- BEFORE 1900

### PAIRS OR SINGING MALES (JUNE)

- 1950 -
- △ 1900 - 1949
- BEFORE 1900

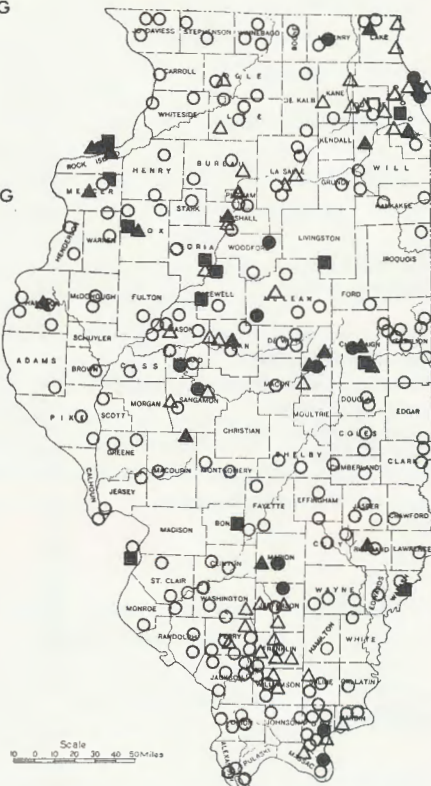


Fig. 44. — Breeding records for the eastern wood pewee in Illinois.

### Nesting Habitats and Populations

The eastern wood pewee is a forest and forest edge species, foraging especially in openings in the lower edge of or just below the lower tree canopy. Impressions as to the precise characteristics of the habitat have varied widely. Barnes (1890) and Gates (1911), both working near the Illinois River, and Fawver (1947b) near the Sangamon River, all considered bottomland forest to be the primary habitat for pewees, while Hankinson (1915) in Coles County and Ries & Werner (1946) near the Illinois River considered upland forest to be the favorite habitat. Fawver (1947a) and Carpenter (1935) considered the wood pewee a forest-edge species. The pewee nests in all of these habitats including forest interior, and has good population densities in each (Table 8), but it is not certainly known whether pewees have a definite preference for one forest situation over another. Mundt (1883) found pewees plentiful in Livingston County in not too dense timber of medium-sized trees, especially oaks. Swink's (1960) observations on perching sites also show the wood pewee to be strongly associated with oaks. Swink (1960) and Ridgway (1889) also point out that pewees often perch on dead branches.

We have nest tree data for only 27 nests, about half of which (52 percent) were in oaks, including bur oak (*Quercus macrocarpa*), white oak (*Q. alba*), black oak

TABLE 8. — Breeding populations of eastern wood pewees in various Illinois habitats.

Habitat	Acres	Birds Per 100 Acres <sup>a</sup>	Years	Type of Census	Region or County	Reference
Suburban residential	8	50	1914	Nest	Richland (S)	Ridgway 1915
Parkland estate	100	10	1915	Nest	Cook (N)	Eifrig 1915
Second growth hardwoods	15	67	1937	Nest	Rock Island (N)	Fawks 1937
	15	67	1938		Rock Island (N)	Fawks 1938
Upland second growth hardwoods	56	7	1941	Nest	Sangamon (C)	Robertson 1941
	56	7	1942		Sangamon (C)	Robertson 1942b
	56	7	1944		Sangamon (C)	Robertson 1944b
	46	4	1948		Sangamon (C)	Robertson & Snyder 1948
Oak-maple forest	55	11-72 (avg 37)	1927-1972	Nest	Champaign (C)	Kendeigh 1944, 1948
Maple-elm forest	63	28	1950	Nest	McLean (C)	Calef 1953
	63	20	1951		McLean (C)	
Upland oak-hickory forest	24	21	1967	Nest	Hancock (C)	Franks & Martin 1967
Unmodified woodland	27	15	1937	Nest	Lake (N)	Beecher 1942
Modified woodland (human housing)	28	22	1937	Nest	Lake (N)	Beecher 1942
Bottomland forest	15	38	1966	Nest	Vermilion (C)	Karr 1968
Virgin floodplain forest	77	28	1948	Nest	Sangamon (C)	Snyder, et al. 1948
Floodplain forest	50	24	1946	Nest	Piatt (C)	Fawver 1947b
Grazed bottomland woods	93	26	1955	Nest	Macon (C)	Chanot & Kirby 1955
Forest (all types including edge)	79	9	1957	Strip	North	Graber & Graber 1963
	98	6	1958	Strip	North	
	97	9	1957		Central	
	117	10	1958		Central	
	20	5	1907		South	
	40	10	1909		South	
	174	8	1957		South	
	166	3	1958		South	
Late shrub	21	10	1966	Nest	Vermilion (C)	Karr 1968
Shrub areas	35	6	1958	Strip	Central	Graber & Graber 1963
	39	2	1909		South	
	67	1	1957		South	
	62	5	1958		South	

<sup>a</sup> All figures were converted to read birds per 100 acres (territorial males or nests X 2).

(*Q. velutina*), and post oak (*Q. stellata*). Most of the others were in maples, including sugar maple (18 percent), elms (15 percent), and willows (11 percent). Pewee nests are usually placed fairly high. Illinois nests have ranged from 9 feet to about 50 feet and averaged 25 feet in height.

In southern Illinois Brewer (1958) found no significant numbers of pewees in stands of trees less than 21 years old in strip-mined areas. We see no indication that pewees still nest in orchards as they apparently did in Ridgway's (1887) time. We also suspect that the pewees found in shrub areas (Table 8) are foraging, and not nesting birds. Pewees also nest in towns, as Hess (1910), Gates (1911), and Ford (1931) stated, but urban populations have not been measured and we suspect that they are very low. Ridgway's (1915) density figure for a suburban population (50 wood pewees per 100 acres) in Olney, Illinois is probably exaggerated because of the small acreage censused. The density values for small census areas (especially under 20 acres) tend to be high regardless of the habitat (Table 8).

Territories of wood pewees in lowland forest measured by Fawver (1947b) and Calef (1953) in central Illinois ranged from 1.4 to 3.1 acres and averaged 2.9 acres (1946), 1.9 acres (1950), and 2.7 acres (1951), with territories being smaller in years of higher populations and larger with lower population densities. Twomey's

(1945) measurements of territories were apparently based on a different interpretation of the territory, for he gives figures of about 6 acres (1934) and 8 acres (1935).

### Nesting Cycle

Eastern wood pewees probably sing regularly during their spring migration, and they arrive in Illinois singing. The common song is unmistakable: a clear, plaintive, wiry whistle — "p-e-e-e- a- wee," long and drawn out, with major emphasis on the first syllable (Ridgway 1889). Nice (1961) pointed out that the pewee has at least two other song forms, a two-syllable "pee-oh," or "pee-er," which we have often heard also, and a more complex "twilight" song which we have never heard. Ridgway (1889) also refers to a twittering sound that the pewee utters. Eastern wood pewees sing almost throughout the day (Nice 1961).

When and where pair-formation of pewees takes place we do not know, but in some instances the pairs seem to be formed almost as soon as (or perhaps even before) the birds arrive on their nesting areas. Silloway (unpublished notes, 1921) observed a pair in Peoria on May 5, which is close to the early arrival date (Fig. 43). In central Illinois Fawver (1947a) observed pewees establishing territories in mid-May. The process involved some rigorous fighting among the pewees.

The nest, with rare exception as noted by Green

(1917), is saddled on a horizontal branch and is a very interesting structure (Fig. 41). It is composed of weed stems, dry grasses, hair, and cobwebs, and covered with lichens (Loucks unpublished notes, and Sanborn & Goelitz 1915). At a distance the nest resembles a knot on the branch. The time required for nest construction has not been recorded.

Egg laying by wood pewees begins at least as early as May 23 in northern Illinois and May 17 in central Illinois, and probably earlier in the south even though present records do not show it (Fig. 43). Egg laying has been recorded at least as late as August 12 in central Illinois, giving the wood pewee an egg-laying season about as long as that of the phoebe, but much later (Fig. 18 and 43). We do not know if the wood pewee is double brooded.

Egg data on 35 Illinois nests (north-13, central-17, south-5) indicate that most nests (69 percent) receive 3 eggs (Fig. 45). Other clutch sizes were 4 eggs (17 percent), 2 eggs (11 percent), and a few nests (3 percent) with 5 eggs. These data represent mainly old museum records or old literature and may not constitute a truly representative sample, especially for recent years. The time requirements for incubation and nestling life have not been studied in Illinois.

Nice (1961) studied parental care of nestlings at a wood pewee nest in northern Illinois. She observed that only one parent — probably the female — brooded the young, but both adults shared, about equally, the task of feeding the young. When the nestlings were about 12-13 days old, the parents brought food to the nest at rates varying from 14 to 55 times per hour (average: 29). The feeding rates were lower (average: 16 times per hour) when the nestlings were younger (5-11 days old). Nice (1961) found that most of the nestlings' food was minute,



Fig. 45. — Eastern wood pewee nest and eggs.

but there were a few relatively large items such as a cabbage butterfly, a damsel fly, and a crane fly.

Nice (1961) also observed that the parent wood pewees were very belligerent in the vicinity of the nest, driving away gray squirrels (*Sciurus carolinensis*) and birds larger than themselves as well as other pewees. They were particularly aggressive toward squirrels, grackles (*Quiscalus quiscula*), blue jays, and robins (*Turdus migratorius*), but tolerant of the smaller species such as house sparrows and red-eyed vireos (*Vireo olivaceus*). In central Illinois Fawver (1947b) saw wood pewee conflicts with cardinals (*Cardinalis cardinalis*), and black-capped chickadees (*Parus atricapillus*). In the south we have seen wood pewees vigorously chasing Acadian flycatchers.

There have been no measurements of nesting success or productivity of pewees, and there are no data on causes of nest failures. Neither is it known whether wood pewees attempt to rear more than one brood. The wood pewee has been recorded as a victim of cowbird parasitism in Illinois (Green 1917, Friedmann 1963), but the incidence and effect of parasitism is unknown for any Illinois population.

#### Fall Migration

The eastern wood pewee has been an uncommon victim in the kills at television towers. The four fall specimens, which have been retrieved from central Illinois towers, were killed between September 17 and October 1, indicating that active migration was in progress at least during that period.

Our highest fall counts, as well as those of Swink (1960) and Dillon (1968), for the wood pewee (Fig. 43) came in August, and we believe that the fall migration of the pewee is well underway at least by mid-August, a time when some nests are still being initiated (Fig. 43).

An adult wood pewee found dead just south of Illinois in Kentucky was in extensive body molt on August 2, and in Illinois on August 20 we have seen some wood pewees in badly worn plumage and others apparently in fresh plumage. A pewee killed at a tower in central Illinois on the night of September 16-17 was almost through the post-juvenile molt with only a few pin feathers on its head.

Illinois observers usually record the last wood pewees of the fall in late September or October (Fig. 43, DuMont 1947, Blake 1941, Brodkorb 1926b, Kleen & Bush 1972a), and a pewee at Springfield on November 8, 1972 observed by H. D. Bohlen (Kleen & Bush 1973) was exceptionally late.

Our fall counts of wood pewees seem low (Fig. 43) when we consider that the fall numbers should show the productivity of the preceding nesting season. The ratios of our spring to fall counts were: 1.0 in the spring to 2.0 in the fall (north), 1.0 to 1.0 (central), and 1.5 to 1.0 (south). The low fall counts, which we have seen in other flycatchers also, are perhaps related to the fact that nonsinging fall birds are less conspicuous than the more vociferous spring birds, but we cannot explain the commonly observed pattern of a progressively descending ratio of fall birds from north to south.

## Food Habits

The food habits of the eastern wood pewee in Illinois are inadequately known. Three stomachs from pewee specimens collected in Tazewell County and examined by Forbes (1882a) contained chiefly unspecified flies and gnats (55 percent of the food) and small beetles (23 percent) plus ants and other Hymenoptera. Rice's (1946) study also shows Diptera to constitute the principal food (35-50 percent of the food), with Hymenoptera (20-25 percent), Coleoptera (10-20 percent), and Lepidoptera (5-15 percent) also important in the diet.

Lyon (1925) once saw a wood pewee steal a butterfly from a woodpecker, but if such pirating behavior is common it has generally escaped detection.

## OLIVE-SIDED FLYCATCHER

(*Nuttallornis borealis*)

(Fig. 46 and 47)

### Spring Migration

The olive-sided flycatcher is a regular migrant throughout Illinois in the spring and fall. Its arrival in the spring is usually in early May (Fig. 48). The earliest recorded date for the state is April 29 for central Illinois (Smith 1930). It has been recorded in the St. Louis area on April 30 (Cooke 1888) and May 2 (Anderson 1962). The spring migration of the olive-sided flycatcher regularly extends into June even in southern Illinois (Fig. 48), making it one of the latest spring migrants in the state. The earliest credible record for northern Illinois is May 3 (Smith 1942). The latest date of occurrence in the spring is June 18 at Deerfield in northern Illinois (Boulton & Pitelka 1938).

Olive-sides often sing in migration even in southern Illinois. The song is a quickly delivered "hic-three-beers." Often they give characteristic "ter, ter, ter" or "pip, pip, pip" calls. We most often have seen olive-sides, singly, perched on dead branches near the tops of tall trees at the edges of clearings.

### Fall Migration

This species is among the first northern passerine migrants seen in Illinois in late summer. The olive-sided flycatcher appears in the Chicago area as early as August 9 (Ford 1956). They reach even southern Illinois by the third week in August. There is a July 6 date for northern Illinois (Ford 1956), and Nelson (1876-1877) felt that the species possibly bred in the state because of June records (Fig. 48). However, until nesting is actually observed these June-July records must be regarded as spring stragglers or early "fall" arrivals. The closest known breeding population of olive-sides is in Wisconsin (Fig. 47). Peak numbers in the fall occur in early and mid-September (Fig. 48). Total numbers seen by the authors were slightly more in the fall than in the spring (1.3 to 1.0). The latest date we have for the species is October 5 in southern Illinois (Fig. 48).

In our spring censuses far more birds of this species were seen on the eastern side of the state than on the



Fig. 46. — Drawing of olive-sided flycatcher. This species is drab in color, like the wood pewee, but larger and with heavy gray shading on its sides.

western side (4.4 to 1.0). In the fall this is also true, but the ratio is about 2.7 in the east to 1.0 in the west. Although the olive-sided flycatcher is considered solitary in its habits, Gault (unpublished notes) often saw two together (a pair?) in spring. Once he observed that two such birds were "quarrelsome with each other." In the fall several (as many as five) may occasionally be seen together and may represent family groups. They do not generally occur in other bird flocks. The largest number seen by the authors at any one time was 10 in 2 hours, September 7, 1957 in central Illinois.

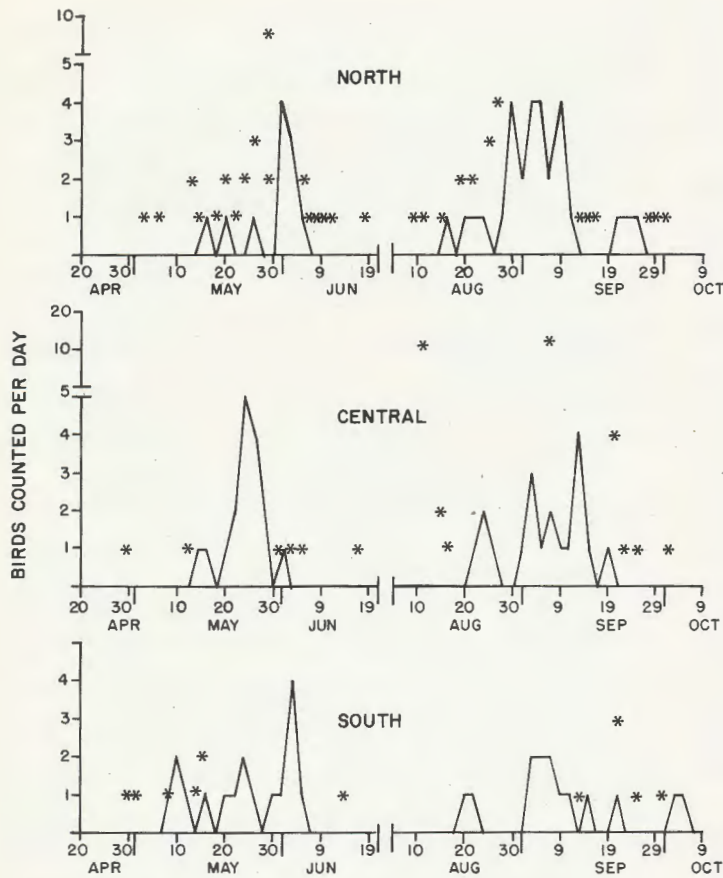


Fig. 48. — Migration seasons of the olive-sided flycatcher in different areas of the state (see Fig. 1). Spring and fall graph lines (1967-1970) show highest daily counts of each 2 days (left scale). Asterisk symbols represent counts made in other years or by other observers.

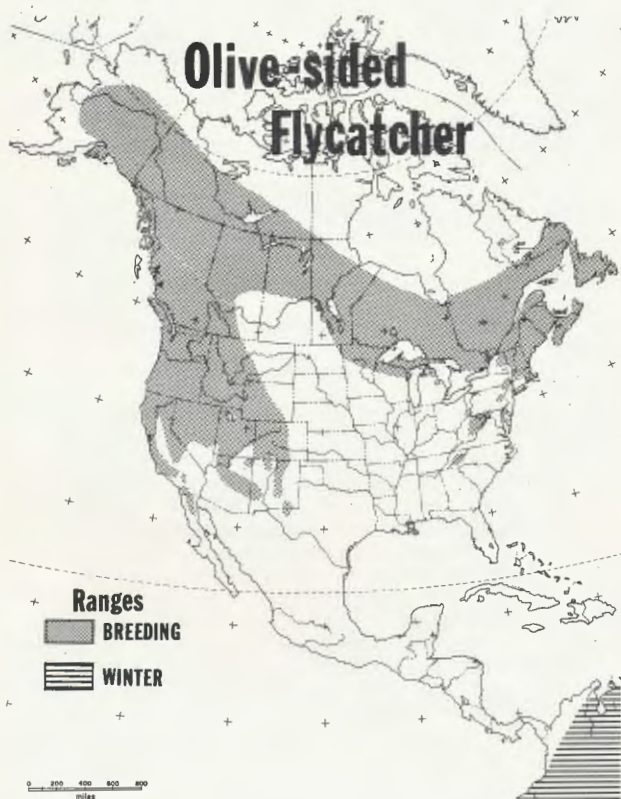


Fig. 47. — General distribution of the olive-sided flycatcher. The outlined range may include large sections in which populations of the species are thin or even absent because of the nature of the terrain and paucity of suitable habitat.

### VERMILION FLYCATCHER (*Pyrocephalus rubinus*)

This colorful species of the far southwestern United States and Central and South America has been found repeatedly in the St. Louis, Missouri area in recent years, both in the spring — April and May (Kleen & Bush 1971a, Fawks 1971) and in the fall — September-November (Petersen 1968a, Hamilton 1968, Fawks 1968a, Anderson & Bauer 1968, Kleen & Bush 1973). As many as four vermilion flycatchers have been seen together, and one male remained from at least September 30 to November 12, 1967 near St. Louis.

In the spring of 1962 we saw an adult male vermilion flycatcher on the University of Illinois campus, Urbana, but our notes on this observation were lost and the date is unknown.

A better-documented record of the species in Illinois was an adult male seen May 4, 1973 at the Chicago Botanic Garden, Glencoe, Illinois by at least eight observers from the Evanston Bird Club, including Mrs. Perry Jones of Winnetka and Mrs. Sidney North of Evanston. The bird was tame, and was observed at length, flycatching. Several of the observers knew the species from observations in its normal range.

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