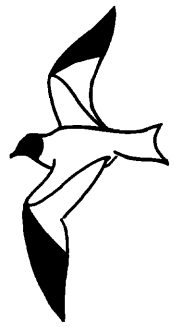


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OCCURRENCE AND IDENTIFICATION OF THE YELLOW-BELLIED FLYCATCHER ON SOUTHEAST FARALLON ISLAND, CALIFORNIA

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The occurrence in western North America, particularly in California, of numerous individuals of most migratory species of eastern North American passerines has been abundantly documented (McCaskie et al. 1979, Roberson 1980, Garrett and Dunn 1981). Because of its fortuitous location, size, topography and vegetation, and because of the continuous year-round presence of personnel from the Point Reyes Bird Observatory (PRBO), Southeast Farallon Island, 42 km west of San Francisco, California, has produced an inordinately large number of records of eastern passerines (DeSante and Ainley 1980, DeSante 1983). Eastern flycatchers of the genus *Empidonax*, however, with the exception of the Least Flycatcher (*E. minimus*), are represented there and elsewhere in western North America by very few documented records. Here we report two occurrences of the Yellow-bellied Flycatcher (*E. flaviventris*) on Southeast Farallon Island, the first of which constitutes the first record in California (Roberson 1980). In addition, we present some new information bearing on the identification of this species.

On 16 September 1976, at about 1530, a Yellow-bellied Flycatcher was captured by LeValley in a Heligoland trap surrounding a prostrate introduced Monterey Pine (*Pinus radiata*). The bird was immediately suspected of being *E. flaviventris* by virtue of its very bright plumage relative to that of three Western Flycatchers (*E. difficilis*), two of which were captured and banded, present that day. With the bird in hand, the following description was taken:

Top of head, back, rump and upper tail coverts green, tinged with yellow. Eye ring pale yellow. Chin yellowish-gray. Center of throat bright yellow, sides of

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throat grayish-green. Chest grayish-green. abdomen and vent bright yellow. Wings dark blackish-brown with yellow (not buffy-orange) wing bars. Underside of wing at bend of wrist sulfur-yellow (not buff). Tail dark blackish-brown. Bill blackish above, flesh-colored below. Mouth lining orange. Legs blackish. Sixth primary slightly cut out on outer web.

Measurements: wing (chord measured with standard wing rule), 62 mm; primary 10, 55 mm; primary 9, 62 mm; primary 8, 62 mm; primary 7, 62 mm; primary 6, 58.5 mm; primary 5, 54 mm; primary 4, 52 mm; primary 3, 51 mm. Tail (measured with calipers from the insertion of the central rectrices to the tip of the longest rectrix on the folded tail), 48.8 mm.

The individual was in juvenal plumage and had an incompletely pneumatized skull (class 1 on a scale of 0 to 3, with 3 being completely pneumatized). It showed no molt, had no fat, and weighed 9.9 gm. It was banded with USF&WS band 1420-39697, photographed and released. It was not seen again. The written report on this individual was given No. 13-1977 by the California Bird Records Committee (C.B.R.C.) of the Western Field Ornithologists.

On 27 September 1983, at approximately 1350, an *Empidonax* flycatcher was found by Ray Aker in a mist net located on the leeward side of the U.S. Coast Guard house near two fallen Monterey Cypresses (*Cupressus macrocarpa*). While removing the bird from the net, the rectrices were accidentally plucked. Eight rectrices were later recovered. Henderson recognized the bird as a possible Yellow-bellied Flycatcher and took the following description:

Head, back, rump and upper tail coverts *Empidonax* green. Crown slightly darker than back as a result of dark centers on crown feathers. Face rather uniformly colored, the green of auricular area not distinct from postauricular, malar or supercliliary areas. Throat generally pale yellow, whitish on chin. A grayish-green wash across upper breast. Remainder of underparts yellow, brightest on lower throat and upper abdomen and palest on lower abdomen and flanks. Undertail coverts whitish washed with yellow. Eye ring pale yellow, thin and fairly uniform in width, only slightly pointed behind eye. Anterior wing bar pale yellow slightly washed with buff; posterior wing bar whitish with a yellowish wash, strongest at tips. Secondaries and tertials crisply margined on outer edges and tips with yellowish-white, the margins on tertials broad and boldly contrasted to the remainder of wing which was dark brownish-black. Underside of bend of wing at the wrist yellowish. Tail dark blackish-brown. Bill blackish above, pale fleshy-orange below with a smoky tinge toward sides and tip. Mouth lining orangish-yellow. Legs blackish. Sixth primary slightly cut out.

Although the records on the original data sheet state that the bird had a fully pneumatized skull (skull class 3), the plumage and shape of rectrix tips (Johnson 1963, 1974) indicate that it was a juvenal. The bird showed no molt, had a trace of fat, and weighed 8.9 gm. It was banded with USF&WS band 1480-03392, photographed by Keith Hansen, and released. It was seen once again later that day. On the following day, 28 September, the bird was netted on four different occasions. Late in the day the bird was found in the Heligoland trap in weakened condition; at approximately 1600 it was found dead. The individual was prepared as a study skin by Larry Spear and deposited in the collections of the California Academy of Sciences (CAS), San Francisco (71430). The bird proved to be a female.

ANALYSIS OF MEASUREMENTS

The tentative field identifications of C.B.R.C. record 13-1977 and CAS specimen 71430 as *E. flaviventris* are here corroborated by analyses of the shape of the wing tip (Figure 1) and by the ratio of the length of primary 5 plotted against tail length (Figure 2). The comparison in both analyses is between the Yellow-bellied and Western flycatchers, the two species of *Empidonax* most likely to be confused. In the absence in any collection of an adequate series of correctly-sexed fall juvenal Western Flycatchers, we use the wing and tail measurements of first-year specimens taken from Johnson (1974). This procedure is acceptable because first-year birds retain the juvenal rectrices and remiges through the post-juvenal (first prebasic) molt. Therefore, measurements for the juvenal-immature and first-year age categories are of feathers of the same generation that can be directly compared.

As Figure 1 demonstrates, *E. flaviventris* and *E. difficilis* have fundamentally different wing shapes. The wing tip of *E. flaviventris* is comprised of only three primaries, numbers 9, 8 and 7, and hence is more pointed, whereas that of *E. difficilis* is composed of four primaries, numbers 9, 8, 7 and 6, and thus is more rounded. Furthermore, each of the outer four primaries (numbers 10 through 7) of the Yellow-bellied Flycatcher averages slightly longer than in the Western Flycatcher, whereas each of the next three primaries (numbers 6 through 4) averages considerably shorter. The measurements of C.B.R.C. record 13-1977 (given above) and those of CAS 71430 (taken by Johnson; primary 10, 54.4 mm; 9, 61.2; 8, 62.4; 7, 61.7; 6, 59.0; 5, 54.4; 4, 51.7) clearly demonstrate that both birds represent *E. flaviventris*. Only for record 13-1977 is there a discrepancy. In this individual, the value for primary 9 is apparently faulty. It is approximately 1.5 mm longer than would be expected for an individual with this wing shape. This kind of error occurs easily when one attempts refined measurements on a living bird. No species of *Empidonax* has the sharply truncated wing tip that the field measurements of this individual suggest. All other values for this bird agree with those expected for *E. flaviventris*.

The length of primary 5, the wing feather character differing the most in average value in young females of the two species, can be combined with tail length in a scatterplot to differentiate between the Yellow-bellied and Western flycatchers (Figure 2). This ratio clearly shows that C.B.R.C. 13-1977 represents *E. flaviventris*. Analysis of CAS 71430 by this means is more difficult because the tail was plucked. However, from the longest rectrix saved (left number 6), we estimate a tail length of 51.3 mm for this bird. This value was obtained by measuring the total lengths of several individual rectrices detached from specimens in the Museum of Vertebrate Zoology and comparing these values with the standard tail lengths of the same specimens taken prior to feather plucking. This technique indicates that approximately 5 mm of each rectrix is embedded in the uropygium of the body and, therefore, is not included in the usual measurement of tail length, which is taken from the insertion of the central pair of rectrices. The ratio of the length of primary 5 to tail length again places CAS 71430 with *E. flaviventris*, well separated from the clump of values for the sample of *E. difficilis*.

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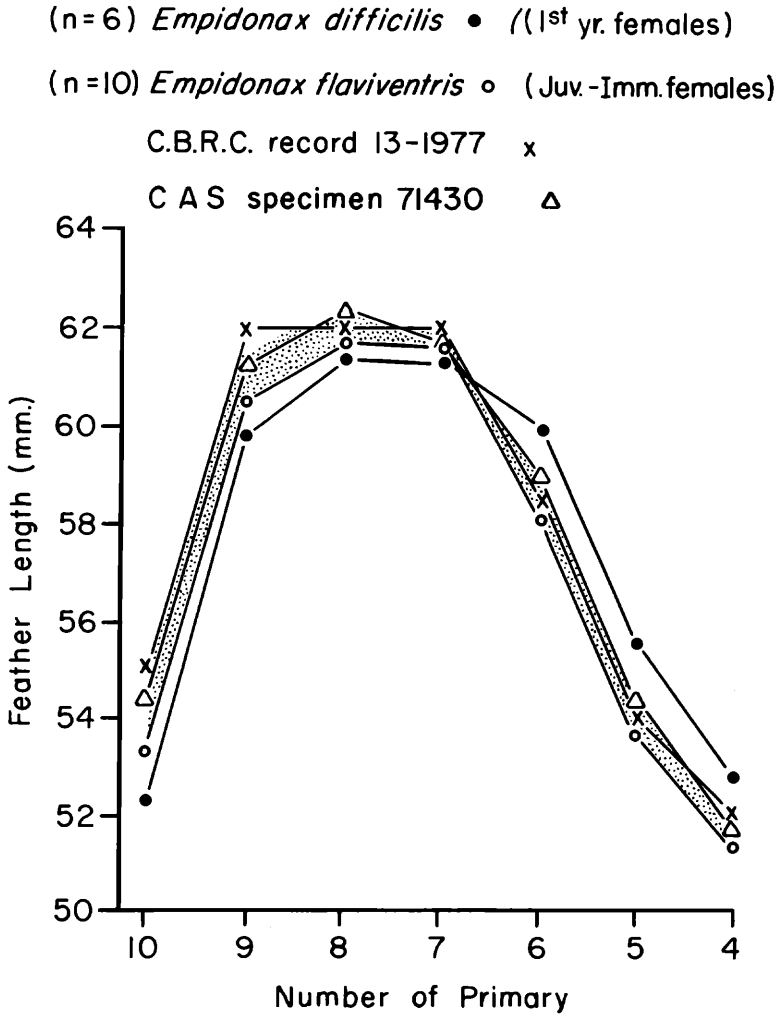


Figure 1. Quantitative appraisal of wing shape in young female *Empidonax difficilis* and *E. flaviventris*, based on the lengths of the outer seven primaries. Technique of measurement is described in Johnson (1963:90-91). Measurements are of fully grown primaries representing the juvenal generation of feathers. Values obtained in the field for C.B.R.C. record 13-1977, and in the museum for specimen CAS 71430, are compared with means of samples of the Western and Yellow-bellied flycatchers. The stippling serves to outline the general shape of the wing to be expected in young female *E. flaviventris*.

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DISCUSSION

The Yellow-bellied Flycatcher breeds in boreal coniferous forest across much of Canada, west to northern British Columbia (east of the Rocky Mountains), and south to northern North Dakota and the Appalachians of northeastern Pennsylvania. It winters primarily in tropical lowland forests in eastern and southern Middle America and migrates regularly through the eastern United States, west to the central Great Plains and central Texas, and casually west to eastern New Mexico and western Texas (American Ornithologists' Union 1983). The only verified western extralimital records, other than those presented here, are of single individuals collected at Tucson, Arizona, on 22 September 1956 (Phillips et al. 1964) and at Coal

- Empidonax difficilis* • (1st yr. females) Mean ✦
- Empidonax flaviventris* ○ (Juv.-Imm.females) Mean ✦
- C.B.R.C. record 13-1977 x
- C A S specimen 71430 △

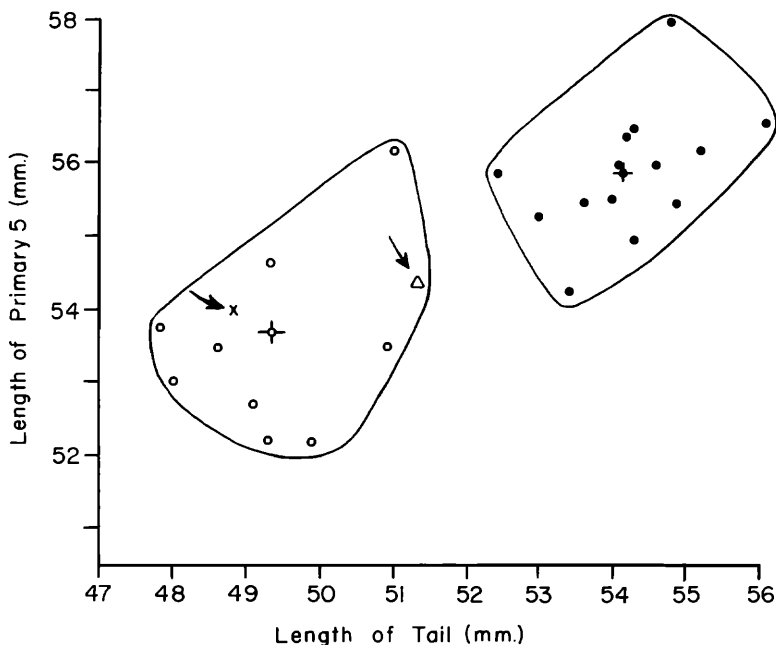


Figure 2. Scatterplot of values of length of primary 5 versus length of tail in samples of young female *Empidonax difficilis* and *E. flaviventris*. See text for method of determination of tail length of specimen CAS 71430.

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Creek near the Yukon River in east-central Alaska on 28 July 1966 (White and Haugh 1969).

The Yellow-bellied Flycatcher probably occurs more regularly in western North America than these very few records suggest. Its breeding and wintering ranges and migration routes are very similar to those of a number of eastern species of wood warblers (*Parulinae*) that occur regularly as vagrants in fall and, to a lesser extent, in spring in coastal California. The breeding and wintering ranges of the Black-throated Green Warbler (*Dendroica virens*) perhaps most closely approximate those of the Yellow-bellied Flycatcher. This warbler, however, through 1979, was represented by approximately 110 fall and 18 spring occurrences in California (Roberson 1980), including 6 each in fall and spring on Southeast Farallon Island during the 8-year period 1968-1975 (DeSante and Ainley 1980). The Cape May (*Dendroica tigrina*), Bay-breasted (*D. castanea*), Mourning (*Oporornis philadelphia*) and Canada (*Wilsonia canadensis*) warblers also have breeding ranges similar to that of the Yellow-bellied Flycatcher, although they tend to winter somewhat farther south and/or east. During the eight-year period of 1968-1975, these four species of warblers were represented by, respectively, 8, 10, 5 and 10 fall records and 13, 13, 0 and 3 spring occurrences on Southeast Farallon Island (DeSante and Ainley 1980). Clearly, the Yellow-bellied Flycatcher has been recorded much less regularly than these species of warblers.

Part of the reason for the apparent scarcity of the Yellow-bellied Flycatcher (and, presumably, some other eastern species of *Empidonax* flycatchers) in western North America, must certainly be the extreme difficulty of distinguishing individuals from the regularly occurring species of *Empidonax*, especially the very common and very similar Western Flycatcher (*E. difficilis*). It is also likely, however, that *E. flaviventris* is in fact an extremely rare vagrant to California. Fully 224 of the 326 individual fall Western Flycatchers that were recorded on the Farallones during 1968-1975 were scrutinized in the hand and banded. None showed characters suggestive of *E. flaviventris*. Probably, the species has not been overlooked on the Farallones in recent years.

What then accounts for the scarcity of vagrant Yellow-bellied Flycatchers relative to species of wood warblers with similar ranges? Although the answer is unknown, it is worth mentioning that nine-primary passerines (emberizids, including parulids) have been shown to be proportionally more common as vagrants on the Farallones than ten-primary passerines (tyranids, mimids, thrushes and vireonids) with similar breeding and wintering ranges (DeSante and Ainley 1980). Among non-parulids, perhaps the Philadelphia Vireo (*Vireo philadelphicus*) has breeding and wintering ranges and migration routes most similar to those of the Yellow-bellied Flycatcher. Through 1979, this vireo was represented by only 39 fall and 5 spring occurrences in California (Roberson 1980). During the eight-year period 1968-1975, it was recorded on the Farallones only once in fall and once in spring. The Philadelphia Vireo, therefore, seems to occur in California with only about $\frac{1}{6}$ - $\frac{1}{3}$ of the abundance of the Black-throated Green Warbler. Yet its abundance on the Farallones is not much different from that of the Yellow-bellied Flycatcher which has not yet been definitely recorded on the California mainland (a recent sight record from Point Reyes, Marin County, has yet

to be reviewed by the C.B.R.C.). We can conclude, therefore, that the Yellow-bellied Flycatcher has probably been overlooked on the California mainland.

The Least Flycatcher has occurred much more commonly than the Yellow-bellied Flycatcher, both on the Farallones [23 fall and 4 spring, 1968-1975 (DeSante and Ainley 1980)] and in California as a whole [53 fall and 11 spring through 1979 (Roberson 1980)]. The Least Flycatcher, however, breeds fairly commonly throughout British Columbia west of the Rockies and appears to be recently expanding its breeding range southwestward to include Washington, eastern Oregon and even northern California where it apparently bred in 1984 (Campbell and LeValley 1984). Its abundance, therefore, should be compared with that of such parulids as Blackpoll Warbler (*Dendroica striata*: 220 fall and 20 spring on the Farallones 1968-1975; 1333 fall and 72 spring in California through 1979), Tennessee Warbler (*Vermivora peregrina*: 57 fall and 43 spring Farallones; 684 fall and 211 spring California), and Magnolia Warbler (*Dendroica magna*: 34 fall and 37 spring Farallones; 218 fall and 107 spring California) that also breed west of the Rockies in British Columbia (DeSante and Ainley 1980, Roberson 1980). Clearly, the Least Flycatcher is less abundant both on the Farallones and in California as a whole than these parulids.

Although the field identification of vagrant Yellow-bellied Flycatchers in western North America is extremely difficult at best and should not be generally encouraged, some observations prompted by the Farallon occurrences seem appropriate. Both Farallon individuals were immediately recognized as *E. flaviventris*, once in the hand, by their overall bright green upperparts and distinctly yellow eye rings, wing bars, and underside of the bend of the wing, as compared to the duller olive-green or brownish-olive upperparts, whiter, less yellow eye rings and distinctly buffy wing bars and bend of the underwing of fall juvenal *E. difficilis*. Another striking characteristic, displayed by both Farallon birds and by virtually all fall juvenal *E. flaviventris* in the Museum of Vertebrate Zoology and the California Academy of Sciences, is the extensive bright yellowish-white edgings to the secondaries and tertials that contrast boldly with the blackish remiges and wing coverts. These edgings are buffy or dirty whitish and more restricted in *E. difficilis* and contrast less with the paler and browner remiges and wing coverts of the Western Flycatcher. Roberson (1980), in discussing the identification of *Empidonax* flycatchers, stated that the eye ring of *E. flaviventris* is round rather than strongly teardrop-shaped or almond-shaped behind the eye as in *E. difficilis*. In both examples of *E. flaviventris* from the Farallones, the eye ring was slightly pointed behind the eye but not really teardrop-shaped. In addition, the eye rings of both Farallon Yellow-bellied Flycatchers were distinctly narrower than in typical *E. difficilis*, which probably have the widest and most teardrop-shaped eye rings of all North American species of *Empidonax*. These characteristics are subtle and subjective and have yet to be properly tested in the field. Nonetheless, a fall *Empidonax* in western North America that shows bright green upperparts, bright yellow underparts, a rather narrow yellow eye ring, only slightly, if at all, pointed behind the eye, distinctly yellowish wing bars, and extensive bright yellowish-white secondary and tertial edgings that contrast sharply with blackish remiges and wing

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coverts would certainly deserve scrutiny and, if possible, capture and preservation for detailed study.

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