

## OCCURRENCE AND MIGRATION OF CERTAIN BIRDS IN SOUTHWESTERN CALIFORNIA

R. GUY McCASKIE AND RICHARD C. BANKS

ALTHOUGH the facts of the distribution and occurrence of birds in California are probably as well known as for any other area of comparable size in the world, there is still much to be learned. No fewer than 25 species have been added to the list of birds known to occur in the state since the last published summary by Grinnell and Miller (1944). A subject still in need of intensive study is autumnal migration. Facts about the timing of movement of individual species and of migrant waves are poorly known for birds in general, but especially so for the western wood warblers (*Parulidae*). The belief that there are no waves of warblers in the western United States is commonly accepted. Intensive study of a small area in the fall of 1962 has brought out some new facts concerning both the movements of common western species and the occurrence of several eastern species considered to be casual or accidental in California.

The study area reported on here, referred to as the Tia Juana River bottom, encompasses the terminal five miles of that river. The Tia Juana River originates in the coast ranges of southern San Diego County, California. It flows southwestward into northern Baja California, Mexico, but swings to the northwest near Tijuana and empties into the Pacific Ocean in extreme southwestern San Diego County. The study area, about four miles square, is bounded on the north by San Diego Bay, on the east by U. S. Highway 101, on the south by the international border, and on the west by the Pacific Ocean. Most of our work was concentrated in favorable areas within a mile of the river. This section of the flat coastal plain is one of truck farming and small dairy ranches. The river, in the center of the area, is dry most of the year and consists mainly of a sandy wash with low brush and weeds growing in and along it.

Migrant birds tended to concentrate on the Myers property, so extensive observations were made there. The property is about one mile south of Nestor, on the north bank of the wash. Several rows of tamarisk trees (*Tamarix* sp.) border the property, and a shallow ditch grown to low brush, especially tree tobacco (*Nicotiana glauca*), runs along the northern edge of the place. A small fish pool provides a constant water supply for birds. The property is approximately 300 × 200 feet (91 × 61 m). This clump of greenery is the only prominent stand of vegetation in the valley.

Most of the observations and records reported here were made by McCaskie. Specimens were prepared and identifications confirmed by Banks. Some of the subspecific identifications were made by Mrs. Roxie C. Laybourne at the U. S. National Museum. All specimens taken are now in the collection of the San Diego Natural

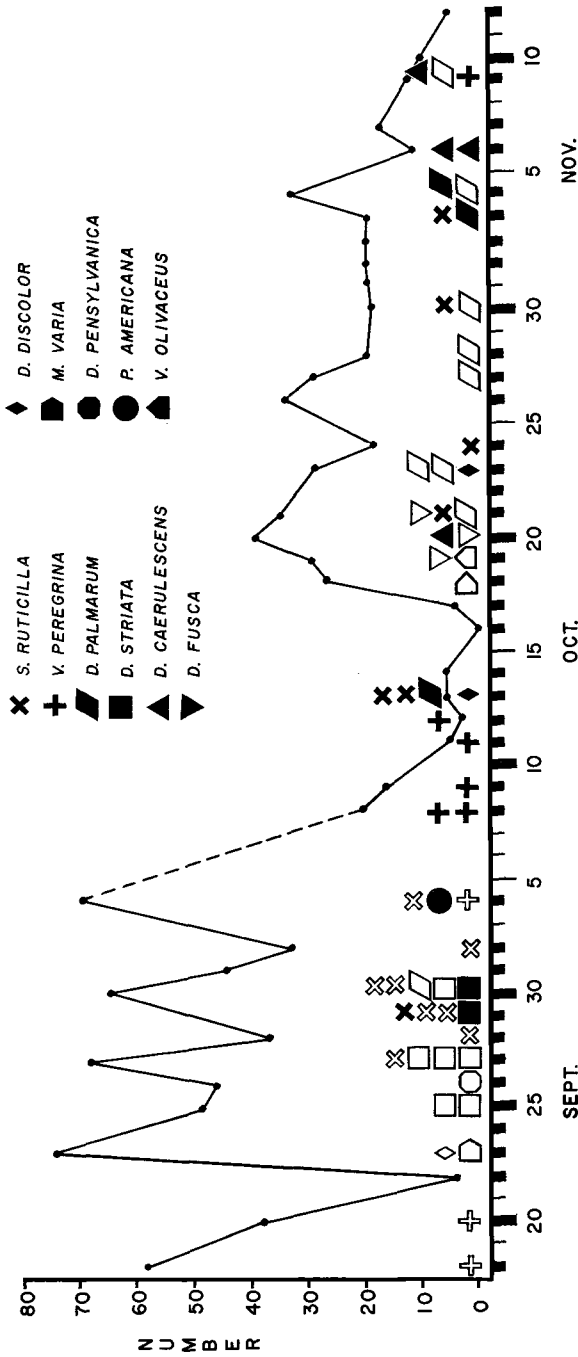


Figure 1. Census data for warblers and vireos (line) and occurrence of vagrants (symbols) in the Tia Juana River bottom. Heavy lines for dates indicate days when counts were made; the broken part of the census line indicates the only period when several consecutive days were missed. Hollow symbols represent birds seen at the Myers property; solid symbols are for those seen elsewhere in the Tia Juana River bottom.

History Museum. In the following accounts all localities mentioned are in San Diego County and all dates are in 1962, unless otherwise noted. A few localities not in the study area are mentioned. We wish to express our appreciation to Mr. Henry Myers, Mr. L. D. Chitwood, and Mr. L. Erickson for permission to collect specimens on their properties.

#### MIGRATION DATA

Although warblers were present at suitable localities throughout the Tia Juana River bottom, the spacing of the tamarisk trees and the nature of their foliage permitted especially accurate counts of the birds around the Myers property. McCaskie made such counts of migrant warblers and vireos on 40 days in the period from 18 September to 12 November. The results of these counts are presented in Figure 1 which, if expanded, could well apply to the entire study area. It will be noted that there were two long highs in the number of migrants, each composed of a number of peaks of short duration. The presence of unexpected eastern species throughout the valley is indicated symbolically.

Particularly for the first long peak, we think that the turnover in the population of migrants was daily. Certain plumage types present one day but absent the next and varying proportions of the less abundant species from day to day fostered this impression. This suggests that the peaks observed, separated by intervals of three to five days, were real and not merely the results of local movement or faulty census technique. The number of birds remained constant throughout a given day, as repeated counts indicated.

In the first half of the study, the most abundantly occurring birds were the Orange-crowned Warbler (*Vermivora celata*) and Yellow Warbler (*Dendroica petechia*). Species present in lesser numbers, but nonetheless constituting a sizable proportion of the flocks, were the Warbling Vireo (*Vireo gilvus*), Black-throated Gray Warbler (*Dendroica nigrescens*), Townsend's Warbler (*D. townsendi*), and Wilson's Warbler (*Wilsonia pusilla*). Only small numbers of Audubon's Warblers (*Dendroica auduboni*), Hermit Warblers (*D. occidentalis*), Nashville Warblers (*Vermivora ruficapilla*), and MacGillivray's Warblers (*Oporornis tolmiei*) were noted in this part of the migration, although Audubon's Warblers began to arrive in numbers on 29 September.

The slump which began 8 October was due to the disappearance of all species more or less simultaneously, not to the reduction in numbers of any one species alone. Audubon's Warblers were responsible for 12 of the 15 records from 12 to 14 October. Intensive search in this slack period revealed the presence of several eastern birds in the vicinity of water at places other than on the Myers property in the Tia Juana River bottom, but the over-all number of warblers was small.

Warblers were again noted in quantity beginning 18 October. From that date until the end of our observations, Audubon's Warblers comprised at least two-thirds of the number of individuals seen on any given day. Orange-crowned Warblers were the only others present with any regularity. Both these species winter in southern California. All the more common California warbler species except MacGillivray's Warbler were noted in this period, but never more than one or two at a time. Myrtle Warblers (*Dendroica coronata*) were seen six times. A greater variety of vagrants occurred from 18 to 23 October than in any comparable period in the study. Vagrants were noted as late as 9 November.

#### NOTEWORTHY RECORDS

Franklin's Gull (*Larus pipixcan*).—A bird was found on the beach at Imperial Beach, San Diego County, on 31 October 1960, by Mr. and Mrs. T. H. Brown. It was prepared as a specimen by Laurence M. Huey. The bird is a female in immature plumage. Grinnell and Miller (1944) list the species as a rare migrant in the southern half of California, citing two localities in King and Los Angeles counties. Recent sight records (Pyle and Small, 1961) indicate that the species occurs fairly regularly, but in limited numbers, along the Colorado River, in the Salton Sea area, and along the coast. These records may reflect the extension of the breeding range of this species into southeastern Oregon (Jewett, 1949).

Tropical Kingbird (*Tyrannus melancholicus*).—An individual was seen at the Coronado Golf Course, San Diego, 12 to 16 September, by several observers. A photograph was taken by Dr. James Crouch; the bird was not secured as a specimen. Four other individuals were recorded in the Tia Juana River bottom and on the Coronado Strand between 8 and 18 October. The occurrence of these birds in southern coastal California and their almost annual occurrence along the coast of central California in recent years (see *Aud. Field Notes*, 1954–1963) support the suggestions of Slipp (1942) and Cogswell (1952) that the route taken by the many northern wanderers reported is coastal rather than inland.

Bell's Vireo (*Vireo bellii pusillus*).—An individual was taken in Mission Valley, San Diego, on 4 January 1963. A male, it was slightly fat and weighed 9.8 g. The skull was incompletely ossified. There was some evidence of molt ventrally. This appears to be the second record of the species wintering in the United States, the first being for the race *V. b. bellii* in southern Louisiana (Lowery, 1955: 416).

Red-eyed Vireo (*Vireo olivaceus*).—An unsexed specimen, taken one mile south of Nestor, 19 October, was moderately fat; the skull was incompletely ossified. The specimen was identified as *V. o. caniviridis* (see Burleigh, 1960) by Mrs. Laybourne. There are two previous fall records for southern California. Bowman (1961) recorded the first summer-taken specimen, in June, 1958, on the Farallon Islands. McCaskie and others observed a singing bird at Satley, Sierra County, from 9 to 19 June 1962.

Virginia's Warbler (*Vermivora virginiae*).—Grinnell and Miller (1944) list Virginia's Warbler as a rare summer bird in the mountains of eastern Mono and San Bernardino counties. Only two records of migrants in the western part of the state are available—one in San Diego County (Huey, 1932), and one on Santa Cruz Island, Santa Barbara County (Pitelka, 1950). The species was, however, abundant in the Tia Juana River bottom in the fall of 1962, where at least 35 were seen between 13 September and 21 October. As many as 8 were seen in a day in late September,

when their numbers were greatest. Two specimens were taken. An unsexed bird on 13 September was very fat and had an unossified skull. A female taken 18 September similarly had an incompletely ossified skull; it weighed 9.6 g, but no notation of its fat condition was made.

Black-throated Blue Warbler (*Dendroica caerulescens caerulescens*).—A male was taken at the Windover Ranch, two miles south of Nestor, on 20 October. The skull was incompletely ossified and the bird was moderately fat. McCaskie observed two other birds in the same area on 6 November, one of which remained until 9 November. This specimen is apparently the fourth for California. The specimen mentioned by Kinsey (1954) is in the collection of the California Academy of Sciences (Kinsey, pers. comm.). A record (*Aud. Field Notes*, 13: 67, 1959) for Laguna Beach, Orange County, is substantiated by a specimen in the Los Angeles County Museum (J. Lane, in litt.). Two late fall records from the Monterey area, one from Santa Barbara and one from San Bernardino County, are available.

Blackburnian Warbler (*Dendroica fusca*).—A Blackburnian Warbler was seen one mile south of Nestor on 19 and 20 October, and was taken on 21 October. The bird was in immature plumage and had an incompletely ossified skull. It was very fat; the sex could not be determined. This is the first record of the species in California.

Chestnut-sided Warbler (*Dendroica pensylvanica*).—A bird was seen on 25 September and taken the following day in the Tia Juana River bottom. It was a male in adult plumage with a completely ossified skull. It was moderately fat and weighed 9.5 g. This is the fifth specimen from California (see Bowman, 1961) and the first of the fall-taken birds known to be adult.

Blackpoll Warbler (*Dendroica striata*).—Two specimens, taken 25 and 27 September, one mile south of Nestor, are the first from California. Both were very fat males in fall plumage and both had incompletely ossified skulls. They weighed 14.5 and 14.7 g, respectively. They have been identified as *D. s. lurida* (see Burleigh and Peters, 1948). A minimum of seven individuals was seen in the area between 25 and 30 September. The only previous published record for the state is of a spring bird (Pyle and Small, 1961) seen in Imperial County. McCaskie saw one at Honey Lake, Lassen County, on 23 September 1961.

Prairie Warbler (*Dendroica discolor discolor*).—A bird was taken on 23 September in the Tia Juana River bottom. The specimen is in extremely poor condition, and although positive identification is possible the sex or age could not be determined. A second bird was taken nearby on 13 October. This specimen was a male and was very fat. The skull was incompletely ossified. A third individual was seen in the same place on 23 October, and another bird was observed from 19 to 28 October at Solano Beach, San Diego County. There are no other specimens of this warbler from California, and apparently none has been taken in the United States west of Kansas.

Palm Warbler (*Dendroica palmarum palmarum*).—The single previous record of this species in San Diego County was published by Morley (1959), who summarized or gave references to previous records for the state. Reports for California since that time include one by Wauer (1962) for Death Valley and four coastal records in *Aud. Field Notes*. A bird obtained on 30 September, one mile south of Nestor, represents the third specimen for the state. The male bird was slightly fat and weighed 10.3 g; the skull was incompletely ossified. Seven individuals were seen in the Tia Juana River bottom between 30 September and 9 November. One bird was observed at Solano Beach on 12 October.

American Redstart (*Setophaga ruticilla*).—At least eight redstarts were observed in the Tia Juana River bottom in the period 26 September to 30 October. The species was

apparently continuously represented between these dates, and as many as three individuals were seen in one day. One specimen was taken, an adult male, on 29 September. It was very fat and weighed 9.0 g. Records outside the Tia Juana River bottom include birds seen at Bonita, 7 December, and in Mission Valley, San Diego, from 2 December 1962 until mid-April 1963. These observations, augmented by several other records, indicate that the redstart occurs more commonly in southern California in the fall and winter than has previously been realized.

Orchard Oriole (*Icterus spurius*).—An Orchard Oriole was taken on 19 October in the Tia Juana River bottom one mile south of Nestor. The bird was a male in adult winter plumage and was moderately fat. The skull was completely ossified; the testes measured 2 mm. This is the second specimen taken within the state of California, but there are at least six sight records, some substantiated by photographs, for the period from October to April (Pyle and Small, 1961).

Painted Bunting (*Passerina ciris ciris*).—McCaskie saw a Painted Bunting in "female" plumage on 13–14 September and again on 11 October, in the Tia Juana River bottom. A bird was taken on 10 November in the same area. It was a male with an incompletely ossified skull, and it was very fat. The species has not previously been recorded in California. In a letter communicating Mrs. Laybourne's identifications of our specimens, Dr. George Watson stated that the bird is "like the eastern form *ciris*, except the tail measurement tends toward the western form *pallidior*."

In addition to the species listed above several other eastern birds were observed in the fall of 1962 in the Tia Juana River bottom or in the vicinity. Specimens could not be obtained of each of the species seen, but those listed below have occurred in California previously.

An Eastern Phoebe (*Sayornis phoebe*) was seen on the Coronado Strand on 16 and 17 October. Black-and-white Warblers (*Mniotilta varia*) were noted on 23 September and 18 October. At least seven Tennessee Warblers (*Vermivora peregrina*) visited the area between 18 September and 9 November. A single male-plumaged Parula Warbler (*Parula americana*) was seen on 4 October. On 7 December a Swamp Sparrow (*Melospiza georgiana*) was recorded at Bonita, on the Sweetwater River.

Three Verdins (*Auriparus flaviceps*) were seen in the Tia Juana River bottom on 13 September. This desert species has not previously been recorded along the California coast. Both the yellow head and chestnut shoulder patch were noted. Another desert species, Bendire's Thrasher (*Toxostoma bendirei*) was recorded in the same area on 16 November. Scarlet-headed Orioles (*Icterus pustulatus*) were recorded in that area on 22 September and 13 October. There are previous coastal records for the latter two species.

We might point out here that at least three other eastern warblers have been recorded in California in the fall for the first time in recent years. Arvey (1957) reported a Bay-breasted Warbler (*Dendroica castanea*) taken on a boat "almost due west of San Diego, California." Specimens of the Worm-eating Warbler (*Helminthos vermivorus*) and Black-throated Green Warbler (*Dendroica virens*) found dead in San Diego were reported by Huey (1961a, 1961b).

## DISCUSSION

A consideration of the breeding ranges of the vagrant species mentioned in this paper permits them to be grouped into four categories:

(1) *Birds from northwestern Mexico*.—Enough previous records of the Tropical Kingbird are available to suggest that the northwestward move-

ment of this species in the fall is not very unusual. Probably similar wandering by the Scarlet-headed Oriole is responsible for the recent records of that species in southwestern California.

(2) *Desert species of the southwestern United States.*—Virginia's Warbler moves to lower elevations at the end of the nesting season (Skutch in Griscom and Sprunt, 1957). At this time and in the early part of their migration, this species is in the area inhabited by Bendire's Thrasher and the Verdin. Coastal records of all three of these species from the desert regions not far west of San Diego County probably result from the same influence, as yet undetermined.

(3) *Birds whose breeding ranges are strictly eastern.*—The Worm-eating, Prairie, Chestnut-sided, and Black-throated Blue warblers are eastern species whose occurrence in California must be considered the result of vagrancy, even though multiple records exist for the last three. The Parula Warbler should probably be similarly considered in spite of the fact that the nesting of the species has been reported in the state (Williams, Legg, and Williamson, 1958); it has not previously been reported in the fall.

(4) *"Eastern" species whose breeding ranges extend west of the one-hundredth meridian.*—Birds in this category may be considered in a number of smaller groups according to the abundance of records for California. The occurrence in the fall of small numbers of Black-and-white (Grinnell and Miller, 1944) and Tennessee (Kinsey, 1945) warblers and the American Redstart is apparently normal. The Eastern Phoebe, Red-eyed Vireo, Palm Warbler, Orchard Oriole, and Swamp Sparrow are not of such regular occurrence, but each of these species has been reported often enough to suggest that their occurrence is something more than merely accidental. The Bay-breasted, Black-throated Green, and Blackburnian warblers and the Painted Bunting are each represented by single fall specimens. These are undoubtedly records of vagrant birds.

The Blackpoll Warbler, from all parts of its range, normally migrates far eastward before turning south to go to its winter home in South America through the West Indies. The extreme eastern nature of the route taken by this species is emphasized by the fact that its occurrence in the fall in Louisiana and Tennessee is considered noteworthy (*Aud. Field Notes*, 14: 44, 1960). The relative abundance of the species in southwestern California in the fall of 1962 indicates that some individuals deviate markedly from this normal flight pattern. Is it possible that the westernmost populations are establishing a new migration route?

Observations by the senior author show that large numbers of birds, of many species, follow the eastern slope of the Sierra Nevada in their southward migration. If these birds should continue due south from the south-

ern end of the Sierra Nevada, they would reach the coast in the vicinity of San Diego. Birds from west of the Sierran crest will naturally be funnelled, by mountains and coast, through the San Diego area. The convergence of these routes may help to explain the abundance of fall migrants here. The fact that the majority of the vagrants recorded are immature birds suggests that they are birds which have become disoriented and lost on their first southward migration and which have been caught up with groups of birds that normally follow routes leading to or toward San Diego County. The abundance of the eastern birds found in less than two months of observation in the fall of 1962, taken with other recent records, suggests that what appears to be an influx of vagrants may actually be an annual phenomenon.

#### SUMMARY

Analysis of 40 daily counts in a 56-day period during the height of the 1962 fall migration in San Diego County, California, has yielded data on the movements of some of the more common western birds, mostly wood warblers. A number of records of birds outside their normal ranges was obtained. Included are four species new for the state of California. The abundance of records for certain eastern species suggests that what appears at first glance to be a low incidence of vagrancy may have a greater importance.

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*Tahoe City, California, and Natural History Museum, San Diego, California.*