

component of the lift of the upward wing decreases and that of the downward wing increases, automatically correcting for the roll.

Birds that habitually soar at higher altitudes presumably do not have a high dihedral because fluctuations in wind velocity are less frequent and because there is a cost for maintaining a high dihedral. In a bird soaring with horizontally held wings, all of the lift can be resolved into two components: one vertical and overcoming gravity and the other directed forward and overcoming drag. If the bird adopts a high dihedral, there is a third component to the lift of each wing, a component which does not contribute to either overcoming gravity or drag, and hence is "wasted" insofar as to its contribution to maintaining flight. This third component is directed laterally

toward the bird and tends to roll the bird. The roll components of the two wings oppose each other, providing stability. The effective lift lost by utilizing a high dihedral is presumably offset by the increase in stability and the elimination of the necessity for almost constant adjustment of the wings.

Thus the Zone-tailed Hawk may resemble the Turkey Vulture (and the harriers) in shape and manner of soaring because of aerodynamics and not because of aggressive mimicry. The color pattern of the hawk may be the result of mimicry, which developed after the bird had developed a resemblance to the vulture in the manner of flight.

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RECOVERY OF A PENNSYLVANIA-BANDED BLUE-GRAY GNATCATCHER IN WESTERN MÉXICO

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The characters and distribution of the subspecies of the Blue-gray Gnatcatcher (*Polioptila caerulea*) in México are badly in need of revision (Allan R. Phillips, in litt.). The problem is complicated by the abundance of migrant and wintering birds from populations breeding in the United States. That no easy assumptions can be made about geographic origins of such migrants is additionally emphasized by the recent recovery of a banded gnatcatcher.

At Powdermill Nature Reserve, Carnegie Museum's field station in the Ligonier Valley (3 miles S of Rector), Westmoreland County, Pennsylvania, 145 Blue-gray Gnatcatchers were banded from 1961 through 1969. Although we have had a few returns of our local breeding birds, no recoveries from elsewhere had been reported until 1970.

On 1 November 1970, a bird bearing band no. 117-25569 was killed by a boy with a slingshot in Llano Grande, Jalisco, México. Noticing the band, the boy brought it to a neighbor, Sr. David Sahagún V., who had sent reports of other recovered bands to the U. S. Fish and Wildlife Service. The band had been placed on an adult (AHY) female Blue-gray Gnatcatcher at Powdermill Nature Reserve by Robert C. Leberman on 9 May 1969. The senior author wrote to Sr. Sahagún for verification of the species identity of the banded bird and received from him an excellent description of a gnatcatcher, together with the information that this kind of bird, locally called "pisito," was well known to the inhabitants of Llano Grande. Sr. Sahagún also supplied details on the exact location of his village, which is in the Municipio de Tomatlán, Jalisco. It is shown on the Guadalajara sheet (NF-13) of the American Geographic Society "Millionth Map," and lies approximately 72 km SE of Puerto Vallarta.

This is not only the first recovery of a banded Blue-gray Gnatcatcher south of the United States but one of very few recoveries of the species from anywhere.

According to Larry L. Hood (in litt.) of the Bird Banding Laboratory, USFWS, there had been only two recoveries of banded birds of this species through early 1968, and the data on one of these were suspect. The other was a bird both banded and recovered in California.

Miller et al. (Pac. Coast Avifauna 33:202, 1957) give no records of the eastern race of the Blue-gray Gnatcatcher, *P. c. caerulea*, from the Pacific slope of México north of Huehuetán, in southern Chiapas. Their westernmost records were from Pátzcuaro, Michoacán, and Iguala, Guerrero (well north of the Sierra Madre del Sur). The Pátzcuaro record was based on a specimen taken by Lea and Edwards on 18 March 1946 (Condor 52:267, 1950). According to these authors, "the specimen closely matches the nominate race in lightness and blueness of the crown and back, and is too large for *deppiei*. We hesitate to place this specimen with *caerulea*, however, since transients from the eastern United States are so unexpected, and since intermediates between *deppiei* and *amoenissima* might be expected to resemble *caerulea* in some instances."

The capture of an undoubted example of eastern *P. c. caerulea* in the Pacific coastal lowlands of Jalisco strongly suggests that a re-examination of gnatcatcher specimens from western and southern México, at least as far north as Jalisco, is in order; it appears quite likely to us that identification of some museum specimens may well have been made on the basis of geographic probability. We have found one unreported specimen of *caerulea* in the Carnegie Museum, collected by P. Shufeldt at La Barca, easternmost Jalisco, 16 November 1899; although on the Central Plateau rather than on the Pacific slope, this locality is well west of those listed for *caerulea* by Miller et al. (*loc. cit.*).

We are indebted to Earl B. Baysinger, (then) Chief of the Bird Banding Laboratory, USFWS, for sending us a copy of the letter reporting this recovery; to Larry L. Hood of the same Laboratory for checking records of gnatcatcher recoveries; to Allan R. Phillips for information on the distribution of *Polioptila caerulea* in México and for meticulous translation of Spanish-language correspondence; and especially to Sr. David Sahagún V. for reporting the finding of the band and for the additional information he so kindly sent us.

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