

### Central Valley Swainson's Hawk migration — Another piece of the puzzle

The central California Swainson's Hawk migration study being conducted by the Swainson's Hawk Technical Advisory Committee (funded by Department of Water Resources mitigation funds) has turned up another piece of the puzzle concerning the wintering habits and migratory behavior of these hawks. This discovery also partially solves the mystery of the Sacramento-San Joaquin Delta's wintering population.

Since the mid-1980s, researchers have been trying to determine the nesting location of a small population of Swainson's Hawks (about 30 birds) that winter in the Delta (and perhaps elsewhere in the Central Valley). It is not known how long Swainson's Hawks have wintered in the Delta, but it seems to be a relatively new phenomenon, based on available records. There have been two primary theories regarding the source of these birds: 1) the birds nest in the Valley and have basically lost their instinct to migrate south; and 2) the birds are from a small nesting population to the north (perhaps British Columbia), and have just changed the length of their migration.

The new puzzle-piece involves a Swainson's Hawk, trapped and tagged in June at its nest just northeast of Knights Landing, that spent November and December in Mexico, just south of the border. In early January it moved north, and on 17-18 January it spent the night at a very traditional winter roost in the Sacramento-San Joaquin Delta, just northwest of Stockton. Another interesting discovery involving this bird is of what appears to be a second Delta roosting location, on Mandeville Island. The bird has been recorded twice at night on Mandeville.

This discovery fits nicely with the data that have been collected on these birds so far. First, from year one of the study, we noticed that the Central Valley population was more nomadic than strictly migratory; the birds seemed to move around to take advantage of available resources (often moving hundreds of miles between foraging locations) rather than just using one relatively circumscribed wintering area (as most Swainson's hawks do in Argentina). Second, the birds that were wintering in the Delta were primarily darker birds, typical of California's Swainson's Hawks, but atypical of the main population in North America. Third, there seems to be a fluctuation to the numbers of birds using the traditional roosts in the Delta in winter in any given week, exactly what one would expect from birds that were engaged in nomadic behavior. And last, we'd already noted that our population has a wintering range from northern Mexico to Argentina, and individuals have a wintering range exceeding a thousand miles; stretching the range and nomadic movements north to Central Valley makes sense. This bird would not have had to lose its migration instinct altogether to winter in the Delta, which fits with popular theories on the genetic

component of migration.

What we know to date: The winter range of the Central Valley nesters includes the Delta (and occasionally, perhaps, elsewhere in the Central Valley), northern Mexico, much of the West Mexican coast (mainland), Central Interior Mexico, Northern Central America, Columbia, and Northern Argentina. Many of our birds are using very large areas during winter. And at least a portion of the Delta wintering population are Valley nesters.

Interesting questions remain. Are all the Delta wintering birds from the Valley? How long have they been using the Delta in winter? Is the large wintering range for the Valley population a graphic display of an evolutionary shift from migrating to Argentina with the rest of the world's Swainson's Hawks to remaining in North America, and from being classically migratory to being primarily nomadic? We don't know the answers to these questions yet, but we hope to find out.

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