

## FIRST SUCCESSFUL NESTING OF SWAINSON'S HAWK IN SANTA CLARA COUNTY, CALIFORNIA, SINCE THE 1800s

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**ABSTRACT:** We documented successful nesting of a pair of Swainson's Hawks (*Buteo swainsoni*) over two consecutive years (2013 and 2014) in Coyote Valley, California, which represents the species' first nesting in Santa Clara County since 1894 and a range expansion of approximately 60 km from the Central Valley into the species' historic range. It confirms that there is habitat in Santa Clara County for breeding Swainson's Hawks, which has implications for conservation. Expansion of this species' breeding, in recent years, has been documented in other counties within the central and northern Coast Ranges of California, including San Benito, Napa, and Sonoma, suggesting that efforts toward Swainson's Hawk conservation in California have allowed this species to recolonize some of its historical breeding range, or that Swainson's Hawk may be adapting to new areas of natural or human-modified habitats.

The historic range of Swainson's Hawk (*Buteo swainsoni*) in California spanned the Coast Ranges north to Sonoma County, most of southern California, and much of the eastern side of the Sierra Nevada (Anderson et al. 2007). In 1983, Swainson's Hawk was listed as a threatened species under the California Endangered Species Act, following a 1979 statewide assessment by Bloom (1980), who estimated 350 breeding pairs throughout the state, a 90% reduction from historic densities, and confirmed extirpation from most of the former range. The listing was justified by the dramatic decline in the population and the loss of breeding habitat. In California currently, Swainson's Hawk has a restricted breeding range, fragmented into three genetically distinct populations: Central Valley, Modoc Plateau, and Inyo (Hull et al. 2008). An inventory of California Swainson's Hawks conducted by the California Department of Fish and Game (now Fish and Wildlife) and the University of California, Davis, in 2005 and 2006 yielded an estimated 2081 breeding pairs (averaged over the two years; 94% in the Central Valley, Anderson et al. 2007), corresponding to a 600% increase in 27 years.

Oological collections confirm that the Swainson's Hawk bred sporadically in Santa Clara County in the late nineteenth century (Bousman 2007a). On 30 April 1889, Henry R. Taylor, an egg collector, collected two eggs (Western Foundation of Vertebrate Zoology 98178) from a nest in "Ferguson's Swamp," which Bousman (2007a) presumed to be a swampy area located along Lagas Creek and adjacent to ranch land south of Gilroy in southern

Santa Clara County. The other collected egg set (Museum of of Vertebrate Zoology 5227), dated 21 April 1894, was from a nest located near the Berryessa district or North Valley in San Jose, which is between Coyote Creek and the foothills of the Diablo Range.

More recently, however, Swainson's Hawk has occurred in Santa Clara County only as a rare transient, with no nesting records since 1894 (Bousman 2007a). There have been two summer records, of an immature on 27 July 2002 and an adult on 9 June 1994 (Bousman 2007a), with the exception of three enigmatic records of nestlings. A nestling with full natal down was found at the Summitpointe Golf Course in the hills of eastern Milpitas on 11 June 1999 and was taken to a rehabilitator. A second nestling, of near fledging age, was found in a pool house in Saratoga on 1 July 2005, and a third nestling was discovered north of Tully Road in San Jose on 17 July 2005 (Rogers et al. 2005, Bousman 2007a). As a result of the unusual and unaccountable circumstances of the recovery of these three nestlings in unsuitable breeding habitat, Bousman (2007a) did not consider them conclusive evidence of Swainson's Hawks nesting in Santa Clara County.

## STUDY AREA AND METHODS

Coyote Valley, in the greater Santa Clara Valley, is located within the central Coast Range in California between south San Jose and Morgan Hill and covers an area of ~33 km<sup>2</sup> (Phillips et al. 2012). Coyote Valley is the largest contiguous and primarily undeveloped tract of the valley floor remaining in Santa Clara County. It comprises a mosaic of habitat types, including agricultural fields (mostly alfalfa fields), oak savanna, riparian, urban, and the largest freshwater wetland (Laguna Seca) and watershed (Coyote Creek) in the county.

Aided with 8–10 × 40–50 binoculars and spotting scopes with varying magnifications, in 2013 we observed the nest from a distance of 70 m over 14 days from 14 May to 8 August 2013 for a total of 80 hours, all observers pooled. To minimize disturbance we used a thick low coast live oak (*Quercus agrifolia*) as a blind; it concealed the observers when the birds flew overhead. In 2014, the nest was first checked on 9 April and was observed on 7 days through June.

## RESULTS

During April and May 2013, unprecedented numbers of migrant Swainson's Hawks were recorded in Santa Clara County, in the agricultural fields north of Richmond Avenue in mid-Coyote Valley, with up to 14 individuals observed on 20 May. Of the 14, three were adults, of which two were of the light and one of the dark morph, three were juveniles, of which two were of the light and one was of an intermediate morph, and the others could not be identified to age.

On 13 April 2013, Rogers found an intermediate-morph Swainson's Hawk, confirmed later to be the male of this pair, soaring low over the nest location, displaying with rodent prey over the Coyote Creek riparian corridor in the Coyote Creek County Park. On 14 May, Bousman located an

## SWAINSON'S HAWK RECOLONIZING COASTAL CENTRAL CALIFORNIA

intermediate-morph Swainson's Hawk (later confirmed as the female by her unique plumage) building a nest in the same area where Rogers observed the male display. The nest was built in a western sycamore (*Platanus racemosa*) tree ~22 m high directly above the creek and adjacent to an agricultural field in the mid-Coyote Valley (Figure 1).

On 15 May, we observed the male soaring over the nest site (Figure 2), as well as landing on the nest, where the female was sitting on the nest in an incubation posture. From her apparent incubation for over an hour, we believe the female had either already laid at least one egg or was preparing to lay an egg. From the female's behavior, we estimate she laid from 15 to 19 May. On the basis of an incubation period of 34–35 days (Woodbridge 1998), we estimate hatching between 18 and 23 June. A single nestling with some down was first observed on 27 June. It evidently fledged (branched) on 7 August, as it was observed in the nest on 6 August and in an adjacent tree ~7 m from the nest on 8 August. This was the last day the juvenile was observed. Thus the nestling period was 45–50 days, which is on the long end of the spectrum reported from other studies, 27–46 days (Woodbridge 1998).

In 2014, we first observed a Swainson's Hawk in Coyote Valley on 5 April. On 9 April, we checked the nest that was used in 2013 and observed an adult Swainson's Hawk of the intermediate morph perched ~40 m from the nest,



Figure 1. Swainson's Hawk nest, single nestling, and female in a western sycamore, Coyote Valley, Santa Clara County, California, 12 July 2013.

Photo by Ryan A. Phillips



Figure 2. Intermediate-morph male Swainson's Hawk of the pair nesting in Coyote Valley, Santa Clara County, California.

*Photo by Michael Mammoser*

in which there were fresh cottonwood sprigs. On 22 April, an adult of the intermediate morph, presumably the female, was in an incubation posture on the nest (Figure 3), and the presumed male, an intermediate-morph adult patterned like last year's male, delivered an unidentified prey item to the female. On 6 June, the nest contained at least one nestling, ~1.5 weeks old. It fledged between 5 and 8 July, during which time the nest fell as a result of high winds. The farthest from the nest we observed this presumed same pair in both 2013 and 2014 was 2.6 km. All observations of their foraging were over agricultural fields, primarily alfalfa, but this was the primary crop in Coyote Valley in 2013 and 2014.

On 30 April 2014, we observed six Swainson's Hawks over and in the same alfalfa fields adjacent to Richmond Avenue where the 14 individuals had been on 20 May 2013. These six individuals included one adult of the dark morph, one adult of the light morph, one immature of the dark morph, two immatures of the light morph, and one of unknown age and morph. Four of these birds were soaring together in pairs and were displaying (legs extended and soaring wing tip to wing tip) and courting (undulating flights and vocalizations). The same dark-morph pair was observed in the same area on 31 May defending a territory against Red-tailed Hawks (*Buteo jamaicensis*), but we could not locate a nest.

## DISCUSSION

These records and others suggest that efforts toward Swainson's Hawk conservation in California have allowed this species to recolonize some of



Figure 3. Adult Swainson's Hawk in same nest as 2013 on 30 April 2014.

*Photo by Ryan A. Phillips*

its historical breeding range, or that it may be adapting to human-modified habitats. Not only did Swainson's Hawk nest in Santa Clara County in 2013 and 2014, but a pair nested in San Benito County for the first time in 2013 (S. Johnston and D. Shearwater pers. comm.), and a team with the Golden Gate Raptor Observatory monitored eight nesting territories in Napa and Sonoma counties in 2013 (M. Berner and A. Fish pers. comm.). There is a single historical record of Swainson's Hawk nesting in Sonoma County, at Petaluma, where an egg was collected prior to 1859 (U.S. National Museum of Natural History B01679; Bousman 2007b). In Napa County, where to our knowledge there are no historical records of nesting, nesting Swainson's Hawks were first noted in 2005, and seven nesting attempts or fledged young have been observed since (M. Berner pers. comm.). The 19<sup>th</sup> century records from Santa Clara and Napa counties attest to the historic range encompassing the Coast Ranges, but there is no information on the size of the population.

The Swainson's Hawk is a complete migrant, with the exception of a small population (29 individuals in 1994) in the Sacramento–San Joaquin delta that has wintered since at least 1991 (Herzog 1996), as well as the occasional juvenile that does not migrate farther south. At least 30 wintering individuals were observed in 2014 (C. Briggs pers. comm.). In recent years, wintering Swainson's Hawks have been observed more frequently, including 27 individuals near Dos Palos in the San Joaquin Valley (unpublished notebooks, *North American Birds*). The only winter record for Santa Clara County is

## SWAINSON'S HAWK RECOLONIZING COASTAL CENTRAL CALIFORNIA

of a light-morph juvenile in Coyote Valley, 13 January 2010 (Phillips pers. obs.). Marking or telemetry (e.g., Kochert et al. 2011) might reveal the origins of the recent pioneers in the Coast Ranges and possible connections among them, the birds wintering in the delta, and the main breeding range.

In the Swainson's Hawk's primary breeding range in California, 85% of nests are located within riparian forest or remnant riparian forest surrounded by ample and productive foraging habitat, which consists mostly of alfalfa and fallowed agricultural fields (Woodbridge 1998). Coyote Valley could be an ideal location for Swainson's Hawk to establish a population because of its alfalfa and fallowed agricultural fields, abundant prey (Phillips pers. obs.), and riparian forests along Coyote and Fisher creeks.

Our observations imply establishment of Swainson's Hawks in Coyote Valley, but further monitoring is warranted. The threat of urban sprawl and land-use changes reducing the riparian forests and agricultural fields in Coyote Valley and other areas in the Coast Ranges may curtail the incipient recolonization, as well as use by the many other species of raptors that breed and winter in Coyote Valley. Effects on this species recognized as threatened should be considered prior to development.

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## SWAINSON'S HAWK RECOLONIZING COASTAL CENTRAL CALIFORNIA

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