

THE NESTING OF THE WHITE-TAILED KITE IN SOUTHERN  
SANTA CRUZ COUNTY, CALIFORNIA

WITH TWO ILLUSTRATIONS

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The White-tailed Kite (*Elanus leucurus majusculus*) is so generally conceded to be becoming increasingly rare and hard to find, that the discovery of four nesting pairs in the vicinity of Watsonville, Santa Cruz County, California, last spring was a welcome surprise. Casual observations, made to acquaint myself with the habits of the bird, revealed traits either not treated by other writers or only intimated by them. Consequently, a more intensive study was made of their behavior during the nesting season.

The pair that was most accessible and most intensively studied nested on a farm near the settlement of Corralitos which is about seven miles north of Watsonville. These birds were first seen by I. B. Andersen, of Watsonville, on April 18, 1939, and reported to me on that date. The nesting site was a dense five-acre patch of coast redwood, coast live oak, madrone, hazel, and poison oak located on a steep slope, bounded on the west by an apricot orchard and on the other three sides by pasture or grassland. An occupied farmhouse stood within approximately three hundred yards of the nesting trees and stock, dogs, chickens, and children roamed at will over the entire area. This habitat did not resemble any of the other three, nor did it conform closely to the general type as described by Pickwell (Condor, vol. 32, 1930, p. 221), as water, marshland and willows were all absent. The nesting trees used were situated near the top of the slope and both were live oaks, trees commonly used according to Pickwell (*op. cit.*). The grassland partly surrounding the woodland had a high population of meadow mice at this time.

The tenant of the farm upon which the birds nested stated that the birds had appeared about midwinter, coming in after a storm and taking up their abode in the woodland, and spending some time feeding over the adjacent grassland. During the whole period of observation the birds were not seen by me more than one-half mile away from the nesting site, although a farmer reported that once he saw them over a mile away. Within this territory, if indeed it may be called that, this pair lived a rather solitary existence, as far as other kites were concerned. Pickwell (*op. cit.*) found them nesting near others of their own kind, but this pair was the only one for several miles around, possibly due to the limited food supply, there being a less extensive hunting ground here than that occupied by the more communal pairs. Here also, no raptors were tolerated save Turkey Vultures, with Red-tailed and Cooper hawks the main objects of attack. All other birds were tolerated.

The first nest, a typical one, was found April 19, 1939, on the farm near Corralitos, in the top of a thirty-foot coast live oak, effectively concealed from below but characteristically in the open above. Halfway up the nesting tree there was another nest identical in construction with the one in use, but apparently it had never been used since it resembled closely a nest containing eggs rather than one that had been used by young. Perhaps this nest was one of the "dummy" or cock nests suggested by Pickwell. Both nests were well built.

The tree was climbed and four nestlings were found. There was one large bird and one small one with two of intermediate size; continued observation suggested that there was approximately one day between the ages of the birds. The nest, at first rather clean, soon became floored with about an inch of meadow mouse hair. This was apparently not pellet material, as the pellets were found below and around the nest, but hair

pulled from the body of the mouse while it was being eaten. The act of excretion was performed over (not shot over) the edge of the nest, and the whole area surrounding and below the nest was liberally limed.

The young of this brood were banded on April 20, 1939 (band numbers 34-643001, -002, -004, and -005). This was a rather perilous and unpleasant job. Since the nest was in the very top of a live oak, it was necessary to climb into branches that were not over one inch in diameter. Luckily there were several of them, but still the added weight and the wind made them sway in an alarming manner. In addition to this, the adults took turns diving at the intruder's head which added to his discomfiture. The young showed their resentment of the intrusion by making stabs at the bander's hands with their feet, much as young barn owls do. The mouth was opened wide, but no attempt was made to use the beak in defense. Finally, when each young was lifted from the nest above the writer's head, it defecated copiously, one bird even added insult to injury by defecating twice. The writer succeeded in reaching the ground, safely but in a very ruffled and bespattered condition. The smallest youngster, band 34-643002, was later found dead beneath the nest.

The young birds first left the nest approximately May 15. They were fairly good at flying at that time, although a little awkward. The main difficulty the youngsters had was in landing. Rather than settling gracefully on a slender branch as the old birds did, they would make a stab at the tree in general and end up with outspread wings supporting them in the tree. In aviation parlance they "cracked up," but they were unharmed and gradually learned the art of flying and alighting so that they were soon as graceful and proficient as the parents.

After the first leaving of the nest, the young were still cared for at the nest by the parents. Several times a youngster was frightened from the nest, and upon examination a portion of a meadow mouse was found there. Pellets also were found there, indicating that the nest probably was used for perching as well as for a feeding place. Care of this brood of young continued, gradually decreasing, until about the time the second brood was hatched, whereupon the first brood dispersed.

A second nest was built and the eggs laid while the first brood was still being fed. Whether this nest was built by the male, or by the female, or both, is not known. On May 15, 1939, the first brood of young was found recently to have left the nest and was just able to fly, and on June 1, while the first brood was still being cared for, another nest belonging to the same pair was found a little higher on the ridge. It contained five eggs, the only ones seen by me. The nest was much the same as the first, both in structure and location in the tree. On June 25, on my return after an absence of twenty-three days, only three downy young and one infertile egg were present. This again left three young which in all probability would have reached maturity but for an unforeseen development. These young, even more clearly than those of the first brood, appeared to have been hatched on successive days, as they differed but little in size. When first seen, they were clothed with a tan down that rapidly took on a blue cast as the dark sheaths of pinfeathers developed beneath the skin surface. On June 26 this brood was in the down stage and by July 5, when they were found dead, much of the down was submerged in the well-developed juvenal plumage.

The ill-fated second brood was well started when a blind was erected for Dr. A. A. Allen, who wished to take pictures and sound recordings of the birds. This was on June 29. On June 30 the birds were still quite active, but when I returned on July 5 the birds were dead. The only explanation that could be offered for this desertion was the erection of the blind, as all my other operations around the two nests had not

driven the adults away. The old birds were watched carefully in hopes that a new nest might be started, but after a few days they were no longer seen.

The first White-tailed Kite seen by me in Santa Cruz County was noticed west of Watsonville in a willow bottom on April 17, 1939. After the death of the three young near Corralitos, this area was investigated further and on August 11 a nest was found about eighteen feet up in a willow. This area was much different from the first and more nearly conformed to some of those described by Pickwell (*op. cit.*). The site consisted of a willow-lined drainageway, with not more than two or three willows abreast down the bottom, which was bordered by an alfalfa-ryegrass meadow and a field that is rotated between pasture and hay. Both of these open areas, especially the meadow, had a high concentration of meadow mice in 1939. This pair of birds did not wander out of this territory as far as is known and quite unlike the Corralitos pair, it tolerated raptors within it. Sparrow Hawks, Red-tails and Marsh Hawks were ignored even when they flew past the nest. Other kites were in this area also. A total of nine, two adults (the third pair), and seven young, being seen about one-half mile down the bottom. Food was much more abundant here, which may account for the greater concentration of kites.

This nest also contained four young, but one was pushed from the nest by the adult the first time I approached it. The youngster that was pushed out was evidently just hatched, as it was still in the tan down state and had the "egg tooth" on the upper mandible. It was kept for three days before dying, apparently from internal injuries sustained in the fall. The egg tooth had nearly disappeared by this time. The three remaining young developed much as did the two broods near Corralitos. They were



Fig. 29. A young White-tailed Kite at twenty-one days of age.

banded on August 31, with the assistance of R. H. Mors (bands 39-643009, -010 and -011). They reacted to handling much as the other brood did, but the adults, after a few half-hearted dives, retired to their usual perching tree and mournfully screamed. The young birds at this stage, approximately twenty-one days old, showed the black in the shoulders; the back was brown as was the breast, and the belly was more nearly white. The eyes were dark brown and the feet were yellow. They reacted to an intruder

by backing away from him out into the surrounding branches. Later, with progressive development, they backed further out, then into branches farther from the nest, and finally attempted to fly to nearby trees, usually landing in nettles from which they were painfully extracted. On September 15 the largest bird was in another tree close by and the smaller two were in the nest, whereas on September 18 they had all left the nest and flew when approached.

Near this nest a perch was found surrounded by pellets and down. From all appearances young had perched here, and this, with the seven young seen in the area, leads me to believe that the nest contained a second brood when I visited it and that possibly a first brood had been raised there also.

The nest of the fourth pair was never found, but the hunting ground of the old birds (later seen with their young) was near Palm Beach southwest of Watsonville. The willow-lined Pajaro River flows about a mile away on the south while there is a willow-lined marsh on the northeast, either of which may have been the nesting ground. This pair scouted over quite a distance for food, following a grass and pickleweed-bordered drainage ditch for two miles or so.

The different behavior of the first and second pairs in the care of the nest, eggs and young is interesting. Both pairs placed the nests deep enough in the tree to provide at least a dappled shade when the young were left for long periods of time, but in actual nest protection they reacted differently. The second pair behaved much as Pickwell (*op. cit.*) described, but the Corralitos pair was courageous in their defense of the nest. This latter pair did not attempt to protect the eggs, but after the young had hatched interest was quickened and a few dives were made at the intruder at the nest. As the young birds developed, these dives were greater in number, more vicious, and accompanied by a hoarse cry that was echoed by the young. By the time the young were ready to leave the nest, the old birds would take turns diving to within about eighteen inches of the intruder's head, turning upward for another dive. This continued even after the young had left the nest and when the second nest contained eggs. The second pair usually left as soon as the observer arrived. A few half-hearted dives were made as climbs were made to the nest, but they in no way equalled the ferocity of the Corralitos pair.

It is hard to believe, in view of the numbers of kites in 1939, that the species did not nest during 1937 and 1938 (my first two years in the area), but no birds were seen. The following discussion of food habits may, however, cast light on the subject.

The food habits of the White-tailed Kite have not been discussed in most of the studies to date. This seems strange, as pellets are readily picked up from beneath the perching trees and in the general vicinity of the nest. The White-tailed Kites observed did not use insects as did the Mississippi Kites observed by Sutton (Condor, vol. 41, 1939, p. 50). Rather the meadow mouse (*Microtus californicus*) is the *piece de resistance* in the White-tailed Kite diet. This is shown in the following table:

	Individuals in pellets	Percentage of individuals
Corralitos pair, 111 pellets		
<i>Microtus californicus</i>	141	88.1
<i>Reithrodontomys megalotis</i>	15	9.5
<i>Thomomys bottæ</i>	1	0.6
<i>Neotoma fuscipes</i> (young)	1	0.6
<i>Citellus beecheyi</i> (very old)	1	0.6
<i>Sylvilagus</i> (young)	1	0.6
	160	100.0
Second pair, west of Watsonville, 52 pellets		
<i>Microtus californicus</i>	54	100

In addition, one whole meadow mouse and two pellets containing meadow mouse skulls were taken from under a perch of a single kite in the San Andreas district near Watsonville, and 15 pellets containing 24 meadow mice were found under a kite perch at Palm Beach.

From observation it appears that the kite population of southern Santa Cruz County is governed more by the relation of food to suitable nesting places than by the whims of gunners. Miles of kiteless willow bottom that have no adjacent meadow or well



Fig. 30. Kite pellets resemble those of owls rather than those of hawks in size, compactness, and inclusion of undigested bones.

managed pasture show that it takes more than the necessary nesting trees to make a nesting site. It is believed that a convenient source of suitable food is just as necessary as the trees. From the food habits summary, one might narrow the above statement down to the apparent fact that a high population of meadow mice is necessary for successful kite nesting. As before stated, the observer saw no White-tailed Kites during the nesting seasons of 1937 and 1938, both years relatively low in meadow mouse numbers. In the winter of 1938-1939, the meadow mouse population was high, possibly due to the fact that during wet years the normal habitat of the meadow mouse in this area is flooded or nearly so during the winter, while in dry years, such as 1938-1939, it is not. The fact that the kites nested twice in at least one, and probably in two instances, may also depend upon the food supply. As the idea has been advanced that there is some correlation between the numbers of deer and mountain lions, as well as between the numbers of kit foxes and kangaroo rats, so the idea might be advanced that there is some correlation between the nesting and numbers of White-tailed Kites and the numbers of meadow mice. Of course much of the above is merely conjecture and should be accounted as such. The amount of meadow, alfalfa, willow and oak land depends on the farmer and I am sorry to say that more and more willow, oak, and meadow disappears each year before the onslaught of intensive farming. The Soil Conservation Service has been able to encourage farmers to make plantings, has suggested that certain willow-lined channels be left or improved, and in general has been able to stem somewhat the tide of clean farming, which action may assist kites as well as other species.

#### SUMMARY

Twenty-three White-tailed Kites were seen in southern Santa Cruz County in the nesting season of 1939. Eight of these were adult nesting birds.

One pair is known without any doubt to have nested twice, bringing one brood to maturity and abandoning the second through interference of man. A second pair is believed to have nested twice. The first brood is cared for as long as necessary, even after the second set of eggs is hatched.

One pair nested late (probably a second brood), very small young being found August 11, 1939, which left the nest September 15 to 18, 1939.

The young are fed on the nest even after taking wing.

The principal food is the common meadow mouse (*Microtus*), the abundance of which may be a determining factor in the nesting, nesting site, and number of broods raised per year.

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