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HABITS OF THE WHITE-TAILED KITE

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Plate 16

As several articles have been written about the White-tailed Kite (*Elanus leucurus majusculus*) the authors have condensed and combined their notes to give the salient features in one paper. Responsibility for each observation is shown by reference to numbered paragraphs (senior author responsible for paragraphs 4, 5, 6, 7, 10, 13, 14; junior author responsible for paragraphs 1, 2, 3, 8, 9, 11, 12).

(1) The nest was found in southern California by Mr. James Dixon of Escondido. On April 2, 1939, his son, Ralph Dixon, the junior author and two friends, James Fassero and Gus Hanson, visited the nest and found that it contained eggs, which could not be seen clearly through the limbs by Ralph, who believed they were four in number. On April 16, Ralph again climbed the tree and reported that the eggs had hatched, and that there were three young in the nest. A special forty-foot ladder was guyed straight into the air, fifteen feet away from the nest on April 23 and a crate, formerly used for shipping a refrigerator, was placed without camouflage on top of it. On April 30, the senior author, as return courtesy for the loan of equipment, was invited to join the party. Ascending a second forty-foot ladder fastened to the main one, so that it extended obliquely toward the nest, the junior author obtained the first unobstructed view of the young and discovered that there were only two remaining.

(2) At this time the young were approximately two weeks old. They were covered with a slate-blue down, the eyes were light brown, the feet pale flesh-color and the inside of the mouths unusually pink. The nest was lined with grass and a considerable amount of fur from meadow mice (*Microtus californicus sanctidiegi*). When the junior

WHITE-TAILED KITE LANDING ON THE NEST

MALE WHITE-TAILED KITE ON EDGE OF THE NEST

author looked over the edge of the nest, the young birds lay flat, but when they saw him, they raised the fore parts of their bodies and thrust their heads into the air, opening their mouths without making any sound. At this time, the parents were observed on top of a cottonwood tree at a considerable distance and they, too, gave no calls whatever.

(3) The first observations, which differ from those made by other observers, were connected with the pellets. On April 30, the junior author found several of them, as well as the partly eaten body of a mouse and a lizard, under a tree situated about a hundred yards from the nest site. This tree was used repeatedly by both adult hawks as a point of observation when approaching the nest and it also seemed to have been employed as a roosting locality. The pellets were extraordinarily large, but in view of the fact that since this article was begun, the measurements of pellets have been given elsewhere (Condor, 42: 106–111, 1940), my data, which conform quite closely to those of the author, will not be inserted here. On May 4, a pellet and several kite feathers were picked up *inside* the blind itself. At this time the junior author believed that these had been left by other members of the photo squad. Subsequently, on May 6 and 7, when James Fassero visited the nest, he found a pellet, a headless *Microtus* and more feathers of the kite in the blind-box! A comparison of notes and the elimination of all possibilities that the pellets might have dropped from the pockets of one of the observers, convinced us that the adult kites had actually been using the blind as a roosting place at night. After completing feeding on the 4th, the female picked up a pellet from the bottom of the nest and flew with it, dropping it a short distance away. She did the same with several other things the identity of which could not be determined. Mr. Fassero stated that both young birds were in the nest on the evening of the 6th, but on the morning of the 7th, only one remained. Search by him in the vicinity failed to discover the hawklet.

(4) On May 9, the senior author spent six hours consecutively at the top of the ladder. The following is a condensation of his notes, made in the 'refrigerator' blind, slightly above and fifteen feet away from the kites' nest. "From this point of vantage, I can look down into the structure built by the hawks, as well as far over the rolling countryside of southern California. Mr. Barr and I are particularly favored, as no other previous observers seem to have been favored, first, in having an opportunity to watch White-tailed Kites from a close point of vantage; second, in having our uncamouflaged

blind immediately accepted by the hawks. The nest, approximately the size of the slightly concave platforms built by crows, consists of sticks and is placed on a slender arching limb of a cottonwood, thirty-five feet from the ground. It is one of the most southern trees of a strip of woodland three miles long, which parallels a small river a half-mile to the north. These trees are scattered somewhat far apart and, besides the cottonwoods, consist chiefly of willows. There is the usual accompaniment of low bushes, long grasses and swampy areas. Bordering our woodland on the south and not three hundred feet away stretches the undulating ploughed land of a huge farm. Here and there are scattered tufts of grass and farther away a larger grassland, into which the kites drift down with their slow stoops to catch mice for their offspring. On the night of the 6th, one of the two remaining hawklets disappeared, possibly by human agency, but another explanation seems more plausible. That morning was one of heavy wind. It is still blowing so hard while I am taking my pictures, that the remaining bird is in danger of being blown into space. Repeatedly he (masculine pronoun used for convenience) has saved himself by catching his talons into the far rim of the platform. This danger threatens, whenever he tries his setting-up exercises. These consist of raising the wings at various angles as far as they can be stretched. The hawklet seems to have no instinctive feeling of how to protect himself against the wind; indeed, when a gust comes suddenly, he foolishly throws up a wing on the side toward the blow in an endeavor to maintain balance, which results in giving it a better chance to unbalance him. Then the other wing shoots upward and the bird is carried across the nest. A purposeful crouching with wings folded never seems to be foreseen as a safeguard against the gusts, but experience or instinct does bring the talons to the rescue at the proper moment. The literature of the kite indicates that it prefers rolling country, where moderately strong winds blow, sufficient to afford opportunity for the famous aërial maneuvers. From nests in such exposed localities no doubt many young are carried away."

(5) Pickwell (Condor, 32: 223, 1930), Peyton (Condor, 17: 231, 1915), and others have recorded that kites do not object to pairs of the same species building within two hundred yards of their own nest, apparently lacking the need for the defense mechanism of territorialism, but they are said to be distinctly hostile to many of the larger *Buteos* and specifically to crows. Our experience confirms these reports. I observed a kite dive several times at a crow, which was obviously more afraid of it than of the preceding stoop of a

Kingbird, for this time the crow rolled over into the air to defend itself. Arthur Barr noted that the kites attacked a pair of Red-bellied Hawks, when either of them came close to the nesting-tree. My notes continue: "On the other hand, kites seem to distinguish between friends and enemies, for they have permitted three other species of birds of diverse character to nest in this same tree. One is a sparrow hawk, whose three eggs are deposited in a rusty can six feet from the ground, nailed to the trunk below me. One attack on the sparrow hawks has been recorded by Arthur Barr, and similar attacks may have deterred them from incubating. Some days ago, the sparrow hawks abandoned their nest, but continue to fly by the old can occasionally. More surprising is the location of a Bullock's Oriole's nest not eight feet away and on the same level with the kites' platform. Both adults take turns incubating in the fluffy creation and alternately hunting for bits of adornment even in the kites' nest, which the young kite halts by rising with open bill. The fourth pair of the tree's denizens really astounds me, because I have never known *Tyrannus* of the East to permit other species even to approach his nesting-tree. But here twenty feet below the kites' nest and about nine feet above that of the sparrow hawks is a nearly completed structure of the Western Kingbird (*Tyrannus verticalis*). These birds are moving in and out of the tree every few minutes carrying material for their white-lined nest. Furthermore, a fifth pair of birds, Western House Wrens, are constantly carrying nesting material to a hole on the trunk of the tree next to the kites, twenty feet to the west. During all the hours Arthur and I have watched from this blind and in the vicinity, not once have we observed the kingbirds launch an assault from the nest-tree on any other species. And yet, their food area, consisting of low shrubs two hundred yards away, is deemed such sacred territory that they do not permit even the kites to cross it at an altiude lower than 500 feet, although they will permit them to feed young within twenty feet of the kingbirds' nest!"

(6) Few authors have described the sexes of the adults as differing and neither Sharpe (Cat. Birds British Mus., 1: 339–340, 1874) nor the latest monographers, Swann and Wetmore (Monograph Birds of Prey, pt. 13: 267, 1935) make any distinction between them. Hoffman (Birds of the Pacific States, p. 64) declares that the female has "the white of head and breast duller." In our pair the female was darker gray above and the dark marks on the wing were blacker. The male appeared to be very white, especially lighter colored above. A fortunate observation made it possible to distinguish the sexes.

On one occasion I watched with the aid of a powerful binocular, both birds sitting side by side for one whole hour on the lookout-tree. Suddenly the whiter bird flew into the air and then settled down on top of the darker-colored bird, evidently accomplishing copulation. Taking place when there were young birds still in the nest, the action aroused conjecture that a second brood was imminent. The male adult seemed to be not only somewhat whiter above, but also very slightly whiter below. When the male flew across the sun or near its direct rays, the large black area on the upper part of the wings showed through from below. With my binocular I was able to distinguish that this was not the small black spot, found on the under wing-coverts.

(7) Arthur Barr reports that *Microtus* seem to be most active in the late afternoon and that is the time of day when the kites feed their offspring. In spite of futile watching during morning hours by both of the authors, we have never observed the adults feeding young between 9 a. m. and 3 p. m. During the middle hours the young hawklet drowses a great deal, crouching with his breast resting on the rough base of the structure. Becoming uncomfortable perhaps at some unevenness of the sticks, he shakes himself free from sleep and changes his posture. At such times he gives a sharp call-note, as if hoping that food may arrive earlier than usual. A considerable portion of the time is spent preening feathers, so that by noon all traces of discoloration from yesterday-afternoon's feast have disappeared and each feather looks surprisingly fresh. [Subsequently I learned that this cleaning-up process is a very lengthy one, beginning late in the afternoon after the last feeding, and continuing on throughout the next day.] At this job the youngster shows proficiency, his preening strokes giving evidence of precision, in strong contrast with the awkwardness of his attempts to balance in the wind. As Arthur Barr has described the feeding operation in detail, I shall add only that there is no doubt that the male rarely takes part in the feeding of the young.

(8) The description of the movements of the adults in and about the nest on May 4 will give a typical picture of kite activities. During the early afternoon a kingbird that had its nest in the same cottonwood tree flew up to the edge of the kites' nest and, perching on a twig that came out from it, looked at the young sleeping kites. About four o'clock I heard the adult kites calling in their plaintive whistle. Shortly afterward the male landed on the perch tree and watched the nest. He had a mouse in his talons and after he had called for some time, the female came to the perch, took the mouse from him

and flew to the nest. She did not land but returned to the perch and landed near the male. After considerable calling the female began to eat the mouse. The male left his perch and flew away holding his wings at a V-shaped angle, fluttering them rather than flapping them. He kept up a continuous calling as he sailed away. He returned in about five minutes with another mouse and the female took that one away from him with a great deal of calling and scolding. This mouse she brought to the nest and began to feed the young birds. Both young sat at the edge of the nest and waited for the female to tear pieces of meat from the mouse. As she dropped her head to the nest, first one and then the other took the offered morsel. Three meadow mice were brought and fed to the young before they refused to eat any more. The female ate the heads and other parts that the young dropped on the nest. After removing pellets and other objects from the nest, she flew away to a nearby tree. Then the male flew to the nest and sat on the edge of it with spread wings and remained there for a long period. The noise from the blind and action within did not disturb him.

(9) Whenever the parents visited the nest with food they always held the mouse grasped firmly in their talons. The talon which held the food was held up against the body and while landing the bird lowered the free foot to grasp the nest. Even parts of mice and insects were carried in this way. At no time did I ever see the birds deliver anything while holding it in their beaks. Even the deliveries to the female by the male in the perch-tree ('lookout-tree') were made in the same way. It seemed to be a regular habit of the female to sit in the perch-tree and call the male to bring food.

(10) For more than three weeks the parent bird followed much the same routine during the feeding operation—first, a dive for a *Microtus,* a flight with it to the lookout-tree two hundred feet from the nest, often accompanied by the mate, then a pause of from ten to thirty minutes for a calm survey of the surroundings, a flight to the nest holding the mouse in its talons, a landing on the broad margin of the structure, a deliberate tearing-off of portions of the corpse and the final feeding of small pieces to the young. Sometimes the food-provider flew straight to the nest. This routine continued until about May 9, when the hawklet was about three and one-half weeks old. On this day, mother White-tail changed her procedure. She passed the *entire* mouse to the hawklet with her talons. Obviously, this was the first time a whole mouse had been offered to the youngster, and yet the mother did not help him dissect it, and he certainly needed help, as my moving pictures clearly prove. It took

him fully one-half hour to discover a method of getting through to the meat. He had had many opportunities of watching her tear the mouse apart by holding the body down with the talons and pulling with the beak, but he did not seem to realize the function of the talons. He did exactly what he had done with the small pieces, namely, attempted to swallow the mouse whole. It was far too large and he succeeded only in gulping the furry creature to the point where the hind legs and tail dangled outside. Choking, he vomited the mouse. Wisely abandoning this futile method, he seized the mouse with his bill and began swinging it about in the air, then dropping it and trying again. For twenty-five minutes he mauled the mouse in this way, sometimes swinging it, sometimes rolling over on to it. Frequently the body slipped away from him, leaving bits of fur sticking to his bill. Finally, by mere chance, when the mouse rolled beneath him, the hawklet happened to put his foot on it and pulled with his beak at the same time. Having once learned the proper method, he quickly acquired efficiency, although Arthur Barr reported late in the same afternoon that the young bird tried to swallow the hind quarters of still another mouse. When he had finished with the first mouse, his feathers were covered with blood and pieces of meat, including his head, breast and all under parts. He was so gorged, that he took a long rest in a crouching position before attempting the cleaning-up job. This he had barely started, when the parent came back with still another mouse, dead as usual. Throughout our observations no other kind of heavy food was offered by the adults, but grasshoppers were rarely brought in. During this first experiment with a whole mouse, the mother bird sat on the lookout-tree and never offered to help.

(11) During the early hours of the day, when the adults were never observed at the nest, the young spent a great deal of their time sleeping. On occasions they would awaken and stretch or stand on the edge of the nest or flap their wings. This was particularly true on May 4, when the young birds were observed from 9.00 a. m. until 5.30 p. m. During this time neither adult returned until about four o'clock in the afternoon. The wind blew hard all day long and, whenever the young started their exercises, I thought that the next gust would cause them to fall out of the nest. While the nest swayed back and forth in the wind, the young would drop down on it and fall asleep.

(12) On May 9, the remaining hawklet was more active and stood up a great deal of the time. It seemed to be hungry and watched the skies for the parent birds. Occasionally it would start calling

when large bird forms passed over the nest. On returning to the blind at four o'clock, I found the young bird still watching the skies and finally one of the adults drifted over the nest and called to the young. It flew around the nest-tree and then over to the lookout-tree. After sitting there for several minutes it flew to the nest and after a close inspection of it carried away a pellet the young bird had regurgitated. This was later in the same day, when the senior author observed the hawklet trying to discover how to dissect a whole mouse, as described previously. The adult female now returned to the nest with a meadow mouse and left it for the youngster. The young bird stood on it and with pulling motions tore it apart. All swallowing actions were accompanied with a pumping motion. The bird would throw its head back and forth with sudden jerks, thus attempting to force the meat down. Each time the head was thrown back the body was lowered and brought to a sudden stop. When the bird regurgitated a pellet it would hold its wings at its side and leaning over with the head held lower than the body, it would go through a series of convulsive reactions before the pellet fell on the nest. On one occasion I saw the bird place its foot on the pellet and pull it away from its face. A long string of fur seemed to be stuck in its throat.

(13) The growth of the feathers in the young was an elaborate process. On April 30, when I was on the oblique ladder within two feet of the nest, the nestlings, then approximately two weeks old, were dark gray on the upper parts, the covering consisting entirely of down-feathers all over the body, including a large part of the wings. The outer secondaries were represented by pin feathers and they were barred with cinnamon and white. These were two inches long in one bird, but shorter in the less-developed one. I examined the open throat carefully at this time and it seemed to be orange-red. On May 9, the remaining hawklet was about three and one-half weeks old and presented a quite different appearance, being covered with dark-brown feathers above, margined by strong buff. The crown was buffy, nape streaked brown and gray, the forehead whitish; the throat and jugulum showed darker buff, almost uniform chestnut, while a blotch of chestnut extended on to the breast. The sides appeared white, slightly spotted with chestnut. On the wings the black patch had begun to form and covered both middle and lesser wing-coverts; the black feathers were margined with white, but the base of each feather was surrounded by gray down. The primaries, now four inches long, were gray. A black line showed between eye and bill along the upper margin of a white loral streak.

The tail, two to three inches long, was very pale gray, distinctly lighter than the darker-gray rump. The entire culmen appeared black, but the edges of both maxilla and mandible were yellow. In addition, there was a white rictal streak. At this time the inside of the throat was plainly blood-red.

(14) The flight of this species may be described as consisting of three different types. First, there is the ordinary motion through the air, consisting of a rather slow beat of the wing, the strokes of which are discernible even when the bird is five hundred feet overhead. When the hawk is driving downward with the wind and soaring, the wings are bent up in the air and give the appearance of an Osprey. Arriving above the lookout-tree, the kite often would throw its wings straight up in the air like those of the Victory of Samothrace and then with the legs dangling, would gradually drop down on to the limb. In the second form, a faster wing stroke is revealed and the general appearance is like that of the Nighthawk. I think this is the maneuver described by Mr. Bent (Bull. U. S. Nat. Mus., no. 167: 60, 1937) as a "pretty fluttering flight with quick wing-beats." These are short and invariably made against a rather strong wind; they seem to vibrate the whole bird. This is not the hovering maneuver, which precedes a stoop, for this one is of longer duration and seems to have no practical function, except that of exercise or play. A few authors have mentioned the third form of flight, the famous "kite" maneuver and some have expressed doubt as to the correctness of the observations. I enjoyed long opportunities watching this performance under the most favorable conditions—good lighting, nearness of the performing birds, and use of a high-powered binocular. In the first place, the performance does not seem to be attempted except when the wind is blowing steadily. It consists of three phases, first an ascent generally by both birds to a moderate altitude, perhaps three hundred feet above the ground. The second is a turning into the wind accompanied by a peculiar fast motion of the wings for about a half-minute, during which the bird seems to make no progress. The wings and body are violently shaken for no obvious purpose; the vibrations of all parts are really tremendous, as if the machine were going to fall apart. Then, as if this were like a purposeful *assonance* in music to make the audience more satisfied with the melodious chord to follow, the bird suddenly resolves itself out of its disorderly gyrations, raises its wings straight into the air and, holding them perfectly still, assumes the appearance of some forms of Japanese kites. I counted the seconds, during which this upraised 'victory' position was maintained. It averaged from five

to fifteen seconds! During this time I did not have to move my binocular to keep the bird in the field of the glass; consequently it is assumed that the hawk made little movement forward or backward. The only other explanation would be that the wind was blowing the kite sidewise either toward or away from me.

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