

BREEDING AND OTHER NOTES ON BLACK-SHOULDERED KITES

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BREEDING NOTES

On January 18, 1974, a nest of the Black-shouldered Kite *Elanus notatus* was found 7 km E of Koolunga in the Lower-North of S.A. The nest, about 8 m from the ground, was lined with fresh eucalypt leaves and contained four eggs, each patterned differently with blotches of red-brown on white.

On February 2, two eggs had hatched, the young being thickly covered in fawn down. The nest was lined 10 mm deep with straw and a few pieces of casuarina after wet weather. By February 7, three chicks showed a variation in size, and their down was dirty cream-colored. Pin feathers were showing on wings and tails, with a few fawn and white feathers on the shoulders of the larger two. The remaining egg was infertile.

The adults had begun to dive on observers near the nest by February 15, and the young had feathers showing over most of their bodies. On February 26, three young were almost fully feathered; and the largest left the nest when disturbed, but could not return by itself. On March 4, one was able to fly weakly for some distance, showing that it had a short tail and rounded wing tips. All young flew more strongly on March 8, two from the nest tree and the third from the nest. The bowl of the nest was almost full of cast pellets which contained only fur: that seemed to be almost all from the introduced Mouse *Mus musculus*.

Only two young were seen on March 23, 1 km from the nest with the adults. The end of the other young kite was shown by a patch of feathers on the ground near the nest tree. On April 8, an adult was watched as it called several times and flew towards a young kite which then flew up, turned upside down, and took what appeared to be a mouse from its parent's feet. The last record of these kites was on April 17, when an adult was seen 2 km from the nest and some distance from the two immature plumaged kites. Several times before this the birds were seen at dusk flying to the nest to roost.

Other nesting records from the same area are as follows: (a) early March, 1972, three large young in a nest 7 km north-east of Koolunga. (b) July 28, 1974, at least one young kite with an adult near a nest 2 km

north of Auburn. (c) August 4, 1974, three weakly flying young with parents near a nest 4 km west of Mundoora. (d) August 9, 1974, three young standing on the edge of a nest 2 km east of Koolunga; several days later these young were seen flying. (e) May 23, 1975, an adult sitting closely on four eggs in a nest 50 m from the site of a previous nest (a) in March, 1972. Two unhatched eggs and one chick several days old were found on June 15.

NOTES ON MORTALITY

On July 7, after strong wind and rain the nest (e) was empty, and the young kite was found freshly dead on the ground near the nest. The specimen was given to J. B. Paton who kept the wings and head, and commented that the bird was very lean (see comments on mouse population below). A weak hungry bird would have easily blown from its nest and died during the windy weather in early July, whereas, had the bird's parents been able to find enough food for themselves and the young, it might have survived.

Another immature given to Mrs. Paton was found dead, 5 km north-east of Brinkworth, on June 27, 1975. When found, the bird had started to dry out, but the iris appeared to have been pale brown. In preparing the specimen, Mrs. Paton noted "very thin... cause of death probably starvation..." A third immature kite was found dead after cold wet weather on October 25, 1975, at White Cliff, 7 km E of Koolunga and is now in the S.A. Museum. The iris colour was orange-yellow and the bird was moulting from worn immature, to fresh adult, plumage. Two adults were found dead near Koolunga, one in June and the other in September. Both were partly decomposed.

These birds were presumed to have died as a result of the sudden drop in mouse numbers, which had reached a peak in early 1975 and dropped almost to zero in early July. The evidence for the end of this period consists largely of observations of huge numbers of mice in farm outbuildings, and huddled under any object which provided some protection from the weather. From the Black-shouldered Kites' point of view, food may have become scarce in May or June, as the weather became colder, and mice sought more sheltered places than

the cereal stubbles where they had bred and lived during the warmer months.

NOCTURNAL RECORDS

On several occasions during mid-1975, I heard Black-shouldered Kites calling at night near my home 7 km E of Koolunga. These I presumed were birds flying about and hunting; but none was seen when searched for with a spot-light. While I was driving near Koolunga at about 2100 hours, on July 4, 1975, I saw a white bird in the vehicle's headlights, hovering in the manner of a Black-shouldered Kite at one side of the road and at about 8 m from the ground. The sky was overcast and almost black. When I turned round and returned to the spot about a minute later, an adult kite was found perched on a prominent dead branch at the top of a roadside tree. An hour later I again saw a Black-shouldered Kite perched on a dead branch a little further along the same road. Several Black-shouldered Kites were seen many times when driving along the same road during daytime, before and after July 4. This evidence, although not conclusive, suggests that this species will hunt at night, but possibly only when forced to by hunger.

DECLINE IN NUMBERS

These kites had been unusually common during the first half of 1975, but during the next few months became steadily less so in the area within about 15 km radius of Koolunga. In July and August most of the remaining birds appeared hungry, or weak and starving. Some watched hunting seemed to be having almost no success, rarely being seen to catch anything during long periods of hovering and working over paddocks. (When mice were plentiful, kites needed to hunt only a few minutes to catch a mouse). Many are presumed to have died and others to have left the area. Very few kites were seen during late 1975 and early 1976, and the few that were seen did not stay very long in any locality. No Black-shouldered Kites were seen in the area described above in March or April, 1976, contrasting to the situation a year earlier when many were resident there. A few, mostly single birds, were seen from early May onwards, and these appeared to be resident.

It should be noted that the population slump described above occurred within about 15 km of Koolunga. Black-shouldered Kites were very common in many parts of South Australia, and similar slumps probably occurred in other areas. However these may not have been so severe as, or have coincided in timing with, the slump

described. For example, on August 31, 1975, while there were very few kites near Koolunga, many were noted on plains E of Truro and near Sedan.

It is clear that in some agricultural areas of S.A. the population of Black-shouldered Kites is linked closely with numbers of introduced mice. As plagues of mice build up, the kites multiply, and then die off or disperse as the plague ends.

CALLS

During 1975 many of the Black-shouldered Kites observed were calling. Two basic calls were noted, and all calls given were variations of these. The usual call was a loud chirp repeated at intervals of up to one or two seconds. A rasping screech was also given at times. In early 1975, many pairs were defending territories from other kites and birds of prey. Some of these resident pairs were observed mating and, later, breaking off and carrying twigs to partly-built nests. Excited calling was heard when one bird of a pair approached the other in flight, or flew towards its perched mate, and also before and after copulation. This calling consisted of loud rapid repetition of a series of chirps, or a series of screeches, or sometimes a mixture of both calls. From observation of copulating birds, it was noted that both sexes uttered all calls noted. Only one of the pairs that was noted frequently in the same places in early 1975 completed their nest and laid eggs. This was the unsuccessful nest (e) 7 km N-E of Koolunga.

When diving on observers near nests, or when chasing other birds from their territories, the kites gave a loud chirp or sometimes a screech at the closest point of their dive to the intruder.

In August, 1975, a kite was heard giving a drawn-out screech every few seconds for long periods. This proved to be an immature which appeared weak and was calling to an adult nearby. Occasionally the immature would fly to the adult; but it was not given any food and probably starved.

NESTS

The six nests listed above, and one almost completed, but not used, are discussed here. All were in eucalyptus which were either solitary or at the edge of an area of trees; and the nest height varied between 7 m and about 15 m. All were built among foliage which partly obscured them from view; and three were built where a branch had fallen from higher in the tree, making denser growth. Five of the nests were examined and were mostly made of long thin twigs, giving them a broad untidy appear-

ance outwardly, but having a neat bowl lined with gum leaves or other material.

Eventually the outside of each nest became whitewashed with excreta and the bowl was filled with cast pellets.

IRIS AND PLUMAGE CHANGES

As mentioned above, newly hatched young have dense fawn down which becomes cream coloured as they get older. Eyes, almost black, change to mid-brown by the time the young leave the nest; and the iris colour changes gradually from brown to pale orange, then darkens to rich red in adults.

As the young grow, the mottled pattern of grey-brown and black feathers, edged with white, on their backs, gives them excellent camouflage in the nest. At the time they leave the nest, they have a brownish area on the chest extending to the back and the top of

the head. The back is greyish-brown, each feather being edged with white. Shoulders are blackish, merging into dark grey wings and brownish back. All these feathers and the primaries are tipped with white also.

The immatures lose much of their colour by wear before they moult into adult plumage. By the time they moult, the back feathers are pale dirty grey and have lost the white edging; the black shoulder feathers have lost their white edge, and the shoulder appears as a distinct patch because the feathers around it are paler. Most of the brown head and chest colour is worn off, leaving off-white feathers with dark shafts on the chest and top of the head. Primaries retain their white edge until moulted and replaced by grey adult ones.

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