

## THE WHITE-THROATED MAGPIE-JAY

BY ALEXANDER F. SKUTCH

MORE than 15 years have passed since I was last in the haunts of the White-throated Magpie-Jay (*Calocitta formosa*). During the years when I travelled more widely through Central America I saw much of this bird, and learned enough of its habits to convince me that it would well repay a thorough study. Since it now appears unlikely that I shall make this study myself, I wish to put on record such information as I gleaned, in the hope that these fragmentary notes will stimulate some other bird-watcher to give this jay the attention it deserves.

A big, long-tailed bird about 20 inches in length, with blue and white plumage and a high, loosely waving crest of recurved black feathers, the White-throated Magpie-Jay is a handsome species unlikely to be confused with any other member of the family. Its upper parts, including the wings and most of the tail, are blue or blue-gray with a tinge of lavender. The sides of the head and all the under plumage are white, and the outer feathers of the strongly graduated tail are white on the terminal half. A narrow black collar crosses the breast and extends half-way up each side of the neck, between the white and the blue. The stout bill and the legs and feet are black. The sexes are alike in appearance.

The species extends from the Mexican states of Colima and Puebla to northwestern Costa Rica. A bird of the drier regions, it is found chiefly along the Pacific coast from México southward as far as the Gulf of Nicoya in Costa Rica. On the Caribbean side of Central America it occurs only in the more arid country back from the coast, as in the semi-desert portion of the valley of the Río Motagua in Guatemala. It is absent from the humid districts of the Caribbean littoral, where the White-tipped Brown Jay (*Psilorhinus mexicanus*) is at home.

These two big jays occupy complementary parts of the Central American lowlands, and are found together only in narrow zones of transition between the wet and dry regions. Thus in clearings amid the heavy rain-forests of the lower Motagua Valley, from the sea coast as far inland as Quiriguá, only the Brown Jay resides. Above Quiriguá the vegetation gradually becomes lighter, and between this point and Gualán the two species mingle. From Gualán to Progreso the vegetation of the valley consists largely of thorny scrub and cacti, with somewhat heavier woods in the river bottoms; and here the Magpie-Jay is abundant but the Brown Jay is absent. Likewise at Matías Romero, in the center of the Isthmus of Tehuantepec, the Brown Jay from the rainy Caribbean side intermingles with the Magpie-Jay from the dry Pacific side, the former living chiefly amid the heavier vegetation

on the lower lands; but farther toward the west, at San Gerónimo, I found only the Magpie-Jay on the hot, arid plains overgrown with cacti and thornscrub. So, too, on the Pacific slopes of the Cordillera of Guanacaste in Costa Rica, the Brown Jay, pushing over from the Caribbean side through the low passes, dwells alongside the Magpie-Jay; but at points in Guanacaste farther west and with a more arid type of vegetation, I met only the latter. In the western part of the Pacific slope of Guatemala the Magpie-Jay extends upward to at least 3700 feet above sea-level, and here it resides in a region where more abundant rainfall has produced forests as heavy as those of the Caribbean slope. In this district I found the larger, brighter blue Nelson's White-throated Magpie-Jay (*C. f. azurea*) common among the shade trees of the great coffee plantations.

Wherever it dwells, a bird so big, handsome, active, and noisy as the Magpie-Jay is sure to attract attention and make its presence known. In the hot, dry portion of the Motagua Valley, where much of the low vegetation bristles with forbidding thorns, and impenetrable fences of close-set cacti bar the way of the bird-watcher who would pursue his hobby off the beaten path, this is one of the first birds to stir the enthusiasm of the new arrival. Nor can one wander far beneath the tall shade trees of the beautiful coffee plantations of western Guatemala without becoming aware of this remarkable bird. For the keen-eyed jay is quick to detect the man who intrudes into his haunts, and shouts his disapproval in harsh language which all can understand. In small, straggling flocks he follows the trespasser, assailing him with a volley of abuse, and warning all other birds that a possible enemy is at hand. Because he is so excitable and ill at ease in the presence of man, I have learned little of the Magpie-Jay's diet, but presumably it is as varied as that of most members of the family. On the Isthmus of Tehuantepec I surprised a Magpie-Jay in a tree beside a field of maize. As it flew out it dropped a heavy object which proved to be a small ear of corn about three inches long, still enclosed in the husks. In Guatemala I saw a jay with berries in its bill.

The Magpie-Jay has a vocabulary far more varied than that of the Brown Jay. When scolding its notes are painfully loud and harsh. After enduring this hard language for a while, one does not expect to hear the big bird give voice to a variety of mellow, liquid calls, one of which sounds like *weep weep weep*. It also utters a medley of low, queer notes while resting inconspicuously amid the foliage. Sitting on the nest or resting near it, the breeding female repeats incessantly a loud cry of hunger, audible for a quarter of a mile, and so like the *pee-ah* of the Brown Jay that at first I mistook it for the note of the latter, and discovered my error only after I had followed to its distant source and found a blue rather than a brown jay

on the bulky pile of sticks. As they flee their nest, Magpie-Jays utter a soft and somewhat plaintive cry.

#### NESTING

The Magpie-Jay's nesting-season is long. At Nicoya, Costa Rica, I saw two birds carrying nest-material at the end of November, 1937. Near Colomba, Guatemala, at an altitude of about 3000 feet, I found four nests between December 20, 1934, and the following January 2; and in at least two of these incubation was going on. In El Salvador, Dickey and van Rossem (1938:415) discovered a nest with young on April 16, 1912. On the Caribbean side of the continent, at El Rancho in the Motagua Valley, the Magpie-Jays were still nesting in June and July, 1932. The first bird nest that I discovered upon my arrival at El Rancho on June 23 was one of this jay; earlier that same year the first nest that I found in the wet lower valley had been one of the Brown Jay. Incubation was apparently in progress in this inaccessible Magpie-Jay's nest. On June 26 I found another nest in which the Magpie-Jay had not yet completed her set of eggs. That the jays about El Rancho had already been breeding for a number of months was attested by the fact that at the same time full-grown young were flying about with their parents and being fed by them. Much the same situation was found at Matías Romero on the Isthmus of Tehuantepec on July 11, 1934. Young birds on the wing were being fed, but one Magpie-Jay was sitting, apparently incubating, in a nest about 50 feet up in the top of a tree beside a stream.

The two nests at El Rancho were in trees standing in pastures. The lowest, only 20 feet up, was in a *Pereskia* bristling with sharp spines; the other was 30 feet high and far out on a slender branch which held it beyond reach of a human climber. Of the nests at Colomba, one was in the top of a clump of tall bamboos growing beside a stream in a narrow valley; the other three were in shade trees of the coffee plantations, at heights estimated to be 40, 75, and nearly 100 feet. The nest of the Magpie-Jay resembles that of the Brown Jay but is often less bulky. The framework is a pile of coarse sticks, within which is a neatly finished cup of wiry roots and fibrous material, measuring about five inches in diameter.

The only nest that I could reach was the lower of those at El Rancho (belonging to the race *C. f. pompata*), and this when revisited on July 4 contained four eggs, so sharply pointed as to be almost top-shaped, in color gray, finely, densely and evenly flecked with brown. They measured 35.7 by 23.8, 35.7 by 23.8, 34.1 by 23.0, and 34.1 by 24.2 millimeters. The nest reported from El Salvador by Dickey and van Rossem contained three nestlings.

Incubation appears to be performed by the female only. On December 25 and 26, 1934, I devoted nearly 14 hours to watching the highest of all the nests I found. The lofty, white-barked trunk of the tree which bore it rose clean, straight, and branchless for about 80 feet and gave no encouragement to a climber, but the nest was in an exposed position and could be observed from a neighboring hillside. Although I could not examine the contents, it was evident that it held eggs. Of the four full-grown jays which frequented the vicinity and scolded when I came near, the one which I felt sure was the female could be distinguished by the loosely spreading feathers of her crest; the crest-feathers of the other three formed a more compact cluster. The loose-crested jay alone warmed the eggs. When hungry—as she seemed to be much of the time—she uttered loud cries which, although harsh in tone, were yet somewhat pleading. In response to these cries, the other jays brought food to her. Because of the great height of the nest and the limited time at my disposal, I was not able to determine just how many served her; there were certainly two and probably three; that is, she was fed by her mate and one or two helpers. One of the attendants had blackish feathers around the eyes (a sign of immaturity?), while the face of another was pure white.

During the course of 13 hours and 41 minutes the female jay was fed 47 times. The food was delivered to her while she sat in the nest or, rarely, while she rested near it. Often when she saw an attendant approach she would spread her wings over the sides of the nest and flutter them, at the same time crying loudly and hoarsely. Sometimes if she espied another jay coming with food while she rested near the nest she flapped her wings and cried, then hurried back to the nest to receive the morsel there. Once while the female was preening her feathers among some bushes below the nest, an attendant flew up with a bill full of berries. For about ten minutes he waited in the vicinity, then advanced to a branch about a yard distant from the nest. At last the female took notice of him and with a little whine flew directly to the nest, settled upon the eggs and received the berries. Once two jays came to the nest with food at the same time; a minute later the female was fed again, most probably by a third attendant. Once she was given food five times in four minutes.

So much food was brought to the incubating female that she did not find it necessary to hunt for herself and could devote nearly all of her time to incubation. During  $13\frac{3}{4}$  hours, divided between two mornings and an afternoon, I timed 10 completed sessions on the eggs, ranging from 25 to 88 minutes and averaging 54.6 minutes. Thirteen recesses ranged from 1 to 21 minutes and averaged 8.6 minutes. She covered the eggs for 86.4 per cent of the time. Her absences generally began just after she was fed. During

her short recesses she occupied herself chiefly with preening her feathers and stretching her limbs on some convenient perch within sight of the nest, usually in the nest-tree itself. Sometimes she continued to cry for food while preening or resting near the nest. Only rarely did she fly out of sight, and then only for a part of her brief absence from the eggs; sometimes these excursions lasted only a minute or two.

The female Magpie-Jay was so jealous of her nest that she seemed to resent the approach of any of her helpers to it during her absence, and if she saw one go near it would hurry back to sit in it. This was not merely for the purpose of receiving food on the nest. Once the jay that I took to be the male fed her on the nest, then flew to a neighboring tree. The female then left the nest, and upon noticing her departure the other returned to the nest-tree and approached the nest. When she saw him going toward the nest, the female jay hurried back and settled on her eggs before he could reach them, whereupon he departed. Although the attendants freely approached the nest-tree and even the nest itself so long as the female sat in it, other Magpie-Jays which apparently did not belong to this group were repelled. Once the female left her nest to join the bird that I believed to be her mate in driving away a jay which had come into the next tree. She also jumped from the nest to drive off a Black Vulture which had come to rest on the supporting branch about fifteen feet away. The carrion-feeder took wing with a surprised grunt, then the jay returned to her eggs.

Although this Magpie-Jay received food far more frequently than any of the Brown Jays that I watched, she spent somewhat less time on the eggs. This nest differed from Brown Jays' nests in that the male did not stand guard over it during the female's recesses. But because she spent them almost wholly within sight of the nest, she could keep watch over her eggs without his assistance. Indeed, she probably would have objected to his standing close to her nest in the manner of the sentinel Brown Jay.

I found Magpie-Jays far more shy at their nests than Brown Jays. The wariness of those in the middle Motagua Valley contrasted sharply with the confidence of their brown relatives less than a hundred miles downstream. The extreme timidity of the Magpie-Jays about El Rancho frustrated my attempts to study their nest-life in pastures where I was a trespasser and accordingly handicapped in using a blind. But at one nest I watched the female incubate for more than 95 minutes continuously, when only two of her four eggs had been laid. The male fed her on the nest and twice stood guard on the rim while she was away, once for six and once for twelve minutes. This female also drove another of her kind from the nest-tree—something I never saw a Brown Jay do. But the trespassing Magpie-Jay was reluctant to go and eluded the pursuer by hopping from branch to branch in

the same tree. Great-tailed Grackles (*Cassidix mexicanus*) were chased if they came within 50 feet of the nest.

Helpers at the nest have been discovered in several other species of the Corvidae. A pair of Central American White-tipped Brown Jays may be assisted in their nesting operations by from one to five unmated helpers, which can in many instances be distinguished individually by the peculiar distribution of yellow and black on their bills, naked orbital rings, and feet; apparently these are yearling birds who will not breed until two years old. These helpers may occasionally bring a stick to the nest during construction and feed the female while she builds or incubates; but they are chiefly in evidence after the young hatch, when they bring food and guard the nest as zealously as their parents (Skutch, 1935:261-265). Grimes (1940:433-435) found three adults bringing food to a nestful of young Florida Jays (*Aphelocoma coerulescens*), and at least two of them took turns at brooding. Three American Crows (*Corvus brachyrhynchos*) fed the young at a nest in Connecticut (Forbush, 1927, 2:395). It would be interesting to know more details of the nest-life of the Australian White-Winged Chough (*Corcorax melanorhampus*), of which it has been reported that a whole flock assists in building the nest (Mathews, 1925-1927:417), and also of the Tufted Jay (*Cyanocorax dickeyi*), at one nest of which Moore (1938:238-239) found three individuals whose mutual relations were most intimate—two of them even sat side by side on the eggs for a short period. The statement of Forbush (1927, 2:380) that Blue Jays (*Cyanocitta cristata*) “are said to care for the aged and infirm” is not out of keeping with what we know of the social habits of the Corvidae. The brief account given by Bent (1946: 118-120) of the nesting habits of the Arizona Jay (*Aphelocoma ultramarina*) suggested interesting forms of cooperation between a number of individuals; and later Gross (1949:242) watched seven or eight of these jays, including two yearlings, take part in building a single nest.

#### ACKNOWLEDGMENT

This paper was prepared for publication while the writer held a fellowship of the John Simon Guggenheim Memorial Foundation of New York.

#### SUMMARY

The White-throated Magpie-Jay inhabits the more arid lowland districts of Central America and southern México. Its breeding season is extended, nests with eggs have been found in various parts of Central America from December to July. The nest, usually placed high, is a pile of coarse sticks holding a neat cup of wiry roots and fibrous materials. One clutch consisted

of four eggs. Apparently only the female incubates. While engaged in this duty she is fed not only by her mate but by other, apparently unmated, individuals. One female in Guatemala was nourished by certainly two and probably three or more other jays, who fed her 47 times in  $13\frac{3}{4}$  hours. During this period she sat for intervals of from 25 to 88 minutes, took recesses of from one to 21 minutes, and covered her eggs 86.4 per cent of the time. So much food was brought to her that she found it unnecessary to hunt for herself, and devoted her short absences from the eggs largely to preening and stretching her limbs. Instances are given of helpers at the nests of a number of other species of Corvidae.

## LITERATURE CITED

- BENT, A. C.  
1946 Life histories of North American jays, crows, and titmice. *U. S. Natl. Mus. Bull.* 191.
- DICKEY, D. R., AND A. J. VAN ROSSEM  
1938 The birds of El Salvador. *Field Mus. Nat. Hist., Zool. Ser.*, 23:1-609.
- FORBUSH, E. H.  
1927 Birds of Massachusetts and other New England states, Vol. 2. Boston.
- GRIMES, S. A.  
1940 Scrub Jay reminiscences. *Bird-Lore*, 42:431-436.
- GROSS, A. O.  
1949 Nesting of the Mexican Jay in the Santa Rita Mountains, Arizona. *Condor*, 51:241-249.
- MATHEWS, G. M.  
1925-1927 The birds of Australia, Vol. 12. London.
- MOORE, R. T.  
1938 Discovery of the nest and eggs of the Tufted Jay. *Condor*, 40:233-241.
- SKUTCH, A. F.  
1935 Helpers at the nest. *Auk*, 52:257-273.

FINCA 'LOS CUSINGOS,' SAN ISIDRO DEL GENERAL, COSTA RICA, JANUARY 29, 1953