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## NOTES ON THE NESTING HABITS OF THE CLARKE NUTCRACKER IN COLORADO

By W. C. BRADBURY

WITH FOUR PHOTOS

HAVING failed in previous attempts to secure eggs of the Clarke Nutcracker (*Nucifraga columbiana*), I determined in the winter of 1915-16 to make further special efforts. Among other preparations I engaged Mr. H. H. Sheldon, whose experience as a field naturalist on the staff of the Colorado Museum of Natural History had been quite extensive, to make a special trip to the foothills of the Sangre de Cristo Range, in Saguache County, Colorado, and to take full and accurate daily notes of all observations. The region to be worked, about 280 miles by rail from Denver and 25 miles from the nearest railroad station, was reported to me as a favorite nesting locality for this species.

Though for many years familiar with the summer and fall habits of this bird, and having read numerous articles on this subject, including the excellent one by Mr. M. P. Skinner in the March-April, 1916, number of THE CONDOR, I was not familiar with its nesting habits, and thought possibly a few more details regarding the same, as observed by Sheldon, might be acceptable to THE CONDOR. Being unable to accompany Mr. Sheldon, I confine myself here to quotations from the letters, field notes and data received from him during, and at the end of, his work, as follows:

“Was considerably delayed in getting started and late in getting in. Made camp in foothills of Mount Blanca, March 22, 1916. Altitude about 8,300 feet.

“March 23rd. Located the birds (Nutcrackers) on ridges and in canyons about 8,500 feet altitude; pinyons and junipers constituting growth, except a few scattering pines and firs in the canyons.

“First nest found on rocky, pinyon-covered hillside. Was attracted to

nest by peculiar squeak uttered by brooding bird. Nest was directly over me in juniper tree, but eight feet above ground, and old bird sat close as I watched her, with beak pointing straight up and partly open; her attitude suggested one of hiding, endeavoring to make herself as little conspicuous as possible. A light snow was falling at the time, and when I flushed her (which was not until I was within a foot of the nest), the flakes settled on the three naked youngsters, recently hatched and apparently about three days old. Both



Fig. 50. ADULT CLARKE NUTCRACKER ON NEARBY PERCH UTTERING PLAINITIVE CRIES WHILE ITS NEST IS BEING EXAMINED.

adults stayed close by, the while uttering plaintive cries which I have not heard from this species at other seasons. (See fig. 50.) When I slipped away a few paces, hiding, the old bird returned and covered her brood; this time in natural position.

"March 25th. Nest no. 2 found in same vicinity, at bottom of canyon, placed close to trunk of large fir, seven feet above ground. Adult was brooding, and assumed same attitude as bird in nest no. 1 (bill high up, open, etc.). Nest contained three young, apparently a few days older than those in the previous nest, as they were partly covered with down.

"March 26th. Nest no. 3 with set of three eggs. Nest, eggs and parent bird taken and forwarded to you. Old birds acted in no way different than in former cases. Nest in pinyon tree at bottom of canyon, eight feet above ground. Male bird taken.

"March 27th. Nest no. 4 found in bottom of canyon, in top of pinyon

tree sixteen feet above ground, well hidden and the only nest found in top of tree to date; contained two young about same age as previous ones found.

"None of these nests were in close proximity to each other. The four nests occupied a territory of perhaps several miles in area and the birds are nesting in the Transition zone, junipers and pinyons of the upper Sonoran zone reaching well into the Transition; associated with Pinyon Jays, Bush-tits, etc.

"March 28th. Made trip afoot 25 miles to nearest station to express eggs, nest and skin to you, having no appliances for preparing and preserving eggs so far advanced in incubation.

"April 5th. Returned to camp.

"April 7th. Nest no. 5 found in pinyon about eight feet up, the young having recently vacated the same. Weather stormy; heavy snow fell during the night. Made trip to nest no. 2, located in bottom of canyon in Douglas fir, to take notes of birds during stormy weather. Found old bird covering young. It was cold and windy, and the ground was covered with eight inches of snow. Nothing of interest occurred. The other bird did not put in an appearance; probably feeding in the lower country. Returned in the afternoon and found both birds away and a rim of snow around the outer edge of the nest. One old bird soon returned and three necks straightened up to receive the food. The parent's throat was bulging out with pinyon nuts. These nuts were all full and round, so had evidently been placed where the "meat" had not dried up. Apparently, therefore, fresh pinyon nuts are always available during their nesting period. They were the chief items of sustenance that the gullets and stomachs contained, with an occasional small beetle or particle of the same. Both birds came in with food while I was at the nest site, and the feeding was done by regurgitation. The gullets of the old birds were very much enlarged, and plainly showed they contained a quantity of the pinyon seeds. The bill was thrust into the youngster's mouth, and whole shelled nuts were given it. No shells or particles of same were found either in the gullets of old birds or stomachs of young birds.

"Apparently the food brought in by one bird was sufficient to feed the entire family. I saw two of the three young ones receive food from one bird, but the other parent bird came in before the third young bird was fed by the first bird, and this mixed things up so that afterward I could not tell which was which. After feeding a young one, the parent bird would preen herself and jabber in a nervous manner, as though aware that an unwelcome visitor was at hand.

"The stomachs of the old birds examined always contained masses of pinyon shells, this far exceeding in bulk the mixture of insects and meat of pinyon nuts, about 75 per cent nut food and 25 per cent insects and other matter.

"April 8th. Found nest no. 6 in a pinyon tree about twelve feet up. Contained one young about a week old. Old bird sat very close, with beak up and open as usual. I almost touched her with my hand. Upon examination of nest no. 4, which had contained two young, I found the same to be vacated.

"April 10th. Found nest no. 1 vacated when I visited it to photograph contents. The young of nest no. 2, though I considered them about two days older than those of nest no. 1, were still in the nest, and I took several photos of them. Also collected the male bird and young for a Museum group. (See fig. 51.) The male was the dominant defender of the brood, though I thought it was the female until I prepared the skin. Examination proved it to be the male, with testes much smaller than in the mating season."

Being dissatisfied with results of the foregoing expedition, and getting none from my other parties, I arranged with Mr. Sheldon to make an earlier trip to the same camp and location this year (1917), in hopes of fuller notes on the building and nesting habits of the Nutcrackers, as well as better exhibits for my collection. Little further knowledge was obtained, and I will briefly

state the results of the trip. Sheldon arrived in camp on March 2, and broke camp for return to Denver March 25, devoting his time in the interim exclusively to this subject, making copious daily notes of observations, including other birds seen, and covered the same and vastly more territory than last year. He saw but very few nutcrackers, some days none. Saw at different times



Fig. 51. YOUNG CLARKE NUTCRACKERS IN NEST. ONE OR MORE FREQUENTLY FLUTTERED OUT OF THE NEST WHILE THE PHOTOGRAPH WAS BEING TAKEN.

two mountain lions and numbers of deer; also two partial carcasses of deer killed by mountain lions.

He records finding fifteen last year's nests, but could find practically no pinyon nuts, the chief food of old and young while nesting, evidencing no nut crop during the previous year, a condition to which we ascribe the scarcity of nesting birds this season. The following are extracts from his notes:

"March 9th. Found paunch, bones and other remains of deer freshly killed by mountain lion, an account of the killing being plainly told in the snow. Clarke Crows feeding on remains of deer. Two deer seen and tracks abundant. Saw Pinyon Jays and Clarke Crows making a big fuss over something, and on investigation found it to be a Great Horned Owl perched in a pinyon, which refused to move at my coming upon the scene. Clouding up and wind fierce. Beaver working on the creek, an unusual occurrence.

"March 13th. Weather clear and first sign of spring. Saw first Mountain

Bluebird. Found freshly made Crow's nest. While at the nest the bird came in with her beak full of fibres of bark, but upon seeing me she flew away. I retreated from close vicinity and watched from a distance through glasses. Both birds brought in material, and, I think, finished the nest, as this performance ceased after two trips were made.

"March 14th. New nest found yesterday contained one egg; bird on

nest assumed same pose as those found last year, head thrown back and beak open.

"March 17th. Covered region again today, but nothing new found. Weather mild and snow melting fast. Mountain lion again seen at distance of quarter of a mile, slowly walking along rocky ridge. Three eggs in nest that contained one on the 14th, and I left them.

"March 19th. Went to canyon no. 3 to collect nest and eggs. Found the bird brooding and tried to get a picture of her by climbing tree. She left when I got to the required position. Nest contained three eggs, as I expected.

I photographed the set after breaking away branches concealing part of the nest. (See fig. 52.) I then built up a platform so that I might get a photo of the old bird on the nest. When I went a few paces away she returned and covered the eggs, first investigating the broken branches and the platform of the old trees which I had constructed. Returning I attempted to get on the stand, but she flew from the nest and I went away, concluding that I would have to be satisfied with a picture at an angle and about eight feet distant. She soon covered the eggs again and I snapped her, but this picture proved to be a failure. I then took the nest. The two birds up to this time were close by and uttered repeated caws, but when I took the nest they disappeared. In about ten minutes one of them, the female, returned, and I shot it. The male came



Fig. 52. NEST AND EGGS OF CLARKE NUTCRACKER IN SITU. SET TAKEN MARCH 19, 1917.

in for a moment, and then flew to the top of the ridge to a perch on a cedar tree, where I watched it through glasses. With neck stretched out and bill pointing skyward, he would hold a strained position for several seconds. I have seen the birds do this same thing at close range, when squeaky notes were uttered, but in this case he was too far away for me to hear. When I left he flew to the nest site and I returned to collect him, but he was now very wary and I was unable to do so, though I disliked leaving one of the pair. This nest was situated at the bottom of the canyon near its head, at about 8,500 feet altitude, and was placed in the crotch of a good-sized limb of a

pinyon about three feet from the trunk and nine feet above the ground. It is better made and bulkier than any of those found last year.

“The stomach of the female contained particles of small mammal bones, about 35 per cent, vegetable matter, 35 per cent, beetles or insects, 10 per cent, gravel, 10 per cent, and small rodents' teeth, 10 per cent. The particles of bone and teeth very likely were disgorged by an owl.”

Upon receipt in Denver of the nest, bird and eggs taken in 1916, the eggs were at once prepared, but the shells of two of them, just ready to hatch, were



Fig. 53. NEST AND EGGS OF CLARKE NUTCRACKER. SAME SET AS IN FIG. 52, ABOUT  $\frac{5}{8}$  NATURAL SIZE.

so thin and fragile they could not be saved intact. They were the thinnest and most fragile shells of their size I ever encountered, but whether characteristic of the species or solely due to advanced incubation I cannot say. The third egg, being rotten, was saved intact.

The Nest: Outside structure composed of old dry gnarled sticks and twigs of cedar, of varying sizes, securely bound together with strips of cedar bark. Walls approximately two inches thick, woven exceptionally tight. The

lining, about one inch thick, is a firm, compact, warm matting of fine shredded cedar bark fibre, practically no weeds, grass, feathers or other matter entering into its composition. This construction, with the depth of the nest, makes it especially well adapted to protect its contents from freezing and severely inclement weather.

Measurements: Outside diameter, average about 11 inches, depth  $7\frac{1}{2}$  inches. Inside of cup, diameter 4 inches, depth  $2\frac{1}{2}$  inches.

Eggs: Ground color light lichen green. Light mottlings or shadings of pale drab-gray and minute spottings of Saccardo's olive distributed over the entire surface, with a slight confluence at the larger end where a faintly defined banded effect is noticeable. (Colors from Ridgway's *Color Standards and Nomenclature*.) Measurements (in inches): 1.25x0.92.

The nest taken this year is practically the same as the one taken last year, except somewhat larger in outside measurements and of fresher material. (See fig. 53.) The three eggs of this year's take differ but little in color or markings. Their measurements (in inches) are as follows: 1.27x0.91; 1.26x0.87; 1.31x0.90. It would appear from the foregoing that three eggs were a normal, if not maximum, clutch for this species.

*Denver, Colorado, June 13, 1917.*

## RED LETTER DAYS IN SOUTHERN CALIFORNIA

By FLORENCE MERRIAM BAILEY

**B**EFORE visiting Venice, in the field season of 1907, we had some delightful encounters with water birds, in passing, for between Capistrano and the San Jacinto Mountains our work took us to the two alkaline lakes, San Jacinto and Elsinore, both evidently popular with water fowl.

When we drove out from Hemet to San Jacinto Lake on August 14, in the cultivated valley we saw a harvester, drawn by a band of horses, entering fields of straw-colored waving grain, and leaving behind stubble fields and rows of fat grain bags. But in the immediate neighborhood of the alkaline lake the soil was too permeated with salt for grain fields—one plant of the country actually shone with salt crystals—and the only signs of human habitation were a ruin and an abandoned house and barn. On the roof of the barn a Red-shafted Flicker rested, and inside a Barn Owl napped, while two Ravens perched on rafters enjoying the cool shade in the heat of the day.

Here the level floor of the San Jacinto plain presented a characteristic desert picture, the soft blue bulk of the San Jacinto Mountains having a foreground of pale desert colors brightened by acres of pink abronias, wide stretches of yellow tar weed, and fields of sunflowers with faces turned toward the sun, fields that went well with the fresh, uplifted song of the Meadowlark. The strong smell of the tar weed suggested the pleasing tang of the desert creosote, and along the base of the foothills near the lake grew desert willows, mesquite, and other desert plants, and masses of pale green cactus topped with pink fruit. Roadrunners and Cactus Wrens and their nests were passed here, and two Cactus Wrens dashed across the road ahead of us, one of them lighting on a fence post with its grating *chut, chut, chut*.