

HABITS OF WHITE-EARED HUMMINGBIRD
IN NORTHWESTERN MEXICO

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An airplane flight from Parral, Chihuahua, to a natural mountain meadow on Mount Mohinora led to the discovery of our first completed nest of the White-eared Hummingbird, recently named by Mr. Griscom *Hylocharis leucotis borealis*. Shortly after sunrise we had climbed to an elevation of twelve thousand feet and were crossing an exceedingly rugged area of sharply contoured peaks and profound canyons. About fifty miles southwest of Parral we caught the reflected sun in a small lake, nestled two thousand feet below us at the base of a sheer cliff. The only body of water observed on the entire flight, it filled a basin in the center of this remote and inaccessible country. Obviously an excellent site for a major collecting station, it was immediately chosen by the author as a future base. Two months later, Chester Lamb made an arduous journey to the shore of this lake, Laguna Juanota, and collected there for an entire month. On August 12, 1937, he obtained the first nest that he had found of the White-eared Hummingbird.

In our six years of zoological explorations in northwestern Mexico we have collected only four nests of this species. Two of these were complete and taken by Mr. Lamb, the third was found on the ground by the author and Arthur Barr, and the fourth had only its foundation laid, when the author discovered it. In his journal Mr. Lamb states that the Laguna Juanota nest was found "in a small oak, six inches in diameter and twenty-five feet tall, growing in a grove of the same on the north hillside of a rocky butte at the lake." It was saddled on a twig among the leafy extremities of a branch two feet from the trunk. The nest is composed almost entirely of a buff-colored plant-down, the only exceptions consisting of one small oak twig woven loosely to the bottom of the nest and greenish-gray lichens ornamenting the exterior portion. Measuring 1 by $1\frac{1}{8}$ inches on the inside, it has no other lining except the plant-down. The outside measurements are $1\frac{7}{8}$ by $1\frac{1}{2}$ inches. It contained one fresh egg, now with the nest in the Moore Collection.

The second nest was found May 23, 1938, lying on the ground among pines and oaks of Rancho Batel at the top of a mountain range, where it reaches 6,300 feet elevation in southeastern Sinaloa; apparently it had been attached to a limb of the oak tree above it. It resembles closely the first nest, except that two oak catkins have been woven into the sides and the lichen decorations are more abundant. In spite of the fact that it is twice as large as the Laguna Juanota nest, I have no doubt as to the identity, be-

cause a much larger nest, to be mentioned later, was positively identified as belonging to this species. I have seen the nests of no other hummingbird in northwestern Mexico, which in the smaller sizes so closely resemble that of the eastern Ruby-throat.

At first glance, nest number three differs extraordinarily from the previous two. Its total bulk is nearly five times that of the first nest, and four times that of the second, and yet the length and width inside are as small as the first two, namely 1 by $\frac{11}{16}$ inches. The internal depth, however, is almost twice as great as that of nest number one. The external measurements are: length, $3\frac{1}{8}$; width, $2\frac{1}{4}$; and depth, $2\frac{1}{8}$ inches. Furthermore, the construction of the external part of the nest is almost totally different, consisting of a fine green moss and having pine needles, dried twigs and four or five small leaves, as well as a few lichens, woven into the external structure. Nevertheless, close examination proves that the two chief characteristics of the Laguna Juanota and Batel nests are present, namely, use of buff-colored plant-down for the bulk of the structure and oak-lichens for external ornamentation. There is no evidence whatever that this is a double nest. Fortunately the female parent was collected as it flew to a nearby bush, as was the female of nest number one, and identification of both is positive. This large nest was taken at Nievero, four miles west of Ciudad, in western Durango on March 26, 1938.

It is quite probable that the environment of the nest-site had a great deal to do with the type of construction. This moss-covered abode was placed on a small shrub, growing out of rocks four feet up from the base of a cliff in a very dark and deep arroyo. In such a place much moss is available, whereas lichens are difficult to find. Three nest-sites so dissimilar could hardly have been chosen as those of these three structures—an oak tree on the very highest point of a wind-blown mountain range, a cliff jutting out on the shore of a wind-protected small lake, and the bottom of a deeply shaded gorge! Dissimilarity of nesting period is also indicated, March, May and August!

The foundations of a fourth nest were found by the author on Mount Mohinora at 10,500 feet elevation on May 18, 1937. Cobwebs were being woven about the crotch of a plant stalk in a great field of flowering paintbrushes, which flamed for two hundred yards under the moss-hung limbs of oaks and pines. This was actually the first one discovered by our expeditions.

The Nievero nest contained two white eggs, one on the point of hatching and the second infertile, which is now in the Moore Collection. It measures 12.1 by 7.9 mm. Oblong in shape, it is very different from the more spherical egg, measuring 11.6 by 8.2 mm., of the Laguna Juanota bird.

Although the nests were all taken at high elevations, 6,000 feet, at Nievero,

and 10,500 feet at Mount Mohinora, the large series of birds in the Moore Collection has been secured from a much wider range of altitude. The Moore Collection contains 113 specimens from all parts of Mexico, but the majority of them have been obtained in Sinaloa, Chihuahua, Durango and Nayarit. The highest elevation is recorded for one collected by the author on Mount Mohinora at 10,500 feet, and the lowest for specimens secured by Mr. Lamb near the city of Tepic, Nayarit, at about 3,000 feet. The author also took one at the latter altitude on the Urique River at the bottom of the great Barranca del Cobre on May 17, 1934, where the temperature was decidedly hot and sultry. This last was in a definitely arid cacti association, where the leaf of every tree was burned brown by the long-continued dry season, but, except for these isolated cases, no other specimens have been obtained below 4,000 feet in altitude. Certainly the open fields and meadows near Tepic are below the Transition Zone, but on the other hand the general locality is not nearly so arid as the bottom of the great canyon in southwestern Chihuahua.

Wherever I have been in the mountains of northwestern Mexico above 5,000 feet, the White-eared Hummingbird has been the most common of all the Trochilidae and the dominant bird of its family in relation to other species. At the lower border of the Transition Zone up to an altitude of 6,500 feet, it frequently finds itself in the company of the Calliope and the Broad-tailed. At the lower level the much rarer Margaret Hummingbird (*Atthis heloisa margarethae*) occasionally appears at a common food-tree. This level also marks the upper habitat of the Violaceous Hummingbird (*Saucerottia beryllina viola*), but I have never noticed this bird conflict with the White-ear. At the higher levels of the Transition Zone and lower Temperate Zone where great patches of paint-brush sweep down the mountain slopes among pines and oaks, the White-ear comes in contact with such typical Transition Zone species as the Rivoli and the Blue-throated. Here, too, the more ubiquitous Broad-billed Hummingbird is common. But in whatever altitude and in whatever group of associates it is found, whether smaller or larger, the White-ear maintains control of the food-flowers it prefers.

In April 1936, the author spent several days at Rancho Batel in southeastern Sinaloa photographing with kodachrome film, four species of hummingbirds, which were feeding from the flowers of one large shrub at an altitude of about 6,000 feet. Approaching the proportions of a tree, this remarkable shrub, twenty feet in height and of the same width, was completely covered with globe-like clusters of grayish-lavender blooms. Counting the flowers in one area and making an average for the tree, I reached the surprising total of forty thousand individual flowers. At no time from sunrise to sunset were there less than four hummingbirds in this tree. Often

there were as many as twenty consisting of four different species, the White-eared, Broad-tailed, Calliope and Margaret Hummingbirds. The White-ears, like irascible knights of the air, were always ready to thrust lance at an assumed affront. It made no difference whether it was the tiny Margaret or the larger Broad-tailed, some White-ear would dive viciously at any intruder who dared to approach too close. The Broad-tailed Hummingbird, heavier and more powerful, would dart into the tree with direct flight and pompous hum, but its assurance would be quickly dispelled! A male White-ear would immediately launch an assault and drive the larger bird up the mountainside in ignominious retreat.

The same dominance was exhibited on several afternoons in May 1937, when I visited the mammoth paint-brush beds on the slopes of Mount Mohinora at the 10,000-foot level. Here the White-ears outnumbered all the Broad-billed, Blue-throated and Rivolis together. In one of these astounding fields of color, perhaps a hundred yards long and a hundred feet wide, a dozen White-ears were feeding at one time. If one of the other larger species dove into the flower masses, even if at a point far removed from the nearest White-ear, one of the latter would immediately whirl to the attack and drive the Rivoli's and Blue-throated Hummingbirds, twice their size, into headlong flight. During the drowsy hours of mid-day, the White-ears would cease feeding and rest quietly at various points among the oak trees, generally choosing some spot in the shade. Should a Blue-throated or Rivoli choose this propitious moment to glide quietly into the flower beds, the nearest White-ear would come to life and volplane down in a surprise attack. Not once out of many hundred times, did I observe any of these three other species attempt to resist. It might seek some other point in the large mass of flowers, but the White-ear invariably pursued until the other bird had left the food-area.

The wing-action of the White-eared Hummingbird I compared with that of the Calliope and the other species at Rancho Batel in 1936. Its wings beat slower so that, when poising in front of a flower, they are not an indistinguishable blur, as in the case of the Calliope, but there is a slightly visible wing stroke. Possibly because of this slower wing stroke, as well as the heavier longer body, the rear end of the bird gradually drops as it continues to poise in front of the flower. If it feeds continuously from one cluster of small blooms, a curious rhythmic, but irregular motion of the tail up and down is created. At first the tail is horizontal and in the same plane with the body. When the tail begins to drop, the bird, in order to compensate for the increasing lack of balance, forcibly lifts it into the air. Timing these vertical beats, I found they averaged three to the second. At first I thought this downward and alternate upward sweep of the tail was for the purpose of moving the bird from one flower to another, but this was not the

case. I never observed the Calliope or the Margaret Hummingbird doing this.

In spite of the pugnaciousness of the White-ears, they are also the shyest of the four species at Rancho Batel. At the large flowering shrub, mentioned above, where I observed them for hours at a time, the Calliope Hummingbird was the tamest and the Broad-tailed next. I was often able to photograph these latter birds with a moving-picture camera at a distance of six feet, but I seldom could get this close to a White-ear. As a rule it would move to the opposite side of the tree, if it did not depart entirely, when I began starting the motor of my camera.

The call-note of the White-eared Hummingbird is exceedingly high-pitched and sharply staccato. On one occasion in April at Rancho Batel, I was favored by a performance within a few feet of my head. The male repeated its call-note about ten times in each phrase and did it so often that it was easily possible to get the exact note on my pitch-pipe. It might be rendered musically as follows:



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