

ACORN STORING METHODS OF THE CALIFORNIA AND LEWIS WOODPECKERS

By CHARLES W. MICHAEL

SINCE the spring of 1920 I have been a resident of Yosemite Valley. With me the study of birds is a hobby, and during all of the six years of my residence seldom a day passed that I did not walk out to visit with the birds. Now, when I first came to the Valley I noticed pine trees here and there among the Kellogg oak groves, that had been used as storage, or cupboard trees, by the California Woodpeckers (*Melanerpes formicivorus bairdi*). Living trees two hundred feet high were "pock-marked" by the drillings of these birds, sometimes to the extent of half their height. The pits to receive the acorns were drilled on an average of four to each plate of bark.

At the time when I first discovered and examined the trees there were no acorns in storage. This did not seem strange at the time; I merely thought that the food supply had been consumed during the winter and that during the following fall the cupboard trees would again be stocked with acorns. Such was not the case, however, for although fall came with a bountiful crop of acorns, the woodpeckers made no attempt to harvest extensively. The great granaries were utterly ignored and but desultory storing was practiced. To receive the few acorns that were stored dead branches among the oaks were utilized by most of the birds, while a few individuals conceived the idea of poking acorns away in the cracks formed by the double shingles at the eaves of nearby dwellings. Each following year it was the same thing, no extensive storing of acorns. Then came the fall of 1923 with a complete failure of the acorn crop of both Kellogg and golden oaks. Owing, then, to this crop failure, and also to the fact that there had been no excess storing during the preceding years of plenty, the California Woodpeckers, for lack of food, were forced during the winter of 1923-24 to leave the Valley. Three birds did winter through, but only by the generosity of Bob Selby who kept them supplied with bread and suet.

The following spring the California Woodpeckers returned to the Valley and during the summer they were as numerous and noisy as ever in all the Kellogg oak groves. This fall (1925) the Kellogg oaks again bore a heavy crop; and for the first time we found the woodpeckers, at least a few individuals, taking full advantage of the opportunity to store. The great cupboard tree, a yellow pine that stands among the oaks at the edge of the Kenneyville field, was the tree that received the most attention. Starting at about fifteen feet above the ground the bark of this tree was literally riddled with holes for a distance of a hundred feet. Many of the holes were of this year's drilling, others were old holes that had done service at some time in the past. November 7, when last I examined this tree, it was estimated that seventy per cent of the holes were being utilized. I cannot be sure, but after many visits to the tree I am inclined to think that the vast storing of acorns was the work of a single pair of birds.

When I visited the storage tree in rainy weather I never found any California Woodpecker at work, but the one I took to be the owner of the vast store could usually be found looking out of the door of his bed chamber high up in a pine. And, by the way, his bed-room was located directly opposite the storage tree, and from the doorway was to be had a commanding view of all his stores.

There were a number of fat years when no extensive storing was done. There was one lean year when no storing could be done. From the above observations one

might conclude that an abundance of acorns is not directly responsible for prodigious storing. In a land of plenty the necessity of laying aside stores for future consumption is obviated. It is the barren years that teach the value of thrift. Intelligence plus experience may well have been the cause of the excessive storing of this year. A few of the more intelligent woodpeckers that were forced last winter to abandon the Valley for lack of food are now preparing against the next lean year.

Regarding the food storing habits of the California Woodpecker it might be well to mention that these birds here in the Yosemite Valley show a decided preference for the acorns of the Kellogg oak, and it is only when there is a shortage of this nut that the nut of the golden oak is stored at all. The acorns of the Kellogg oak vary greatly in size, and this being the case the woodpeckers can drill holes to fit the average sized acorn with the assurance that a slight variation in the size of the hole may easily be overcome by the selection of the proper acorn.

Like the California Woodpeckers and the Indians of Yosemite, the Lewis Woodpecker (*Asyndesmus lewisi*) is also a storer of acorns, and he too prefers the acorns of the Kellogg oak. His method of storing acorns, however, is quite different from that employed by the California Woodpecker, as the following notes indicate.

Recently we watched a Lewis Woodpecker making trips back and forth between a Kellogg oak and his home tree, a cottonwood. He was busy storing away his winter supply of acorns. Occasionally he picked a fallen acorn from the ground; more often he flew into the lesser branches of the oak, and hanging like a great black chickadee he plucked the acorn from the cup. With crow-like flappings, his broad wings carried him back to the dead cottonwood with his prize in his bill. Alighting somewhat below the summit of his tree he would, by a series of flight jumps, come to a certain shattered stub where a fissure formed a vise. Into this he would wedge the acorn.

With the acorn held firmly in place he would set about cutting away the hull, and strong strokes of his bill would soon split away the shell and expose the kernel. But he was not satisfied in merely making the kernel accessible, he must go on with his pounding until he had broken it into several pieces, and then with a piece in his bill he would dive into the air like a gymnast, drop twenty or thirty feet and come with an upward swoop to perch on the trunk of the same tree. A few hitching movements would bring him to a deep crack that opened into the heart of the tree. Here he would carefully poke away, for future reference, his morsel. Usually the acorn was cut into four parts, involving four such trips, and on the last trip to the vise he would take the empty hull in his bill, and with a jerk of his head, toss it into the air. An examination of the ground beneath the tree disclosed hundreds of empty acorn shells. Holding a watch on the Lewis Woodpecker, we found that he made five trips in five minutes and stored five acorns.

On another occasion, on a sunny day in the late winter, we paid a visit to the Lewis Woodpecker that lived in a dead cottonwood in Leidig Meadow. When we arrived the bird was busily engaged in some unknown occupation in his home tree, an occupation that was apparently in some way connected with his commissary arrangements. With his bill he would withdraw small objects from secret crevices in the dead wood. One by one he transferred these small bits of yellow material from the original hiding place to niches farther up the tree. At the time of this visit we were mystified by the behavior of the bird, but since getting better acquainted with the Lewis Woodpecker we are inclined to think that he was airing and sunning his acorn chips to prevent mold.

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