

in horizontal stoops.

The nest was a flattened area in a hollow limb base, open on the east. There was only a trace of the original 'scrape', but there were four eggs, two on each side of a small interval, where the falcon had placed her feet while incubating. Three eggs were mainly reddish with small irregular marks of darker red, while the fourth egg had a grape-purplish hue over the basic red. In all probability these were laid by a single bird, as it is a common occurrence that one egg of the four may be somewhat off color.

It is my opinion that these were laid by the larger, darker falcon. A reasonable interpretation of the observations recorded above is that in the early morning the male came in with food for the incubating female, that she came off to feed and at this time the smaller female went in to incubate. The large bird meanwhile stayed close by until the small female came off, and then she went back onto her eggs until my hand coming up in front of her face caused her to leave.

Three birds were still present during April 17-19, according to observations made by Mr. Butler, and actions indicated that the eggs had now hatched, but the tree was not climbed. More than a month later, however, on May 27, Mr. Butler did climb and found that the nest was now vacant. The young had left only recently, and one bird was heard calling nearby.

The successful nesting of the Peregrine with two females not only tolerating each other, but actually cooperating in incubation is an unusual situation at the least, and it would be interesting to know more of their relationships during the raising of young and during the non-breeding part of the year. It is hoped that, if this triangle still occurs next spring, further observations can be made.

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Ref. cited: Spofford, Walter R. 1945. MIGRANT, 16:56-58.

MOUNTAIN VIREO NESTS IN THE GREAT SMOKY MOUNTAINS

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While camping at the Chimney Camp Site in the Great Smoky Mountains National Park in July, 1947, I made some observations on the nest of a Mountain Vireo (*Vireo solitarius alticola*).

Early on the morning of July 4, I heard the call of this vireo and quickly found the bird in my field glass in a nearby tree. It flew from branch to branch hunting insects and then went directly to a nest and began to feed young. The nest was situated far out on a slender limb ten feet from the trunk and only three feet from the end of the branch. The tree was a yellow birch (*Betula lutea*) only six inches in diameter.

The site chosen was close to the Little Pigeon River but over a rocky branch, fifteen feet above the boulders. The nesting site was surrounded and well shaded by several very large hemlocks, a giant sycamore, and a small oak. By climbing the tree I was able to look down upon the nest and observe the parents feeding the young. There were either three or four quite young nestlings, their nearly naked heads barely coming to the rim of the nest when gaping for food.

On several occasions while one parent was feeding, the other flew to the nest and also fed the young birds. One bird was observed to carry away a large sack of feces to a considerable distance. The young were fed very rapidly, the parents rarely remaining at the nest longer than five seconds.

As I had to leave the area on July 5, I asked Arthur Stupka, the Park Naturalist, to send me the empty nest after the young left. A month later I received from him a beautifully woven nest (hereafter called nest 2), but it clearly was a different nest since it was bound more extensively to the limb and was less ragged on the bottom than the one I had observed. It also contained, according to Mr. Stupka, four addled eggs. I then sent more accurate directions as to the location of the original nest and received on September 20 a second nest with this comment, "I am certain that this is the one in question; it was about 200 feet from the previous nest, and meets your description. Both nests were about 15 feet from the ground."

A comparison of the two nests may be of interest. Both were suspended in a fork near the end of a branch of a yellow birch. The diameters of the branches forming the forks were 7 and $4\frac{1}{2}$ mm. for nest 1, and 7 and 5 mm. for nest 2, certainly too slender to support the weight of man or any other large predatory animal. Both nests were woven out of shreds of bark and lined with fine grasses. The lining of nest 1 also contained about thirty reddish-brown sporophytes plucked from some moss, many of which still had the capsule attached. The outside of each nest was covered with thin papery materials, which proved to be scraps of paper evidently picked up around the camp site, and strips of yellow birch bark. The nests were also covered with the webbing of spiders and a half dozen old spider cocoons were included on nest 1. The main body of nest 1 (which was taken apart for examination) consisted of strips of bark running in all directions, giving the appearance of an interlacing network, and all stuck together with spider webs. Both nests were firmly bound to the two sides of the fork by more arthropod silk. Nest 1, which was 21 cm. in circumference, was bound to the branches by only one third of its rim, 4 cm. on one branch and 3 cm. on the other. Around the margins had been placed a considerable amount of green mosses, and some had been woven into the sides of both nests. I have not found moss mentioned in the descriptions of previous nests. Nest 1 had five pieces of pale green lichen stuck to the sides and some additional pieces were found buried beneath the layers of paper and bark. Burleigh (1925) observed lichens on Solitary Vireos' nests in northern Georgia and

has the following comment: "This habit of ornamenting the nest with green lichens, in the same manner as a Wood Pewee or a Blue-gray Gnatcatcher conceals its nest, is characteristic of this bird alone of all the eastern and possibly western Vireos, and is the more interesting in that this is only a subspecies occurring over a limited area." The combination of white paper, yellowish bark, and green lichens and mosses was not particularly concealing to the human eye at least. In fact the light color of the nest was quite conspicuous against the slender dark-hued branches on the birch.

Burleigh (1925) appears to have been the first to point out that the Mountain Vireo is two-brooded in northern Georgia. He states that the first brood occurs in April and early May and the second in June. He describes three June nests and one in July, the latter with newly hatched young on the fifteenth of that month. The present nest therefore falls late in the second nesting period and is one of the few July nests to be recorded for this subspecies.

These two nests were at a relatively low altitude for mountain species. Mr. Stupka stated that he considered the Chimney Camp Site (altitude 2750 feet) to be the low limit for the occurrence of most of the mountain species. However, Odum and Burleigh (1946) have recently pointed out that the Mountain Vireo is extending its range from the mountains into the Piedmont, where it selects "fairly mature but hot and dry pine woods for nesting, a rather striking contrast to the cool, usually deciduous, ravines occupied in the mountains." Powers (1936) has described a nest in a holly tree on the Appalachian Club grounds. His two photographs published in the MIGRANT show a bulky nest with an irregular ragged bottom, suspended in the fork of a holly tree.

The height from the ground of fifteen feet for these two nests is considerably higher than the average of eight feet reported by Ganier and Clebsch (1946) from the Unicoi Mountains in extreme southeastern Tennessee. Powers' nest was eight to ten feet up, and Ganier (1936) reported a nest on Roan Mountain nine feet up. However, Burleigh (1925) for Georgia listed nests at twelve, eighteen, and twenty-five feet.

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