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THE JUVENAL PLUMAGE OF THE EASTERN
WARBLING VIREO (*VIREO GILVUS GILVUS*)

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DWIGHT, in his useful paper¹ on the plumages and molts of passerine birds, makes clear that the juvenal plumage of the Eastern Warbling Vireo, *Vireo gilvus gilvus* (Vieillot), is largely brown above and white below. His description reads:

Above wood-brown, very pale on pileum and nape, darker and faintly tinged with olive on the back. Wings and tail pale clove-brown edged with dull olive-green. Below, white, the crissum tinged with pale primrose-yellow. Auriculars, orbital ring and superciliary line white. Bill and feet pinkish-buff, becoming dusky and slate-gray respectively when older. Iris deep hazel-brown.

Roberts' description,² which is much shorter, mentions an indistinct wing bar but does not mention olive, olive green, or yellow. His description reads: "Upperparts pale grayish-buff; an indistinct buffy wing-bar; line over eye and eye-ring, white; underparts white. Bill and feet pinkish-buff." The discrepancy between these two descriptions can easily be explained: the latter pertains to a ten to fourteen day-old bird with half-grown flight feathers, the former to a considerably

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¹ Jonathan Dwight, Jr., "The Sequence of Plumages and Moults of

older bird in which the flight feathers and crissum plumage are more or less fully developed and in which the back and scapular feathers are probably a mixture of juvenal and first winter plumages.

The plain but beautiful juvenal plumage of this species follows the natal down. It is only partly grown when the young bird leaves the nest at nine or ten days of age, and it shows almost no olive or yellow tinge. It is worn only a few weeks, being replaced by the first winter plumage well before the bird departs for the south. It is never, strictly speaking, a complete, or a separate plumage because (1) the remiges and rectrices are not molted but are carried over as part of the first winter plumage; and (2) the juvenal body plumage begins to drop out long before the flight feathers are full grown. The young bird's plumage becomes more colorful as the flight feathers develop, since the olive green edgings of the rectrices, upper tail coverts, and remiges are much brighter at the base than at the tip, and the yellow of the crissum becomes gradually more apparent as the feathers emerge from their sheaths.

The true juvenal plumage has never, to the best of my knowledge, been figured in color. Louis Fuertes' beautiful drawing of a young bird in Eaton's *Birds of New York*³ represents a molting bird largely in first winter plumage, the irregular patch of grayish white feathers on the flank and the light tipped wing coverts (though the tipping of the greater coverts is not buffy enough in the reproduction at hand) being the only distinctively juvenal feathers remaining. The pileum is not nearly pale enough nor the back brown enough for the juvenal plumage. The yellow feathers of the malar region, breast, and sides are all of the first

the Passerine Birds of New York," *Ann. N. Y. Acad. Sci.*, 13: (1900): 237.

² Thomas S. Roberts, *The Birds of Minnesota* (Minneapolis: Univ. Minn. Press, 1932), 2: 664.

³ Elon H. Eaton, *The Birds of New York* (Albany: N. Y. State Mus., Univ. N. Y., 1914), 2, Mem. 12: Pl. 91.

winter plumage. Since the true juvenal plumage is much less colorful than this figure would lead one to believe, I present the accompanying drawing which I made at the Edwin S. George Reserve, near Pinckney, Livingston County, Michigan, on July 4, 1946, direct from a living bird about ten days old. This bird weighed 10.9 grams. A male of the same brood, collected the day before and less successfully painted, weighed 12.1 grams. The two young birds were alike in being almost wholly devoid of any olive green tinge above and in being plain white below, with a very faint brown wash on the chin, throat, upper breast, and sides. As for the "pale primrose yellow" tinge on the crissum, it simply was not there—the under tail coverts being short, only slightly out of their sheaths, and plain white. The eyes were very dark, black in general appearance, though actually the irides were deep brown. The bill and eyelids were pinkish buff and the mouth lining a rather bright straw yellow.

Dwight's description of the auriculars as "white" is misleading. In three stub-tailed juvenal specimens at hand (including the two mentioned above) the ear coverts are distinctly brown, of about the same hue as the pileum, though lighter (Pl. I). The eye ring, on the other hand, is fully as light as the superciliary line, and can be accurately described as white. In this connection it is interesting to compare the two very young birds discussed above with a somewhat older individual collected in Palo Alto County, Iowa, on July 26, 1907, by Max Minor Peet (U.M.M.Z. No. 35486). This bird, a female, is probably in complete juvenal plumage, though some of the lesser wing coverts appear to have dropped out (perhaps in the process of skinning). The tail is 36 mm. long, the feathers all still being sheathed at the base. The basal edgings of the secondaries and upper tail coverts are tinged with olive green, and the under tail coverts are very pale yellow. In the back and scapular plumage there is hardly a suggestion of olive green anywhere. The size of the bird's bill and the length of its tail indicate that it was about three weeks old. The pileum and auriculars are very light grayish

brown, lighter indeed than in the two younger birds described above, the feathers throughout these regions being fully developed, fluffed out to the point of being almost fuzzy, and obviously ready to drop out.

A male specimen which I collected just south of the George Reserve on July 25, 1946, is interesting in that it shows how fugitive the true juvenal plumage is. This bird was probably about a month old (weight, 14.2 grams). Its well-grown flight feathers are still sheathed at the base (tail length, 46 mm.), yet throughout the body there are signs of molt. The remaining juvenal back plumage is so loose that stroking the specimen is apt to cause these light brown, somewhat plumulaceous feathers to fall out. The well-developed upper tail coverts are olive green on the edges basally, but the tips are brown. The rump is almost wholly covered with light brown juvenal feathers. These are of about the same color as the top of the head, auriculars, hind neck, and upper back, being definitely less olive green than the feathers of the lower back and upper tail coverts. So light is the brown of the pileum that the bird looks almost white-headed. Some of these pale crown feathers are dropping out, and very small pin feathers can be seen in the superciliary region. The flanks and crissum are very pale yellow, the flank feathers probably belonging to the first winter plumage, the crissum feathers to the juvenal plumage. Along the median line of the throat and upper breast a patch of strongly buffy feathers of the first winter plumage is appearing. The greater coverts, which are tipped with buffy, are all juvenal feathers. Their edges are very faintly greenish. They have not yet started to drop out. But the juvenal middle and lesser coverts have all dropped out and are being replaced by new feathers that are strongly olive green in tone. Thus, though the rectrices and remiges are not by any means of full length, many juvenal head, body, and wing feathers have dropped out and have even been replaced.

That young Warbling Vireos hatched early in the season may complete the postjuvenal molt in midsummer is evident from three specimens at hand. A female which I collected on

the George Reserve on July 24, 1935 (U.M.M.Z. No. 85978), has small patches of pale brown juvenal plumage remaining on the back of the head, and the upper and under tail coverts all appear to be juvenal, but the rest of the feathers, including the only partly developed greater and middle wing coverts, are of the first winter plumage. Another female, which I collected on the Reserve on July 28, 1936 (U.M.M.Z. No. 83522), is, so far as I can discern, in complete first winter plumage, there being again the possibility that the upper and under tail coverts are juvenal feathers and that, like the rectrices themselves, these may be retained as part of the first winter plumage. A male specimen taken even as early as July 14, 1881 (Grosse Isle, Michigan, U.M.M.Z. No. 315e), is largely in first winter plumage, only a few pale brown feathers remaining on the pileum, neck, and back.

SUMMARY

1. The young Eastern Warbling Vireo (*Vireo gilvus gilvus*) at the time it leaves the nest is light buffy brown above, plain white below. As the feathers emerge from their sheaths the somewhat more colorful basal parts appear. Thus, the edgings of the basal part of the remiges, rectrices, and upper tail coverts are strongly olive green, and the fully developed crissum feathers are pale yellow.

2. The juvenal head and body plumage begins to drop out long before the flight feathers are fully developed. The upper and under tail coverts are not molted until the rectrices are fully grown, however, and they may possibly be retained as part of the first winter plumage.

3. Olive green back and scapular feathers which appear about the time the first flight feathers are fully developed may be the last of the juvenal plumage to appear, or they may be part of the first winter plumage.

4. The postjuvenal molt may, in young birds of normally early broods, be completed as early as the latter part of July.

PLATE I

Young Eastern Warbling Vireo (*Vireo gilvus gilvus*).
Painted from life, July 4, 1946, at the Edwin S. George Re-
serve.

THE EASTERN WARBLING VIREO

PLATE I



