

## Yellow-throated and Blue-headed Vireos in Ontario: 5. Nestling Period, and Post-nesting Activities

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The reader may assume once again that the lives of the Yellow-throated Vireo (*Vireo flavifrons*) and the Blue-headed Vireo (*V. solitarius*), formerly Solitary Vireo, are similar unless otherwise noted.

### NESTLING PERIOD

#### Hatching and Feeding

When eggs were close to hatching, the adults rose in the nest every three to eight minutes to look under themselves before settling back on. They seemed well aware of what was happening. I did not observe what was done with egg shells. Lawrence (1953) observed Red-eyed Vireos (*V. olivaceus*) carrying shells away. Adults returning to the nest to sit, brought food as soon as there was even one young in the nest. For the first few hours, however, they seldom actually fed the young. They stood over the nest trying to elicit gaping, but ended up eating the food themselves.

Both parents bring food. In only one pair (Yellow-throated Vireo) did I observe a male giving food to the female to feed, on a few occasions. The food exchange was very rapid. The male flew directly to the nest, the female hopped off the nest and took the food almost before he could perch, and he continued to fly on out.

As during incubation, one bird left the nest just as the incoming bird arrived, so that it appeared as if a single bird passed quickly through the tree, unless the exchange was seen. Feeding began shortly after sunrise in the morning and continued through the day until just after sunset in the evening. The greatest frequency of feeding was in the early morning, and the least about mid day. Two or three trips per hour by each parent was the usual frequency for smaller young, increasing to four or five per hour for older nestlings. Smaller young generally got smaller items, but occasionally an item too large to swallow was brought. After trying to feed it half a dozen times, the adult would eat it. They never pull apart large items to feed pieces to the young, as they did for themselves.

Soft-bodied green caterpillars (*Lepidoptera*) seemed to be the usual fare when young were small. A wider variety of insects was brought as the nestlings got older. As noted in Bent (1950), several times I saw Blue-headed Vireos bring large dragonflies (*Odonata*) to older young, stuffing them in head first, wings included. The young sat with the long abdomen protruding from their mouths for five minutes or more until they

could swallow more. Also, when the young were older, I observed parents feeding by regurgitation. This is not usual, even unusual, with Blue-headed Vireos. I always saw fresh material brought to small nestlings, although Wheelock (1905) claimed to have seen young vireos (not these species) fed by regurgitation. Weygandt (1907) reported regurgitative feeding by Blue-headed Vireos, but the age of the young was not given.

When young were very small, the adults would stand over the nest briefly until the young gaped, before they could feed. They gave contact calls, and hopped back and forth to jar the nest gently until the young gaped. As the young got older, they gaped immediately, even upon hearing an approaching bird.

### **Brooding and Nest Sanitation**

The female brooded at night, but the male did as much during the day. Brooding was continuous for at least five days. By the fifth day, if the weather was warm, the nest might be left unattended for short periods. Among Yellow-throated Vireos, brooding ceased by the sixth day; in one instance, seven day old young were not brooded even in a light rain. Among Blue-headed Vireos, brooding was regularly continued for six days, and even on the seventh and eighth days during colder times of the day. This reflects the cooler climate and microhabitat of this species where I observed them.

Once brooding had ceased, the adults typically remained at the

nest only long enough to feed and dispose of fecal sacs. When young were small, and adults remained to brood, they ate the fecal sacs. By day six, only about half were still eaten, and thereafter, most were carried away. They were generally carried some distance before being dropped. I rarely saw adults eat a fecal sac as late as the 10th day of nestling life. Fecal sacs were produced at a rate of about one per nestling per hour.

### **The Nestlings**

Young were born blind, and remained so for about seven days. They were probably somewhat deaf also, as adults seemed to have to hop about jarring the nest to get them to gape, even though they had been calling (with contact calls) on approach to and at the nest. Small young would gape when I jarred the nest, seemingly unaware of the fuss the adults were making over me; older young with eyes open crouched motionless in the nest. The young did not call loudly enough to be heard from the ground until they were no longer being brooded. At this time, they could be heard calling in chorus, a high pitched *ceeee* sound. Although I have no quantitative data, it seemed that the loudness and duration of the calling after being fed influenced the speed at which the adults returned with more food.

By the time young were no longer being brooded (and probably somewhat earlier), they could grip the nest bottom rather strong-

ly. Young could be seen preening by the tenth day of age, but might be doing it sooner down in the nest where I could not see them. They would spend as much as one third of their daytime preening in the last few days in the nest. About the tenth day, also, I saw them stand on the nest rim and vigorously exercise their wings. The clutching power of their feet was sufficient that they could maintain themselves even in a moderate wind.

Young hatched nearly naked, with a small amount of natal down. Feathers grew to cover most of their body by the time they were six to seven days old or about the time brooding was reduced or ceased. By the time they left the nest, they appeared to be nearly the same colour as the adults, but the wings were short and tails were very short.

### **Adult Behaviour**

The males ordinarily sang little during the nestling period. I several times noted only a few sporadic songs over a period of several hours. They usually continued to give a few songs, however, as they approached the nest. The females used contact notes on approach, and both used contact notes when at the nest.

Unless exchanging at the nest, the adults seldom flew directly to the nest. They usually landed a short distance away and then flew to the nest. Once young were in the nest, the adults of both species routinely exhibited "flycatching" behaviour

on the way to the nest tree. That is, they made a short arc upward as if hawking an insect on the way to the nest. They would do this even when they had food in their beak already, or early in the morning when it was cold and unlikely that any insect was flying, and I could never see anything in the air that they might actually have been catching. This behaviour seemed to be a deceptive action, designed to fool any nest predator that might be watching into thinking that the bird was just foraging, not taking food to a nest (see James 1979).

When the young were no longer brooded, but still fairly small, the adults might stand over the nest for a brief period after feeding. More usually, they moved a short distance away and preened for awhile before leaving. But, as the young got closer to nest leaving, the nest was unattended almost completely except for feeding and fecal sac removal. The adults seemed to avoid close approach for any length of time.

Normally, only one adult was at the nest at any one time, once brooding had ceased. If a second bird came, the first typically left. But if a second adult came to feed while the first stayed there, the first bird would begin to wing quiver (see Figure 1). This is the same gesture used by young in begging food from an adult, once they have left the nest. The wing quivering adult, however, was never fed by the incoming bird. Wing quivering probably indicated a submissive

attitude, allowing two birds to come close together (overcoming individual distance). Usually, the display was brief before the displaying bird departed. Among some pairs, wing quivering rarely happened, but it was quite common among others.

### **POST-NESTING ACTIVITIES**

Much of the basis for the information presented here was gleaned from one pair of Yellow-throated Vireos and their young. They were the only pair in the area, and were followed from nest leaving in mid July until they left for the winter in September. Additional, more casual, observations from several other families of both species support what happened with this one family.

### **Nest Leaving**

Young remained in the nest for about 13 days, and left the nest early in the morning. They stayed very near the nest for a short while before a first "long" flight. The first flight of one young Yellow-throated Vireo covered a distance of about 30 m downhill. But later in the day, it again flew about 25 m, this time gaining height. The initial flight was accompanied closely by an adult bird.

With the closely followed Yellow-throated Vireo pair, the young were still within 100 m of the nest after a week, and had moved only 200 m by twelve days out of the nest. Through the rest of the summer, they could usually be found within 500 m of the nest. With one pair of Blue-headed Vireos,

they seemed less confined by topography and habitat, and moved as much as 2 km from the nest within a couple of weeks and would move 0.5 km in any one day after that.

### **Feeding and Foraging**

The young were totally dependent upon the adults for food for some time. Even nine days out of the nest, the young were largely content to stand and wait for food, only occasionally moving after the adult, begging briefly. I watched a young Yellow-throated Vireo, twelve days out of the nest, after being fed a large worm. It tried to swallow, then coughed it up, beat it over a branch like an adult would to initially kill it, then held it with one foot and pecked it apart to eat. They were capable of handling what they got, but not yet able to assume their own independence. By sixteen days, young of either species would be foraging about looking for food, rather than just waiting to be fed. At this time, they were still rather slow and ineffective, but from then on did more and more of their own food procurement. They would continue to beg food and might still be fed even a month or more after leaving the nest.

Most food brought was fresh, but on occasion, adults would also regurgitate food for the young during the first week or so post nest leaving. Adults never stayed close to young after feeding them. When young began to forage on their own, after a couple of weeks out of

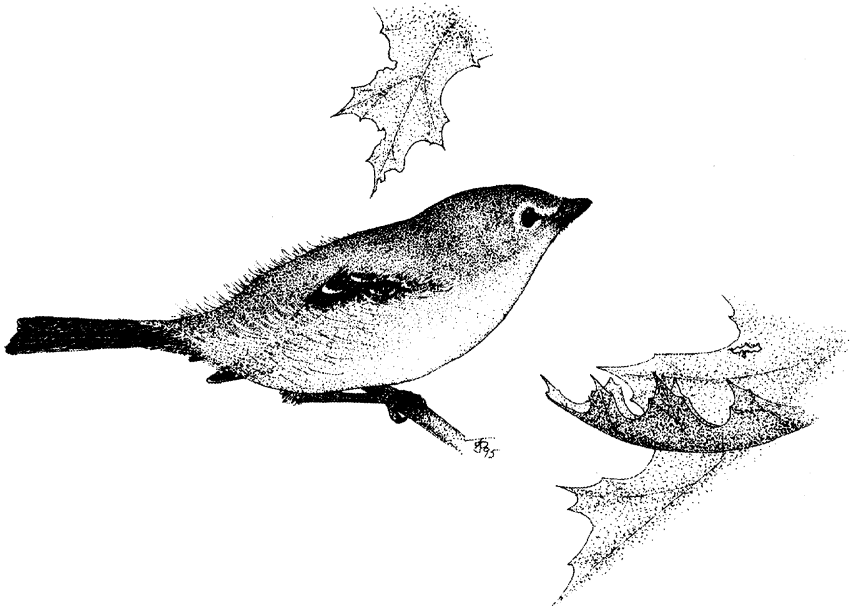


Figure 1: The *wing quivering* display of adults or young of Blue-headed or Yellow-throated Vireos. The birds crouch, droop the wings and spread the side-feathers out and up over the wings. As the wings are quivered behind, the sides of the bird vibrate noticeably in response. Drawing by *Ross D. James*.

the nest, they generally stayed by themselves, not moving far between feedings by a parent. But, as they became more mobile, they gradually tried to keep up with a parent, travelling within contact call range.

### **Follow the Leader**

Either adult would feed any young for the first few days. But after about a week, the young were far enough apart that the parents had also separated and were each looking after one or two young. Infrequently, through the next month, I would find all together for

half an hour to an hour. But, they soon split up again, half the young staying with each parent throughout the rest of the summer. With the one pair of Yellow-throated Vireos, the same young seemed to stay with the same parent, the one with the male having a louder and more emphatic voice (probably a young male, as the adult male had a louder and more emphatic voice than the female when using contact calls). However, I heard two young with the male from other nests where the young had different voice quality, suggesting it is not

exclusively male offspring that follow a male parent.

After the August molt period, the young tended to be much more independent, frequently foraging off by themselves. They did, however, periodically return to the company of an adult, until migration in September.

Sutton (1949) indicated that he thought Yellow-throated Vireos were double brooded in Michigan. But, I never had any indication of second broods. Given the period of dependency of the young, it seems somewhat unlikely, at least in northern parts of their range. Late nests or re-nests could easily give the impression of a second brood, but second broods have not been documented. Bent (1950) also suggested that Blue-headed Vireos (*V. s. solitarius*) might be double brooded, but no concrete example was provided. However, I once observed a pair of Blue-headed Vireos in Ontario that had lost all but one young. They did begin to re-nest almost as soon as the young left the nest. The female was doing all the building even in the early stages, while the male fed the young and attended the female at times. McLaughlin (1888) reports an example of a re-nesting pair of "Mountain" Solitary Vireos (*V. s. alticola*) with three young in North Carolina. These young were apparently still dependent upon the adults. So re-nesting may occur in Blue-headed Vireos, but there is little evidence of it being regular, in Ontario at least. It may be more fre-

quent in more southerly latitudes (possibly even so in Yellow-throated Vireos), especially where some nestlings have been lost.

### Development

About the time they left the nest, the call of young birds of both species changed to a single "cheep". Each time a young flew to a new tree on the first few days out of the nest, it began calling. They called fairly continuously at a rate of about 24 per minute until an adult returned to feed them. This constant calling was no doubt helpful to the adult in locating them.

The approaching adult usually sang or gave contact calls. This immediately caused the young to start begging. They crouched on the branch with mouth wide open, calling much more quickly, and quivering their wings vigorously. The calling ceased as the adult got close, but the wing quivering continued through the feeding and for a short time thereafter.

After being fed, they perched quietly for a time. But, if more food did not appear, they soon began to call again. Within a few days, the call became more prolonged to a "Cheep-cha-cha-cha" type of sound. This call remained the one heard for the rest of the summer.

Recently fledged young spent a small amount of the day sleeping (in several short bouts). They crouched down on a branch with the feet and branch right up into the belly feathers. The head was drawn back, and the beak pointed

up at about a 45 degree angle, not turned around and tucked into the back feathers. (I have never observed a sleeping adult to see what posture they use.) Then their eyes were closed, for short periods only.

When not sleeping, the young preened for as long as 20 minutes at a time. They spent almost half their time preening when just out of the nest. It was fairly easy to identify young birds as such for most of the summer. They had short tails, with a graduated length of feathers, for a couple of weeks. The outer feathers appeared to be the last to grow out to full length. From then until the August molt, body plumage looked very fine and new compared to the worn plumage of the adults. After the molt, it was the adult with the shorter tail, which could take until the first of September to grow out again.

For a few days after nest leaving, young leaned back and crouched noticeably when defecating. This crouching disappeared within a week. They were well able to stand firmly on a branch as the wind blew. Pierce (1931) reported that young Yellow-throated Vireos were able to "run" up a vertical tree trunk with the aid of their wings when still scarcely able to fly. As the young moved from tree to tree, they could usually be found perching in a sunny spot. Although I did not observe sunning behaviour as seen for adults, perching in the sun with feathers fluffed up was commonly seen.

## Voices

The adult male seemed to sing only very sporadically when young were just out of the nest, usually only when coming to feed a young bird. Later, as the young became more mobile, the male seemed to sing somewhat more. But, as adult and young began to move about together, it was usual to hear only a continual conversing with quiet contact calls. When all members of a family got together again for short periods, there would be much calling. The young would be chasing about after each other, as well as after adults, begging for food. The male would sing some, and both adults would be trilling and using *cheee* calls. This "commotion" could be heard at some distance, and was very noticeable after the usual quiet most of the time.

In August, the males' songs almost entirely ceased during the molt period. They sang a bit more in late August, but it gradually diminished into early September, when only an occasional song was heard. Sutton (1949) said that young Yellow-throated Vireos might begin to sing adult-like songs before they left on migration, although I did not hear this. Perhaps among earlier successful nestings this does happen. I have, however, heard young Blue-headed Vireos in early September singing adult-like song (James 1981), and so would expect it in Yellow-throated Vireos as well.

Both species are known to sing on migration, and even in wintering areas (Bent 1950). The young then

have a chance to practice their song before the next spring when, for the first time, they will become part of the nesting population. All seem to sing essentially developed song in their first spring on territory.

### Autumn Departure

Some birds remained on or near their summer territories through the first week of September, although others would be moving by that time. Most birds moved south by the middle of September. Migrants were typically alone or as singles with flocks of warblers rather than with other vireos, indicating that young and adults had separated for the migration.

### Discussion

There are not the same intricacies of behaviour associated with the latter stages of the summer. The birds largely direct their attention to finding enough food, rather than coordinating nesting efforts and courtship activities. More detailed studies, however, could no doubt provide significant details about the lives of these species. We still have only a rudimentary understanding of many aspects of the growth and development of the young, or the

extent of and modifications in behaviour that might accompany reneating. And what transpires through the winter months remains almost a total mystery.

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