

# An Apparent Hybrid Vireo at Holiday Beach, Ontario

Allen T. Chartier  
1442 West River Park Drive  
Inkster, MI 48141  
amazilia1@comcast.net

## ABSTRACT

An unusual vireo was captured 20 Sep 2003 in Essex County, ON. The possibility of it being a hybrid is discussed.

## INTRODUCTION

On 20 Sep 2003, a difficult to identify hatch-year (HY; aged based on incomplete skull ossification) vireo was captured as part of the migration monitoring program begun in 1997 at the Holiday Beach Migration Observatory (HBMO), Essex County, ON. The idea that the bird might be a hybrid crossed my mind, so photos were taken in addition to measurements (wing chord, tail length, exposed culmen, difference between p10 and primary coverts, length of middle toe minus the claw). The HBMO station banding permit did not allow specimens or feathers to be collected, so none were taken. The bird was recaptured on 21 Sep 2003 and re-measured by Cindy Cartwright (except p10 - pCovs and middle toe measurements).

## METHODS

**Description of the HBMO vireo** - The bird's apparent lack of black lateral crown stripes were consistent with Philadelphia Vireo (*Vireo philadelphicus*) but the large bill was more suggestive of Red-eyed Vireo (*Vireo olivaceus*), so these conflicts turned what is usually an easy and straightforward identification into a more thorough examination of the bird. The crown was blue-gray and initially appeared to lack black lateral crown stripes, but on closer inspection a couple of indistinct dusky feathers were found here (difficult to photograph). The supercilium was white and extended well to the rear of the eye and there was a diffuse, broad, whitish crescent below the eye. Cheeks were grayish-olive and lores and short post-ocular stripe were dusky. The throat was

washed with pale yellow that was difficult to capture well in photographs. The eye was dark brown, darker than the "Hershey brown" color I expect to see in HY Red-eyed Vireos, but matched what I typically see in Philadelphia Vireos of any age. The bill was dark gray with a small area of fleshy pink at the base of the lower mandible, and appeared unusually large for Philadelphia Vireo, which has a shorter bill giving a more "cute" appearance to the face. The back was olive-green, contrasting with the crown. Wing feathers were dusky, edged with olive; underparts were washed with pale yellow from the throat to the undertail coverts in a non-uniform pattern, with more whitish present in the middle of the breast and belly, and brightest on the undertail coverts. The tail was olive green with no edging noted. Wing chord measured 73 mm on first capture and 74 mm on recapture. The tenth primary was shorter than primary coverts by 4 mm and was measured only on first capture. Tail measured 51 mm on first encounter and 50 mm on recapture. Exposed culmen was measured with a digital caliper that was on hand, as hummingbirds are banded at this site. Culmen measured 11.32 mm on first encounter and 10.96 mm on recapture. Length of the middle toe without claw is longer than exposed culmen in Philadelphia Vireo (Pyle 1997). Our only attempt to take this measurement, difficult on a live bird, was upon original encounter and was 9.8 mm. The HBMO vireo had a fat score of 2 (0-3 scale) and weighed 15.1 g.

A comparison of the measurements and plumage characters shown by the HBMO vireo against typical Red-eyed, Philadelphia, and Yellow-green vireos (*Vireo flavoviridis*; based on Pyle 1997, Sibley 2000), along with the purported hybrid specimen from Quebec is presented in Table 1. Note that little description of the plumage of the Quebec hybrid specimen exists other than a statement that the bird "agrees well with Baird, Brewer and Ridgway's description of the species except in size, it being considerably smaller than the measurements there given" (Merriam 1883). As it was prepared as an alcohol specimen, plumage colors are no longer reliable for evaluation.

**Table 1. Bold text indicates some consistency with the HBMO vireo. Characters for vireo species after Pyle (1997) and Sibley (2000). Measurements and colors of USNM 109920 from Merriam (1883); James Dean (pers. comm.) provided second measurements.**

Character	Red-eyed Vireo	Philadelphia Vireo	Yellow-green Vireo	USNM 109920	HBMO Vireo
Crown color	<b>Grayish</b>	<b>Grayish olive</b>	<b>Grayish</b>	-	<b>Grayish</b>
Lateral crown stripes	<b>Bold, black</b>	<b>Absent</b>	<b>Indistinct or absent</b>	-	<b>Very faint</b>
Post-ocular eye line	Blackish, distinct	<b>Dusky, indistinct</b>	<b>Indistinct</b>	-	<b>Dusky, indistinct</b>
Lores	<b>Dusky</b>	<b>Dusky</b>	<b>Dusky</b>	-	<b>Dusky</b>
Cheeks	<b>Olive</b>	<b>Grayish olive</b>	Yellowish-olive	-	<b>Grayish and olive</b>
Head shape	Flat-crowned	<b>Rounded</b>	Flat-crowned	-	<b>Somewhat rounded</b>
Bill color	<b>Grayish</b>	<b>Grayish</b>	Pale dusky	-	<b>Grayish</b>
Back color	<b>Olive</b>	<b>Olive</b>	Yellowish-olive	-	<b>Olive</b>
Juvenile eye color	Brown	<b>Dark Brown</b>	Brown	-	<b>Dark brown</b>
Throat color	White	<b>Usually yellow</b>	Whitish	-	<b>Pale yellow</b>
Breast color	Usually white	<b>Yellow</b>	<b>Yellow</b>	-	<b>Pale yellow</b>
Belly color	<b>Whitish</b>	Sometimes yellowish	Yellow	-	<b>Whitish</b>
Under tail coverts	<b>Yellowish</b>	<b>Yellow</b>	<b>Yellow</b>	Bright sulphur yellow	<b>Pale yellow</b>
Rectrix edging	<b>None</b>	<b>None</b>	Yellowish	-	<b>None</b>
Wing chord	<b>72 - 85 mm</b>	61 - 70 mm	<b>71 - 83 mm</b>	72, 73 mm	<b>73, 74 mm</b>
p10 - pcovs	<b>-3 to -9 mm</b>	<b>-2 to -5 mm</b>	-	Shorter than pcovs	<b>- 4 mm</b>
Tail length	<b>47 - 60 mm</b>	40 - 49 mm	<b>49 - 60 mm</b>	42, 48 mm	<b>50, 51 mm</b>
Exposed culmen	<b>11.6 - 13.6 mm</b>	9.5 - 10.5 mm	12.9 - 15.3 mm	10, 13 mm	<b>11.0, 11.3 mm</b>
Middle toe without claw	<b>&lt; culmen</b>	> culmen	-	-	<b>&lt; culmen (9.8 mm)</b>
Band size (leg dia.)	1C - 1 - 0	<b>0 - 0A</b>	1	-	<b>0</b>

Only eight of 18 characteristics of the HBMO vireo match criteria for Yellow-green Vireo and none are exclusive. While the lack of black or dusky lateral crown stripes and extensive yellow on the underparts are consistent with Yellow-green Vireo, a number of other characters clearly exclude this species as a possibility. Back color was not yellow-green enough and rectrices were not edged with yellowish. Both wing chord and tail length are at the short end for Yellow-green Vireo, and exposed culmen is entirely below the range given for the species in Pyle (1997). Finally, the bill was not pale enough for Yellow-green Vireo.

Only 15 of 20 characters were consistent with Philadelphia Vireo. The strongest of these included the apparent lack of black lateral crown stripes, dark brown eye (darker than HY Red-eyed Vireo), and more extensive yellow on the throat than is typical of even fall HY Red-eyed Vireos. Less strong matches included a short indistinct post-ocular stripe, more rounded head and noticeably thinner legs (band size 0 clearly fit better than size 1). However, wing and tail measurements were very slightly above the upper range for Philadelphia Vireo but at the low end of the range for Red-eyed Vireo. Exposed culmen was larger than the upper range for Philadelphia Vireo but at the low end for Red-eyed Vireo, and middle toe without claw was shorter than the culmen, which is inconsistent with Philadelphia Vireo.

Only 13 of 20 characters were consistent with Red-eyed Vireo. The strongest of these included a larger bill outside the range for Philadelphia Vireo, longer wing, longer tail, and middle toe minus claw measured shorter than the culmen. Only a couple of plumage characters—the longish white supercilium and the blue-gray crown—were consistent with Red-eyed Vireo. Other plumage characters were inconsistent with Red-eyed Vireo, including the extent of yellow on the underparts, particularly the throat, and the extremely indistinct (apparent lack) of black lateral crown stripes and the less distinct and short post-ocular stripe. The eye color was darker than I have experienced in HY Red-eyed Vireos and was consistent with Philadelphia Vireo in my experience.

## RESULTS

**Was this a hybrid vireo?** - Hybridization in the family Vireonidae is apparently rare. There is only one published case of hybridization between Red-eyed Vireo and Philadelphia Vireo, a specimen (USNM 109920) found dead on 13 May 1883 at Godbout, QC, by Napoleon A. Comeau. This specimen was originally identified as a Yellow-green Vireo, though it was thought to be unusually small for that species (Merriam 1883). This identification stood for many years (Godfrey 1966) until Phillips (1991) re-examined the specimen and determined that it was a hybrid between Red-eyed Vireo and Philadelphia Vireo, though no supporting details or rationale for his decision can be found in the literature.

Pyle (1997) cites Phillips (1991) as the only known record of hybridization among vireos. McCarthy (2006) listed additional vireo hybrids including a Yellow-throated Vireo (*Vireo flavifrons*) X Solitary Vireo (*V. solitarius*; USNM A20402) as well as what are now considered hybrids among the three species recognized in the "Solitary" Vireo complex (*V. solitarius*, *V. cassinii*, *V. plumbeus*). Other recent authors have either overlooked Phillips' conclusion about this unique specimen (USNM 109920), or have disregarded it (Cimprich et al. 2000, Moskoff and Robinson 1996). Holder (1996) re-examined and re-measured the specimen himself and concluded that the bird may have been a Yellow-green Vireo after all, since damage to the primaries of one wing may have contributed to the notion that the specimen was at the small end of the scale for the species. Holder (1996) further argues that recent records of South American species in New England and the Canadian Maritimes offer support that such long distance vagrancy is possible. Holder suggested that DNA analysis and examination of the skull and sternum may prove useful. As of 2004, none of this had yet been done (James Dean, pers. comm.). McCarthy (2006) supported Phillips' (1991) contention that USNM 109902 is a hybrid.

The HBMO vireo was definitely not a Yellow-green Vireo as both plumage characters and measurements exclude that species. It may have been an

aberrant Red-eyed Vireo, lacking lateral black crown stripes and with unusually dark eyes and more yellow on the throat than is typical. But, while measured characters support the identification as Red-eyed, some important plumage characters do not. It may also have been an atypical Philadelphia Vireo, larger and longer-billed than normal, but the odds of so many measurements being unusually large seems unlikely. It may have been a hybrid between a Red-eyed and Philadelphia Vireo, as it seems to possess many characters of both species and in other characters, such as wing, tail, and culmen measurements and crown pattern, seems somewhat intermediate between the two. No characters of two other possible vireo species, Blue-headed Vireo (*Vireo solitarius*) and Yellow-throated Vireo (*Vireo flavifrons*) were evident. Any influence of Warbling Vireo (*Vireo gilvus*) is problematic for plumage characters and the only measurement that might point to this species would be p10 being longer than the primary coverts, which it was not. Some of the characters are consistent with the limited data available from the Quebec hybrid vireo, though better details (and even DNA analysis) would be desired from that specimen, and from the HBMO bird as well, in order to prove that this is a hybrid. As noted, the HBMO station banding permit did not allow specimens or feathers to be collected, so DNA analysis of this bird is not possible. Wing formula may have proven helpful but was not assessed. This mystery will likely remain unsolved, but should serve as an alert to observers, and especially banders, that a hybrid vireo may be possible even though it has apparently not yet been unequivocally documented.

A total of 27 digital photographs were taken of the HBMO vireo. One was published in *North American Birds* (Anonymous 2004), and six color photographs are posted on the author's personal website at [http://www.amazilia.net/images/Birds/Vireonidae/Hybrid\\_Vireo.htm](http://www.amazilia.net/images/Birds/Vireonidae/Hybrid_Vireo.htm)

#### ACKNOWLEDGMENTS

I thank James Dean, Curator of Birds at the U.S. National Museum at the Smithsonian Institution, Washington, DC, for providing photos and re-measurements of the hybrid vireo specimen (USNM 109920). I also thank Philip C. Chu at St.

John's University, Collegeville, Minnesota, for helpful suggestions and his assistance with citations, references, and contacts. Thanks also to Janet Hinshaw for her help with reference materials at the Josselyn Van Tyne Memorial Library at the University of Michigan Museum of Zoology, Ann Arbor, MI, and to the reviewers who helped improve this manuscript prior to publication.

#### LITERATURE CITED

- Anonymous. 2004. The changing seasons, fall 2003: pictorial highlights. *North American Birds* 58:171.
- Cimprich, D.A., F.R. Moore, and M.P. Guilfoyle. 2000. Red-eyed Vireo (*Vireo olivaceus*). In *The birds of North America*, No. 527 (A. Poole & F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.
- Godfrey, W.E. 1966. The birds of Canada. National Museums of Canada, Bulletin No. 203. Biological Series No. 73. Montreal, QC.
- Holder, M. 1996. Identification and status of Yellow-green Vireo in North America: with special reference to a Canadian record. *Birders Journal* 5:78-89.
- McCarthy, E.M. 2006. Handbook of avian hybrids of the world. Oxford University Press, Oxford, UK.
- Merriam, C.H. 1883. On a bird new to northern North America. *Bulletin of the Nuttall Ornithological Club* 8:213.
- Moskoff, W. and S.K. Robinson. 1996. Philadelphia Vireo (*Vireo philadelphicus*). In *The birds of North America*, No. 214 (A. Poole & F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA; The American Ornithologists' Union, Washington, DC.
- Phillips, A.R. 1991. The known birds of North and Middle America. Part 2, Bombycillidae, Sylviidae to Sturnidae, Vireonidae. A.R. Phillips, Denver, CO.
- Pyle, P. 1997. Identification guide to North American birds: Part 1. Slate Creek Press, Bolinas, CA.
- Sibley, D.A. 2000. The Sibley guide to birds. Alfred A. Knopf, New York, NY.

