AZURES IN ONTARIO: 2017 UPDATE

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Two field seasons have passed since the taxonomy of Canadian azures was re-assessed (Schmidt and Layberry 2016), highlighting several knowledge gaps that still hinder a better understanding of what azures occur where in Ontario. This note provides a brief update on southern Ontario azures based on field work in 2016 and 2017, thanks largely to a concerted effort by keen naturalists. The following results are based on specimens kindly provided to me (deposited in the Canadian National Collection) by Mary Gartshore, Brenda Van Ryswyk, Adam Timpf and Rick Cavasin, and my own field surveys.

The northern range limits of *C. neglecta* are essentially unchanged from that portrayed in the 2016 article, although numerous additional records fill in some of the previous range gaps. Notably, recent records from Prince Edward Co. indicate that the species is widespread there, although probably at or near the eastern range edge along the Lake Ontario shore. Further searches for *C. neglecta* in eastern Ontario north of there (Leeds and Grenville Co., Lanark Co. and Ottawa) have not been successful. Further data on the flight time and physical distinction between *C. neglecta* and *C. lucia* in the area of overlap are still needed; to this end, time-series of voucher specimens from a given region are the most valuable.

Celastrina neglecta is the most common azure in the Lake Erie region, with emergence starting about the third week of May – it is the early-spring azures that still require clarification as to whether they are *C. ladon* or *C. lucia* (or possibly an early, partial brood of *C. neglecta* as discussed in the 2016 paper, but all early-spring non-*ladon* azures are here classified as *C. lucia*). All early spring (before May 15th) azure specimens from the Halton region west of Toronto have proved to be *C. lucia*. *Celastrina ladon* apparently does not occur as far north as the Halton Hills, and *C. lucia* becomes increasingly localized south of there, with a few specimens recorded from the northeast shore of Lake Erie (Erie Peat Rd., Turkey Point, Fishers Glen). Azure searches between Norfolk County and Rondeau Prov. Park from 8-11 May 2017 detected no azures at all (see Figure 1 inside back cover), despite the many *C. ladon* recorded in Norfolk Co. during this time frame. Two days of searching in Rondeau (May 9-10th) in ideal weather yielded no azures; however, there were several subsequent reports of azures from there, starting on May 20th. I interpret this to mean that both *C. ladon* and *C. lucia* are absent or very rare in that region, with an emergence of *C. neglecta* starting in late May.

The sparsity of early-spring azure records along this relatively well-sampled section of Lake Erie is surprising and difficult to explain, although lake-effect climate may be part of the cause. Contrary to the lack of both *C. lucia* and *C. ladon* along most of the western Lake Erie shoreline, there are numerous early-spring records from the Pt. Pelee – Leamington area. The recent donation of the Alan Wormington collection to the Canadian National Collection included azures from Pt. Pelee, which permitted examination of early-spring specimens: all proved to be *C. lucia*. Reports of *C. ladon* from the Leamington area (post to the "Ontario Butterflies" Google group, April 14th 2017) have so far not been substantiated by microscopic examination of voucher specimens.

Many new data points for *C. ladon* were added in 2016-2017. The Norfolk Sand Plain is probably the stronghold for this species in Canada, and aside from a few *C. lucia* records near the Lake Erie shore, all early-spring azures from this region have so far proved to be *C. ladon*. Additional recent records were from Elgin Co. and Niagara Co., as discussed in the Summary. There is a single historic record from London (not mapped in the 2016 article), still the only record for Middlesex Co. Habitat surveys of *C. ladon* sites confirm that it is fortunately not restricted to sites with Flowering Dogwood (endangered); a female *C. ladon* was observed laying eggs on Red-osier Dogwood (*Cornus sericea*) at the Harris-Floyd tract (Norfolk Co.; BCS), and this and other species of *Cornus*, and possibly also *Viburnum* (H. Pavulaan, pers. comm.) are the likely larval hosts in Ontario. *Celastrina ladon* sites surveyed by the author in 2017 indicate that it inhabits dry to mesic forest, although the larval host plants are mostly associated with moist swales or wetland edges; possibly *C. lucia* is more closely tied to cooler wetland habitats where the ranges of the two overlap, something that requires closer scrutiny. The flight period for *C. ladon* in Norfolk Co. spanned nearly a month in
2017, from April 17th to May 11th, similar to *C. lucia* elsewhere; it is not yet known if the *C. ladon* flight is slightly earlier than nearby populations of *C. lucia*, as previously alluded to (Schmidt & Layberry 2016).

Given that the larval host plants of *C. ladon* are common, and that the butterfly itself is also relatively common in a variety of wooded habitats, there is no immediate conservation concern for this species in Canada as first feared. Nevertheless, *C. ladon* is reliant on the few fragments

of remaining Carolinian forest in a small area of Canada. Furthermore, the apparent absence of *C. ladon* along the northwest shore of Lake Erie is surprising. The distribution of *C. ladon* in adjacent southern Michigan indicates that azures from the Windsor region should be surveyed for *C. ladon*, as no voucher specimens from there have been examined (see map). The region between Lake St. Clair and London should also be targeted (especially Skunk's Misery), as presence there would establish a link between Michigan and Ontario sites. Similarly, the northern and eastern limits of *C. ladon* remain poorly defined; the Grand River corridor and eastern Niagara Peninsula could be rewarding search targets. Canadian *C. ladon* currently appears as a northern disjunct population, separated from those further west and east. Whether or not this disjunction is real or an artefact of low sampling effort remains to be determined.

References:

Schmidt, B. C., & Layberry, R. A. (2016). What Azure blues occur in Canada? A re-assessment of *Celastrina* Tutt species (Lepidoptera, Lycaenidae). ZooKeys, 584: 135.

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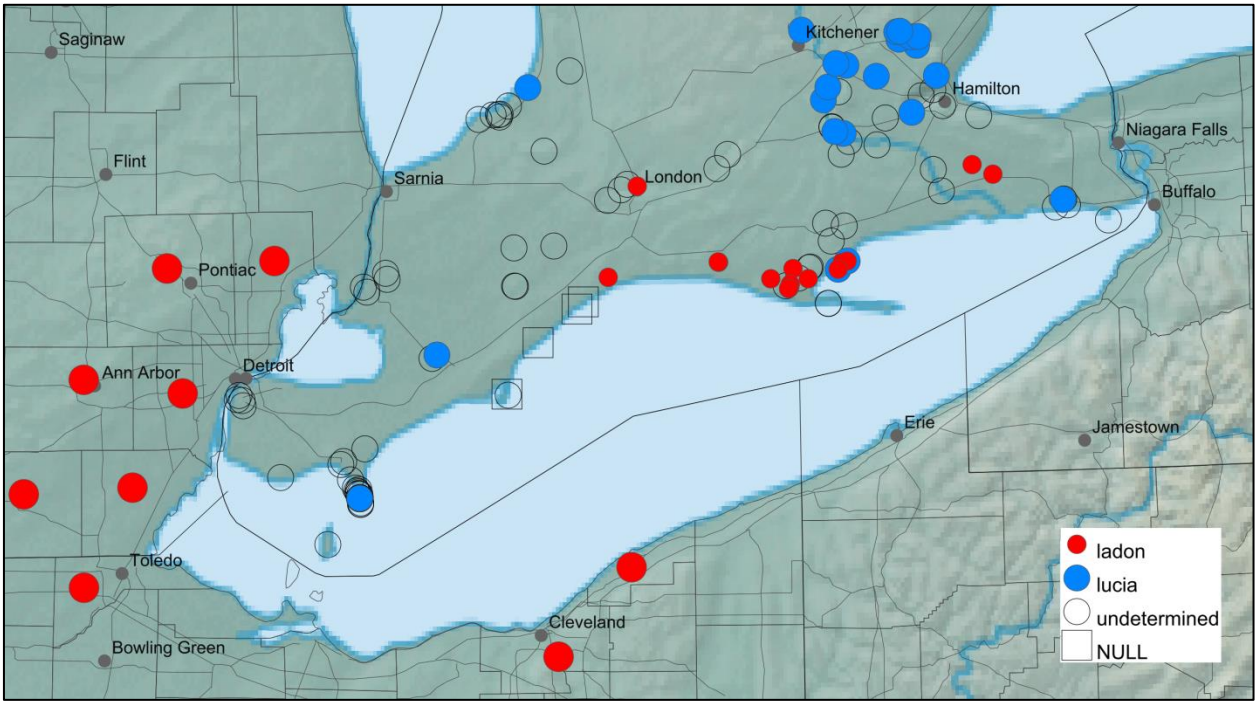

Figure 1. Current known distribution of *Celastrina ladon* (red) and *C. lucia* (blue) in southern Ontario, including *C. ladon* records for all US counties bordering southern Ontario (D. Wright, pers. comm.). "Undetermined" (open circles) constitute Ontario Butterfly Atlas records for which vouchers have not been examined, but deemed to represent either *C. ladon* or *C. lucia* (filtered to include only records south of the latitude of Kitchener, prior to May 11th). Empty squares are sites where no azures were found during searches conducted 8-11th May 2017 (BCS).