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https://doi.org/10.56222/28166531.2024.20 MICROPUBLICATIONS IN TAXONOMY AND NATURAL HISTORY

First record in Quebec for the western white, *Pontia occidentalis* (Reakirt) (Lepidoptera: Pieridae, Pierinae)

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Introduction

Four species of the pierid genus *Pontia*, commonly referred to as whites, are present in North America, mostly distributed towards the western part of the continent. With ongoing global climate change, many lepidopteran groups, including *Pontia*, are expected to shift their distribution northward or modify their migratory patterns. For instance, in certain Canadian provinces, colonies of *Pontia protodice* (Boisduval & Leconte) can persist for several years before being extinguished, but they are expected to establish permanently under a warming climate (Pohl *et al.* 2018).

Due to the isolation of northern regions and the limited availability of research specimens, the documentation of species in northern regions has been underrepresented over the past 45 years (Pohl *et al.* 2019). The current note reports the recent discovery of seven specimens of *Pontia occidentalis* (Reakirt, 1866) *sensu* Chang (1963), at the mouth of the Rupert River in Eeyou Istchee James Bay, near the village of Waskaganish, Quebec, Canada. While these records are not surprising given the current species biogeography, they represent the first record for the genus *Pontia* in the province of Quebec since 1921. These findings contribute to the baseline data, enhancing our understanding of the Lepidofauna of the northern regions.

Results and Discussion

Pontia protodice is currently the only species of *Pontia* in North America closely resembling *P. occidentalis*. *Pontia protodice* is a permanent resident in the southern United States and a temporary resident in the northern United States and southern Canada (Opler & Wright 1999). In Canada, the species currently ranges from British Colombia to Ontario, with only one record in Quebec dating back to 1921 in Montreal, and one other record in Newfoundland and Labrador in 2001 (GBIF.org 2024). The color and patterns of *P. protodice* and *P. occidentalis* are commonly indistinguishable (Chang 1963). According to Chang (1963), the two primary criteria for distinguishing the two species are the width of the tornus dot and the location of the R2 veins in relation to the M2 veins. In *P. protodice* males, the dot in the tornus area near the inner margin of the underside of the forewings is often large, square shaped and not clearly outlined, with part of the dot sometimes submerged on the upper sides. In *P. occidentalis* males, the dot is often small, clearly outlined and not submerged. Regarding the venation, in *P. protodice*, the intersection between R2 and Rs + M1 ("A" on Fig. 2) is usually above point "B", where M2 joins the vein. In *P. occidentalis,* point "A" is usually on or before point "B" (Fig. 3).

The distribution of *P. occidentalis* ranges from Alaska to Ontario (Hall *et al.* 2014; Pohl *et al.* 2018) and the species is also commonly found in the western United States (GBIF.org 2024). Its larval hosts are similar to those of *P. protodice*, feeding mostly on Brassicaceae (Robinson *et al.* 2023). Contrary to *P. protodice*, *P. occidentalis* is considered a non-migrant species. This suggests that the specimens sampled in Eeyou Istchee James Bay may not necessarily originate from a recent colonization, as the species is considered common at Netitishi Point in Ontario, which is approximately 100 km in a straight line from the Quebec sampling site (GBIF.org 2024). The species has probably been long-established in the region. The recent discovery of specimens as a first record of the species in the province of Quebec is likely due to the scarce surveying of the butterfly communities of the region in late summer. These findings highlight the necessity for a more comprehensive assessment of northern lepidopteran communities.

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Material

https://data.canadensys.net/micropublications/resource?r=specimen_20

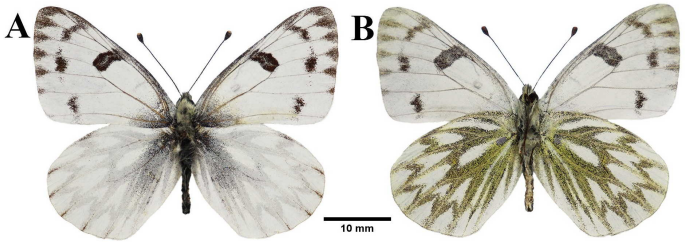

Fig. 1. (A) Dorsal and (B) ventral view of a male *Pontia occidentalis* sampled in Eeyou Itschee James Bay, Quebec, specimen KRC-PPO-003.

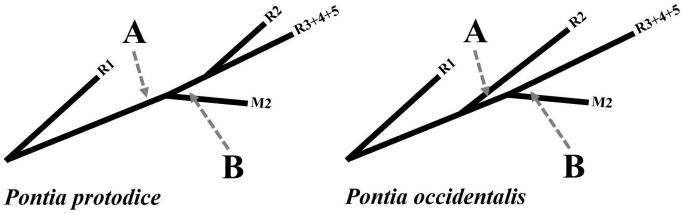

Fig. 2. Illustration of differences in dorsal anterior wing venation between *Pontia protodice* and *Pontia occidentalis* adapted from Chang (1963). In *P. protodice*, intersection between R2 and Rs + M1 (A) is usually above (B) where M2 joins the vein. In *P. occidentalis*, (A) is usually on or before (B).

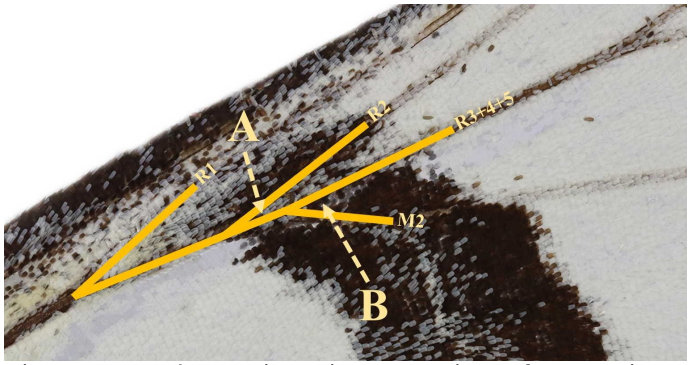

Fig. 3. Dorsal anterior wing venation of a *Pontia occidentalis* male, specimen KRC-PPO-003, as illustrated in Fig. 2.