

Discussion

This qualitative analysis of butterfly presence/absence data in combination with discussions with local experts has allowed for a preliminary assessment of how butterfly communities have changed over the past 80 years in the Region of Waterloo. There are evident changes in the abundance of several species. Most of these changes have been recorded as overall declines in species presence but in a few cases increases in observations have been documented (Eberlie 1999; C. Campbell pers. comm. 2010; L. Lamb pers. comm. 2010). The methods used to assign a regional status to butterflies resulted in the identification of 47 uncommon or rare species. This is comparable to the identification of uncommon or rare species in the nearby Regions of Hamilton (43 species) and Halton (38 species) (Wormington and Lamond 2003; Wormington 2006). For the 23 species identified as rare permanent residents in Table 3, additional field work is required to check historic sites and potentially new sites containing suitable habitat.

The following sections provide a qualitative summary of the records collected on a species by species basis in order to identify general trends as well as changes observed in individual populations of species or specific groups. This section has been organized by family and in some cases subfamily and is followed by a summary of general trends.

Pieridae

The family Pieridae includes butterflies commonly referred to as the ‘whites’ and ‘sulphurs’. Nine species in the family Pieridae have been recorded in the Region belonging to two subfamilies.

a) Whites (Subfamily Pierinae)

The Cabbage White (*Pieris rapae*) is the most commonly observed species of butterfly in the Region of Waterloo, as it is in most localities across Canada. An exotic species in North America, it was introduced in Quebec City in the 1860s and has spread throughout North America using a variety of plants in the mustard family (Brassicaceae) as larval foodplants (Capinera 2000; Hall 2009; Walton 2010).

Following the introduction of *P. rapae* in North America the Mustard White (*P. oleracea*) drastically decreased in abundance, a pattern that some researchers attribute to intense competition for habitat (Scudder 1989; Longstaff 1912; Klots 1951). *P. oleracea* was commonly observed in the Region until the early 1950s (F. Stricker pers. comm. 2009). By the early 1960s it was a rarity and it has not been recorded in the Region since 1986. Some studies have suggested that despite the potential for intense interspecific competition among these two species, there is no evidence of ecological displacement, so the decline of *P. oleracea* is perhaps better attributed to land use changes and the limited extent of preferred larval foodplants such as Rock Cress (*Arabis* spp.) and Toothwort (*Cardamine diphylla*) (Chew 1981; Keeler et al. 2006). Area searches in localities where *P. oleracea* was historically present did not result in any new observations of this species although Toothwort was observed within Schaeffer’s Woods and Homer Watson Park. Because this species has not been observed in the Region of Waterloo in 24 years, it was assigned a status of ‘possibly extirpated.’ Additional field work is required in order to confirm its absence from the Region.

The Checkered White (*Pontia protodice*) is widespread throughout the southern United States with colonies extending into Canada sporadically (Layberry et al. 1998). It is considered a