

1947 (----) **Engrailed *Ectropis bistortata* (Goeze, 1781)**

Common

1948 (7796) **Small Engrailed *Ectropis crepuscularia* ([Denis & Schiffermüller], 1775)**

Common

### History and status

No diagnostic external or morphological characters have been determined (between the adults or early stages) which can reliably separate these two taxa, and there is a considerable weight of opinion that they are not distinct species. Therefore the genitalia are not shown here. Currently, the British convention is that two species exist. Consequently, when recording, individuals and populations that appear to conform to the characteristics of *crepuscularia* should continue to be recorded as such. County and national recorders are well aware of the uncertainty that exists.

The main basis for the distinction is the occurrence of moths different in appearance from *bistortata* in May and June, between the generations of *bistortata*. Northern univoltine populations are generally regarded as *bistortata*, and are different in appearance to their southern counterparts, being more strongly banded. In *crepuscularia*, the ground colour is stated to be whiter and the cross-lines edged with yellow, never ochreous or brown (Skinner, 2009). Skinner also states that *crepuscularia* is nearly always univoltine, even in captivity, whereas *bistortata* produces two or three generations in a year, even in the wild. Moths conforming to *crepuscularia* as described above certainly occur, but whether they represent an extended first brood of a single taxon or a separate one is at present unclear, and they can also occur as early as March. Statements on abundance and distribution of *Ectropis* should obviously be treated with caution, but according to Waring *et al.* (2009), these univoltine moths occur widely but locally in Britain.

In continental Europe only one species is recognised, known as *crepuscularia* (see Karsholt and Razowski, 1996). According to Skou (1986) they “can hardly, on the European continent, be regarded as two separate species, due to the lack of definite distinguishing features in terms of appearance or genitalia. Their flight periods do not reveal any unambiguous differences and neither the appearance of the larvae or the choice of host plants are determining factors of difference. The correct name for the species is therefore *crepuscularia*...”. Skou illustrates eight specimens exhibiting a range of variation comparable with that of British and Irish *bistortata* and *crepuscularia*. Many are of the opinion that this scenario applies equally in Britain and Ireland.

Of course, this does not preclude the possibility of an endemic taxon in Britain, where the existence of two species has long been claimed. However, opinion has always been divided, as indicated by South (1907), who also suggests that *crepuscularia* could be the older stock from which *bistortata* has arisen, an interesting theory. He also regards the univoltine Scottish populations as *crepuscularia*, whereas current thinking is that these are *bistortata*, a theory reinforced by a partial second generation being recorded in Aberdeenshire in recent years (Palmer and Gould, 2003).

It could be argued that the existence of individuals with a different appearance, tendency to emerge slightly later in the year and inability to produce more than one generation merely constitute intra-specific variation in response to environmental variables, rather than a distinct taxon. Sub-specific or race status does not apply since the two are sympatric over a wide area. The situation has clearly evolved over a very long period of time. On the face of it, it is difficult to see the evolutionary advantage of producing one generation per year over the same geographical area as your sibling taxon, as opposed to several. South’s supposition that *crepuscularia* is the parent stock therefore seems not unreasonable. However, if the British and Irish ‘taxa’ resulted from different colonisation events by the same species, but under different climatic conditions, that also might give rise to the degree of phenotypic variation we see today.

On the other hand, there are other examples of species between which consistent genitalia differences cannot be found, but there are other biological reasons to regard them as separate species. In the case of *Ectropis*, a large number of highly competent observers over a period of more than one hundred years have detected a pattern suggesting that two taxa exist, and this is hard to ignore. It is hoped that genetic analysis will unravel the problem. If the answer is that ‘Small Engrailed’ is a distinct species, identification will be no simple matter until such time as entomological suppliers are able to sell DNA analysis kits!