

Identifying macro-moths with micro-features

Paul J. Palmer

December 26, 2020

Abstract

This article explores the use of external microscopic features to support the identification (ID) of macro-lepidoptera. The usual process of identifying macro-moths often focusses on the wings, which are often large and distinctively patterned. Matching an unknown specimen to reference pictures is often the identification method employed given the lack of systematic keys for Lepidoptera in general and coupled with experience, can give good results. The article uses a problematic identification as an example of how microscopic features may be used to narrow the field of candidate taxa to arrive at a specific taxon.

A Difficult Specimen to ID

The specimen in question was taken at sugar 2020-08-16 on the Rutland Water Nature Reserve. It would have been recorded as a very worn example of *Hypena proboscidalis* (The Snout) if it had not briefly raised its wings in a posture uncharacteristic for this species, placing an element of doubt in this presumption. As can be seen in Figure 1, the specimen lacks long, forward pointing palps that give the Snout its vernacular name, but its wings have the same slightly hooked shape (See Figure 2), and similar median fascia. It would be easy to presume that the palps have been broken in what appears to be a worn specimen, but examination under magnification (Figure fig:20201112-1) reveals that the palps are short and undamaged, which effectively eliminates *Hypena proboscidalis* as a candidate taxon for the specimen.

Finding an ID

Dissection is always considered the definitive identification method, but a lack of keys means that other features must be used to reduce the pool of candidate species to a family and possibly genus otherwise we are back to matching pictures of dissections. The matrix key published by Dombroskie [2011] is intended for Canadian Lepidoptera, but can be used to provide an indicative guide to UK families too. Importantly, it is a useful indication of features that can be used to find the likely family of a specimen.



Figure 1: Unknown specimen resembling *Hypena proboscidalis*.



Figure 2: *Hypena proboscidalis*.

In this case, an examination of the head under magnification can help provide clues. The lack of oceli (simple eyes), coiled unscaled proboscis, and forward facing palps are suggestive of *Geometridae*. The forewing length of 16.7 mm and the flight time of August are useful for eliminating many possible UK taxa.

References

- Jason Dombroskie. A Matrix Key to Families, Subfamilies and Tribes of Lepidoptera of Canada. *Canadian Journal of Arthropod Identification*, (17), 2011. ISSN 1911-2173. doi: 10.3752/cjai.2011.17. URL https://cjai.biologicalsurvey.ca/d_17/d_17_download.html.



Figure 3: Short undamaged palps eliminate *Hypena proboscidalis* as a candidate taxon.