

1768 (8356) Grey Pine Carpet *Thera obeliscata* (Hübner, 1787)
 1769 (8358) Spruce Carpet *Thera britannica* (Turner, 1925)

Common
 Common

Diagnostic external characters

As described by Waring *et al.* (2009), *obeliscata* is very variable in forewing colour from light sandy brown, rusty brown, or light to dark grey-brown, whereas *britannica* is grey-brown and generally more extensively marked with whitish on the forewing, especially along the cross-lines. The pale scalloped sub-terminal line is generally stronger in *britannica* and often weak or absent in *obeliscata* (Skou, 1986), and in *britannica* the median band tends to be more fluted than in *obeliscata*.

There is considerable variation and sole reliance on any one external character as an identification criterion is not advisable. Some *britannica* are darker with the white edging and variegation reduced, and may be brownish, especially the median band. Conversely, some *obeliscata* are more greyish and quite extensively marked with white on the forewing, with a more fluted median band and relatively strong sub-terminal line. In some areas, very dark (in some cases blackish) moths occur, completely lacking the brownish tint of *obeliscata* and yet without the other characteristics of *britannica*. Interestingly, these always seem to be females, and it would be a worthwhile exercise to breed from them to confirm their identity.

There are no consistent differences in the genitalia (of either sex) between the two species. However, where wing markings and coloration are ambiguous, males can be separated by microscopic examination of the antennae. If verification of females is required, eggs should be obtained, the larvae reared and the male offspring determined.

A third species, *Thera variata* ([Denis & Schiffermuller], 1775) occurs in mainland Europe and is very similar to *britannica*, so much so that *britannica* was originally thought to be a sub-species of it, as described by South (1961). However, the antenna of the male is more like that of *obeliscata* (Skou, 1986). The relationship between *variata*, *britannica* and *obeliscata* would appear to be very close, and DNA analysis may provide a better understanding of it.

Diagnostic morphological characters

Differences in the antennae of the males should be viewed with a good quality binocular microscope and in good light. The ventral surface is covered in cilia, whereas the dorsal surface possesses scales, and it may be necessary to view the antenna at different angles in order to fully appreciate the shape of the segments. This is especially likely on set specimens on which the antennae may have become twisted. One way to achieve this (if a headless pin has been used) is to mount the moth upside down on a small piece of plastazote, which can then be manipulated using forceps to change the viewing angle. The differences are easiest to see in the medial region of the antenna. It is advisable to examine confirmed specimens of both species before determining any doubtful individuals.

Antenna simple. When viewed ventrally or latero-ventrally, each segment sub-rectangular or slightly narrowed at it's base, with rounded 'shoulder' at it's distal end (Fig. 19).....*obeliscata*

Antenna shortly serrate. When viewed ventrally or latero-ventrally, each segment broader at distal end with sharp, protruding 'shoulder' (Fig. 20).....*britannica*



19. *Thera obeliscata*



20. *Thera britannica*



21. *Xanthorhoe spadicearia*