Further notes on the flea weevil *Pseudorchestes pratensis* (Germar, 1821) on Windmill Hill.

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Last year I found a small flea weevil *Pseudorchestes pratensis* on Worcestershire Wildlife Trust's Windmill Hill nature reserve, near Offenham in south- east Worcestershire (Wadsworth 2022). Reading up about the species' life history I discovered that the larvae mine leaves of knapweeds *Centaurea* sp. so I resolved to try and find the mines in the following season.

01. *Pseudorchestes pratensis* leaf-mines on knapweed, Windmill Hill 23.06.23. Oliver Wadsworth.

The mines are shown on the website Plant Parasites of Europe and appear reasonably distinctive, developing into large blotches blackened with dense frass in the centre (01). I figured they should be relatively easy to spot if present and in the field this turned out to be the case. During two visits to Windmill Hill, in June and July, I found mines reasonably easily but they were not all that common. I retained three or four leaves on each occasion to attempt to rear the adult insect.

Opening a mine with the intent of photographing a larva, I found a very un-weevil like maggot; a parasitoid apparently freshly emerged from the remaining husk of its host. I inspected other mines and found more evidence of the parasitoid as either freshly emerged larvae or pupae (02).

02. Pupa and host larval remains. Windmill Hill. Oliver Wadsworth.

In time, they produced tiny Chalcid wasps (03, 04). In two leaf-mines, weevil like larvae were visible in back lit, intact mines. Within a day or two these also proved to be parasitised. I know next to nothing about wasps but having a number of specimens to work with of both sexes, I thought I would have a go at naming it using the available key (Askew 1968). The Key was reasonably positive getting to the genus *Pnigalio* and eventually sent me in the neighbourhood of *P. agraules*. My confidence in interpreting the features in the key was getting rather low by this point however and I would not consider my determination very solid! A little more digging on the web turned up a paper on *P. agraules* suggesting that many species in the genus were now considered to be too variable to identify on their morphology alone. *Pnigalio sp*. is probably as close as I can go with any certainty.

Although no adult weevils were bred from the material collected, comparisons with published information on the mines gives me high confidence that they do originate from *P. pratensis*. I am not aware of any species that might produce similar mines on the food plant. Maybe next season I can find a viable specimen to breed through. I collected seven mined leaves in total and all were parasitised. Not a good rate of success for the weevil, but as I did manage to find another adult weevil during my searches at the site, some must survive.

03. *Pnigalio sp* Windmill Hill, July 2023. Oliver Wadsworth.

04. *Pnigalio sp*. from mine of *Pseudorchestes pratensis.* Windmill Hill, July 2023. Oliver Wadsworth.

Looking for other sites in the county where the weevil might be found, I tried Bredon Hill, above Westmancote, but was unsuccessful there. Penny Hill at Martley must be another candidate and will be one to check next year.

References

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Images

01. *Pseudorchestes pratensis* leaf-mines on knapweed, Windmill Hill 23.06.23. Oliver Wadsworth.
02. Pupa and host larval remains. Windmill Hill. Oliver Wadsworth.
03. *Pnigalio sp* Windmill Hill, July 2023. Oliver Wadsworth.
04. *Pnigalio sp*. from mine of *Pseudorchestes pratensis.* Windmill Hill, July 2023. Oliver Wadsworth