The Larvae of Biting Midges found in Ribbesford Wood

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Larvae of Forcipomyia costata from Ribbesford Woods,28 March 2015 Bob Kemp

The larvae shown in this photograph by Bob Kemp were found under loose bark on a rotting fallen branch in Ribbesford Wood in March 2015. This is a typical habitat for some of the larvae of *Forcipomyia*, a genus of biting midges in the family Ceratopogonidae.

The larvae of the biting midges are generally aquatic or inhabitants of water-saturated environments such as waterside mud, damp soil or damp moss. These *Forcipomyia* larvae have found such a water-saturated environment beneath the loose bark on sodden rotting wood where they feed in swarms on the coating of fungus-rich gruel. *Forcipomyia* larvae have a pair of stumpy prolegs just behind the head and another pair at the end of the body, rather like the water-midges (Chironomidae) but unlike most of the other ceratopogonids whose larvae are usually legless and wormy. The body hairs of *Forcipomyia* have hygroscopic tips which absorb water from the surrounding air. If the air is saturated globules of water may form on the tips of the hairs, making the little maggot appear as if it were studded with bright tiny pearls. The liquid flows down the hair and onto the cuticle, keeping it soft, flexible and permeable (Smith, 1989). This is important as they have no open spiracles and gas exchange must occur through the cuticle. It has been alternatively suggested that the droplets are a sticky secretion from the ends of the hairs which protect the larvae from ants. (Marshall, 2012)

The larvae in the photograph are in the process of pupation. Most have already done so; as you can see by the shortness of the body, the darker yellow swollen front end of the pupa and the shed and shrivelled larval skin lying in a trail behind. Those which have not yet pupated are preparing to do so as may be seen by the swollen segments just behind the head.

The fragment of wood and bark was taken home in a lunchbox and placed in a BugDorm emergence trap. The plastic "flower pot" at the bottom of the trap holds the specimen and a bed of sodden paper helps to maintain the humidity. Emerging flies make their way through the the conical funnel into the upper chamber where they are trapped and eventually drown in the ring-moat of water or water and antifreeze surrounding the central nozzle. In this case the trap was first placed in the greenhouse, but this was probably too warm and bright even in March and after two days it was transferred to the cool gloom of the garage. The midges emerged in about ten days.

Ceratopogonid midges are best identified by the copulatory structures at the end of the abdomen of the male. These are cut off and mounted on a microscope slide for examination. The females are much more difficult to identify. In this case the emergent midges were fortunately male and proved to be *Forcipomyia costata*, a typical inhabitant of the rotting bark environment. I am grateful to Patrycja Dominiak of Gdansk University for checking my identification.

Some of the far eastern *Forcipomyia* bite humans, but the UK species have no such bad habits. In some cases

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BugDorm emergence trap Mick Blythe

the females may not feed; in others they are thought to suck the blood of other insects or spiders. There are 28 species of *Forcipomyia* in Britain and many, if not most, may well have preferred feeding sources, but of this little is known. The males do not feed or restrict themselves to nectar or honeydew.


Forcipomyia costata Mick Blythe


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References

Boorman, J. Unpublished notes.

Marshall, S. A. (2012) Flies, the natural history and diversity of Diptera. Firefly Books.

Remm, H. (1962a) [A survey of the species of the genus Forcipomyia Meigen (Diptera, Heleidae) from Estonia]. Eesti NSV Teadusta Akadeemia Juures Asuva Loodusuurijatte Seltsi Aastaraamat 54: 165-195 (in Russian, summary in Estonian, English translation of the key.)

Smith, K. G. V. (1989) An Introduction to the immature Stages of British Flies. Handbooks for the Identification of British Insects 10 (14); Royal entomological Society of London.

Szadziewski, R. (1986) Redescription and notes on some Ceratopogonidae (Diptera). Polski Pismo Entomologiczne 56: 3-103.


Forcipomyia costata male genitalia Mick Blythe