Oestridae Study Group

Newsletter 1 **Spring 2010**

Welcome to a somewhat belated first newsletter of the Oestridae Study Group. The establishment of such a group should facilitate dissemination of information, either via publication in future newsletters, or through contact with those stating an interest in the study group.

The study group embraces the traditional *sensu lato* concept of Oestridae, and therefore covers all species placed in Oestridae in the most recently-published British list (Chandler, 1998). The taxonomic position of these species within a single family has not met with general agreement by authors for many decades; hence, many publications attribute only certain species to Oestridae; whilst placing the remainder in other families. Usually this concept is achieved by raising subfamilies to family rank, e.g. Hypodermatinae to Hypodermatidae; but occasionally the concept of splitting Oestridae *sensu lato* has been achieved by transferring genera to existing families, e.g. in van Emden (1954), *Hypoderma* and *Oestrus* were placed in tribe Oestrini within Tachinidae, and *Pharyngomyia* and *Cephenomyia* [Agassiz emendation = *Cephenemyia* Latreille] were placed in subfamily Calliphorinae within Calliphoridae.

Oestridae larvae are internal parasites affecting various animals, and most oestrid species are host-specific to a single type of animal, or to a group of closely-related animals. In the natural world, Oestridae have relatively few enemies, but improved animal husbandry, via the use of noxious chemicals, has drastically reduced their occurrence in domesticated animals throughout many countries. Even before the local and national extinctions caused by widespread use of such chemicals, it is probable that most British and Irish Oestridae species occurred only sporadically and infrequently. Certainly, they have always been rarely-found by entomologists.

The optimistic British entomologist should recognise that, at best, they will only encounter Oestridae in the field on rare occasions. So, in order to avoid losing interest through consistently failing to encounter Oestridae in the field, the enthusiast should regard looking for evidence of Oestridae as a secondary issue to other work, but remain alert to the possible presence of Oestridae.

Oestridae In The Literature

There is no single publication which deals solely with either British and/or Irish Oestridae; however, there are many publications which feature notes and illustrations of species recorded from Britain and Ireland. A lengthy bibliography would be necessary if all such publications were mentioned in this newsletter; and indeed, many books of general entomological interest contain a few illustrations and basic notes. Veterinary books are also of partial relevance, for they invariably feature the Oestridae species whose larvae are injurious to domesticated animals; moreover, some veterinary books contain identification keys to species level and supplementary notes on individual species, e.g. Wall & Shearer (1997). Smith (1931) is another book that is certainly worthy of consultation, but if I was required to recommend a single book to the Oestridae enthusiast, it would definitely be Zumpt (1965), which remains an inspirational, fascinating and magnificent work.

Oestridae on the Internet

Anyone with even a slight interest in Oestridae should peruse the plethora of information accessible via the Internet. This includes many photographs including some which are superb. In addition to photographs of museum specimens, there are many of living insects and larvae, and of larvae within dissected animals, and emerging from 'warbles'. To human eyes, this remains gruesome of course, but is nevertheless a part of the natural world, and such images are educational.

An easy way to access photographs of Oestridae on the Internet is to command a search for a genus, combined with words such as 'images', 'photographs' or 'pictures', e.g. '*Gasterophilus* images'. This seems to have the desired effect of instantly accessing what is available. Fruitful searches for images can also be made for genera such as *Cephenemyia*, *Cuterebra*, *Dermatobia*, *Hypoderma* and *Oestrus*. As might be expected, there are some identification errors, e.g. one '*Cephenemyia*' at rest on a leaf is actually a female *Merodon equestris* (Fabricius) [Syrphidae].

Some Notes On British Horse Bot-Flies (*Gasterophilus*)

Over recent decades, horse bot-flies must have suffered catastrophic declines in Britain due to the widespread and fairly standard practice of 'worming' horses, i.e. treatment via the ingesting of chemicals which are sufficiently noxious to destroy any infestation of *Gasterophilus*. However, it is quite probable that all four *Gasterophilus* species on the British list are still extant in Britain. *Gasterophilus intestinalis* (De Geer) remains widely-distributed, at least in England and Wales, but other *Gasterophilus* species are probably currently very rare in Britain and in some danger of national extinction. The desires of animal husbandry aspire to total eradication of injurious species such as *Gasterophilus*, but this could only be likely achieved in Britain if all potential host-animals were 'wormed' over a time-period sufficient to entirely eradicate *Gasterophilus*. This scenario is very unlikely to be achieved as it would require full and consistent co-operation from all horse-owners.

A practical way for the entomologist to obtain material of *Gasterophilus*, is to examine fresh horse-dung during the late Spring and early Summer period for the possible occurrence of *Gasterophilus* larvae which have recently exited their host. A brief investigation of dung can be completed easily and hygienically by using a suitable twig or stick to break dung apart. Live *Gasterophilus* larvae obtained from horse-dung are fully-developed, and can be allowed to pupariate in a suitable container; whence adult flies should emerge after only a few weeks. There is obviously more chance of finding *Gasterophilus* larvae in fresh dung deposited by horses which have probably not been 'wormed', e.g. semi-wild ponies, or gypsy horses.

Entomologists have mainly noted adult *Gasterophilus* activity either around horses, or on hill-tops. When in the general vicinity of horses, and particularly semi-wild animals, the oestrid enthusiast should consider it a worthwhile activity to investigate any areas of raised ground, and particularly any rocky prominences on, or close to the summit of, hills; as it will be here that adult male *Gasterophilus* are most likely to be encountered. Females are most often noticed ovipositing on their equine hosts, and are difficult to capture in this situation due to horses possessing an aversion to any movement of nets in their immediate vicinity.

Gasterophilus intestinalis was traditionally by far the most common and widespread horse bot-fly in Britain. In this species, the females attach yellowish-white eggs to the legs and torsos of their host; therefore the eggs are particularly conspicuous on dark-bodied horses, and their area of attachment on British animals is acceptably diagnostic of *G. intestinalis*.

Smith (1931), stated that female *G. haemorrhoidalis* (Linnaeus) deposit brownish-black eggs on hairs surrounding the lips of a horse, especially the lower lip; whereas, female *G. nasalis* (Linnaeus) deposit yellowish-white eggs on the hairs beneath the jaws and occasionally on the shoulders of the equine host.

According to most authors, *Gasterophilus pecorum* (Fabricius) females do not attach their brownish-black eggs directly to equines, but instead deposit them in batches on pasture vegetation, whence they wait hopefully for ingestion by a suitable host-animal. *G. pecorum* infestation of equines is best suited, hence most likely to occur, in areas that are continuously grazed by many equines. Material in The Natural History Museum in London proves *G. pecorum* occurred in the New Forest in Hampshire throughout most of the last century.

Adults of *G. intestinalis* and *G. pecorum* have partly or wholly infuscated wings, and are on average noticeably larger than adults of *G. haemorrhoidalis* and *G. nasalis*, which both have hyaline wings.

Extinction in Britain of the Ox Warble-Flies *Hypoderma bovis* (Linnaeus) and *H. lineatum* (De Villers)

The ox warble-flies *Hypoderma bovis* (Linnaeus) and *H. lineatum* (De Villers) must now be considered to be extinct in Britain. Looking for them in any life-stage is therefore a futile exercise. Prior to 1978, both species were undoubtedly widespread in Britain, and warble-fly infestation of cattle was generally considered to be commonplace. In 1978, however, an eradication programme was initiated under the auspices of MAFF, and backed by government legislation. This co-ordinated eradication effort meant that both *Hypoderma bovis* and *H. lineatum* were driven to national extinction in little over a decade. They have likewise been eradicated from much of Europe.

A National Database

Several years ago, I began collating data from specimens held in collections, with a view to establishing an electronic database covering Oestridae *sensu lato* for both Britain and Ireland. The database is established and growing steadily, but is very incomplete in consideration of what should be achieved eventually. Recently, Mick Parker and Mike Bloxham have submitted data from specimens held in their private collections. I am very grateful for these submissions, and would urge other readers of this newsletter to also submit data from any material they either hold or have access to.

Specimens in collections

To date, I have examined Oestridae material held in a fair number of collections, including the two museums listed below. I am grateful to Paul Richards for facilitating access to the collections in Sheffield, and to Adrian Plant for facilitating access to the collections in Cardiff.

Sheffield Museum Stores, Acres Hill, Sheffield

The museum contains 2 adults in storeboxes of British dry material.

Material Without Locality Data

Gasterophilus intestinalis (De Geer): 1 ♂ in storebox no. 17.

Material With Locality Data

Gasterophilus intestinalis (De Geer)

England: Derbyshire (vc 57) or Staffordshire (vc 39): storebox 11 contains a ♀, ovipositing on horse, Flash near Buxton, Derbyshire, 1983, leg. M. E. Shirt, det. A. N. R. Godfrey. N.B. Flash sensu stricto is in Watsonian Staffordshire.

National Museum of Wales, Cardiff

The British material consists of 44 adults and 3 empty puparia. The material is dry, and contained in one drawer. Years of capture range from 1904 to 2001. [BU] = ex coll. Bangor University; [CGN] = ex coll. C. G. Nurse; [PM] = ex coll. Dr. P. Mason, accessioned in 1914.

Material Without Locality Data

Oestrus ovis Linnaeus: 15 specimens and 2 empty puparia; 12♀♀, [PM]; 1♀, leg. D. Taylor, 1982, [BU]; 1♀ & 1♂, bred ex larvae, mid July 1978, leg. R. Dunstan, [BU]; 2 empty puparia [BU]. ***Gasterophilus haemorrhoidalis*** (Linnaeus): 1♀. ***G. intestinalis*** (De Geer): 1♀ [PM]. ***Hypoderma lineatum*** (De Villers): 4 specimens; 2 [PM]; 1 det. A. Grayson: formerly placed under *H. bovis* (Linnaeus).

Material With Locality Data

Cephenemyia auribarbis (Meigen)

Scotland: Forfar (vc 90): 1♂, Glen Doll Forest, Angus, 7.7.1977, leg. M. J. Morgan, det. J. P. Dear, [BU].

Gasterophilus haemorrhoidalis (Linnaeus)

England: Dorset (vc9) or South Hampshire (vc11): 1♀, Bournemouth, 1904.

Gasterophilus intestinalis (De Geer)

England: North Essex (vc 19): 4♂♂ & 4♀♀, Frinton, 8.1919,

leg. C. G. Nurse, [CGN]. West Suffolk (vc 26): 1♀, Timworth, 29.7.1911, C. G. Nurse, [CGN]; 1♀, Timworth, 14.7.1912, C. G. Nurse, [CGN]. West Gloucestershire (vc 34): 1♀, Mitcheldean.

Wales: Monmouthshire (vc 35): 1♀, Trelleck, worrying horses, 12.9.2000, leg. J. Leach. Merionethshire (vc 48): 2♀♀, Maentwrog, 16.7.1976, leg. P. N. Crow, [BU]; 1♀, Tan-y-Bwlch, 6.7.1977, leg. P. N. Crow, [BU]. Caernarvonshire (vc 49): 1♂, Bardsey Island, mountain ridge, 5-13, 8.1985, leg. J. C. Deeming, det. J. C. Deeming 1985; 1♀, Eithinog, Bangor, 18.8.1982, leg. S. Ducker, [BU]; 1♂, swarming at summit of Moel Wnion, 30.8.1962 [possibly corrected to 1961], M.J. Morgan, [BU]: 1♀, Pont Llyfni, 9.9.1978, leg. A. Pennell.

Gasterophilus nasalis (Linnaeus)

England: South Hampshire (vc 11): 1♀ + its puparium, New Forest, Crocford C;umps [sic], SZ3599, 2.7.2001, ex horse dung, reared, coll. [sic] D. J. Mann, emerged in lab 24.7.2001, det. A. Grayson: specimen formerly with no determination label and filed under *G. intestinalis*.

Hypoderma diana Brauer

Scotland: 1♀, Rannoch, 23 or 28 [undecipherable], 5.1912.

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Please inform the Oestridae Study Group Organiser if you would like to be added to the Contact List as a 'Group Member'.

References

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Andrew Grayson 26.12.2009