

## *OESTRUS OVIS* (LINNAEUS, 1761) (DIPTERA, OESTRIDAE), FIRST RECORD OF AN ADULT FROM GREECE

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### Abstract

The fly *Oestrus ovis* (Linnaeus, 1761) causes a myiasis to small ruminants, known as oestrosis, which can result in significantly reduced animal production, welfare and economic losses. Rarely, humans may also be accidentally infested. The adult flies occur from spring to autumn and they are particularly active during summer months being widespread in the Mediterranean countries. Many studies exist including indirect information for the presence of *O. ovis* fly, either through the seroprevalence of specific antibodies against the larvae or necropsy results detecting the larvae themselves; no published report exists directly for the presence of this fly as an adult insect from Greece. In this paper, we report the presence of this fly, at its adult stage, caught in a garden in the vicinity of a goat herd, in Stegna on the island of Rhodes, Greece. The possible implications of the presence of this adult fly and the significance of its recognition are discussed.

**Keywords:** *Oestrus ovis*, oestrosis, Rhodes, myiasis, fly, goats

The fly *Oestrus ovis* (Linnaeus, 1761) (Diptera: Oestridae) causes a myiasis to small ruminants, known as oestrosis (Zumpt 1965), which can result in severe breathing difficulties, nasal discharge and emaciation, which together with the annoyance caused by the adult flies, may lead to significantly reduced animal production, welfare and economic losses (Dorchies *et al.* 1998, 2003).

*Oestrus ovis* fly (Figs. 1–3) is found worldwide and it is especially widespread in the Mediterranean countries of Europe and Africa. Many studies exist in international literature including indirect information for the presence of *O. ovis* fly, either through the seroprevalence of specific antibodies against the larvae or necropsy results detecting the larvae themselves (Dorchies *et al.* 2000, Alcaide *et al.* 2003, Papadopoulos *et al.* 2006, 2010). However, no published report exists directly for the presence of this fly as an adult insect from Greece, most probably due to its short lifespan and rather common appearance to other fly genera.

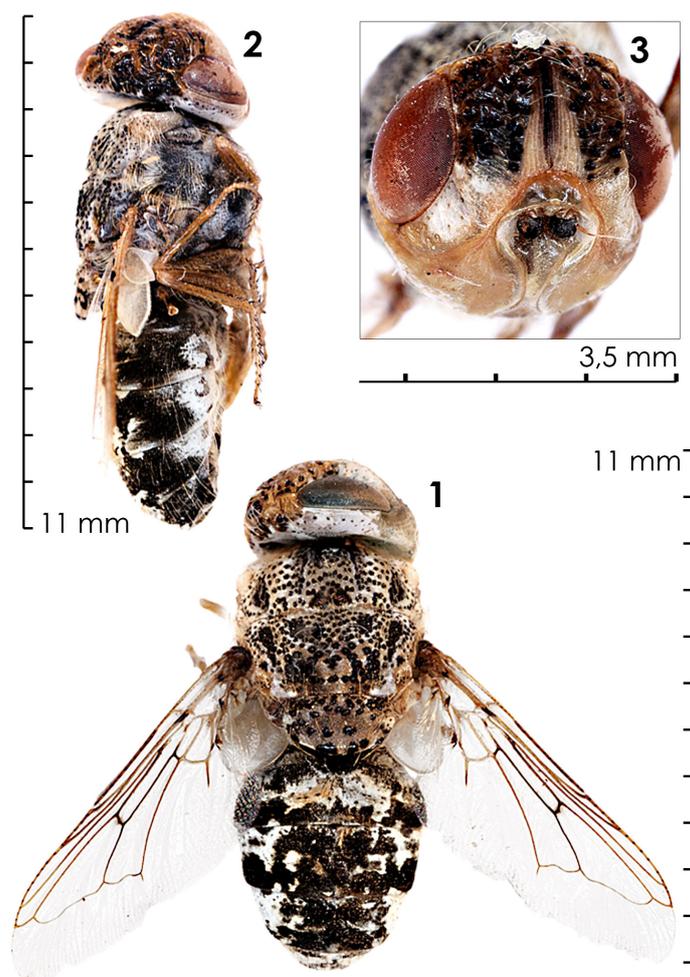
In this paper, we report the presence of this fly, at its adult stage, caught in a garden in the vicinity of a goat herd, on the island of Rhodes, Greece.

## *Oestrus ovis*, first record of an adult from Greece

Material: Greece, Rhodes Isl., Stegna, gardens, 36°12'33" N, 28°8'20" E, 27.VII.2013, 1 f\*, L. Dvořák leg. et det., coll. Municipal museum Mariánské Lázně, Czech Republic.

The adult flies occur from spring to autumn and they are particularly active during the summer months. Depending on the climate, there could be one to three generations per year. The flies hide in warm corners and crevices and in the early morning can be seen sitting on the walls and objects in the sun (Taylor *et al.* 2007). In our case, the fly was swept from dry vegetation in a garden.

It is a greyish brown fly about 12 mm long, with small black spots on the abdomen and a covering of short brown hairs. The head is broad with small eyes and the mouthparts are reduced to small knobs. The females are viviparous and infect sheep and goats with first-stage larvae injecting them into the nostrils during flight. These first-stage larvae migrate through the nasal passages to the frontal sinuses causing irritation. In the sinuses, they complete their growth up to the third-stage, which may last a variable period from 2 weeks up to 9 months, and they migrate back to the nostrils, from where they are sneezed to the ground. In the ground, they pupate to give the next generation of adults. The females survive only 2 weeks, but during this time each can deposit up to 500 larvae in the nasal passages of sheep and goats (Taylor *et al.* 2007). Occasionally, they may infest humans since several cases of ophthalmic and naso-pharyngeal myiasis have been reported, indicating a public health issue in certain areas, including Greek islands (Dar *et al.* 1980, Masoodi & Hosseini 2003, Vlahou *et al.* 2009).



Figs. 1–3. *Oestrus ovis* (adult) from Stegna, Rhodes island, Greece. 1: Dorsal view. 2: Lateral view. 3: Frontal view. Photo: J. Dvořák

One adult fly specimen was caught, swept from the vegetation, in the vicinity of a goat herd. This corresponds well with the results of previous studies carried out in Greece, where goats were found to be significantly more infected than sheep (Papadopoulos *et al.* 2001, 2010), even in flocks where both animal species were kept together under exactly the same conditions (Papadopoulos *et al.* 2006). It has been proved that animal species (i.e. goats versus sheep) can play a role in attracting *O. ovis* flies, with goats attracting more of them (Papadopoulos *et al.* 2010), most probably due to genetic (Grisez-Duranton *et al.* 2002) or other unknown reasons. Furthermore, in the same study of Papadopoulos *et al.* (2010) the nose colour was not found to be a significant predictor of infection, in contrast to previous suggestions that dark-nosed animals (as usually goats are) are more likely to be infected (Murguia *et al.* 2000). Results from a seroprevalence study carried out in Greece using ELISA, including blood sera samples from goats on Rhodes, indicated a very high prevalence of specific antibodies against *O. ovis*. More precisely, a number of 54 goat sera samples were tested from this island and 100% of them were seropositive (Papadopoulos *et al.* 1997). Therefore, the presence of this adult fly was not surprising or unexpected, even though it has never been reported before until now.

Finally, the presence of this fly in a garden, where no small ruminant host was very easily available, implies a possible threat for human public health. It is known that *O. ovis* flies may attack humans and infest them directly in the eyes or nose with their larvae, a condition leading to severe and very painful catarrhal conjunctivitis, as was the case reported from the Greek island of Lesbos where many habitants were infested on the ocular conjunctiva, nose and nasosinus (Vlahou *et al.* 2009).

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