

# FIRST RECORD OF THE SHEEP GREENBOTTLE FLY *LUCILIA CUPRINA* (WIEDEMANN, 1830) FROM EUROPE (DIPTERA: CALLIPHORIDAE) WITH ADDITIONAL SPANISH RECORDS OF CALLIPHORIDAE, MUSCIDAE AND SARCOPHAGIDAE

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## ABSTRACT

*Lucilia cuprina* (Wiedemann, 1830) is reported for the first time from Europe. Both sexes have been captured recently near Pina de Ebro in the Zaragoza province (Spain). A key is provided for distinguishing the species from the very similar *L. sericata* (Meigen, 1826). A list of Calliphoridae, Muscidae and Sarcophagidae captured in the same region is included.

**Key words:** Diptera, Calliphoridae, *Lucilia cuprina*, *Lucilia sericata*, diagnostic characters.

## RESUMEN

Primera cita de la mosca verde de la oveja *Lucilia cuprina* (Wiedemann, 1830) para Europa (Diptera, Calliphoridae) y citas adicionales de Calliphoridae, Muscidae y Sarcophagidae españoles.

Se cita por primera vez para Europa *Lucilia cuprina* (Wiedemann, 1830), capturada recientemente en ambos sexos cerca de Pina de Ebro (Zaragoza, España). Se propone una clave de separación de la similar *L. sericata* (Meigen, 1826). Se añade una lista de Calliphoridae, Muscidae y Sarcophagidae capturados en la misma área.

**Palabras clave:** Diptera, Calliphoridae, *Lucilia cuprina*, *Lucilia sericata*, caracteres diferenciales.

## INTRODUCTION

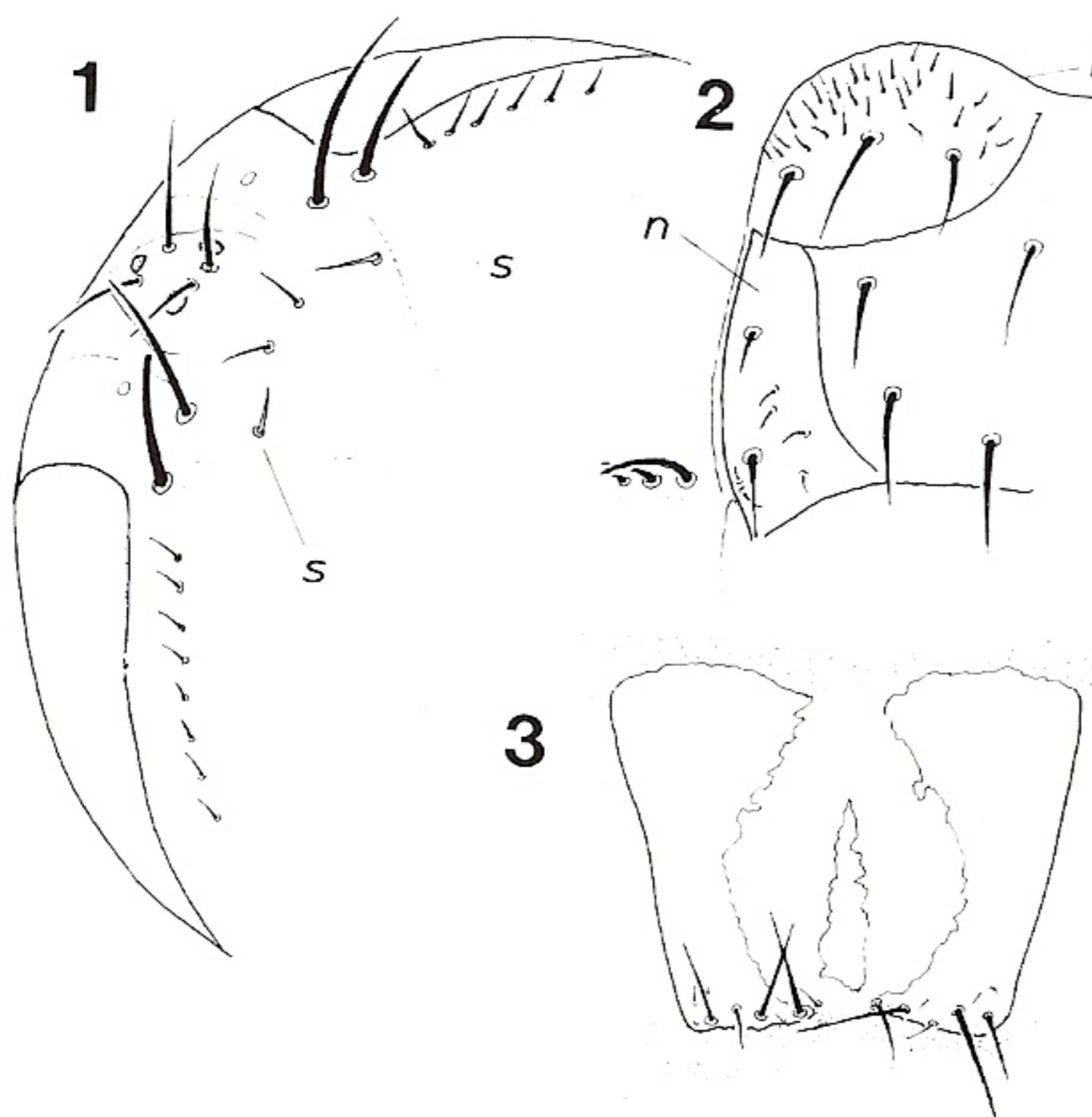
Among Diptera material sent to me for identification by Mr. Javier Blasco-Zumeta, Pina de Ebro, Zaragoza, Spain, during the last couple of years I have found material of the Sheep Green Bottle blowfly *Lucilia cuprina* (Wiedemann, 1830) (Diptera, Calliphoridae) on two occasions. The species was collected by means of various traps in a very dry forest of *Juniperus thurifera* L. called «Retuerta de Pina» near Pina de Ebro (Zaragoza province) in the Monegros Region, Spain.

This fly has never been reported from Europe before. It prefers warmer climates and occurs almost world-wide in the tropics and warmer temperate regions (JAMES, 1970, 1977; PONT, 1980; SCHUMANN, 1986; KURAHASHI, 1989). In the Mediterranean region it is known from Egypt, which appears to be the

locality closest to Spain. Possibly, the occurrence of *L. cuprina* in Spain is due to a recent invasion, since it was not reported by PERIS & GONZÁLEZ MORA (1991) in their survey of Spanish green bottles. Possibly the origin of the introduction could be the US Air Force military base near Zaragoza. However, I have been informed that the area around Pina de Ebro «is an "African island" in Spain. Climate vegetation and fauna are desertic and more similar to North Africa than the rest of Spain» (according to Mr. Blasco-Zumeta in letter of November 30, 1990). He also tells me that it is biologically unexplored. Possibly *L. cuprina* may have lived unnoticed there for a long time.

*L. cuprina* is a serious pest of livestock where it occurs, especially of sheep in Australia, New Zealand and South Africa, and it is also reported to attack other mammals, including man (ZUMPT, 1965). Although

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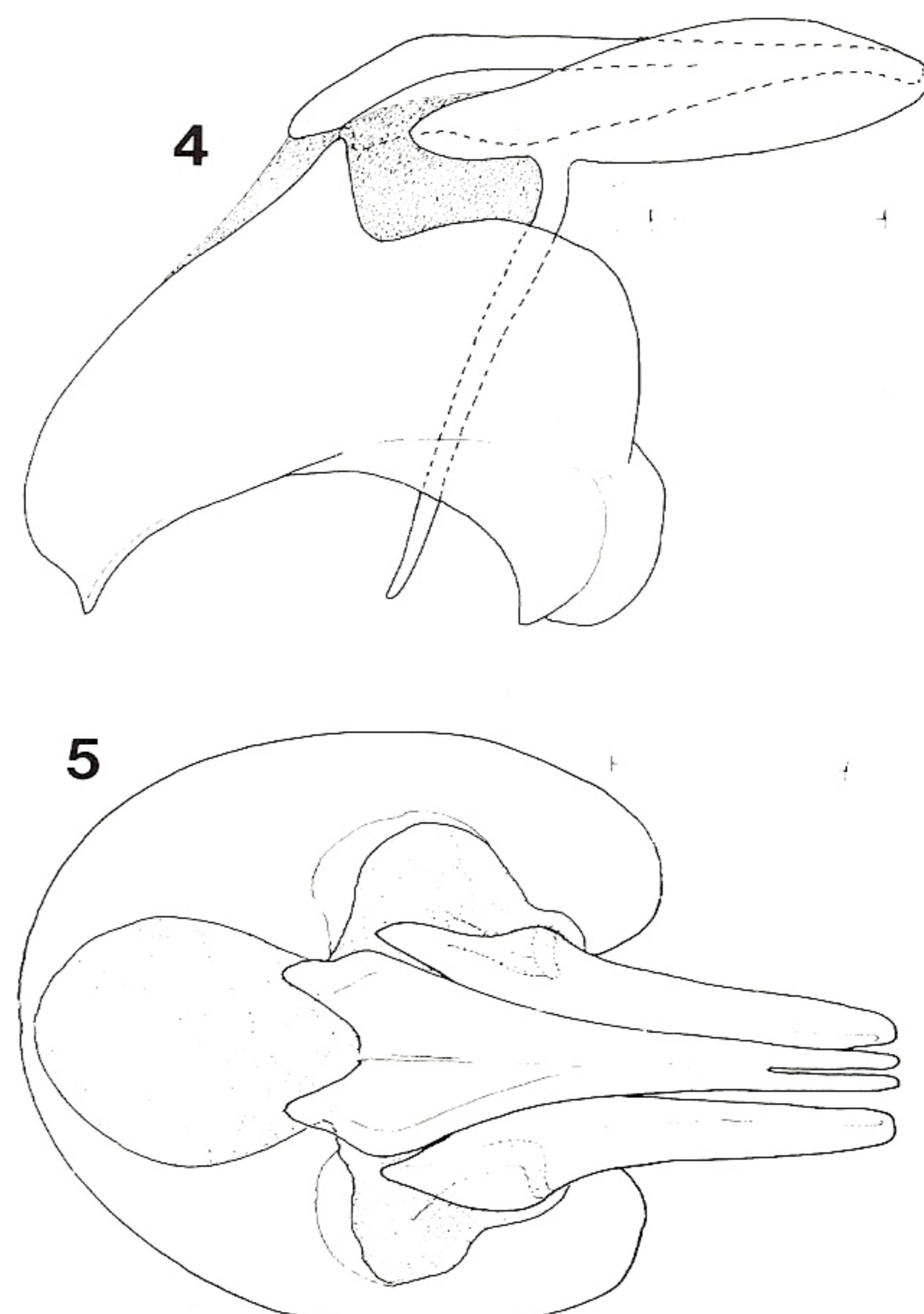


Figs. 1-3.—*Lucilia cuprina* (Wiedemann) (Pina de Ebro, Spain). 1) Head, ♀, left side view obliquely from behind and above (s: paravertical seta). 2) Left side of thorax, anterior part (h: humeral callus; n: notopleuron). 3) Tergite 7 of ovipositor (G. pr. 330, stipple indicates extent of microtrichiae).

mostly a carrion breeder, the fly may lay its eggs in the wool or in open wounds of live animals. The developing larvae feed subcutaneously on the tissues of their host, causing myiasis. Myiasis of sheep and possibly also of man is known from this region of Spain (Mr. Blasco-Zumeta in letters of November 30, December 29, 1990), but it is not known to what extent *L. cuprina* is involved.

#### DIAGNOSTIC CHARACTERS

*L. cuprina* is very similar to and often occurs together with the common European blowfly *L. sericata* (Meigen, 1826), well known from Spain (GONZÁLEZ MORA, 1985; PERIS & GONZÁLEZ MORA, 1991, as *Phaenicia sericata*). A sample from 1991 of 66 green bottles of the genus *Lucilia* Robineau-Desvoidy, 1830 from the Pina de Ebro area consisted of 7 ♂, 55 ♀ of *L. sericata* (94 %) and 4 ♀ of *L. cuprina* (6 %). Both species differ from all other Palearctic species of *Lucilia* (s. lat.) in having a pale yellow basicosta and a bare subcostal sclerite in combination with a single *ad* seta on the middle tibia. Both will key out to *L. sericata* in the keys in PERIS & GONZÁLEZ MORA (1991) and ROGNES (1991). They can be distinguished with the aid of the following additional key couplet:



Figs. 4-5.—*Lucilia cuprina* (Wiedemann) (Pina de Ebro, Spain), ♂ terminalia: 4) Cerci, surstyli, epandrium and bacilliform sclerite, lateral view. 5) Cerci, surstyli and epandrium, posterior view. Scale 0.2 mm.

1. Metasternal area (sclerite midventrally between middle and hind coxae) bare; occiput with 1-2 small paravertical setae on each side (fig. 1, s); posterior slope of the humeral callus (fig. 2, h) with 0-4 hairs behind the transverse row of three basal setae; 2-5 hairs present along posterior edge of notopleuron (fig. 2, n) behind the posterior notopleural seta; posterior half of postalar wall with 2-4 fine hairs; ♀: each fronto-orbital plate more than half as wide as the frontal vitta, sometimes almost as wide as the frontal vitta; tergite 7 of ovipositor with separate strong mid-dorsal sclerotization in posterior half (fig. 3); pleural membrane 7 with microtrichiae only in posterior 1/6 (fig. 3); ♂: each fronto-orbital plate as wide as the frontal vitta; abdominal sternites with long densely set setae; cerci and surstyli as in figures 4-5 .....  
..... *L. cuprina* (Wiedemann)

— Metasternal area (sclerite midventrally between middle and hind coxae) setose; occiput with 3-8 small

paravertical setae; posterior slope of the humeral callus with 6-8 hairs behind three basal setae; 8-16 hairs along the posterior edge of notopleuron behind the posterior notopleural seta; posterior half of postalar wall with 6-8 fine hairs; ♀: each fronto-orbital plate half as wide as frontal vitta; tergite 7 of ovipositor without separate middorsal sclerotization in posterior half; pleural membrane 7 with microtrichiae in posterior 5/6; ♂: each fronto-orbital plate about half as wide as frontal vitta; abdominal sternites with normal setae; cerci and surstyli different .....  
..... *L. sericata* (Meigen)

Additional information on the morphology of the adults (including male and female terminalia) and larvae of one or both of these species can be found in the works of AUBERTIN (1933), WATERHOUSE & PAROMONOV (1950), KANO & SATO (1951), ZUMPT (1956, 1965), KURAHASHI (1966), KANO & SHINONAGA (1968), HOLLOWAY (1991), PERIS & GONZÁLEZ MORA (1991), ROGNES (1991) and FAN (1992).

I have notified Dr. Martin J. H. Hall at the The Natural History Museum, Department of Entomology, Medical and Veterinary Division, London, which is a FAO Reference Laboratory for Screw-worm & the Animal Myases, of the discovery of *L. cuprina* in Spain. I have been informed that he has brought the occurrence of this potential livestock pest in Spain to the attention of Spanish veterinary authorities, and the United Nations' FAO.

#### Material examined

#### *Lucilia cuprina* (Wiedemann)

2 ♂ («2096») Zaragoza, Pina de Ebro (UTM 30TYL2597), 16-IX-1990 (Blasco-Zumeta leg.) (coloured plates) (1 ♂ dissected); 3 ♀ («3873») same locality (UTM 30TYL2896), 5-IX-1991 (pitfall traps with carrion) (1 ♀ dissected, G. pr. 330); 1 ♀ («3975») same locality (UTM 30TYL2896), 22-IX-1991 (pitfall traps with carrion). All material in author's collection.

#### OTHER DIPTERA MATERIAL

I have identified from this region of Spain other Diptera as follows (all collected by Mr. Javier Blasco-Zumeta in 1990-1991):

#### Calliphoridae

*Bellardia* sp., *Calliphora vicina* Robineau-Desvoidy, 1830, *Calliphora vomitoria* (Linnaeus, 1758), *Chrysomya albiceps* (Wiedemann, 1819), *Melinda vi-*

*ridicyanea* (Robineau-Desvoidy, 1830) (= *cognata*: authors), *Pollenia contempta* Robineau-Desvoidy, 1863, *Pollenia leclercqiana* Lehrer, 1978, *Pollenia rufidis* (Fabricius, 1794), *Stomorhina lunata* (Fabricius, 1805).

#### Muscidae

*Helina erecta* (Harris, 1780) (= *laetifica* Robineau-Desvoidy, 1830), *Helina reversio* (Harris, 1780) (= *duplicata* Meigen, 1826), *Musca domestica* Linnaeus, 1758, *Musca osiris* Wiedemann, 1830 (sensu PONT, 1986), *Musca vitripennis* Meigen, 1826 (sensu PONT, 1986), *Muscina levida* (Harris, 1780), *Muscina pascuorum* (Meigen, 1826), *Neomyia cornicina* (Fabricius, 1781), *Stomoxys calcitrans* (Linnaeus, 1758).

#### Sarcophagidae

*Phrosinella nasuta* (Meigen, 1824), *Sarcophila latifrons* (Fallén, 1817), *Taxigramma multipunctata* (Rondani, 1859).

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