



## NEW RECORD OF *LUCILIA SERICATA* (WIEDEMANN) FROM KARGIL LADAKH

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### ABSTRACT

*Lucilia* spp. also known as green bottle fly is well distributed, and it has forensic, medical and veterinary importance. In the present study, *Lucilia sericata* (Wiedemann, 1830) has been recorded from the Trans-Himalayan region of the cold arid desert Kargil Ladakh. Distribution over a period from April 2018 to March 2021 revealed that it is fairly distributed with maximum abundance being in midsummer July and August, with no activities during November to March.

**Key words:** *Lucilia sericata*, Trans-Himalaya, new record, abundance, occurrence, diagnosis, illustrations

*Lucilia* spp. is commonly known as green bottle fly and always found in human inhabited areas including slaughterhouses, meat shops, latrines and waste dumping places from where they possibly transmit many pathogens including nematodes, helminths, protozoans, fungus, bacteria and viruses to human and other vertebrates (Fetene and Worku, 2009; Khoobdel et al., 2013; Akbarzadeh et al., 2015; Hasson, 2017; Tomberlin et al., 2017). This species is almost cosmopolitan in distribution and have forensic, medical and veterinary importance (Nandi, 2002). As per the literature survey, only few species of the Calliphoridae family viz. *Calliphora vicina*, *C. vomitoria* and *Protophormia terraenovae* have been recorded from the Trans-Himalayan region of the cold arid desert Ladakh and no record were found related to the *Lucilia* sp. (Hussain et al., 2021a, Hussain et al., 2021b). The present study recorded *L. sericata*, their distribution and seasonal abundance from the Kargil Ladakh.

### MATERIALS AND METHODS

The present study was conducted in the trans-Himalayan region of the cold arid desert Kargil Ladakh (30-35°N, 75-77°E- LAHDC-Kargil, 2022). Monthly (11- 20<sup>th</sup>) surveys were conducted from April 2018 to March 2021, dividing it into eight main sites viz. Drass, Kargil town, Batalik, Chiktan, Wakha (Shargole), Trespone, Sankoo and Panikhar. Plastic bottle traps baited with 100 g unwashed goat/ sheep stomach were used (Hussain et al., 2021a,b). On each visit, three traps were installed at a distance of about 100 m for three hours extending from 11:00 am to 02:00 pm; it was around the places like slaughterhouses, local latrine, meat

shops and waste dumping areas. The trapped flies were killed using chloroform, and based on their morphology *Lucilia* spp. were sorted out, counted and identified up to species level using available keys (Crosskey and Lane, 1993; Wallman, 2001; Whitworth, 2006; Carvalho and Mello-Patiu, 2008). Photographs were captured by using Leica S9i stereozoom microscope fitted with camera and developed with Adobe Photoshop 7.0. Data were analyzed using software SPSS 16.0 and graphs were plotted by using software Origin pro 8. Weather data of the district Kargil were obtained from the Indian Metrological Department, Meteorological Centre, Rambagh, Srinagar, Jammu & Kashmir UT, India.

### RESULTS AND DISCUSSION

#### *Lucilia sericata* (Wiedemann, 1830)

Diagnosis: Body metallic green in colour; parafrontalia broad and white; frontoclypeal membrane light brown; width of frontal stripe (frontal vitta) twice

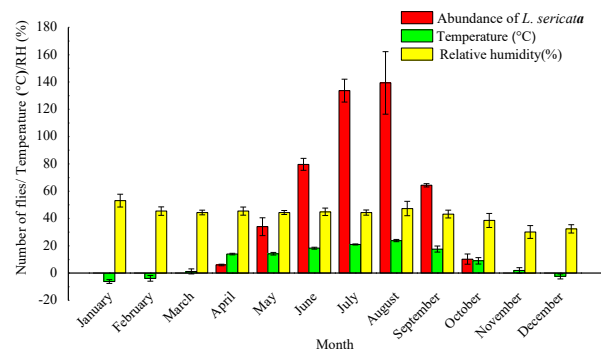
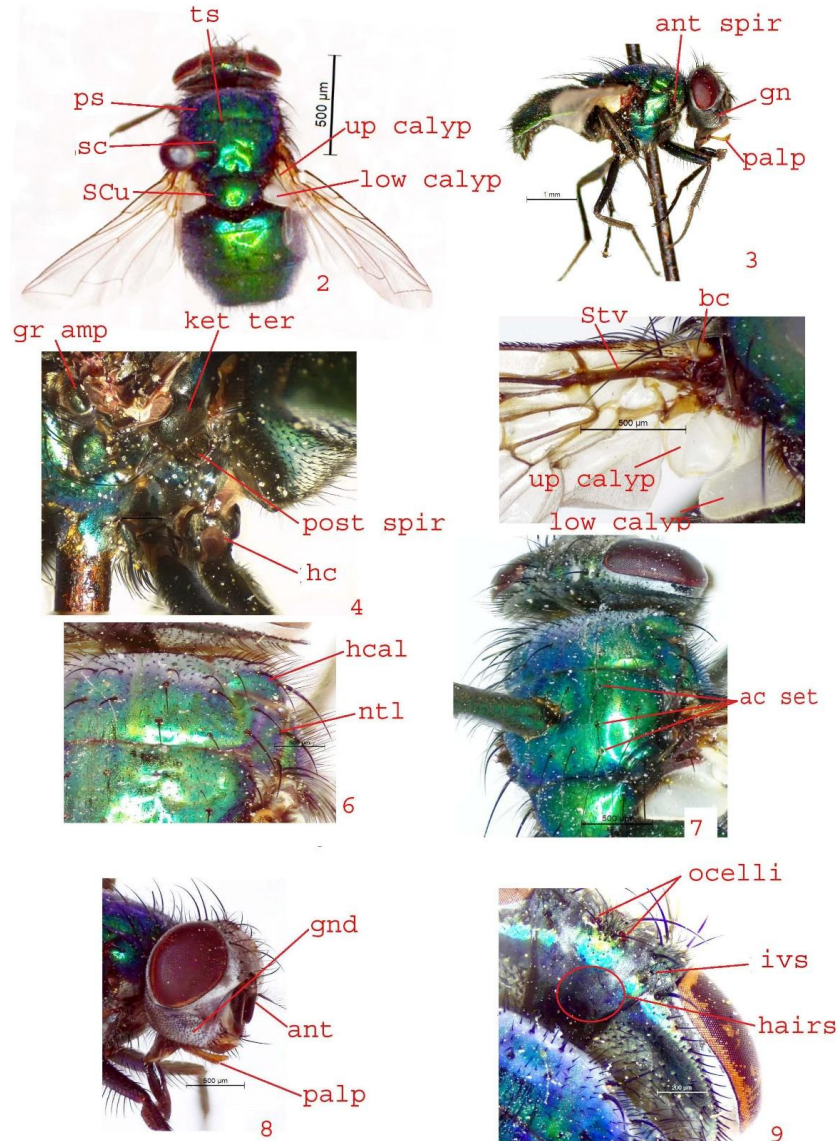


Fig. 1. Seasonal abundance of *L. sericata*- Kargil Ladakh (April 2018- March 2021)

as wide as parafrenal plate; gena white with black hairs; Humeral callus with 6-8 hairs on posterior slope; notopleuron with 8-16 hairs; central occipital area with 2-8 setulae below each inner vertical seta; Ketatergite bar; wings hyaline; basicostae bright yellow; lower calypter without hairs above; stem vein bar above; colour of the fore femora dark metallic blue to black or brown (Figs. 2-9).

Distribution and abundance: It was observed that

*L. sericata* was fairly distributed in the study area, and 1412 specimens were captured from April 2018 to March 2021; of these Kargil town contributed maximum of 244 (17.28%) followed by Sankoo 197 (13.95%), Chiktan 181 (12.82%), Batalik 170 (12.04%), Panikhar 163 (11.54%), Drass 160 (11.33%), Trespone 156 (11.05%) and Wakha 141 (9.99%). Kargil town is a densely populated area and have many slaughterhouses, meat shops chicken shop in the main market and in surrounding areas without proper waste management



Figs. 2-9. *Lucilia sericata*; 2. Whole body, dorsal view; 3. Whole body, lateral view; 4. Lower part of posterior thorax, lateral view; 5. Wing and calypters, dorsal view; 6 and 7. Thorax, dorsal view; 8. Head, lateral view; 9. Head, dorsal view

Abbreviations used: ts = transverse suture; ps = prescutum; sc = scutum; SCu = scutellum; up calyp = upper calypter; low calyp = lower calypter; ant spir = anterior spiracle; gn = gena; gnd = genal dilation; post spir = posterior spiracle; gr amp = greater ampulla; ter = ketatergite; hc = hind coxa; bc = basicosta; stv = stem vein; h cal = humeral callus; ntl = notopleuron; ant = antenna; ac set = acrostichal bristles; ivs = inner vertical setae.

(LAHDC-Kargil, 2022). It provides a breeding ground and with maximum abundance as given in Brundage et al. (2011). Its abundance is affected by weather factors as shown by earlier workers (Hwang and Turner, 2005; Hussain et al., 2021a); it exhibited similar conditions as with *C. vicina* (Hussain et al., 2021a); *L. sericata* began its activity in April and increased with temperature reaching a maximum in July ( $133.66 \pm 8.37$ ) and August ( $139.33 \pm 22.92$ ), and declined with decrease in temperature from September and becoming nil in winter (Fig. 1). Its abundance revealed strong positive correlation with temperature ( $r=0.88$ ) and a weak positive one with relative humidity ( $r=0.285$ ). These results corroborate with those of Brundage et al. (2011).

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