

## First record of *Sargus flavipes* Meigen, 1822 (Diptera Stratiomyidae) from Türkiye

Abdullah Hasbenli<sup>1</sup>, Turgay Üstüner<sup>2,\*</sup> & Üzeyir Çağlar<sup>3</sup>

<sup>1</sup>Gazi University, Faculty of Sciences, Department of Biology, Ankara, Türkiye; Orcid: 10000-0002-2919-7594

<sup>2</sup>Selçuk University, Faculty of Sciences, Department of Biology, Konya, Türkiye; Orcid: 0000-0002-0604-2346

<sup>3</sup>Gazi University, Vocational School of Health Services, Gölbaşı, Ankara, Türkiye; Orcid: 0000-0002-8401-0155

\*Corresponding author, e-mail: [tustuner@selcuk.edu.tr](mailto:tustuner@selcuk.edu.tr)

### ABSTRACT

This study presents *Sargus flavipes* Meigen, 1822 (Diptera Stratiomyidae) as a new record for the Turkish fauna. We provide details on the species' distribution and habitat, along with a zoogeographic distribution analysis. Photographs of the species and its habitat are included.

### KEY WORDS

Sarginae; *Sargus flavipes*; new record; TANAP; fauna; Türkiye.

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### INTRODUCTION

Stratiomyidae, comprising 377 described genera and approximately 2,800 species globally, is a well-established medium-sized family within the order *Diptera*. The family is systematically divided into 12 subfamilies (Woodley 2001). Seven of these subfamilies have been recorded in Türkiye: Beridinae, Clitellariinae, Hermetinae, Nematelinae, Pachygastrinae, Sarginae, and Stratiomyinae. More than 70 species belonging to 18 genera of this family have been recorded in Türkiye, and this number is anticipated to increase as faunistic research continues (Demirel & Üstüner, 2019; Demirözer et al., 2017; Lindner, 1938; Rozkošný & Nartshuk, 1988; Üstüner et al., 2002, 2003; Üstüner & Hasbenli, 2003, 2004, 2007, 2011a, 2011b, 2013, 2014; Üstüner 2010, 2012a, 2012b; Woodley 2001).

Among these subfamilies, Sarginae has significant differences due to its morphological and ecological characteristics. Comprising around 532 described species within 23 genera globally (Wo-

odley 2001; Mason & Rozkošný, 2008), Sarginae species are primarily recognized for their striking metallic green or blue body coloration and a distinctive flagellum, which is either rounded or disc-shaped. At the apex of the flagellum lies the arista, a slender, hair-like extension, while the scutellum is devoid of spines or similar projections, indicating adaptations to their environments. The venation is well defined, with veins M1, M2, and M3 emerging from the discal cell (D), and vein M4 originating from the medial cell (M). The abdomen is generally elongate and slender (Rozkošný, 1982).

In Türkiye, the Sarginae subfamily is represented by two genera: *Chloromyia* Duncan, 1837 and *Sargus* Fabricius, 1798 (Woodley, 2001). The genus *Sargus* is distinguished by its elongated, narrow abdomen, globular head, and broad wings, with its metallic coloration ranging from green to blue and purple. The recorded species from this genus in Türkiye include *Sargus bipunctatus* (Scopoli, 1763) and *Sargus cuprarius* (Linnaeus, 1758) (Demirözer et al., 2017).

## MATERIAL AND METHODS

During the Biorestitution Monitoring Action Plan studies along the route of the Trans-Anatolian Natural Gas Pipeline Project (TANAP) in 2023, two female specimens were collected (Fig. 1). The specimens were captured using a sweep net, and a photograph of the habitat from which the samples were obtained is included. The specimens are deposited in the Zoology Museum of Gazi University (ZMGU), Ankara, Türkiye.

## RESULTS

Genus *Sargus* Fabricius, 1798

*Sargus flavipes* Meigen, 1822

**MATERIAL EXAMINED.** TÜRKİYE • 2 spm females; Ardahan Province, Posof, Yeniköy Village; 38 T 313819 E, 4590251 N; 2445 m; 08 August 2023; coll. Hasbenli (Figs. 2, 3).

**DIAGNOSIS.** The lower face exhibits a broad chitinous area along the eye margin, with the occiput lacking a fringe of erect hairs. The postpronotal calli are bare. The female frons is notably wide, approximately three times the width of the ocellar tubercle, featuring well-developed, separated white frontal spots at the eye margins. The legs are predominantly yellow, with femora showing a dark ring in the middle (Mason & Rozkošný, 2008; Rozkošný, 1982).

**BIOLOGY.** Adult flies are frequently observed sunning on leaves or found near dung or decaying plant material, which serves as oviposition sites (Olroyd, 1969). This species is known to inhabit altitudes of 800 to 2500 meters in the Alps, with a flight period extending from late June to mid-September (Rozkošný, 1982). The larvae are typically associated with cow dung and compost, reflecting their ecological role in decomposing organic matter (Olroyd, 1969; Rozkošný, 1982). Additionally, larval specimens have also been found in soil environments (Rozkošný, 1982).

**DISTRIBUTION.** *Sargus flavipes* is widely distributed throughout the Palaearctic region, being found across nearly all of Europe. Additionally, this species extends its range from Russia to Mongolia, as well as parts of China, North Korea, and Japan (Woodley, 2001; Rozkošný, 1982; Mason & Rozkošný, 2008).



Figure 1. Critical habitats on the Trans-Anatolian Natural Gas Pipeline Project (TANAP) route.

## DISCUSSION

*Sargus flavipes* is reported for the first time in the Turkish fauna, marking a significant addition to the biodiversity of the region. This species, a member of the soldier fly family, is distributed across much of Europe, including Russia, Mongolia, China, North Korea, and Japan (Woodley, 2001; Mason & Rozkošný, 2008). Typically, *S. flavipes* inhabits grassland areas, where adult flies are active from May to October, while larvae are often found in cow dung and compost (Olroyd, 1969; Rozkošný, 1982). According to the European Nature Information System (EUNIS), the species is commonly associated with habitats such as wetlands, forests, and grasslands.

In this study, specimens of *Sargus flavipes* were collected from Ardahan Province, located in north-eastern Turkey, specifically in alpine and subalpine grasslands (EUNIS habitat category: E.4). The species was observed at an altitude of approximately 2500 m in August, which aligns with existing data regarding the species' distribution in the Alps, where it is also found between 800 and 2500 m (Rozkošný, 1982).

Examining the global distribution of *S. flavipes*, it is evident that this species occupies the northern part of the Palaearctic region, extending from Europe to Siberia (Rozkošný, 1980). Notably, there have been no prior records of this species in the southern Palaearctic region, which includes North Africa, Anatolia (Turkey), the Transcaucasus, and South Asia. The collection of specimens from Ardahan, situated on the westernmost border of Transcaucasia, suggests a further southern extension of its range, moving beyond the southern borders of European Russia toward the northeastern regions of Turkey.

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Figure 2. *Sargus flavipes*, female: dorsal view.



Figure 3. *Sargus flavipes*, female: lateral view.

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