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Cover: Common Silverline *Spindasis vulcanus vulcanus* in poster colours adapted from photograph by Kalpesh Tayade. © Pooja R. Patil.



An updated catalogue of true flies (Insecta: Diptera) from northern Pakistan

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Abstract: We present the first comprehensive catalogue of true flies from the northernmost territories of Pakistan, including Azad Jammu & Kashmir and Gilgit-Baltistan. In the current inventory, 64 genera and 153 species in 16 families are being documented. The total number of known species has been updated based on the availability of taxonomic literatures from Pakistan. In 2007, Insect Fauna of Azad Jammu & Kashmir was updated and it lists only 16 known species in order Diptera where as there is no such documented information so far available on the dipterous fauna of Gilgit-Baltistan. However, during the last few decades, relatively a few studies have been conducted on some major group of flies, i.e., Syrphidae, Sepsidae, Calliphoridae, and Tephritidae from Azad Kashmir and Gilgit-Baltistan. Among these, Syrphidae represents 53 species which is the highest number of species recorded, followed by Sepsidae and Calliphoridae with 20 and 18 species, respectively. The present diversity does not reflect the true species account in the northern areas; the important biogeographic area that exhibits a very heterogeneous fauna, not only because of the high mountains with valleys (the Hindu Kush and Karakoram ranges of the Western Himalayas) but also the junction points of the world's two largest zoogeographical regions (the Oriental and Palaearctic). Some common families, i.e., Stratiomyidae, Asilidae, Bombyliidae, Muscidae, Conopidae, Pipunculidae, Tachinidae, and some other families which are common in high mountainous regions of northern Pakistan still need to be explored in the future studies. The complete locality data for each valid species are presented as the baseline for future studies from northern areas of Pakistan, i.e., Azad Jammu & Kashmir and Gilgit-Baltistan.

Keywords: Azad Jammu & Kashmir, catalogue, distribution, diversity, fauna, Gilgit-Baltistan, Oriental, Palaearctic, southern Asia, taxonomy.

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Author contributions: NF lead author. Assisted in the study conception and design, collected, analyzed data, interpreted the results and drafted the manuscript. DY supervised this study and assisted in the analysis of data and interpretation of results. Reviewed the draft manuscript and added critically important comments.

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INTRODUCTION

Diptera is one of the largest and diverse order of class Insecta having worldwide distribution. It contains approximately 160,000 species, 10,000 genera, 150 families, 22–32 superfamilies, 8–10 infraorders, and three suborders (McAlpine & Wood 1989; Thompson 2008; Chapman 2009; Pape & Thompson 2013; Borkent et al. 2018; Evenhuis & Pape 2021). It represents more than 10–12% of animal species or 10% of planetary biota and 14% of the world's known insect fauna (Lambkin et al. 2013; Thompson & Pape 2016). According to the recent estimate, there are 23,000 species of Diptera in Oriental region, 22,000 in Nearctic region, 20,000 in the Afrotropical region, 19,000 in the Europe, and Australasian region (Pape et al. 2015).

Dipterans occur in almost all terrestrial and freshwater habitats where they display a wide range of life histories and feeding habits. From parasites to predators, leaf miners and filter feeders, flies have diversified to exploit almost all organic substrates for their development (Marshall 2012; Courtney et al. 2017). True flies having economic and ecological importance have an impact on human life much greater than any other group of insects (Mayhew 2007). The dipterous fauna of Pakistan is under studied and has not been compiled previously. Previously, the fauna of Azad Jammu & Kashmir has been primarily updated with 153 species of flies.

MATERIALS AND METHODS

Data sources

In this paper, we followed the world's catalogue and recent regional published papers for nomenclature: Calliphoridae (Kurahashi & Afzal 2002; Hassan et al. 2018; Yan et al. 2021), Chloropidae (Nartshuk 2012), Dryomyzidae (Mathis & Sueyoshi 2011), Fanniidae (Nishida 1989), Rhinophoridae (Cerretti et al. 2020), Sarcophagidae (Sugiyama 1989), Sepsidae (Pont & Meier 2002; Ozerov 2005), Sphaeroceridae (Marshall et al. 2011), Stratiomyidae (Woodley 2001; Rozkošný & Kovac 2003; Rozkošný & Hauser 2009), Syrphidae (Mengual et al. 2020; Steenis et al. 2021), Tabanidae (Stone & Philip 1974), Tachinidae (O'Hara & Cerretti 2016; O'Hara et al. 2021), Tephritidae (Özgür & Kütük 2003; Agarwal & Sueyoshi 2005; Wang & Chen 2002; Halder et al. 2015), Tipulidae (Alexander & Alexander 1973), Limoniidae (Bhagat 2014), and distributional records by following the book entitled "Insect Fauna of Azad Jammu & Kashmir" and other updated published literature from Pakistan/

Azad Jammu & Kashmir: Calliphoridae (Kurahashi & Afzal 2002; Hassan et al. 2018), Chamaemyiidae (Alam et al. 1969), Chloropidae (Alam et al. 1969; Kanmiya 1989), Dryomyzidae (Kurahashi 1989; Hassan et al. 2018), Fanniidae (Nishida 1989), Rhinophoridae (Cerretti et al. 2020), Sarcophagidae (Sugiyama 1989), Sepsidae (Iwasa 1989; Hassan et al. 2017, 2018, 2021; Fatima et al. 2019), Sphaeroceridae (Hayashi 1991), Stratiomyidae (Hassan et al. 2019), Syrphidae (Arif 2002; Ghorpadé & Shehzad 2013; Shehzad et al. 2017; Hassan et al. 2017, 2018, 2020, 2021), Tabanidae (Stone & Philip 1974), Tachinidae (Mohyuddin 1981), Tephritidae (Alam et al. 1969; Brake 2011; Zubair et al. 2019), Tipulidae (Alexander 1959), and Limoniidae (Bigot 1891; Alexander 1966).

Distribution area format

The present manuscript includes country wise and world wise distributions of true flies. In countrywide distribution Pakistan is followed by the Province/ State name or Territory, Division name and the exact locality. In worldwide distribution only country name is given. List of abbreviations for the regional distribution is as: prov. = province; stat. = state; terr. = territory; div. = division; Islamabad capi. = Islamabad.

Azad Jammu & Kashmir and Gilgit Baltistan as a political units.

In 1947, Indian sub-continent was divided into two independent countries, Pakistan and India. At that time the Princely states of Indian sub-continent were given an option to join Pakistan or India by their own choice. The territory of Kashmir under the administrative region of Pakistan is Azad Jammu & Kashmir, and the Indian administered region is Jammu Kashmir. This work documented the flies of "Pakistani Administrated Kashmir" known as Azad Jammu & Kashmir and Gilgit-Baltistan. Most of the work done before the partition of Indo-Pak subcontinent mentioned only Kashmir, but now it is difficult to find out exact locality either as Pakistan administrated part or Indian administrated area of Kashmir. We have tried our best to include only those species which are presented in Pakistani administrated area.

Physiography of Azad Jammu & Kashmir and Gilgit-Baltistan:

Azad Jammu & Kashmir: Azad Jammu & Kashmir lies in the east of Pakistan. It covers an area of 13,297 km². The height of area ranges 606–4545 m. It is located between mountain ranges and characterized by deep ravines, rugged, undulating terrain with valleys and

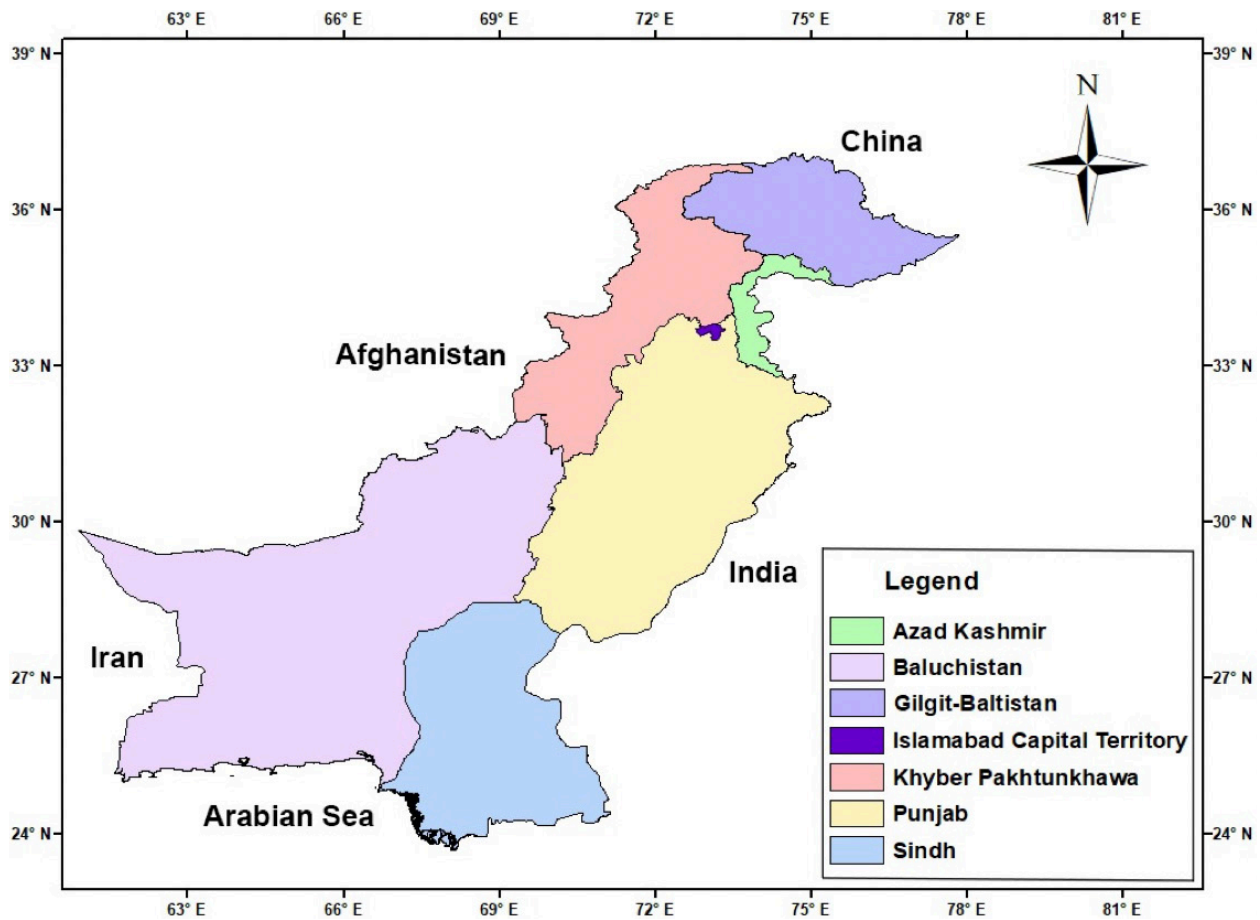


Figure 1. Outline map of Pakistan (original map based on ArcGis 10.2 boundary files).

patchy plains having diverse flora and fauna. Major rivers are Jhelum, Neelum, and Poonch. Azad Jammu & Kashmir is one-sixth of the size of Gilgit-Baltistan. Climate varies with the altitudes of the area. its snow-covered peaks, dense forests, winding rivers, turbulent foaming streams, wheat scented valleys and velvet green plateaus make it an attractive place with a diverse insect population (Behera 2007).

Gilgit-Baltistan: Gilgit-Baltistan is located in the northern Pakistan. It covers an area of over 72,971 km² and is highly mountainous. Gilgit-Baltistan is known for K2 (8,611 m) and is the second highest mountain on Earth, three of the world's longest glaciers outside the Polar Regions, four famous mountain ranges (Himalaya, Karakorum, Hindukush, and Pamirs), more than 50 peaks above 7,000 m, the longest glaciers (Siachen Glacier) and attractive landscapes (Wala 1994; Virk et al. 2003). It is also the Land of Indus River which is the largest river of Pakistan and major source of agricultural strength in Pakistan (Zain 2010). Climatic conditions, vegetation, and topography of Azad Jammu & Kashmir and Gilgit Baltistan territory are highly

suitable for dipterous fauna. This paper summarizes the current documented fauna of flies in both Azad Jammu & Kashmir and Gilgit-Baltistan. There are great chances of getting additional taxa from the high mountains of Azad Jammu & Kashmir and Gilgit-Baltistan.

RESULTS

A total of 64 genera and 153 species in 16 families are being documented in current inventory from Azad Jammu & Kashmir and Gilgit Baltistan territory.

Order Diptera Linnaeus, 1758

Suborder Nematocera Dumeril, 1805

Family Limoniidae Rondani, 1856

Subfamily Limoniinae Speiser, 1909

Genus *Limonia* Meigen, 1803

1. *Limonia neananta* Alexander, 1966

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Astore, Minimarg (Bigot 1891; Alexander 1966)); India (Bigot 1891; Alexander 1966).

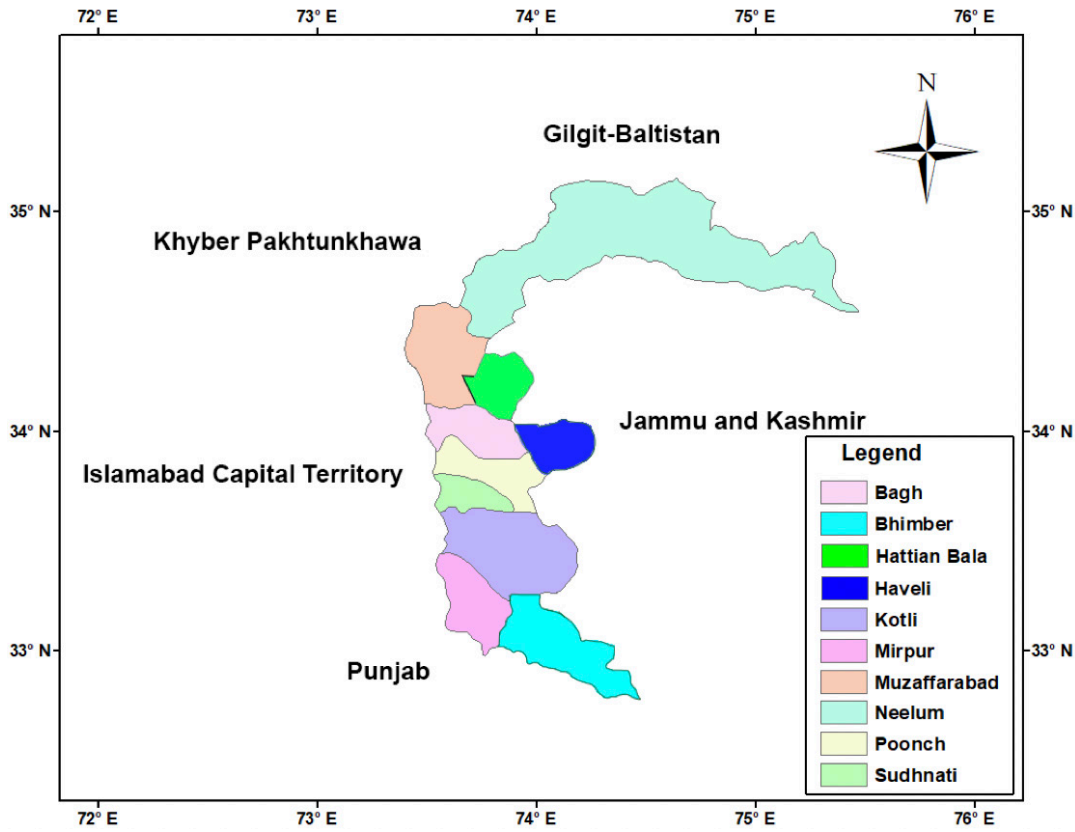


Figure 2. District boundaries of Azad Jammu & Kashmir (original map based on ArcGis 10.2 boundary files).

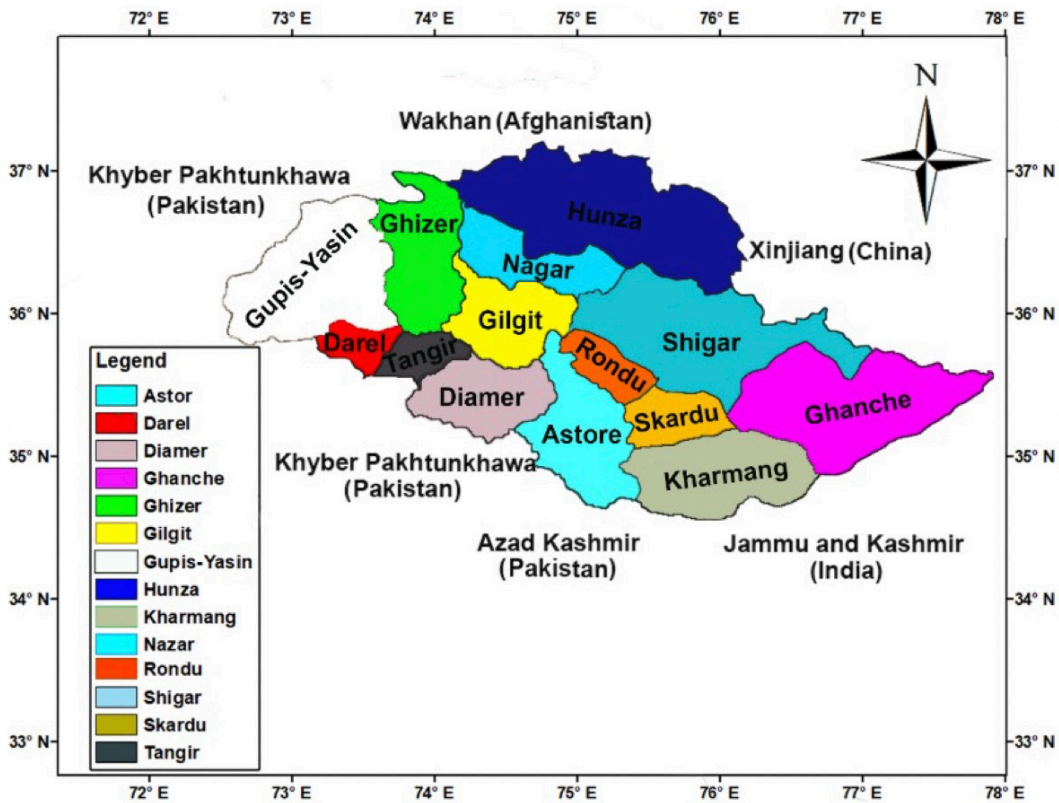


Figure 3. District boundaries of Gilgit-Baltistan (original map based on ArcGis 10.2 boundary files).

Subfamily Chioneinae Rondani, 1861**Genus *Erioptera* Meigen, 1803****2. *Erioptera palliclavata* Alexander, 1935**

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Minimarg (Bigot 1891)); India (Bhagat 2014; Banerjee et al. 2018).

Genus *Gonomyia* Meigen, 1818**3. *Gonomyia dissidens* Alexander, 1957**

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Astore (Bigot 1891)); India (Bigot 1891; Banerjee et al. 2018).

Family Tipulidae Latreille, 1802**Subfamily Chioneinae Rondani, 1861****Genus *Ctenophora* Meigen, 1803****4. *Ctenophora longisector* Alexander, 1959**

Distribution: Pakistan (Gilgit-Baltistan terr., Baltistan div., Skardu (Alexander 1959)).

Suborder Brachycera Macquart, 1834**Family Stratiomyidae Latreille, 1802****Subfamily Sarginae Leach, 1815****Genus *Ptecticus* Loew, 1855****5. *Ptecticus vulpianus* (Enderlein, 1914)**

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley (Hassan et al. 2019)); India, Indonesia, Japan, Malaysia, Taiwan (Rozkošný & Hauser 2009).

6. *Ptecticus melanurus* (Walker, 1848)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley (Hassan et al. 2019)); China, India, Indonesia, Thailand, Singapore, Nepal, West and East Malaysia, Malaysia (Rozkošný & Kovac 2003).

Family Tabanidae Latreille, 1802**Subfamily Chrysopsinae Lutz, 1905****Genus *Haematopota* Meigen, 1803****7. *Haematopota kashmirensis* Stone and Philip, 1974**

Distribution: Pakistan (Gilgit-Baltistan terr., Baltistan div., Skardu; Khyber Pakhtunkhwa prov., Hazara div., Lalazar, Naran Valley (Stone & Philip 1974)); India (Stone & Philip 1974; Banerjee et al. 2018).

Family Syrphidae Latreille, 1802**Subfamily Eristalinae Newman, 1834****Genus *Mallota* Meigen, 1822****8. *Mallota rufipes* Brunetti, 1913**

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div.,

Goharaabad, Khyber Pakhtunkhwa prov., Dera Ismail Khan div., Dera Ismail Khan city (Arif 2001; Ghorpadé & Shehzad 2013; Ghorpadé 2015)); India (Ghorpadé 2015; Banerjee et al. 2018).

Genus *Mesembrius* Rondani, 1857**9. *Mesembrius quadrivittatus* (Wiedemann, 1819)**

Distribution: Pakistan (Gilgit-Baltistan terr., Skardu div., Khaplo, Daghoni; Punjab prov., Gujranwala div., Shakargarh (Hassan et al. 2017; Shehzad et al. 2017)); India, Nepal (Brunetti 1923; Thapa 2000; Ghorpadé 2015).

Genus *Ceriana* Fabricius, 1794**10. *Ceriana dimidiatipennis* (Brunetti, 1923)**

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa Lake; Gilgit-Baltistan terr., Gilgit div., Gorikot; Balochistan prov., Quetta div., Quetta; Khyber Pakhtunkhwa prov., Hazara div., Abbottabad city, Kohat div., Hangu, Malakand div., Swat city (Brunetti 1923; Alam et al. 1969; Knutson et al. 1975; Aslamkhan et al. 1997; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Hassan et al. 2018)); India (Brunetti 1923; Ghorpadé 2015).

11. *Ceriana brevis* (Brunetti, 1923)

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available (Brunetti 1923; Aslamkhan et al. 1997; Ghorpadé & Shehzad 2013; Ghorpadé 2015)); India (Brunetti 1923; Ghorpadé & Shehzad 2013; Ghorpadé 2015).

Genus *Eristalis* Latreille, 1804**Subgenus *Eoseristalis* Kanervo, 1938****12. *Eristalis (Eoseristalis) albibasis* Bigot, 1880**

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Karimabad (Shehzad et al. 2017)); India (Brunetti 1923; Ghorpadé 2015; Thapa 2000; Banerjee et al. 2018).

13. *Eristalis (Eoseristalis) arbustorum* (Linnaeus, 1758)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot Valley, Singolla, Jandala; Gilgit-Baltistan terr., Gilgit div., Gohrabad.; Khyber Pakhtunkhwa prov., Malakand div., Dir, Dorosh; Balochistan prov., Sibi div., Ziarat; Punjab prov., Multan div., Multan, Rawalpindi div., Murree (Aslamkhan et al. 1997; Arif 2001; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Hassan et al. 2018)); Afghanistan, India (Brunetti 1923; Ghorpadé 2015; Banerjee et al. 2018).

14. *Eristalis (Eoseristalis) cerealis* Fabricius, 1805

Distribution: Pakistan (Azad Jammu & Kashmir terr.,

Poonch div., Banjosa lake, Datote, Jandala, Sangolla; Khyber Pakhtunkhwa prov., Malakand div., Meena Khor, Lawari Tunnel, Hazara div., Punjab prov., Rawalpindi div., Murree, Dana (Shehzad et al. 2017; Hassan et al. 2018)); India, Myanmar, Nepal (Ghorpadé 2015; Thapa 2000; Banerjee et al. 2018).

15. *Eristalis (Eoseristalis) himalayensis* Brunetti, 1908

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa Lake (Hassan et al. 2018)); India, Nepal (Thapa 2000; Ghorpadé 2015; Banerjee et al. 2018).

Genus *Eristalis* Latreille, 1804

Subgenus *Eristalis* Latreille, 1804

16. *Eristalis tenax* (Linnaeus, 1758)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Jandala, Sangolla, Hajira; Balochistan prov., Quetta div., Quetta, Sibi div., Sibi, Ziarat; Gilgit-Baltistan terr., Baltistan div., Gorikot, Karimabad; Khyber Pakhtunkhwa prov., Hazara div., Hazara, Peshawar div., Peshwar city; Punjab prov., Rawalpindi div., Murree, Ghora Gali, Ali Pur, Faisalabad div., Faisalabad, Multan div., Khanewal, Multan, Lahore div., Lahore, Gujranwala div., Shakargarh (Rahman 1942; Aslamkhan et al. 1997; Arif 2001; Saleem et al. 2001; Sajjad & Saeed 2010; Sajjad et al. 2010; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Hassan et al. 2017, 2018; Shehzad et al. 2017; Banerjee et al. 2018)); Widely distributed throughout the world, in all zoogeographical regions (van Veen 2010; Ghorpadé 2015; Banerjee et al. 2018).

Genus *Eristalinus* Rondani, 1845

Subgenus *Eristalinus* Rondani, 1845

17. *Eristalinus (Eristalinus) aeneus* (Scopoli, 1763)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa Lake; Balochistan prov., Quetta div., Quetta, Sibi div., Ziarat, Makran div., Panjgur; Khyber Pakhtunkhwa prov., Peshawar div., Peshawar city, Malakand div., Chitral, Garam Chashma; Punjab prov., Dera Ghazi Khan div., Chit Dagar, Jatoi, Multan div., Multan, Khanewal, Rawalpindi div., Alipur, Jhelum, Faisalabad div., Faisalabad, Lahore div., Lahore, Bahawalpur div., Bahawalpur, Zahir Peer, Gujranwala div., Shakargarh; Sindh prov., Karachi div., Karachi (Rahman 1942; Aslamkhan et al. 1997; Arif 2001; Saleem et al. 2001; Arif et al. 2002; Saeed et al. 2008; Sajjad et al. 2008, 2010; Sajjad & Saeed 2010; Ali et al. 2011; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Shehzad et al. 2017; Hassan et al. 2017, 2018)); Afghanistan, India (Ghorpadé 2015).

18. *Eristalinus (Eristalinus) arvorum* (Fabricius, 1787)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa Lake Islamabad capi., Chak Shehzad; Punjab prov., Dera Ghazi Khan div., Chit Dagar, Rawalpindi div., Murree, Ghora Gali, Multan div., Multan, Khanewal, Lahore div., Lahore, Gujranwala div., Shakargarh, Noor kot; Sindh prov., Karachi div., Karachi (Aslamkhan et al. 1997; Saeed et al. 2008; Sajjad & Saeed 2010; Sajjad et al. 2010; Ali et al. 2011; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Shehzad et al. 2017; Hassan et al. 2017, 2018)); India, Nepal, Malaysia (Ghorpadé 2015; Thapa 2000; Heo et al. 2020).

19. *Eristalinus (Eristalinus) megagephalus* (Rossi, 1794)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa Lake; Punjab prov., Gujranwala div., Shakargarh, Noor kot (Hassan et al. 2017, 2018)); Afghanistan, India, Nepal (Ghorpadé 2015).

20. *Eristalinus (Eristalinus) obliquus* (Wiedemann, 1824)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa Lake; Punjab prov., Gujranwala div., Shakargarh (Hassan et al. 2017, 2018)); India, Nepal, Sri Lanka (Ghorpadé 2015).

21. *Eristalinus (Eristalinus) sepulchralis* (Linnaeus, 1758)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley; Balochistan prov., Quetta div., Quetta, Makran div., Panjgur; Islamabad capi., Chak Shehzad; Khyber Pakhtunkhwa prov., Peshawar div., Peshawar city; Punjab prov., Rawalpindi div., Jhelum (Aslamkhan et al. 1997; Arif 2001; Saleem et al. 2001; Arif et al. 2002; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Shehzad et al. 2017; Hassan et al. 2018)); Afghanistan, China, India (Ghorpadé 2015).

22. *Eristalinus (Eristalinus) tarsalis* (Macquart, 1855)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa Lake, Hajira; Punjab prov., Gujranwala div., Shakargarh (Hassan et al. 2017, 2018)); Nepal, India (Thapa 2000; Ghorpadé 2015).

Subgenus *Eristalodes* Mik, 1897

23. *Eristalinus (Eristalodes) taeniops* (Wiedemann, 1818)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa, Jandala, Sangolla, Hajira, Hussainkot; Balochistan prov., Quetta div., Quetta,

Pishin; Khyber Pakhtunkhwa prov., Malakand div., Lawari Tunnel; Punjab prov., Dera Ghazi Khan div., Muzaffargarh, Multan, Khanewal, Faisalabad div., Faisalabad, Jhang, Rawalpindi div., Murree, Ghora gali, Ali Pur, Bahawalpur div., Zahir Peer, Gujranwala div., Shakargarh (Rahman 1942; Aslamkhan et al. 1997; Arif 2001; Sajjad & Saeed 2009, 2010; Sajjad et al. 2010; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Shehzad et al. 2017; Hassan et al. 2018)); Afghanistan, Nepal, India (Thapa 2000; Ghorpadé 2015).

Genus *Syrirta* Lepeletier & Serville, 1828

24. *Syrirta orientalis* Macquart, 1842

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley; Punjab prov., Dera Ghazi Khan div., Muzaffargarh, Lahore div., Lahore, Gujranwala div., Shakargarh (Alam et al. 1969; Aslamkhan et al. 1997; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Shehzad et al. 2017; Hassan et al. 2017, 2018)); India, Nepal (Ghorpadé 2015).

25. *Syrirta pipiens* (Linnaeus, 1758)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley, Hajira Khyber Pakhtunkhwa prov., Banu div., Banu, Hazara div., Abbottabad city, Chattar Plan, Kohat div., Hangu, Kaghan, Narran, Malakand div., Punjab prov., Dera Ghazi Khan div., Muzaffargarh, Multan div., Multan, Khanewal, Rawalpindi div., Murree, Gujranwala div., Shakargarh (Alam et al. 1969; Sajjad & Saeed 2010; Sajjad et al. 2010; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Shehzad et al. 2017; Hassan et al. 2017, 2018)); Africa, Asia, Europe, India, Nepal, North America (Thapa 2000; Ghorpadé 2015).

Genus *Rhingia* Scopoli, 1763

26. *Rhingia angusticincta* Brunetti, 1908

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa (Hassan et al. 2018)); India (Ghorpadé 2015).

27. *Rhingia siwalikensis* Nayar, 1968

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa (Hassan et al. 2018)); India, Nepal (Ghorpadé 2015)).

Genus *Xylota* Meigen, 1822

28. *Xylota coquilletti* Hervé-Bazin, 1914

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot (Hassan et al. 2021a)); Russia, Japan, China, South Korea (Jeong & Han 2019).

29. *Xylota nursei* Brunetti, 1923

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot; Khyber Pakhtunkhwa province: Peshawar div., Hayatabad, Nowai Kalai, Pawaki (Hassan et al. 2021a; Ghorpadé & Shehzad 2013; Shehzad et al. 2017)); India (Brunetti 1923; Ghorpadé 2015).

Subfamily Syrphinae Samouelle, 1819

Genus *Baccha* Fabricius, 1805

30. *Baccha maculata* Walker, 1852

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa; Punjab prov., Rawalpindi div., Murree, Numb Behra Mall, Kuldana (Hassan et al. 2018)); India, Nepal (Thapa 2000; Ghorpadé 2015; Banerjee et al. 2018).

Genus *Platycheirus* Lepeletier and Serville, 1828

31. *Platycheirus albimanus* (Fabricius, 1781)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley (Hassan et al. 2018)); India, Nepal (Thapa 2000; Ghorpadé 2015; Banerjee et al. 2018).

32. *Platycheirus ambiguus* (Fallén, 1817)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley (Hassan et al. 2018)); Afghanistan, India (Ghorpadé 2015; Banerjee et al. 2018).

Genus *Volucella* Geoffroy, 1762

33. *Volucella peleterii* Macquart, 1834

Distribution: Pakistan (Azad Jammu & Kashmir terr., Muzaffarabad div., Guldana; Gilgit-Baltistan terr., Gilgit div., Gilgit (Ghorpadé 2015; Shehzad et al. 2017; Hassan et al. 2020)); India (Ghorpadé 2015).

34. *Eristalinus ruficauda* Brunetti, 1907

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Doesai (Ghorpadé 2015; Shehzad et al. 2017; Hassan et al. 2020)); India (Ghorpadé 2015).

Genus *Paragus* Latreille, 1804

Subgenus *Pandasyophthalmus* Stuckenberg, 1954

35. *Paragus (Pandasyophthalmus) annandalei*

Ghorpadé, 1992

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley (Hassan et al. 2018)); India (Ghorpadé 2015).

36. *Paragus (Pandasyopthalmus) politus* Wiedemann, 1830

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley Jandala, Hajira; Islamabad capital, Shakarparia; Khyber Pakhtunkhwa: Hazara div., Balakot, Malakand div., Swat, Kohat div., Kohat city; Punjab prov., Rawalpindi div., Murree (Ghorpadé & Shehzad 2013; Shehzad et al. 2017; Hassan et al. 2018)); Afghanistan, China, India, Indonesia, Malaysia, Nepal, Philippines, Thailand, West Bengal (Ghorpadé 2015).

37. *Paragus (Pandasyopthalmus) haemorrhous* Meigen, 1822

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley, Jandala; Balochistan prov., Quetta div., Quetta; Islamabad capi., Shakarparia (Turk et al. 2014; Shehzad et al. 2017; Hassan et al. 2018)); Afghanistan, China, Iran, Ireland, Israel, Italy, Kazakhstan, Malta, Mongolia, North Africa, North America, Norway, Russia, Tajikistan, Turkey, Turkmenistan (Ghorpadé 2015).

Subgenus *Paragus* Latreille, 1804

38. *Paragus (Paragus) quadrifasciatus* Meigen, 1822

Distribution: Pakistan (Gilgit-Baltistan terr., Baltistan div., Skardu (Ghorpadé & Shehzad 2013; Shehzad et al. 2017; Hassan et al. 2018)); Afghanistan, China, India, Iran, Kazakhstan, Kirghizia, Russia, Tajikistan, Turkmenistan (Sorokina 2009; Ghorpadé & Shehzad 2013; Ghorpadé 2015).

39. *Paragus (Paragus) compeditus* Wiedemann, 1830

Distribution: Pakistan (Gilgit-Baltistan terr., Baltistan div., Skardu; Khyber Pakhtunkhwa prov., Peshawar div., Peshawar city (Saleem et al. 2001; Ghorpadé & Shehzad 2013; Shehzad et al. 2017; Hassan et al. 2018)); Afghanistan, Iran (Khaghaninia & Hosseini 2013; Ghorpadé 2015).

Genus *Asarkina* Macquart, 1834

40. *Asarkina incisuralis* (Macquart, 1855)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa (Hassan et al. 2018)); India, Nepal, Bangladesh, Sri Lanka (Ghorpadé 2015).

Genus *Betasyrphus* Matsumura, 1917

41. *Betasyrphus aeneifrons* (Brunetti, 1913)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley (Hassan et al. 2018)); India, Nepal (Shah et al. 2014; Ghorpadé 2015; Mitra

et al. 2015).

42. *Betasyrphus isaaci* (Bhatia, 1933)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa; Islamabad capi., Shakarparia; Khyber Pakhtunkhwa prov., Hazara div., Aamgah; Punjab prov., Rawalpindi div., Murree, Gujranwala div., Shakargarh (Shehzad et al. 2017; Hassan et al. 2018)); India, Myanmar, Nepal (Shah et al. 2014; Ghorpadé 2015; Mitra et al. 2015).

Genus *Chrysotoxum* Meigen, 1803

43. *Chrysotoxum baphyrum* Walker, 1849

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa, Rawalakot valley; Muzafarabad div., Panjkot; Islamabad capital, Chak shehzad; Khyber Pakhtunkhwa prov., Peshawar div., Peshawar city (Alam et al. 1969; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Shehzad et al. 2017; Hassan et al. 2018)); India, Myanmar, Sri Lanka, Nepal (Thapa 2000; Ghorpadé 2015).

44. *Chrysotoxum intermedium* Meigen, 1822

Distribution: Pakistan (Gilgit-Baltistan terr., Baltistan div., Skardu, Deosai; Khyber Pakhtunkhwa prov., Hazara div., Hazara, Naran Valley Malakand div., Miandam; Malakand Div., Chitral, Hazara div., Balakot (Alam et al. 1969; Aslamkhan et al. 1997; Ghorpadé & Shehzad 2013; Ghorpadé 2015)); India (Brunetti 1923; Shannon 1926; Bańkowska 1969; Alam et al. 1969; Violovitsh 1974; Knutson et al. 1975; Peck 1988; Ghorpadé 1981, 1994, 2012, 2014; Aslamkhan et al. 1997; Ghorpadé & Shehzad 2013; Shah et al. 2014; Mitra et al. 2015).

Genus *Episyrphus* Matsumura and Adachi 1917

45. *Episyrphus balteatus* (De Geer, 1776)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa, Rawalakot valley, Sangolla, Muzafarabad div., Panjkot; Islamabad capital, Chak shehzad; Balochistan prov., Makran div., Gwadar city; Gilgit-Baltistan terr., Gilgit div., Gohrabad; Khyber Pakhtunkhwa prov., Malakand div., Miandam, Dargai, Timurgarh; Hazara div., Abbottabad city, Mardan city, Batrasi, Ghari Habibullah, Kaghan, Narran, Peshawar div., Charsadda, Nowshera city, Kohat div., Hangu, Kohat city; Punjab prov., Rawalpindi div., Bhurban, Ghora gali, Murree, Jhelum, Faisalabad div., Faisalabad; Multan div., Khanewal city, Lahore div., Lahore; Dera Ghazi Khan div., Muzaffargarh, Gujrawala div., Saikot city, Gujranwala div., Shakargarh; Sindh prov., Hyderabad div., Tando jam (Rahman 1940, 1942; Alam

et al. 1969; Hamid 1984; Talpur et al. 1995; Aslamkhan et al. 1997; Arif 2001; Saleem et al. 2001; Irshad 2008; Saeed et al. 2008; Sajjad et al. 2008, 2010; Sajjad & Saeed 2010; Ali et al. 2011; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Shehzad et al. 2017; Hassan et al. 2017, 2018)); Widespread species - Afghanistan, India, Nepal (Thapa 2000; Ghorpadé 2015; Banerjee et al. 2018).

46. *Episyrphus viridaureus* (Wiedemann, 1824)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa, Rawalakot valley, Jandala, Sangolla; Punjab prov., Gujranwala div., Shakargarh (Hassan et al. 2017, 2018)); India, Bangladesh, Sri Lanka, Java, Nepal (Ghorpadé 2015; Banerjee et al. 2018).

Genus *Ischiodon* Sack, 1913

47. *Ischiodon scutellaris* (Fabricius, 1805)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa, Rawalakot valley, Jandala, Hajira; Islamabad capi., terri., Chak shehzad; Khyber Pakhtunkhwa: Hazara div., Balakot, Malakand div., Swat, Butkhela, Dir, Peshawar div., Peshawar city; Punjab prov., Multan div., Multan, Khanewal, Rawalpindi div., Murree, Ghora gali, Gujranwala div., Shakargarh (Alam et al. 1969; Sajjad & Saeed 2010; Sajjad et al. 2010; Ali et al. 2011; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Shehzad et al. 2017; Hassan et al. 2017, 2018)); India, Bangladesh, Afghanistan, Myanmar, Sri Lanka, Nepal (Ghorpadé 2015; Banerjee et al. 2018).

Genus *Eupeodes* Osten Sacken, 1877

48. *Eupeodes bucculatus* (Rondani, 1857)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa, Rawalakot valley, Jandala, Sangolla, Punjab prov., Gujranwala div., Shakargarh (Hassan et al. 2017, 2018)); Afghanistan, Bhutan, India, Nepal (Ghorpadé 2015; Banerjee et al. 2018).

49. *Eupeodes corollae* (Fabricius, 1794)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa, Rawalakot valley, Hajira; Punjab prov., Multan div., Multan, Khanewal, Rawalpindi div., Murree, Ghora gali, Lahore div., Lahore, Dera Ghazi Khan div., Muzaffargarh, Gujranwala div., Shakargarh; Khyber Pakhtunkhwa prov., Malakand div., Dir, Kohat div., Hangu, Peshawar div., Peshawar city (Aslamkhan et al. 1997; Irshad 2008; Saeed et al. 2008; Sajjad et al. 2008, 2010; Sajjad & Saeed 2010; Ali et al. 2011; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Shehzad

et al. 2017; Hassan et al. 2017, 2018)); Afghanistan, Bhutan, India, Nepal (Ghorpadé 2015; Banerjee et al. 2018).

50. *Eupeodes latifasciatus* (Macquart, 1829)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa, Rawalakot valley; Balochistan prov., Makran div., Gwadar city; Punjab prov., Multan div., Khanewal, Lahore div., Lahore, Gujranwala div., Shakargarh (Aslamkhan et al. 1997; Arif 2001; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Shehzad et al. 2017; Hassan et al. 2017, 2018)); Afghanistan, India, Nepal (Ghorpadé 2015; Banerjee et al. 2018).

Genus *Scaeva* Fabricius, 1805

51. *Scaeva latimaculata* (Brunetti, 1923)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley, Banjosa; Gilgit-Baltistan terr., Gilgit div., Goharabad, Miskqat; Astore, Gilgit (Naltar), Skardu; Khyber Pakhtunkhwa prov., Hazara div., Abbottabad city, Peshawar div., Peshawar city; Punjab prov., Multan div., Multan, Khanewal, Dera Ghazi Khan div., Muzaffargarh, Gujranwala div., Shakargarh; Sindh prov., Sukkur div., Sukkur (Aslamkhan et al. 1997; Sajjad et al. 2010; Sajjad & Saeed 2010; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Shehzad et al. 2017; Hassan et al. 2017, 2018)); Afghanistan, India, Nepal (Thapa 2000; Banerjee et al. 2018; Hassan et al. 2018).

52. *Scaeva pyrastris* (Linnaeus, 1758)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa, Rawalakot valley; Khyber Pakhtunkhwa prov., Hazara div., Abbottabad city, Malakand div., Swat, Dargai, Dir, Peshawar div., Peshawar city, Punjab prov., Rawalpindi div., Rawalpindi, Murree, Ghora gali, Dalha, Rawat (Alam et al. 1969; Irshad 2008; Sajjad & Saeed 2010; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Hassan et al. 2018)); Afghanistan, India (Ghorpadé 2015).

Genus *Sphaerophoria* Lepeletier and Serville, 1828

53. *Sphaerophoria bengalensis* Macquart, 1842

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley, Sangola, Hajira (Hassan et al. 2018)); Afghanistan, India, Nepal (Ghorpadé 2015; Thapa 2000; Banerjee et al. 2018).

54. *Sphaerophoria indiana* Bigot, 1884

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley, banjosa, Sangola;

Khyber Pakhtunkhwa prov., Malakand div., Swat, Dir, Peshawar div., Peshawar city; Punjab prov., Rawalpindi div., Bhurban, Ghora gali, Murree, Rawat (Alam et al. 1969; Irshad 2008; Sajjad & Saeed 2010; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Shehzad et al. 2017; Hassan et al. 2018)); Afghanistan, Bhutan, India, Myanmar, Nepal (Ghorpadé 2015; Banerjee et al. 2018; Thapa 2000).

55. *Sphaerophoria scripta* (Linnaeus, 1758)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley, Banjosa, Hajira; Khyber Pakhtunkhwa prov., Malakand div., Dir, Kohat div., Hangu, Peshawar div., Peshawar city, Malakand div., Swat; Punjab prov., Multan div., Multan, Gujranwala div., Shakargarh (Arif 2001; Arif et al. 2001; Saeed et al. 2008; Sajjad et al. 2008; Ghorpadé & Shehzad 2013; Ghorpadé 2015; Shehzad et al. 2017; Hassan et al. 2017, 2018)); Afghanistan, India, Nepal (Thapa 2000; Ghorpadé 2015).

Genus *Syrphus* Fabricius, 1775

56. *Syrphus dalhousiae* Ghorpadé, 1994

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley (Hassan et al. 2018)); India, Nepal (Ghorpadé 2015).

57. *Syrphus fulvifacies* Brunetti, 1913

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley (Hassan et al. 2018)); India, Nepal (Ghorpadé 2015).

58. *Syrphus torvus* (Osten Sacken, 1875)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley (Hassan et al. 2018)); India, Nepal (Ghorpadé 2015; Thapa 2000).

59. *Syrphus vitripennis* Meigen, 1822

Distribution: Pakistan (Gilgit–Baltistan terr., Gilgit div., Gilgit, Naltar; Punjab prov., Rawalpindi div., Rawalpindi, Murree, Sunny (Shehzad et al. 2017)); India (Ghorpadé 2009; Shehzad et al. 2017).

Genus *Xanthogramma* Schiner, 1860

60. *Xanthogramma pedissequum* (Harris, 1776)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley; Khyber Pakhtunkhwa prov., Malakand Div., Bumburiate; Miandum (Aslamkhan et al. 1997; Ghorpadé 2015; Shehzad et al. 2017)); India (Ghorpadé 2015).

Family Calliphoridae Brauer & Bergenstamm, 1889

Subfamily Calliphorinae Brauer & Bergenstamm, 1889

Genus *Calliphora* Robineau-Desvoidy, 1830

61. *Calliphora chinghaiensis* Van et Ma, 1978

Distribution: Pakistan (Gilgit–Baltistan terr., Gilgit div., Khunjerab Pas (Kurahashi & Afzal 2002)); China, Nepal (Thapa 2000; Kurahashi & Afzal 2002).

62. *Calliphora himalayana* Kurahashi, 1994

Distribution: Pakistan (Gilgit–Baltistan terr., Gilgit div., Khunjerab Pas, Astore div., Babusar, Chilas (Kurahashi & Afzal 2002)); Nepal (Thapa 2000; Kurahashi & Afzal 2002).

63. *Calliphora loewi* Enderlein, 1903

Distribution: Pakistan (Azad Jammu & Kashmir terr.; Poonch div., Banjosa lake; Khyber Pakhtunkhwa prov., Hazara div., Natiagali, Dunga Gali, Ayubia Nat. Park, Thandani, Saiful–Malook Lake, Naran, Lalazar, Kagan, Malakand div., Swat, Kalam (Hassan et al. 2018)); Austria, Canada, Ukraine, Nepal, Netherland, Switzerland, Sweden, Poland, Romania, Russia, Italy, Hungary, Germany, Finland (Thapa 2000; Prado et al. 2016).

64. *Calliphora uralensis* Villeneuve, 1922

Distribution: Pakistan (Gilgit–Baltistan terr., Gilgit div., Khunjerab Pas, Astore div., Babusar, Chilas (Kurahashi & Afzal 2002)); China, Russia (Kurahashi & Afzal 2002).

65. *Calliphora vicina* Robineau–Desvoidy, 1830

Distribution: Pakistan (Balochistan prov., Sibi div., Ziarat; Gilgit–Baltistan terr., Gilgit div., Khunjerab Pas, Gakuch, Astore div., Chitral, Chilas, Murtazabad, Naltar, Kalash valley, Gulmit; Khyber Pakhtunkhwa prov., Hazara div., Natiagali, Ayubia Nat. Park, Thandani, Saiful–Malook Lake, Naran, Kagan, Malakand div., Swat (Kurahashi & Afzal 2002; Hassan et al. 2018)); China, Nepal, India, Australia, New Zealand, Russia, Mauritius, South Africa, Argentina, Cosmopolitan (Thapa 2000; Kurahashi & Afzal 2002; Rognes 2007).

66. *Calliphora vomitoria* (Linnaeus, 1758)

Distribution: Pakistan (Azad Jammu & Kashmir terr.; Poonch div., Banjosa lake, Gilgit–Baltistan terr., Gilgit div., Khunjerab Pas, Naltar; Khyber Pakhtunkhwa prov., Hazara div., Natiagali, Dunga Gali, Ayubia Nat. Park, Thandani, Saiful–Malook Lake, Naran, Lalazar, Kagan, Malakand div., Swat, Kalam; Punjab prov., Rawalpindi div., Murree, Dunga Gali (Kurahashi & Afzal 2002; Hassan et al. 2018)); China, Thailand, Nepal,

India, Afghanistan, Japan, Korea, Taiwan, Philippines, Europe, Morocco, Canary Is., N, America, Hawaiian Is. (Thapa 2000; Kurahashi & Afzal 2002).

Genus *Cynomya* Robineau-Desvoidy, 1830

67. *Cynomya mortuorum* (Linnaeus, 1761)

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Khunjerab Pas (Kurahashi & Afzal 2002)); China, Mongolia, Russia (Kurahashi & Afzal 2002).

Genus *Onesia* Robineau-Desvoidy, 1830

68. *Onesia menechmoides* (Chen, 1979)

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Khunjerab Pas, Khyber Pakhtunkhwa prov., Malakand div., Mingora; Hazara div., Kalam Valley, Miandam (Kurahashi & Afzal 2002)); China, Japan (Kurahashi & Afzal 2002).

69. *Onesia pamirica* Rohdendorf, 1962

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Khunjerab Pas (Kurahashi & Afzal 2002)); China, Kirgizatan, Tadzhikistan (Kurahashi & Afzal 2002).

Genus *Melinda* Robineau-Desvoidy, 1830

70. *Melinda scutellata* (Senior-White, 1923)

Distribution: Pakistan (Azad Jammu & Kashmir terr.; Khyber Pakhtun khwa prov., Malakand div., Swat, Kalam, Shangla pass, Daroa, Hazara div., Abbottabad, Natiagali, Ayubia National Park; Gilgit-Baltistan terr., Gilgit div., Naltar, Kalash valley; Punjab prov., Rawalpindi div., Murree, Miandurn (Kurahashi & Afzal 2002)); Malaysia, Myanmar, Nepal (Thapa 2000; Kurahashi & Afzal 2002).

Subfamily Luciliinae Shannon, 1923

Genus *Lucilia* Robineau-Desvoidy, 1830

71. *Lucilia porphyrina* (Walker, 1856)

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Naltar, Kalash valley; Khyber Pakhtunkhwa prov., Malakand div., Swat, Kalam, Miandarn, Shangla pass, Daroa; Buttgram, Hazara div., Natiagali, Ayubia, Saiful-Malook Lake, Naran, Kagan, Balakot, Punjab prov., Rawalpindi div., Murree (Kurahashi & Afzal 2002; Hassan et al. 2018)); China, Thailand, Malaysia, India, Bangladesh, Sri Lanka, Nepal, Japan, Taiwan, Korea, Philippines, Indonesia, Papua New Guinea, Australia, East Palaearctic Regions (Kurahashi & Afzal 2002).

72. *Lucilia sericata* (Meigen, 1826)

Distribution: Pakistan (Balochistan prov., Quetta div., Quetta, Sibi div., Ziarat; Gilgit-Baltistan terr., Gilgit div.,

Naltar, Kalash valley, Gulmit, Inaoka, Ultar Glacier, Gakuch; Khyber Pakhtunkhwa prov., Malakand div., Chitral, Kalam, Shangla pass, Daroa, Buttgram, Hazara div., Natiagali, Naran, Kagan; Punjab prov., Rawalpindi div., Murree, Dera Ghazi Khan div., Dera Ghazi Khan., Fort Munro (Kurahashi & Afzal 2002)); Nearctic Region (Whitworth 2010), wide distribution in all countries of the Middle East. Japan, Korea, Taiwan, Philippines, China, Sri Lanka, Europe (Kurahashi & Afzal 2002; Akbarzadeh et al. 2015).

Subfamily Polleniinae Brauer and Bergenstamm, 1889

Genus *Pollenia* Robineau-Desvoidy, 1830

73. *Pollenia pediculate* Macquart, 1834

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Gilgit, Astore div., Murtazabad; Balochistan prov., Quetta div., Quetta; Khyber Pakhtunkhwa prov., Hazara div., Natiagali, Dunga Gali, Ayubia National Park (Kurahashi & Afzal 2002)).

74. *Pollenia rudis* (Fabricius 1794)

Distribution: Pakistan (Balochistan prov., Sibi div., Ziarat; Gilgit-Baltistan terr., Gilgit div., Caryga village, Gilgit, town, Naltar, Astore div., Murtazabad; Khyber Pakhtun khwa prov., Malakand div., Swat, Miandum, Kalam, Hazara div., Natiagali; Punjab prov., Rawalpindi div., Murree (Thapa 2000; Kurahashi & Afzal 2002)); Widely distributed in the Palaearctic, Nearctic Regions (Kurahashi & Afzal 2002).

Subfamily Chrysomyinae Shannon, 1923

Genus *Chrysomya* Robineau-Desvoidy, 1830

75. *Chrysomya phaonis* Séguy, 1928

Distribution: Pakistan (Balochistan prov., Sibi div., Ziarat; Gilgit-Baltistan terr., Gilgit div., Gilgit, Caryga village, Gilgit, town, Naltar, Gulmit, Gakuch Astore div., Murtazabad, Chitral, Babusar; Khyber Pakhtunkhwa prov., Malakand div., Swat, Miandum, Kalam, Hazara div., Natiagali, Ayubia, Naran, Kagan, Saiful-Malook Lake (Kurahashi & Afzal 2002)); China, Nepal, India, Afghanistan (Thapa 2020; Kurahashi & Afzal 2002).

Genus *Protocalliphora* Hough, 1899

76. *Protocalliphora azurea* (Fallén, 1817)

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Khunjerab Pas, Khyber Pakhtunkhwa prov., Hazara div., Natiagali, Thandani; Punjab prov., Rawalpindi div., Murree (Kurahashi & Afzal 2002)); Widely distributed in the temperate Asia, Palaearctic Region, North America, Europe (Sabrosky et al. 1989).

77. *Protocalliphora terraenovae* (Robineau Desvoidy, 1830)

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Khunjerab Pas (Kurahashi & Afzal 2002)); widely distributed in the Palaearctic, Nearctic Region (Kurahashi & Afzal 2002).

Genus *Isomyia* Walker, 1860

78. *Isomyia electa* (Villeneuve, 1927)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot; Gilgit-Baltistan terr., Baltistan div., Skardu (Hassan et al. 2018)); India, Thailand (Kurahashi & Afzal 2002).

Subfamily Rhiniinae Brauer & Bergenstamm, 1889

Genus *Rhinia* Robineau-Desvoidy, 1830

79. *Rhinia apicalis* (Wiedemann, 1830)

Distribution: Pakistan (Jammu & Kashmir terr., Poonch div., Banjosa Lake, Hajira (Hassan et al. 2018)); India, Saudi Arabia, Thailand (Hassan et al. 2018).

Genus *Stomorphina* Rondani, 1861

80. *Stomorphina discolor* (Fabricius, 1794)

Distribution: Pakistan (Gilgit-Baltistan terr., Astore div., Astore; Chilas, Khyber Pakhtunkhwa prov., Hazara div., Abbottabad, Natiagali, Ayubia National Park, Kohat div., Manshera, Malakand div., Swat, Kalam; Punjab prov., Rawalpindi div., Murree (Hassan et al. 2018)); Taiwan, Philippines, China, Vietnam, Laos, Thailand, Malaysia, Indonesia, Australia, India, Sri Lanka and Fiji. Widely distributed in the Indo-Australian Region (Kurahashi & Afzal 2002).

81. *Stomorphina xanthogaster* (Wiedemann, 1820)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Hajira (Hassan et al. 2018)); China, India, Indonesia, Malaysia, Nepal, Sri Lanka (Thapa 2000; Hassan et al. 2018).

Family Fanniidae Schnabl, 1911

Subfamily Fanninae Schnabl, 1911

Genus *Fannia* Robineau-Desvoidy, 1830

82. *Fannia canicularis* (Linnaeus, 1761)

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available; Gilgit-Baltistan terr., Gilgit div., Gulmit; Khyber Pakhtunkhwa prov., Hazara div., Naran Valley, Kagan Valley, Ayubia National Park, Malakand div., Kalash Valley, Kalam Valley (Nishida 1989)); China, India, Nicobar Islands (Nishida 1989).

83. *Fannia dupla* Nishida, 1974

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available; Khyber Pakhtunkhwa prov., Hazara div., Ayubia National Park (Nishida 1989)); Nepal, Taiwan, Japan (Nishida 1994; Thapa 2000).

84. *Fannia indica* Chillcott, 1961

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available; Gilgit-Baltistan terr., Gilgit div., Gilgit; Khyber Pakhtunkhwa prov., Hazara div., Ayubia National Park (Nishida 1989)); India, Nepal (Nishida 1994; Thapa 2000).

85. *Fannia manicata* (Meigen, 1826)

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Gilgit, Bagrote Valley, Babusar Pass; Khyber Pakhtunkhwa prov., Hazara div., Gulmit Gali, Naran Valley, Saif-ul-Muluk Lake; Punjab prov., Rawalpindi div., Murree (Nishida 1989)); Nepal, Taiwan, Europe, China, Japan North Africa, Nearctic (Nishida 1994; Thapa 2000).

86. *Fannia scalaris* (Fabricius, 1794)

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Hunza Valley, Ultar Glacier, Gulmit; Khyber Pakhtunkhwa prov., Hazara div., Nathia Gali, Naran Valley, Malakand div., Kalam Valley; Punjab prov., Murree (Nishida 1989)); China, Taiwan, India, Holarctic, Nearctic, Ethiopian (Nishida 1989).

Family Rhinophoridae Robineau-Desvoidy, 1863

Subfamily Rhinophorinae Robineau-Desvoidy, 1863

Genus *Tromodesia* Rondani, 1856

87. *Tromodesia setiventris* (Rohdendorf, 1935)

Distribution: Pakistan (Gilgit-Baltistan terr., Baltistan div., Skardu (Cerretti et al. 2020)); Turkmenia (Cerretti et al. 2020).

Family Sarcophagidae Macquart, 1834

Subfamily Sarcophaginae Macquart, 1834

Genus *Ravinia* Robineau-Desvoidy, 1863

88. *Ravinia pernix* Harris, 1780

Distribution: Pakistan (Balochistan prov., Sibi div., Ziarat; Gilgit-Baltistan terr., Baltistan div., Gilgit div., Babusar Pass; Khyber Pakhtunkhwa prov., Hazara div., Ayubia Gali, Nathia Gali, Malakand div., Kalash Valley, Kalam Valley, Mingora, D.I. Khan div., Fort Munro; Punjab prov., Rawalpindi div., Murree (Sugiyama 1989)); Afghanistan, China, Europe, India, Japan, Korea, Middle East, Mongolia, Nepal, North Africa, USSR (Sugiyama 1989).

Genus *Sarcophaga* Meigen, 1826**89. *Sarcophaga aegyptica* (Salem, 1935)**

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Naltar Valley, Hunza Valley, Ultar Glacier, Gulmit; Khyber Pakhtunkhwa prov., Malakand div., Kalash Valley (Sugiyama 1989)); Egypt, Ethiopia, Europe, Iran, Israel, North Africa, Northwest China, USSR (Sugiyama 1989).

90. *Sarcophaga albiceps* Meigen, 1826

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Hunza Valley, Ultar Glacier; Khyber Pakhtunkhwa prov., Malakand div., Kalash Valley, Hazara div., Nathia Gali, Tandani, Balakot, Kot Gali, Kawai-Dasu, Miandam, Mingora; Punjab prov., Lahore div., Changa Manga (Sugiyama 1989)); Bismarck Arch, Borneo, China, Europe, Hawaii, India, Israel, Japan, Korea, Malaysia, Nepal, New Guinea, Philippines, Singapore, Solomon Is., Taiwan, Thailand, Turkey (Sugiyama 1989; Thapa 2000).

91. *Sarcophaga altitudinis* Sugiyama, 1964

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Khunjerab Pass (Sugiyama 1989)); USSR (Sugiyama 1989).

92. *Sarcophaga brevicornis* Ho, 1934

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Bagroth; Khyber Pakhtunkhwa prov., Malakand div., Kalam Valley, Miandam (Sugiyama 1989)); Borneo, China, Hainan Is., Japan, Korea, Malaysia, Nepal, Philippines, Singapore, Taiwan (Sugiyama 1989; Thapa 2000).

93. *Sarcophaga calicifera* Boettcher, 1912

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Chilas; Khyber Pakhtunkhwa prov., Malakand div., Tandani, Mingora; Sindh prov., Hyderabad div., Hyderabad, Karachi div., Karachi (Sugiyama 1989)); China, India, Nepal, Nigeria, Philippines, Ryukyu Is., Sri Lanka, Taiwan, Uganda, Zaire (Sugiyama 1989; Thapa 2000).

94. *Sarcophaga cruentata* Meigen, 1826

Distribution: Pakistan (Balochistan div., Sibi div., Ziarat; Gilgit-Baltistan terr., Gilgit div., Chilas; Khyber Pakhtunkhwa prov., Hazara div., Ayubia Gali, Nathia Gali, Saif-ul-Muluk Lake; Malakand div., Kalash Valley, Kalam Valley, Kawai-Dasu; Punjab prov., Dera Ghazi Khan div., Fort Munro, Rawalpindi div., Murree (Sugiyama 1989)); Africa, Europe, Hawaii, India, Nepal,

North and South Americas (Sugiyama 1989; Thapa 2000).

95. *Sarcophaga doleschalii* Johnston et Tiegs, 1921

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available; Khyber Pakhtunkhwa prov., Hazara div., Ayubia Gali, Tandani, Nathia Gali; Punjab prov., Rawalpindi div., Murree (Sugiyama 1989)); Java, Moluccas, Nepal, Thailand, Vietnam (Sugiyama 1989; Thapa 2000).

96. *Sarcophaga flagellifera* Grunin, 1964

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Chilas (Sugiyama 1989)); Afghanistan, USSR (Sugiyama 1989).

97. *Sarcophaga gorodkovi* (Grunin, 1964)

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Gilgit, Khunjerab Pass (Sugiyama 1989)); Mongolia, USSR (Sugiyama 1989).

98. *Sarcophaga hirtipes* Wiedemann, 1830

Distribution: Pakistan (Balochistan prov., Kalat div., Quetta div., Quetta, Sibi div., Sibi; Gilgit-Baltistan terr., Gilgit div., Chilas; Khyber Pakhtunkhwa prov., Bannu div., Bannu, Kohat div., Kohat, D.I. Khan div., D.I. Khan, Fort Munro; Sindh prov., Hyderabad div., Hyderabad, Karachi div., Karachi (Sugiyama 1989)); Afghanistan, Afrotropical region, Algeria, China, Egypt, India, Iran, Iraq, Israel, Jordan, Lebanon, Morocco, Saudi Arabia, Syria, Turkey, USSR (Sugiyama 1989).

99. *Sarcophaga idmais* Séguéy, 1934

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available; Gilgit-Baltistan terr., Gilgit div., Naltar Valley; Khyber Pakhtunkhwa prov., Hazara div., Ayubia Gali, Nathia Gali, Lalazar, Naran Valley, Saif-ul-Muluk Lake, Malakand div., Kalam Valley, Miandam, Mingora, Shangla Pass; Punjab prov., Rawalpindi div., Murree (Sugiyama 1989)); China, Nepal, Taiwan, Thailand (Sugiyama 1989; Thapa 2000).

100. *Sarcophaga kentejana* (Rohdendorf, 1937)

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available; Gilgit-Baltistan terr., Gilgit div., Naltar Valley; Khyber Pakhtunkhwa prov., Hazara div., Naran Valley, Saif-ul-Muluk Lake (Sugiyama 1989)); China, Europe, Mongolia, USSR (Sugiyama 1989).

101. *Sarcophaga nathani* (Lopes, 1961)

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div.,



Gilgit.; hyber Pakhtunkhwa prov., Hazara div., Kagan Valley, Balakot, Malakand div., Kalash Valley, Kalam Valley, Marghazar, Kawai-Dasu (Sugiyama 1989)); India, Indonesia, Malaysia, Nepal, Thailand (Sugiyama 1989; Thapa 2000).

102. *Sarcophaga peshelicis* Senior-White, 1930

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available; Gilgi-Baltistan terr.; Khyber Pakhtunkhwa prov., Hazara div., Ayubia Gali, Nathia Gali, Lalazar, Naran Valley, Malakand div., Kalam Valley, Ushu; Punjab prov., Rawalpindi div., Murree (Sugiyama 1989)); India, Nepal (Sugiyama 1989; Thapa 2000).

103. *Sarcophaga portschinskyi* (Rohdendorf, 1937)

Distribution: Pakistan (Balochistan div., Sibi div., Ziarat; Gilgit-Baltistan terr., Gilgit div., Bagroth; Khyber Pakhtunkhwa prov., Hazara div., Lalazar, Naran Valley, Malakand div., Kalash Valley, Kalam Valley, Gabral, Ushu (Sugiyama 1989)); China, Europe, Mongolia, Turkey, USSR (Sugiyama 1989).

104. *Sarcophaga shresthai* Kano et Shinonaga, 1969

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available; Khyber Pakhtunkhwa prov., Hazara div., Kot Gali, Balakot, Kagan Valley, Darora, Marghazar, Miandam, Malakand div., Ayubia Gali, Nathia Gali (Sugiyama 1989)); Nepal (Sugiyama 1989).

105. *Sarcophaga tubersoa* Pandellé 1896

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Hunza Valley, Ultar Glacier (Sugiyama 1989)); China, Europe, Japan, Korea, Mongolia, North America, USSR (Sugiyama 1989).

106. *Sarcophaga yunnanensis* Fan, 1964

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available; Khyber Pakhtunkhwa prov., Hazara div., Kot Gali, Balakot, Malakand div., Ayubia Gali, Nathia Gali (Sugiyama 1989)); China, Thailand (Sugiyama 1989).

Family Tachinidae Bigot, 1853

Subfamily Phasiinae Robineau-Desvoidy, 1830

Genus *Cylindromyia* Meigen, 1803

107. *Cylindromyia evibrissata* Townsend, 1927

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available (Mohyuddin 1981)); China, Taiwan, India, Indonesia (O'Hara et al. 2021).

Subfamily Exoristinae Robineau-Desvoidy, 1863

Genus *Elodia* Robineau-Desvoidy, 1863

108. *Elodia morio* (Fallén, 1820)

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available (Mohyuddin 1981; O'Hara et al. 2021)); China, Europe, Japan, Mongolia, Russia (O'Hara et al. 2021).

Subfamily Dexiinae Macquart, 1834

Genus *Euthera* Loew, 1866

109. *Euthera tuckeri* Bezzi, 1925

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available (Cheema et al. 1973)); Botswana, Ghana, Kenya, Malawi, Mozambique; South Africa, Sudan, United Arab Emirates, Uganda, Zambia, Japan (O'Hara et al. 2021; O'Hara & Cerretti 2016).

Genus *Torocca* Walker, 1859

110. *Torocca munda* (Walker, 1856)

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available (Alam et al. 1969)); China, Palaearctic: Japan, India, Indonesia, Malaysia, Thailand, Vietnam (O'Hara et al. 2021).

Family Tephritidae Newman, 1834

Subfamily Dacinae Loew, 1862

Genus *Bactrocera* Macquart, 1835

Subgenus *Bactrocera* Guerin-Meneville, 1838

111. *Bactrocera (Bactrocera) dorsalis* (Hendel, 1794)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Hajira, Jandali, Banbhake (Zubair et al. 2019)); Taiwan, Singapore, Indian subcontinent and in South East Asia, Bangladesh, Bhutan, Cambodia, China, Jammu and Kashmir, Japan, Nepal, Pakistan, Sri Lanka, Taiwan, Thailand, United Arab Emirates, America, Angola, Botswana, Congo, Ethiopia, South Africa, Sudan, Australia, Guam and New Zealand (Halder et al. 2015).

112. *Bactrocera (Bactrocera) zonata* (Saunders, 1841)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Hajira, Jandali, Banbhake (Zubair et al. 2019)); Bangladesh, Bhutan, India, Jammu & Kashmir, Iran, Israel, Laos, Myanmar, Nepal, Saudi Arabia, Sri Lanka, Thailand, United Arab Emirates, Vietnam, Yemen, Egypt, Libya, Sudan, USA, New Zealand (Halder et al. 2015).

113. *Bactrocera (Bactrocera) correctata* (Bezzi, 1916)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Mandol (Zubair et al. 2019)); India, Sri

Lanka, Nepal, Thailand, Southern china, Bhutan, Japan, Myanmar, Taiwan, USA (Agarwal & Sueyoshi 2005).

114. *Bactrocera (Bactrocera) nigrofemoralis* Tsuruta & White, 2001

Distribution: Pakistan (Azad Jammu & Kashmir terr., Hajira, Jandali, Banbhake (Zubair et al. 2019)); China, Sri Lanka, India, Thailand, Nepal, Bhutan (Agarwal & Sueyoshi 2005).

Subgenus *Zeugodacus* Hendel, 1927

115. *Bactrocera (Zeugodacus) cucurbitae* (Coquillett, 1899)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Hajira, Jandali, Banbhake (Alam et al. 1969; Zubair et al. 2019)); Afghanistan, Bangladesh, Bhutan, Cambodia, China, Hong Kong, Japan, Nepal, Oman, India, Jammu and Kashmir, Iran, Taiwan, Israel, Laos, Myanmar, Nepal, Saudi Arabia, Sri Lanka, Thailand, United Arab Emirates, Vietnam, Yemen, Egypt, Kenya, Libya, Sudan, USA, Australia, New Zealand (Halder et al. 2015).

116. *Bactrocera (Zeugodacus) scutellaris* Bezzi, 1913

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Hajira, Jandali, Banbhake (Zubair et al. 2019)), Sri Lanka, India, Vietnam, Malaysia, Thailand, Myanmar, Bhutan, Nepal (Agarwal & Sueyoshi 2005).

117. *Bactrocera (Zeugodacus) tau* (Walker, 1849)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Hajira, Jandali, Banbhake (Zubair et al. 2019)); Bangladesh, Bhutan, Cambodia, Fujian, Hong Kong, Indonesia, Malaysia, Taiwan, Singapore, China, Sri Lanka, India, Vietnam, Malaysia, Thailand, Nepal (Halder et al. 2015).

Genus *Dacus* Fabricius, 1805

Subgenus *Callantra* Walker, 1860

118. *Dacus (Callantra) sphaerodalis* (Bezzi, 1916)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Mandol (Zubair et al. 2019)); China, Sri Lanka, India, Thailand, Nepal, Bhutan (Wang & Chen 2002; Zubair et al. 2019).

119. *Dacus (Callantra) longicornis* (Wiedemann, 1830)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Mandol (Zubair et al. 2019)); China, Sri Lanka, India, Thailand, Nepal (Wang & Chen 2002; Zubair et al. 2019).

Genus *Tephritis* Latreille, 1804

120. *Tephritis frauenfeldi* Hendel, 1927

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot valley, Rawalakot (Baloch et al. 1971)); Albania, Austria, Estonia, Greek mainland, Hungary, Italian mainland, Italy, Latvia, Lithuania, Moldova, Near East, Romania, Russia, Slovakia, Switzerland, Turkey, Ukraine (Foote 1984; Merz 1994; Özgür & Kütük 2003).

121. *Tephritis hyoscyami* Linnaeus, 1758

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available (Alam et al. 1969)); Albania, Armenia, Austria, Azerbaijan, Belgium, China, Finland, French mainland, Georgia, Germany, Hungary, Ireland, Italian mainland, Latvia, Lithuania, Moldova, Near East, Netherlands, northern and central Europe, Norwegian mainland, Poland, Portuguese mainland, Romania, Russia, Slovakia, Sweden, Switzerland, Turkey, Ukraine (Foote 1984; Merz 1994; Kütük & Özgür, 2003).

Genus *Terellia* Robineau-Desvoidy, 1830

122. *Terellia serratulae* (Linnaeus, 1758)

Distribution Pakistan: (Azad Jammu & Kashmir terr., exact location not available; Khyber Pakhtunkhwa prov., Malakand div., Hindu Kush, Shekhniyak, Tirich valley (Alam et al. 1969; Brake 2011)); Afghanistan, Tajikistan (Brake 2011).

Family Chamaemyiidae Hendel, 1916

Subfamily Chamaemyiinae Hendel, 1910

Genus *Leucopis* Meigen, 1830

123. *Leucopis* sp.

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available (Alam et al. 1969)).

Family Dryomyzidae Schiner, 1862

Subfamily Dryomyzinae Schiner, 1862

Genus *Dryomyza* Fallén, 1820

124. *Dryomyza pakistana* Kurahashi, 1989

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Banjosa Lake; Khyber Pakhtunkhwa prov., Hazara div., Ayubia Gali, Dunga Gali, Nathia Gali; Punjab prov., Rawalpindi div., Murree (Kurahashi 1989; Hassan et al. 2018)); China, India (Mathis & Sueyoshi 2011; Wachkoo et al. 2018).

Family Sepsidae Walker, 1833**Subfamily Sepsinae Walker, 1833****Genus *Saltella* Robineau-Desvoidy, 1830****125. *Saltella setigera* Brunetti, 1910**

Distribution: Pakistan (Azad Jammu & Kashmir terr., Bagh city; Islamabad Terr., Shahdara; Punjab prov., Gujranwala div., Shakargarh (Hassan et al. 2017, 2021b)); Bangladesh, India, Nepal (Ozero 2005).

Genus *Meroplius* Rondani, 1874**126. *Meroplius minutus* Wiedemann, 1830**

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot Valley, Thandi Kasi (Fatima et al. 2019)); Canada, USA, New York, North Carolina, Pennsylvania, Utah, Virginia, Washington. China, Nepal, Japan Korea, Republic of Georgia, Russia, Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Hungary, Italy, Latvia, Lithuania, Netherlands, Norway, Romania, Slovakia, Spain, Sweden, Switzerland, Turkey, Ukraine, former Yugoslavia, Egypt (Ozero 2005).

Genus *Australosepsis* Malloch, 1925**127. *Australosepsis frontalis* Malloch, 1925**

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot Valley; Khyber Pakhtunkhwa prov., Malakand div., Miandam (Iwasa 1989)); Australia, New Caledonia, Bangladesh, China, India, Indonesia, Japan, Malaysia, Nepal, Philippines, Singapore, Sri Lanka, Thailand, Vietnam, Asia (Ozero 2005; Thapa 2015).

Genus *Decachaetophora* Duda, 1926**128. *Decachaetophora aeneips* (de Meijere, 1911)**

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Gilgit-Baltistan terr., Gilgit div., Bagrote Valley, Naltar Valley, Baltistan div., Skardu, Hussain Abad; Khyber Pakhtunkhwa prov., Hazara div., Lalazar, Naran Valley, Kagan Valley, Malakand div., Miandam, Swat, Besham (Iwasa 1989; Hassan et al. 2017, 2018)); China, India, Nepal, Sri Lanka, Afghanistan, China, Japan, Korea, Mongolia, Russia, America (Thapa 2000; Ozero 2005).

Genus *Dicranosepsis* Duda, 1926**129. *Dicranosepsis bicolor* (Wiedemann, 1830)**

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot Valley, Goi Nala; Khyber Pakhtunkhwa prov., D.I. Khan div., D.I. Khan., Hazara div., Ayubia Gali, Dunga Gali, Nathia Gali, Balakot, Kagan Valley, Malakand div., Marghazar; Punjab prov.,

Gujranwala div., Bola Bajwa, Rawalpindi div., Murree (Iwasa 1989; Hassan et al. 2017)); Bangladesh, China, India, Nepal, Sri Lanka, Thailand, Vietnam (Iwasa et al. 1991; Thapa 2000; Ozero 2005).

130. *Dicranosepsis olfactoria* Iwasa, 1984

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot Valley, Goi Nala; Baluchistan prov., Quetta div., Quetta; Punjab prov., Gujranwala div., Bola Bajwa, Rawalpindi div., Murree; Khyber Pakhtunkhwa prov., D.I. Khan div., D.I. Khan, Hazara div., Dunga Gali, Nathia Gali, Kagan Valley, Kawai, Malakand div., Shangla Pass, Besham, Kalam Valley, Marghazar, Miandam, Ushu (Iwasa 1989; Hassan et al. 2017)); Nepal, Vietnam (Iwasa 1989; Thapa 2000; Ozero 2005).

131. *Dicranosepsis parva* Iwasa, 1984

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Poonch dis., Rawalakot Valley, Goi Nala, Banjosa Lake (Hassan et al. 2017)); Nepal (Thapa 2000; Ozero 2005).

132. *Dicranosepsis quadrigemina* Iwasa 1989

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot Valley, Goi Nala Gilgit-Baltistan terr., Gilgit div., Babusar Pass; Punjab prov., Rawalpindi div., Murree; Khyber Pakhtunkhwa prov., Hazara div., Ayubia Gali, Dunga Gali, Nathia Gali, Kagan Valley, Lalazar, Naran Valley, Malakand div., Shangla Pass, Besham, Marghazar, Miandam (Iwasa 1989; Hassan et al. 2018)); India, Nepal, Thailand (Iwasa 1989; Ozero 2005).

Genus *Sepsis* Fallén, 1810**133. *Sepsis barbata* Becker, 1907**

Distribution: Pakistan (Balochistan prov., Quetta div., Quetta; Gilgit-Baltistan terr., Baltistan div., Chutrone, Wazirpur, Gulapur, Hussain Abad, Gilgit div., Bagroth, Gulmit, Passu (Iwasa 1989; Hassan et al. 2017)); Yemen, China, Afghanistan, Armenia, China, Iran, Israel, Kazakhstan, Russia, Syria, Turkey, Turkmenistan, Uzbekistan, Austria, Czech Republic, France, Greece, Italy, Kazakhstan, Romania, Russia, Slovakia, Spain, Turkey, Ukraine, Canary Is. (Ozero 2005).

134. *Sepsis dissimilis* Brunetti, 1910

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot Valley; Gilgit-Baltistan terr., Baltistan div., Hussain Abad (Hassan et al. 2018)); Democratic Republic of the Congo, Ethiopia, Kenya,

Madagascar, Namibia, Nigeria, Republic of South Africa, Seychelles, Swaziland, Uganda, Zimbabwe. Australia, New Fiji, Hebrides, Papua New Guinea. China, India, Indonesia, Japan, Malaysia, Nepal, Philippines, Thailand, Vietnam, Japan (Thapa 2000; Ozerov 2005).

135. *Sepsis fissa* Becker, 1903

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot Valley; Balochistan prov., Kalat div., Quetta div., Quetta; Punjab prov., Dera Ghazi Khan div., Fort Munro (Iwasa 1989)); Iran, Israel, Kazakhstan, Lebanon, Tadjikistan, Turkmenistan, Italy, Malta, Romania, Slovakia (Ozerov 2005).

136. *Sepsis lateralis* Wiedemann, 1830

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Bagroth, Chilas; Khyber Pakhtunkhwa prov., Malakand div., Kalam Valley Miandam, Marghazar, Hazara div., Ushu, Balakot, Kagan Valley (Iwasa 1989; Hassan et al. 2018)); Angola, Botswana, Cameroon, Democratic Republic of the Congo, Ethiopia, Ghana, Kenya, Madagascar, Malawi, Mauritius, Namibia, Nigeria, Republic of South Africa, Republic of the Congo, Réunion, Seychelles, Sierra Leone, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe, Yemen, USA, Papua New Guinea, Afghanistan, China, Iraq, Israel, Japan, Syria, Cyprus, Greece, Italy, Malta, Spain, Turkey, North Africa, Bangladesh, China, India, Japan, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Thailand (Ozerov 2005).

137. *Sepsis mediana* Iwasa, 1989

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Gilgit; Khyber Pakhtunkhwa prov., Hazara div., Lalazar, Naran Valley, Saif-ul-Muluk Lake, Malakand div., Kalam Valley, Mingora (Iwasa 1989; Hassan et al. 2018)); India, Kazakhstan, Turkmenistan (Ozerov 2005).

138. *Sepsis neocynipsea* Melander & Spuler, 1917

Distribution: Pakistan (Gilgit div., Naltar Valley (Iwasa 1989; Hassan et al. 2018)); Bermuda Is, Canada, Mexico, America, Nepal, Mexico Afghanistan, Armenia, China, Japan, Kazakhstan, Kyrgyzstan, Mongolia, Russia, Tadjikistan, Uzbekistan, Austria, Czech Republic, Germany, Great Britain, Ireland, Italy, Kazakhstan, Russia, Slovakia, Spain, Switzerland (Thapa 2000; Ozerov 2005).

139. *Sepsis nitens* Wiedemann, 1824

Distribution: Pakistan (Azad Jammu & Kashmir terr.,

Poonch div., Rawalakot Valley; Balochistan prov., Kalat div., Kalat; Khyber Pakhtunkhwa prov., Bannu div., Peshawar div; Punjab prov., Dera Ghazi Khan div., Fort Munro (Iwasa 1989)); Australia, Papua New Guinea, Bangladesh, China, India, Indonesia, Japan, Nepal, Pakistan, Philippines, Sri Lanka, Thailand (Thapa 2000; Ozerov 2005).

140. *Sepsis orthocnemis* Frey, 1908

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Babusar, Chilas; Punjab prov., Rawalpindi div., Murree; Khyber Pakhtunkhwa prov., Hazara div., Dunga Gali, Nathia Gali, Lalazar, Naran Valley, Saif-ul-Muluk Lake, Malakand div., Marghazar, Miandam, Mingora, Ushu (Iwasa 1989; Hassan et al. 2018)); Afghanistan, Armenia, Azerbaijan, Israel, Kazakhstan, Kyrgyzstan, Mongolia, Republic of Georgia, Russia, Tadjikistan, Turkmenistan, Uzbekistan, Austria, Belarus, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Macedonia, Netherlands, Norway, Poland, Romania, Russia, Slovakia, Turkey, Ukraine, Sweden, Switzerland, former Yugoslavia, Algeria (Ozerov 2005).

141. *Sepsis punctum* (Fabricius, 1974)

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Bagroth, Chilas, Baltistan div., Hussain Abad; Khyber Pakhtunkhwa prov., Malakand div., Swat (Iwasa 1989; Hassan et al. 2017, 2018)); Bermuda Is., Canada, Mexico, America, Mexico, India, Myanmar, Nepal, Afghanistan, Armenia, Azerbaijan, China, Israel, Jordan, Kazakhstan, Kyrgyzstan, Lebanon, Mongolia, Republic of Georgia, Russia, Syria, Tadjikistan, Turkey, Turkmenistan, Uzbekistan, Austria, Belarus, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Kazakhstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldova, Norway, Poland, Portugal, Romania, Russia, Slovakia, Spain, Sweden, Switzerland, Turkey, Ukraine, former Yugoslavia; North Africa: Algeria, Canary Is, Egypt, Libya, Madeira Is, Morocco, Tunisia (Ozerov 2005).

142. *Sepsis thoracica* (Robineau-Desvoidy, 1830)

Distribution: Pakistan (Azad Jammu & Kashmir terr., Poonch div., Rawalakot Valley; Gilgit-Baltistan terr., Baltistan div, Hussain Abad, Chutron (Hassan et al. 2017, 2018)); Democratic Republic of the Congo, Ethiopia, Kenya, Namibia, Nigeria, Republic of South

Africa, Swaziland, Uganda, Yemen, Zambia, Zimbabwe, America, Cambodia, China, India, Japan, Nepal, Sri Lanka, Turkey, Afghanistan, Armenia, Azerbaijan, China, Iran, Iraq, Israel, Japan, Jordan, Kazakhstan, Korea, Kyrgyzstan, Lebanon, Mongolia, Republic of Georgia, Russia, Syria, Tadjikistan, Turkey, Turkmenistan, Uzbekistan, Albania, Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Greece, Hungary, Italy, Macedonia, Netherlands, Portugal, Romania, Russia, Slovakia, Spain, Sweden, Switzerland, Turkey, Ukraine, former Yugoslavia, Algeria, Azores, Canary Is, Egypt, Madeira Is, Morocco, Tunisia (Thapa 2000; Ozerov 2005).

143. *Sepsis violacea* Meigen, 1826

Distribution: Pakistan (Gilgit–Baltistan terr., Gilgit div., Bagroth, Babusar, Chilas, Naltar Valley, Baltistan div., Hussain Abad; Khyber Pakhtunkhwa prov., Malakand div., Miandam (Iwasa 1989; Hassan et al. 2018)); Afghanistan, Armenia, Azerbaijan, Iran, Israel, Japan, Kazakhstan, Kyrgyzstan, Lebanon, Mongolia, Republic of Georgia, Russia, Tadjikistan, Turkey, Turkmenistan, Uzbekistan, Austria, Belarus, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovakia, Spain, Sweden, Switzerland, Turkey, Ukraine, former Yugoslavia, Morocco, Tunisia (Ozerov 2005).

Genus *Themira* Robineau-Desvoidy, 1830

144. *Themira minor* (Haliday, 1833)

Distribution: Pakistan (Gilgit–Baltistan terr., Gilgit div., Bagroth, Gakuch; Khyber Pakhtunkhwa prov., Hazara div., Naran Valley, Kagan Valley, Saif-ul-Muluk Lake (Iwasa 1989; Hassan et al. 2018)); Canada, America, Armenia, Japan, Jordan, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Russia, Syria, Tadjikistan, Turkey, Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Latvia, Macedonia, Moldova, Netherlands, Norway, Poland, Romania, Russia, Slovakia, Spain, Sweden, Switzerland, Turkey, Ukraine, former Yugoslavia, Algeria, Madeira Is, Morocco, Tunisia (Ozerov 2005).

Family Chloropidae Verrall, 1888

Subfamily Oscinellinae Becker, 1910

Genus *Polyodaspis* Duda, 1933

145. *Polyodaspis* sp.

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available (Alam et al. 1969)).

Genus *Siphunculina* Rondani, 1856

146. *Siphunculina carinata* Kanmiya, 1989

Distribution: Pakistan (Gilgit–Baltistan terr., Gilgit div., Gilgit (Kanmiya 1989)).

Subfamily Chloropinae Loew, 1862

Genus *Thaumatomyia* Zenker, 1833

147. *Thaumatomyia notata* (Meigen, 1930)

Distribution: Pakistan (Azad Jammu & Kashmir terr., exact location not available (Alam et al. 1969)); England, Finland, Palearctic region, Nearctic region (Sabrosky 1940).

Family Sphaeroceridae Macquart, 1835

Subfamily Limosininae Frey, 1921

Genus *Coproica* Rondani, 1861

148. *Coproica acutangula* (Zetterstedt, 1847)

Distribution: Pakistan (Gilgit–Baltistan terr., Gilgit div., Babusar Pass, Gakuch (Hayashi 1991)); Bermuda, Colombia, Dominican Republic, Guatemala, Jamaica, Mexico, Puerto Rico, Venezuela, Japan, Taiwan, Afghanistan, Algeria, Andorra, Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Georgia, Great Britain, Hungary, Italy, Kazakhstan, Kirghizia, Latvia, Macedonia, Mongolia, Montenegro, Netherlands, Norway, Poland, Romania, Russia, Slovakia, Spain, Sweden, Switzerland, Tadjikistan, Uzbekistan (Marshall et al. 2011).

149. *Coproica digitata* (Duda, 1918)

Distribution: Pakistan (Gilgit–Baltistan terr., Gilgit div., Babusar Pass, Gakuch, Gulmit; Khyber Pakhtunkhwa prov., Hazara div., Ayubia, Nathia Gali, Tandani, Balakot, Malakand div., Shangla Pass, Kalam Valley, Ushu (Hayashi 1991)); Afghanistan, Bulgaria, Canary Is., Czech Republic, Egypt, France, Hungary, Israel, Italy, Kirghizia, Lebanon, Macedonia, Morocco, Romania, Serbia, Slovakia, Slovenia, Spain, Tunisia, Turkmenistan, Uzbekistan (Marshall et al. 2011).

150. *Coproica hirtula* (Rondani, 1880)

Distribution: Pakistan (Gilgit–Baltistan terr., Gilgit div., Bagrote Valley, Hunza; Khyber Pakhtunkhwa

prov., Hazara div., Kalam Valley, Miandam, Malakand div., Shangla Pass, Balakot (Hayashi 1991)); Congo, Ethiopia, Ghana, Kenya, Madagascar, Nigeria, Seychelles, South Africa, Yemen, Zaire, Japan, Guam, Hawaii, Kiribati, Marshall Is., Micronesia, New Zealand, Northern Mariana Is., Papua New Guinea, Palau, Pitcairn Is., Canada, Chile, Argentina, Bermuda, Bolivia, Galápagos Is., Mexico, China, India, Japan, Malaysia, Nepal, Sri Lanka, Taiwan, Vietnam, Afghanistan, Andorra, Austria, Azores, Belgium, Bulgaria, Canary Is., Cyprus, Czech Republic, Egypt, Finland, Germany, Great Britain, Greece, Hungary, Italy, Israel, Japan, Latvia, Madeira, Malta, Montenegro, Netherlands, North Korea, Norway, Poland, Romania, Russia, Serbia, Slovakia, Spain, Sweden, Switzerland, Tunisia, United Arab Emirates, Uzbekistan, Saint Helena (Marshall et al. 2011).

151. *Coproica lugubris* (Haliday, 1835)

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Bagrote Valley; Babusar Pass, Gakuch, Gulmit; Khyber Pakhtunkhwa prov., Hazara div., Nathia Gali, Tandani, Kalam Valley, Miandam, Ushu, Balakot, Lalazar; Punjab prov., Rawalpindi div., Murree, Taxila; Sindh prov., Hyderabad div., Hyderabad (Hayashi 1991)); Papua New Guinea, China, India, Taiwan, Afghanistan, Andorra, Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Israel, Italy, Japan, Kazakhstan, Kirghizia, Latvia, Lebanon, Lithuania, Macedonia, Madeira, Morocco, Netherlands, North Korea, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Spain, Sweden, Switzerland, Tajikistan, Tunisia (Marshall et al. 2011).

152. *Coproica pusio* (Zetterstedt, 1847)

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Bagrote Valley; Khunjerab Pass; Babusar Pass (Hayashi 1991)); Afghanistan, Andorra, Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, Germany, Great Britain, Hungary, Japan, Italy, Latvia, Lithuania, Norway, Mongolia, Russia, Serbia, Slovakia, Spain, Sweden, Switzerland (Marshall et al. 2011).

153. *Coproica rufifrons* Hayashi, 1991

Distribution: Pakistan (Gilgit-Baltistan terr., Gilgit div., Chilas; Khyber Pakhtunkhwa prov., Hazara div., Ayubia, Nathia Gali, Tandani, Battagram, Thakot, Malakand div., Kalam Valley, Marghazar, Mingora, Shangla Pass, Ushu, Balakot, Naran Valley, Kagan valley; Punjab prov., Rawalpindi div., Murree, Taxila; Islamabad Terr.;

Sindh prov., Hyderabad div., Hyderabad (Hayashi 1991)); China, Japan, Taiwan, Yemen, American Samoa, Australia, Cook Is., Fiji, French Polynesia, Kiribati, Marshall Is., Micronesia, Palau, Papua New Guinea, Solomon Is., Tonga, Vanuatu, Western Samoa, America, Argentina, Bermuda, Brazil, Bolivia, Ecuador, Galápagos Is., Grenada, Mexico, Afghanistan, Canary Is., China, Croatia, Hungary, Germany, Greece, Italy, Japan, Madeira, Malta, Saudi Arabia, Tunisia, United Arab Emirates (Marshall et al. 2011).

CONCLUSION

An updated inventory of true flies (Insecta: Diptera) from Azad Jammu & Kashmir and Gilgit-Baltistan are summed up based on the available information shown in Table 1. & Table 2, respectively. It comprises of 64 genera and 153 species in 16 families. It shows that exceptionally less area of Azad Jammu & Kashmir and Gilgit Baltistan are explored for dipteran fauna. Additionally, if we compare the total area of Azad Jammu & Kashmir and Gilgit Baltistan, the area of Gilgit Baltistan is much larger than Azad Jammu & Kashmir. However, we analyzed the species recorded, which revealed that Azad Jammu & Kashmir has 94 species and 75 species of Diptera recorded from Gilgit Baltistan.

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Table 1. List of species present/absent in Azad Jammu & Kashmir (AK) and Gilgit Baltistan (GB).

	Family	Genus	Species	AK	GB
1	Limoniidae	<i>Limonia</i> Meigen, 1803	<i>Limonia neananta</i> Alexander, 1966	-	+
2		<i>Erioptera</i> Meigen, 1803	<i>Erioptera palliclavata</i> Alexander, 1935	-	+
3		<i>Gonomyia</i> Meigen, 1818	<i>Gonomyia dissidens</i> Alexander, 1957	-	+
4		<i>Ctenophora</i> Meigen, 1803	<i>Ctenophora longisector</i> Alexander, 1959	-	+
5	Stratiomyidae	<i>Ptecticus</i> Loew, 1855	<i>Ptecticus vulpianus</i> (Enderlein, 1914)	+	-
6			<i>Ptecticus melanurus</i> (Walker, 1848)	+	-
7	Tabanidae	<i>Haematopota</i> Meigen, 1803	<i>Haematopota kashmirensis</i> Stone & Philip, 1974	-	+
8	Syrphidae	<i>Mallota</i> Meigen, 1822	<i>Mallota rufipes</i> Brunetti, 1913	-	+
9		<i>Mesembrius</i> Rondani, 1857	<i>Mesembrius quadrivittatus</i> (Wiedemann, 1819)	-	+
10		<i>Ceriana</i> Fabricius, 1794	<i>Ceriana dimidiatipennis</i> (Brunetti, 1923)	+	+
11			<i>Ceriana brevis</i> (Brunetti, 1923)	+	-
12		<i>Eristalis</i> Latreille, 1804	<i>Eristalis (Eoseristalis) albibasis</i> Bigot, 1880	-	+
13			<i>Eoseristalis (Eoseristalis) arbustorum</i> (Linnaeus, 1758)	+	+
14			<i>Eristalis (Eoseristalis) cerealis</i> Fabricius, 1805	+	-
15			<i>Eristalis (Eoseristalis) himalayensis</i> (Brunetti, 1908)	+	-
16			<i>Eristalis tenax</i> (Linnaeus, 1758)	+	+
17		<i>Eristalinus</i> Rondani, 1845	<i>Eristalinus (Eristalinus) aeneus</i> (Scopoli, 1763)	+	-
18			<i>Eristalinus (Eristalinus) arvorum</i> (Fabricius, 1787)	+	-
19			<i>Eristalinus (Eristalinus) megacephalus</i> (Rossi, 1794)	+	-
20			<i>Eristalinus (Eristalinus) obliquus</i> (Wiedemann, 1824)	+	-
21			<i>Eristalinus (Eristalinus) sepulchralis</i> (Linnaeus, 1758)	+	-
22			<i>Eristalinus (Eristalinus) tarsalis</i> (Macquart, 1855)	+	-
23			<i>Eristalinus (Eristalodes) taeniops</i> (Wiedemann, 1818)	+	-
24		<i>Syritta</i> Lepeletier and Serville, 1828	<i>Syritta orientalis</i> Macquart, 1842	+	-
25			<i>Syritta pipiens</i> (Linnaeus, 1758)	+	-
26		<i>Rhingia</i> Scopoli, 1763	<i>Rhingia angusticincta</i> Brunetti, 1908	+	-
27			<i>Rhingia siwalikensis</i> Nayar, 1968	+	-
28	<i>Xylota</i> Meigen, 1822	<i>Xylota coquilletti</i> Hervé-Bazin, 1914	+	-	
29		<i>Xylota nursi</i> Brunetti, 1923	+	-	
30	<i>Baccha</i> Fabricius, 1805	<i>Baccha maculata</i> Walker, 1852	+	-	
31	<i>Platycheirus</i> Lepeletier & Serville, 1828	<i>Platycheirus albimanus</i> (Fabricius, 1781)	+	-	
32		<i>Platycheirus ambiguus</i> (Fallén, 1817)	+	-	
33	<i>Volucella</i> Geoffroy, 1762	<i>Volucella peleterii</i> Macquart, 1834	+	+	
34		<i>Volucella ruficauda</i> Brunetti, 1907	-	+	
35	<i>Paragus</i> Latreille, 1804	<i>Paragus (Pandasyopthalmus) annandalei</i> Ghorpadé, 1992	+	-	
36		<i>Paragus (Pandasyopthalmus) politus</i> Wiedemann, 1830	+	-	
37		<i>Paragus (Pandasyopthalmus) haemorrhous</i> Meigen, 1822	+	-	
38		<i>Paragus (Paragus) quadrifasciatus</i> Meigen, 1822	-	+	
39		<i>Paragus (Paragus) compeditus</i> Wiedemann, 1830	-	+	
40	<i>Asarkina</i> Macquart, 1834	<i>Asarkina incisuralis</i> (Macquart, 1855)	+	-	
41	<i>Betasyrphus</i> Matsumura, 1917	<i>Betasyrphus aeneifrons</i> (Brunetti, 1913)	+	-	
42		<i>Betasyrphus isaaci</i> (Bhatia, 1933)	+	-	
43	<i>Chrysotoxum</i> Meigen, 1803	<i>Chrysotoxum baphyrum</i> Walker, 1849	+	-	
44		<i>Chrysotoxum intermedium</i> Meigen, 1822	-	+	

	Family	Genus	Species	AK	GB	
45		<i>Episyrphus</i> Matsumura & Adachi 1917	<i>Episyrphus balteatus</i> (De Geer, 1776)	+	+	
46			<i>Episyrphus viridaureus</i> (Wiedemann, 1824)	+	-	
47		<i>Ischiodon</i> Sack, 1913	<i>Ischiodon scutellaris</i> (Fabricius, 1805)	+	-	
48		<i>Eupeodes</i> Osten Sacken, 1877	<i>Eupeodes bucculatus</i> (Rondani, 1857)	+	-	
49			<i>Eupeodes corollae</i> (Fabricius, 1794)	+	-	
50			<i>Eupeodes latifasciatus</i> (Macquart, 1829)	+	-	
51		<i>Scaeva</i> Fabricius, 1805	<i>Scaeva latimaculata</i> (Brunetti 1923)	+	+	
52			<i>Scaeva pyrastris</i> (Linnaeus, 1758)	+	-	
53		<i>Sphaerophoria</i> Lepeletier & Serville, 1828	<i>Sphaerophoria bengalensis</i> Macquart, 1842	+	-	
54			<i>Sphaerophoria Indiana</i> Bigot, 1884	+	-	
55			<i>Sphaerophoria scripta</i> (Linnaeus, 1758)	+	-	
56		<i>Syrphus</i> Fabricius, 1775	<i>Syrphus dalhousiae</i> Ghorpadé 1994	+	-	
57			<i>Syrphus fulvifacies</i> Brunetti, 1913	+	-	
58			<i>Syrphus torvus</i> (Osten Sacken, 1875)	+	-	
59			<i>Syrphus vitripennis</i> Meigen, 1822	-	+	
60		<i>Xanthogramma</i> Schiner, 1860	<i>Xanthogramma pedissequum</i> (Harris, 1776)	+	-	
61		Calliphoridae	<i>Calliphora</i> Robineau–Desvoidy, 1830	<i>Calliphora chinghaiensis</i> Van et Ma, 19784	-	+
62				<i>Calliphora himalayana</i> Kurahashi, 1994	-	+
63				<i>Calliphora loewi</i> Enderlein, 1903	+	-
64				<i>Calliphora uralensis</i> Villeneuve, 1922	-	+
65	<i>Calliphora vicina</i> Robineau–Desvoidy, 1830			-	+	
66	<i>Calliphora vomitoria</i> (Linnaeus, 1758)			+	+	
67	<i>Cynomya</i> Robineau–Desvoidy, 1830		<i>Cynomya mortuorum</i> (Linnaeus, 1761)	-	+	
68	<i>Onesia</i> Robineau–Desvoidy, 1830		<i>Onesia menechmoides</i> (Chen, 1979)	-	+	
69			<i>Onesia pamirica</i> Rohdendorf, 1962	-	+	
70	<i>Melinda</i> Robineau–Desvoidy, 1830		<i>Melinda scutellata</i> (Senior–White, 1923)	+	-	
71	<i>Lucilia</i> Robineau–Desvoidy, 1830		<i>Lucilia porphyryna</i> (Walker, 1856)	-	+	
72			<i>Lucilia sericata</i> (Meigen, 1826)	-	+	
73	<i>Pollenia</i> Robineau–Desvoidy, 1830		<i>Pollenia pediculata</i> Macquart, 1834	-	+	
74			<i>Pollenia rudis</i> (Fabricius, 1794)	-	+	
75	<i>Chrysomya</i> Robineau–Desvoidy, 1830		<i>Chrysomya phaonis</i> Séguy, 1928	-	+	
76	<i>Protocalliphora</i> Hough, 1899		<i>Protocalliphora azurea</i> (Fallén, 1817)	-	+	
77			<i>Protocalliphora terraenovae</i> (Robineau Desvoidy, 1830)	-	+	
78	<i>Isomyia</i> Walker, 1860		<i>Isomyia electa</i> (Villeneuve, 1927)	+	-	
79	<i>Rhinia</i> Robineau–Desvoidy, 1830		<i>Rhinia apicalis</i> (Wiedemann, 1830)	+	-	
80	<i>Stomorphina</i> Rondani, 1861		<i>Stomorphina discolor</i> (Fabricius, 1794)	-	+	
81			<i>Stomorphina xanthogaster</i> (Wiedemann, 1820)	+	-	
82	Fanniidae		<i>Fannia</i> Robineau–Desvoidy, 1830	<i>Fannia canicularis</i> (Linnaeus, 1761)	+	+
83				<i>Fannia dupla</i> Nishida, 1974	+	-
84				<i>Fannia indica</i> Chillcott, 1961	+	+
85				<i>Fanniamanicata</i> (Meigen, 1826)	-	+
86				<i>Fannia scalaris</i> (Fabricius, 1794)	-	+
87	Rhinophoridae		<i>Tromodesia</i> Rondani, 1856	<i>Tromodesia setiventris</i> (Rohdendorf, 1935)	-	+
88	Sarcophagidae		<i>Ravinia</i> Robineau–Desvoidy, 1863	<i>Ravinia pernix</i> Harris, 1780	-	+
89		<i>Sarcophaga</i> Meigen, 1826	<i>Sarcophaga aegyptica</i> (Salem, 1935)	-	+	
90			<i>Sarcophaga albiceps</i> Meigen, 1826	-	+	

	Family	Genus	Species	AK	GB	
91	Sarcophagidae	<i>Sarcophaga</i> Meigen, 1826	<i>Sarcophaga altitudinis</i> Sugiyama, 1964	-	+	
92			<i>Sarcophaga brevicornis</i> Ho, 1934	-	+	
93			<i>Sarcophaga calicifera</i> Boettcher, 1912	-	+	
94			<i>Sarcophaga cruentata</i> Meigen, 1826	-	+	
95			<i>Sarcophaga doleschalii</i> Johnston et Tiegs, 1921	+	-	
96			<i>Sarcophaga flagellifera</i> Grunin, 1964	-	+	
97			<i>Sarcophaga gorodkovi</i> (Grunin, 1964)	-	+	
98			<i>Sarcophaga hirtipes</i> Wiedemann, 1830	-	+	
99			<i>Sarcophaga idmais</i> Séguéy, 1934	+	+	
100			<i>Sarcophaga kentejana</i> (Rohdendorf, 1937)	+	+	
101			<i>Sarcophaga nathani</i> (Lopes, 1961)	-	+	
102			<i>Sarcophaga peshelicis</i> Senior-White, 1930	+	+	
103			<i>Sarcophaga portschinskyi</i> (Rohdendorf, 1937)	-	+	
104			<i>Sarcophaga shresthai</i> Kano et Shinonaga, 1969	+	-	
105			<i>Sarcophaga tubersoa</i> Pandellé, 1896	-	+	
106			<i>Sarcophaga yunnanensis</i> Fan, 1964	+	-	
107	Tachinidae	<i>Cylindromyia</i> Meigen, 1803	<i>Cylindromyia evibrissata</i> Townsend, 1927	+	-	
108		<i>Euthera</i> Loew, 1854	<i>Euthera tuckeri</i> Bezzi, 1925	+	-	
109		<i>Elodia</i> Robineau-Desvoidy, 1863	<i>Elodia morio</i> (Fallén, 1820)	+	-	
110		<i>Torocca</i> Walker, 1859	<i>Torocca munda</i> (Walker, 1856)	+	-	
111	Tephritidae	<i>Bactrocera</i> Macquart, 1835	<i>Bactrocera (Bactrocera) dorsalis</i> (Hendel, 1912)	+	-	
112			<i>Bactrocera (Bactrocera) zonata</i> (Saunders, 1841)	+	-	
113			<i>Bactrocera (Bactrocera) correcta</i> (Bezzi, 1916)	+	-	
114			<i>Bactrocera (Bactrocera) nigrofemoralis</i> Tsuruta and white 2001	+	-	
115			<i>Bactrocera (Zeugodacus) cucurbitae</i> (Coquillett, 1899)	+	-	
116			<i>Bactrocera (Zeugodacus) scutellaris</i> Bezzi, 1913	+	-	
117			<i>Bactrocera (Zeugodacus) tau</i> (Walker, 1849)	+	-	
118		<i>Dacus</i> Fabricius, 1805	<i>Dacus (Callantra) sphaerodalis</i> (Bezzi, 1916)	+	-	
119			<i>Dacus (Callantra) longicornis</i> (Wiedemann, 1830)	+	-	
120		<i>Tephritis</i> Latreille, 1804	<i>Tephritis frauenfeldi</i> Hendel, 1927	+	-	
121			<i>Tephritis hyoscyami</i> Linnaeus, 1758	+	-	
122	<i>Terellia</i> Robineau-Desvoidy, 1830	<i>Terellia serratulae</i> (Linnaeus, 1758)	+	-		
123	Chamaemyiidae	<i>Leucopis</i> Meigen, 1830	<i>Leucopis</i> sp.	+	-	
124	Dryomyzidae	<i>Dryomyza</i> Fallén, 1820	<i>Dryomyza pakistana</i> Kurahashi, 1989	+	-	
125	Sepsidae	<i>Saltella</i> Robineau-Desvoidy, 1830	<i>Saltella setigera</i> Brunetti, 1910	+	-	
126			<i>Meroplus</i> Rondani, 1874	<i>Meroplus minutus</i> Wiedemann, 1830	+	-
127			<i>Australosepsis</i> Malloch, 1925	<i>Australosepsis frontalis</i> Malloch, 1925	+	-
128		<i>Decachaetophora</i> Duda, 1926	<i>Decachaetophora aeneips</i> (de Meijere, 1911)	+	+	
129		<i>Dicranosepsis</i> Duda, 1926	<i>Dicranosepsis bicolor</i> (Wiedemann, 1830)	+	-	
130			<i>Dicranosepsis olfactoria</i> Iwasa, 1984	+	-	
131			<i>Dicranosepsis parva</i> Iwasa, 1984	+	-	
132			<i>Dicranosepsis quadrigemina</i> Iwasa 1989	+	-	

	Family	Genus	Species	AK	GB	
133		<i>Sepsis</i> Fallén, 1810	<i>Sepsis barbata</i> Becker, 1907	-	+	
134			<i>Sepsis dissimilis</i> Brunetti, 1910	+	+	
135			<i>Sepsis fissa</i> Becker, 1903	+	-	
136			<i>Sepsis lateralis</i> Wiedemann, 1830	-	+	
137			<i>Sepsis mediana</i> Iwasa, 1989	-	+	
138			<i>Sepsis neocynipsea</i> Melander et Spuler, 1917	-	+	
139			<i>Sepsis nitens</i> Wiedemann, 1824	+	-	
140			<i>Sepsis orthocnemis</i> Frey, 1908	-	+	
141			<i>Sepsis punctum</i> (Fabricius 1974)	-	+	
142			<i>Sepsis thoracica</i> (Robineau–Desvoidy, 1830)	+	+	
143			<i>Sepsis violacea</i> Meigen, 1826	-	+	
144			<i>Themira</i> Robineau–Desvoidy, 1830	<i>Themira minor</i> (Haliday, 1833)	-	+
145			Chloropidae	<i>Polyodaspis</i> Duda, 1933	<i>Polyodaspis</i> sp.	+
146	<i>Siphunculina</i> Rondani, 1856	<i>Siphunculina carinata</i> Kanmiya, 1989		-	+	
147	<i>Thaumatomyia</i> Zenker, 1833	<i>Thaumatomyia notate</i> (Meigen, 1930)		+	-	
148	Sphaeroceridae	<i>Coproica</i> Rondani, 1861	<i>Coproica acutangula</i> (Zetterstedt, 1847)	-	+	
149			<i>Coproica digitata</i> (Duda, 1918)	-	+	
150			<i>Coproica hirtula</i> (Rondani, 1880)	-	+	
151			<i>Coproica lugubris</i> (Haliday, 1835)	-	+	
152			<i>Coproica pusio</i> (Zetterstedt, 1847)	-	+	
153			<i>Coproica rufifrons</i> Hayashi, 1991	-	+	

Table 2. Total Number of species recorded in Azad Jammu & Kashmir (AK) and Gilgit Baltistan (GB).

Family	Genus	Total Species	AK	GB
Limoniidae	<i>Limonia</i> Meigen, 1803	1	0	1
	<i>Erioptera</i> Meigen, 1803	1	0	1
	<i>Gonomyia</i> Meigen, 1818	1	0	1
	<i>Ctenophora</i> Meigen, 1803	1	0	1
Stratiomyidae	<i>Ptecticus</i> Loew, 1855	2	2	0
Tabanidae	<i>Haematopota</i> Meigen, 1803	1	0	1
Syrphidae	<i>Mallota</i> Meigen, 1822	1	0	1
	<i>Mesembrius</i> Rondani, 1857	1	0	1
	<i>Ceriana</i> Fabricius, 1794	2	2	1
	<i>Eristalis</i> Latreille, 1804	5	4	3
	<i>Eristalinus</i> Rondani, 1845	7	7	0
	<i>Syritta</i> Lepeletier and Serville, 1828	2	2	0
	<i>Rhingia</i> Scopoli, 1763	2	2	0
	<i>Xylota</i> Meigen, 1822	2	2	0
	<i>Baccha</i> Fabricius, 1805	1	1	0
	<i>Platycheirus</i> Lepeletier & Serville, 1828	2	2	0
	<i>Volucella</i> Geoffroy, 1762	2	1	2
	<i>Paragus</i> Latreille, 1804	5	3	2
	<i>Asarkina</i> Macquart, 1834	1	1	0
<i>Betasyrphus</i> Matsumura, 1917	2	2	0	

Family	Genus	Total Species	AK	GB
	<i>Chrysotoxum</i> Meigen, 1803	2	1	1
	<i>Episyrphus</i> Matsumura & Adachi 1917	2	2	1
	<i>Ischiodon</i> Sack, 1913	1	1	0
	<i>Eupeodes</i> Osten Sacken, 1877	3	3	0
	<i>Scaeva</i> Fabricius, 1805	2	2	1
	<i>Sphaerophoria</i> Lepeletier & Serville, 1828	3	3	0
	<i>Syrphus</i> Fabricius, 1775	4	3	1
	<i>Xanthogramma</i> Schiner, 1860	1	1	0
Calliphoridae	<i>Calliphora</i> Robineau–Desvoidy, 1830	6	2	5
	<i>Cynomya</i> Robineau–Desvoidy, 1830	1	0	1
	<i>Onesia</i> Robineau–Desvoidy, 1830	2	0	2
	<i>Melinda</i> Robineau–Desvoidy, 1830	1	1	0
	<i>Lucilia</i> Robineau–Desvoidy, 1830	2	0	2
	<i>Pollenia</i> Robineau–Desvoidy, 1830	2	0	2
	<i>Chrysomya</i> Robineau–Desvoidy, 1830	1	0	1
	<i>Protocalliphora</i> Hough, 1899	2	0	2
	<i>Isomyia</i> Walker, 1860	1	1	1
	<i>Rhinia</i> Robineau–Desvoidy, 1830	1	1	0
	<i>Stomorphina</i> Rondani, 1861	2	1	1
Fanniidae	<i>Fannia</i> Robineau–Desvoidy, 1830	5	3	4
Rhinophoridae	<i>Tromodesia</i> Rondani, 1856	1	0	1
Sarcophagidae	<i>Ravinia</i> Robineau–Desvoidy, 1863	1	0	1
	<i>Sarcophaga</i> Meigen, 1826	18	6	15
	<i>Cylindromyia</i> Meigen, 1803	1	1	0
Tachinidae	<i>Euthera</i> Loew, 1854	1	1	0
	<i>Elodia</i> Robineau–Desvoidy, 1863	1	1	0
	<i>Torocca</i> Walker, 1859	1	1	0
Tephritidae	<i>Bactrocera</i> Macquart, 1835	7	7	0
	<i>Dacus</i> Fabricius, 1805	2	2	0
	<i>Tephritis</i> Latreille, 1804	2	2	0
	<i>Terellia</i> Latreille, 1758	1	1	0
Chamaemyiidae	<i>Leucopis</i> Meigen, 1830	1	1	0
Dryomyzidae	<i>Dryomyza</i> Fallén, 1820	1	1	0
Sepsidae	<i>Saltella</i> Robineau–Desvoidy, 1830	1	1	0
	<i>Meroplius</i> Rondani, 1874	1	1	0
	<i>Australosepsis</i> Malloch, 1925	1	1	0
	<i>Decachaetophora</i> Duda, 1926	1	1	1
	<i>Dicranosepsis</i> Duda, 1926	4	4	0
	<i>Sepsis</i> Fallén, 1810	11	4	9
	<i>Themira</i> Robineau–Desvoidy, 1830	1	0	1
Chloropidae	<i>Polyodaspis</i> Duda, 1933	1	1	0
	<i>Siphunculina</i> Rondani, 1856	1	0	1
	<i>Thaumatomyia</i> Zenker, 1833	1	1	0
Sphaeroceridae	<i>Coproica</i> Rondani, 1861	6	0	6
Total		153	94	75

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