A preliminary account of the fly fauna in Jabal Shada al-A’la Nature Reserve, Saudi Arabia, with new records and biogeographical remarks (Diptera, Insecta)

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Academic editor: T. Dikow | Received 17 July 2016 | Accepted 9 November 2016 | Published 24 November 2016

http://zoobank.org/A09BEDD8-A29C-4885-AF8D-A250B26B073D

Citation: El-Hawagry MS, Abdel-Dayem MS, Elgharbawy AA, Dhafer HM (2016) A preliminary account of the fly fauna in Jabal Shada al-A’la Nature Reserve, Saudi Arabia, with new records and biogeographical remarks (Diptera, Insecta). ZooKeys 636: 107–139. doi: 10.3897/zookeys.636.9905

Abstract
The first list of insects of Al-Baha Province, Kingdom of Saudi Arabia (KSA) was published in 2013 and contained a total of 582 species; an addendum to this list was published in 2015 adding 142 species and bringing the total number recorded from the province to 724 insect species representing 17 orders. The previous two studies excluded Jabal Shada al-A’la Nature Reserve (SANR), so the present study in SANR, as belonging to Al-Baha Province, are complementary to the previous two. The present study presents a preliminary list of Diptera (Insecta) in SANR, with remarks on their zoogeography, and is the first of a series of planned ecological and systematic studies on different insect orders as one of the outputs of a project proposed to study the entire insect fauna of SANR.

A total number of 119 Diptera species belonging to 87 genera, 31 tribes, 42 subfamilies, and representing 30 families has been recorded from SANR in the present study. Some species have been identified only to the genus level and listed herein only because this is the first time to record their genera in KSA. Fourteen of the species are recorded for the first time for KSA, namely: Forcipomyia saphaniens Kieffer, 1923 [Ceratopogonidae]; Chaetosciana sp. [Sciaridae]; Neolophonotus sp.1; Neolophonotus sp.2; Promachus siniticus Efflatoun, 1934; Saropogon longicornis (Macquart, 1838); Saropogon sp. [Asilidae]; Spogostylum tripunctatum (Pallas in Wiedemann, 1818) [Bombyliidae]; Phycus sp. [Therevidae]; Hemeromyia sp.; Meoneura palaetiensis Hennig, 1937 [Carnidae]; Desmometopa inaurata Lamb, 1914 [Milichiidae]; Stomoxys niger Macquart, 1851 [Muscidae]; and Sarcophaga palestinensis (Lehrer, 1998) [Sarcophagidae].
Zoogeographic affinities of recorded fly species suggest a closer affiliation to the Afrotropical region (46%) than to the Palearctic region (23.5%) or the Oriental region (2.5%). This supports the previous studies’ conclusions and emphasizes the fact that parts of the Arabian Peninsula, including Al-Baha Province, ought to be a part of the Afrotropical Region rather than of the Palearctic Region or the Eremic Zone.

**Keywords**
Afrotropical, Al-Baha Province, Al-Sarah, Al-Sarawat Mountains, Arabian Peninsula, Eremic Zone, fly species, new records, Palaearctic, Tihama

**Introduction**

Al-Baha Province (Fig. 1) is situated in the south-western part of the Kingdom of Saudi-Arabia (KSA) between the Holy Makkah and Asir provinces. It is the smallest province in KSA (approximately 10,362 km²), situated at 41–42° E and 19–20° N. It is characterized by natural tree cover (El-Juhany and Aref 2013) and agricultural plateaus. Huge and steep rocky mountains divide the province into two main sectors, a mountainous area known as ‘Al-Sarat’ or ‘Al-Sarah’ with an elevation of 1500–2450 m above sea level at the east forming a part of Al-Sarawat Mountains range, and a lowland coastal plain in the west, known as ‘Tihama’. The second sector, Tihama, is divided into two districts, Al-Mekhwa and Qelwa (Alahmed et al. 2010, El-Hawagry et al. 2013, 2015). Jabal Shada al-A’la Nature Reserve (SANR) lies between latitudes 19.8149N–19.8763N and longitudes 41.2855E–41.3501E (Fig. 1). It is an isolated granite mountain massif made up of jagged spires and pinnacles, located in Al-Mekhwa district, 20 km to the south-west of Al-Mekhwa city, the capital of the district. It is a dissonant of the Sarawat Escarpment in the foothills of Tihama, measuring 68.62 square kilometers. Its location and its altitudinal range from 490 to 2,222 meters above sea level ensures high rainfall, a wide range of micro-climates, and a high level of biological diversity (SWA 2016).

In the lowland coastal plain, Tihama, the climate is hot in summer, warm in spring and mild in winter, with less than 100 mm of annual rainfall. In the mountainous area, Al-Sarah, the weather is generally cooler due to high altitude, in addition to the formation of clouds and fog accompanied by thunderstorms in winter, with a rainfall average of 405 mm annually (Ibrahim and Abdoon 2005; El-Hawagry and Al Dhafer 2015). The climate in SANR is intermediate between the climates in these two sectors, with a rainfall average of approximately 200 mm annually (Fig. 2).

SANR, as an isolated mountain massif, supports an exceptionally rich flora; with approximately 500 plant species recorded, including 63 key plant taxa including endemics and Afrotropical relicts, it is the site of highest botanical diversity known in Saudi Arabia. The exceptional floral diversity of SANR, together with the presence of griffon vultures and endemic birds of the southwestern mountains and carnivores such as, the Arabian red fox [*Vulpes vulpes arabica* Thomas, 1902], Arabian caracal [*Caracal caracal schmitzi* (Matschie, 1912)], striped hyaena [*Hyaena hyaena sultana* (Pocock,
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Figure 1. Map of Saudi Arabia showing Al-Baha Province and Jabal Shada al-A’la Nature Reserve.

Figure 2. Monthly average temperatures and rainfall in 50 years (1950–2000). In Jabal Shada al-A’la Nature Reserve (Worldclim database: http://www.worldclim.org/).

1934), Arabian wolf [Canis lupus arabs Pocock, 1934], sand cat [Felis margarita harrisoni Hemmer, Grubb & Groves, 1976], and reportedly the Arabian leopard [Panthera pardus nimr Hemprich & Ehrenberg, 1833], makes this small protected area a unique
treasure of biological diversity. Small communities on the mountain grow a distinctive variety of coffee and other crops in terraced fields (El-Hawagry et al. 2013; SWA 2016; UAEinteract 2016).

The purpose of this paper is to present a preliminary list of Diptera (Insecta) in SANR, Al-Baha Province, KSA, with remarks on their zoogeography. This is not the final list of Diptera that occur at SANR with the study serving as a basis for further investigations as many additional collected species are still unidentified and further studies are planned to be carried out at SANR. Also, this is the first of a series of planned ecological and systematic studies on different insect orders as one of the outputs of a project proposed to study the entire insect fauna of SANR.

El-Hawagry et al. (2013, 2015) studied the insect fauna of Al-Baha Province excluding SANR, so the present study and other future studies in SANR are complementary to the previous two studies. Studies on the fauna of SANR are of particular interest as this area lies in a part of the Arabian Peninsula which is thought by many authors to touch three of the main zoogeographical regions: the Palaearctic, the Afrotropical, and the Oriental (Hölzel 1998).

The Afrotropical Region is supposed to encompass all of Africa south of the Sahara, with the island of Madagascar and the nearby smaller islands. Many authors add parts of the Arabian Peninsula to the Afrotropical Region as well, but there seems to be no agreement as to how much (El-Hawagry et al. 2015). This may be deduced from the fact that the south-western and southern parts of the Arabian Peninsula including Al-Baha Province are strongly influenced by a subtropical to tropical climate with spring and summer rains (Abdullah and Al-Masroui 1998), and are thus dominated by a xeromesic tropical flora of palaeotropical origin, that in fact represents the impoverished northern part of an African flora (Ghazanfar and Fisher 1998; Hegazy et al. 1998). Examples of plant species with this conspicuous distribution pattern, linking south-west Arabia with the other side of the Red Sea, and commonly represented in SANR are: *Barleria bispinosa* (Forssk.) Vahl, *Blepharis ciliaris* (L.) B.L.Burtt and *Hypoestes forskaolii* (Vahl) R.Br. (Acanthaceae); *Aloe officinalis* Forssk. (Aloeaceae), *Aerva javanica* (Burm.f.) Juss. ex Schult., *Aerva lanata* (L.) A. L. Juss. ex Schultes and *Celosia spp.* (Amaranthaceae); *Adenium obesum* (Forssk.) Roem. & Schlcht. and *Carissa edulis* (Forssk.) Vahl (Apocynaceae); *Commiphora quadricinta* Schweinf. and *Capparis cartilaginea* Decne. (Burseraceae); *Commelina forskaolii* Vahl (Commelinaceae); *Conyza stricta* Willd., *Echinops sp.*, *Psiadia punctulata* (DC.), *Pulicaria undulata* (DC.), *Rhamnus dispersus* (L.), *Tageset minimuta* L. and *Vernonia schimperi* DC. (Compositae); *Sansevieria ehrenberghii* Schweinf. ex Baker (Dracacenaceae); succulent *Euphorbia spp.* (Euphorbiaceae); *Acacia asak* (Forssk.), *Acacia etbaica* Schweinf and *Indigofera spinosa* Forssk. (Fabaceae); *Asparagus africanus* Lam. (Liliaceae); *Hibiscus micranthus* L. and *Hibiscus deflersii* Schweinf. ex Cufod. (Malvaceae); *Ficus ingens* (Miq.) (Moraceae); *Commicarpus spp.* (Nyctaginaceae); *Aristida adscensionis* L., *Cenchrus ciliaris* L., *Eragrostis tenella* (L.) P. Beauv. ex Roemer & Schultes and *Pennisetum divisum* (Gmel.) Henr. (Poaceae); *Solanum incanum* L. (Solanaceae); *Grewia tembensis* Fresen and *Grewia tenax* (Forssk.) (Tiliaceae); *Cissus rotundifolius* (Forssk.) Vahl (Vitaceae); in addition to semi-evergreen
sclerophyllous woodlands of the Afromontane vegetation (Ghazanfar and Fisher 1998; Zohary 1973; Thomas 2016).

Sclater (1858) and Wallace (1876) proposed the classical zoogeographical regions and placed the northern border of the Afrotropics along the Tropic of Cancer, i.e. the northern limit of the Afrotropical Region was placed in Taif area, some 200 km north of Al-Baha Province (Hölzel 1998). Crosskey (1980) considered the northern boundaries of Yemen as the regional boundary between the Afrotropical and Palaearctic parts in the Arabian Peninsula. Extensive sampling of Insects in the Arabian Peninsula by many authors in Yemen, Oman, the United Arab Emirates and south-western mountains of KSA, have raised some interesting questions about the true extent of the Afrotropical Region in this important transitional zone. Authors indicate that Wallace's (1876) concept of the extent of the Afrotropical Arabian Peninsula is more accurate than Crosskey's (1980) limited concept of Yemen alone (Kirk-Spriggs and McGregor 2009, El-Hawagry et al. 2015). However, Uvarov (1938), Greathead (1980) and Larsen (1984) agreed that the south-western part of KSA including the study area should be united with the central Arabian deserts which are either considered as a part of the Palaearctic or by some authors as an autonomous Eremic Zone (also called the Saharo-Sindian faunal region).

Material and methods

Flies were collected from different localities in SANR over two successive years, 2014 and 2015 by the authors. Twelve collecting trips were made, six in 2014 in February, April, June, August, October and December, and six in 2015 in January, March, May, July, September and November. Collections were made in 6 different localities representing different altitudinal levels and habitats in SANR (Figs 13–18, Table 1). The collecting methods included sweep and aerial nets (randomly), bait traps (irregularly), light traps (6 traps, one in each locality, for one night in each trip), Malaise traps (6 traps, one in each locality, for one day in each trip), pitfall traps (90 traps, 15 in each locality, for three days in each trip), and vacuuming (one time in each locality, for 15 minutes in each trip). In addition, a few specimens were incidentally collected by hand.

All taxa are identified and arranged in alphabetical order. Dates of collection for each species are included for the purpose of mapping the activity periods of species in the study area. Each collection date is followed, between parentheses, by the method of collection used, and the latter is followed by the locality number from which the specimens are collected.

Zoogeographical affiliations of species reported in the study area were estimated using world catalogues and counted to calculate the percentage of Afrotropical, Palaearctic or Oriental elements.

Images of newly recorded species were made using a Leica MZ 125 stereo-binocular microscope (Leica Microsystems Ltd, St. Gallen, Switzerland) fitted with a digital camera (Q-imaging Micro Publisher 5.0 RTV; Zerene Systems LLC, Richland, WA, USA) at
**Table 1.** An overview of the collecting localities with their coordinates and common vegetation.

| Locality no. | Coordinates (in decimal degrees) | The most common plants in the locality |
|--------------|----------------------------------|----------------------------------------|
|              | Elevation (M) | Latitude (N) | Longitude (E) | Species                              | Family                  |
| 1            | 1666          | 19.8429      | 41.3115       | Barleria bispinosa (Forssk.)          | Acanthaceae             |
|              | 1666          | 19.8429      | 41.3115       | Carissa edulis L.                     | Apocynaceae             |
|              | 1666          | 19.8429      | 41.3115       | Conyza stricta Willd.                 | Compositae              |
|              | 1666          | 19.8429      | 41.3115       | Psiadia punctulata (DC.)              | "                       |
|              | 1666          | 19.8429      | 41.3115       | Rhamnus dispermus (L.)                | "                       |
|              | 1666          | 19.8429      | 41.3115       | Aristida ascensionis L.               | Poaceae                 |
|              | 1666          | 19.8429      | 41.3115       | Acacia ethiica Schweinf.              | Fabaceae                |
|              | 1666          | 19.8429      | 41.3115       | Indigofera spinosa Forssk.            | "                       |
|              | 1666          | 19.8429      | 41.3115       | Hibiscus micranthus L.                | Malvaceae               |
|              | 1666          | 19.8429      | 41.3115       | Hibiscus deflersii Schweinf. ex Cufod.| "                       |
| 2            | 1611          | 19.8402      | 41.3114       | Barleria bispinosa (Forssk.)          | Acanthaceae             |
|              | 1611          | 19.8402      | 41.3114       | Hypoestes forsktoili (Vahl)           | "                       |
|              | 1611          | 19.8402      | 41.3114       | Aerva javanica (Burm.f.)              | "                       |
|              | 1611          | 19.8402      | 41.3114       | Capparis cartilaginea Decne.          | Burseraceae             |
|              | 1611          | 19.8402      | 41.3114       | Echinops sp.                          | "                       |
|              | 1611          | 19.8402      | 41.3114       | Pulicaria undulata (DC.)              | "                       |
|              | 1611          | 19.8402      | 41.3114       | Tagetes minuta L.                     | "                       |
|              | 1611          | 19.8402      | 41.3114       | Vernonia schimperi DC.                | "                       |
|              | 1611          | 19.8402      | 41.3114       | Cenchrus ciliaris L.                  | Poaceae                 |
|              | 1611          | 19.8402      | 41.3114       | Eragrostis tenella (L.)               | "                       |
|              | 1611          | 19.8402      | 41.3114       | Pennisetum divisum (Gmel.)           | "                       |
|              | 1611          | 19.8402      | 41.3114       | Indigofera spinosa Forssk.            | "                       |
|              | 1611          | 19.8402      | 41.3114       | Ficus ingens (Miq.)                  | Moraceae                |
|              | 1611          | 19.8402      | 41.3114       | Commicarpus spp.                     | Nycaginaceae            |
|              | 1611          | 19.8402      | 41.3114       | Solanum incanum L.                   | Solanaceae              |
| 3            | 1563          | 19.8388      | 41.3101       | Barleria bispinosa (Forssk.)          | Acanthaceae             |
|              | 1563          | 19.8388      | 41.3101       | Aerva javanica (Burm.f.)              | "                       |
|              | 1563          | 19.8388      | 41.3101       | Aerva lanata (L.)                     | "                       |
|              | 1563          | 19.8388      | 41.3101       | Asparagus africanum Lam.              | "                       |
|              | 1563          | 19.8388      | 41.3101       | Commiphora quadriricinta Schweinf.    | Burseraceae             |
|              | 1563          | 19.8388      | 41.3101       | Commelina forskoili Vahl              | Commelinaceae           |
|              | 1563          | 19.8388      | 41.3101       | Tagetes minuta L.                     | "                       |
|              | 1563          | 19.8388      | 41.3101       | Aristida ascensionis L.               | Poaceae                 |
|              | 1563          | 19.8388      | 41.3101       | Cenchrus ciliaris L.                  | "                       |
|              | 1563          | 19.8388      | 41.3101       | Eragrostis tenella (L.)               | "                       |
|              | 1563          | 19.8388      | 41.3101       | Indigofera spinosa Forssk.            | Fabaceae                |
|              | 1563          | 19.8388      | 41.3101       | Solanum incanum L.                   | "                       |
|              | 1563          | 19.8388      | 41.3101       | Grewia tembensis Fresen               | "                       |
|              | 1563          | 19.8388      | 41.3101       | Grewia tenax (Forssk.)                | "                       |
|              | 1563          | 19.8388      | 41.3101       | Cissus rotundifolius (Forssk.)        | "                       |
| 4            | 1474          | 19.8452      | 41.3044       | Aerva javanica (Burm.f.)              | "                       |
|              | 1474          | 19.8452      | 41.3044       | Adenium obesum (Forssk.)              | "                       |
|              | 1474          | 19.8452      | 41.3044       | Tagetes minuta L.                     | "                       |
|              | 1474          | 19.8452      | 41.3044       | Aristida ascensionis L.               | Poaceae                 |
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| Locality no. | Coordinates (in decimal degrees) | The most common plants in the locality |
|--------------|----------------------------------|--------------------------------------|
|              | Elevation (M) | Latitude (N) | Longitude (E) | Species | Family |
| 5            | 1325          | 19.8511      | 41.3006       | Acacia asak (Forssk.) | Fabaceae |
|              |               |              |               | Acacia etbaica Schweinf |  |
|              |               |              |               | Indigofera spinosa Forssk. |  |
|              |               |              |               | Solanum incanum L. | Solanaceae |
| 6            | 1225          | 19.8627      | 41.3015       | Barleria bispinosa (Forssk.) | Acanthaceae |
|              |               |              |               | Blepharis ciliaris (L.) |  |
|              |               |              |               | Aerva javanica (Burm.f.) | Amaranthaceae |
|              |               |              |               | Aerva lanata (L.) |  |
|              |               |              |               | Acacia asak (Forssk.) | Fabaceae |
|              |               |              |               | Acacia etbaica Schweinf |  |
|              |               |              |               | Indigofera spinosa Forssk. |  |
|              |               |              |               | Solanum incanum L. | Solanaceae |

the Plant Protection Department, College of Food and Agriculture Sciences, King Saud University. Photo automontage was performed by Zerene stacker program version 1.04 (Innovative Solutions, Bucharest, Romania).

Many studies and keys have been consulted in order to identify, classify and estimate the zoogeographical affiliation of collected specimens and such studies are indicated after each taxon in the list, in addition to the following: Abdullah and Merdan (1995), Amoudi (1993), Dawah and Abdullah (2006), El-Hawagry (2015), El-Hawagry and Gilbert (2014), El-Hawagry et al. (2000), Evenhuis and Greathead (2015), Greathead (1980, 1988), Londt (2008), McAlpine (1981), Pape (1996), Pape and Thompson (2016), Soós and Papp (1984–1993), Unwin (1991).

Unidentified specimens (or photos of specimens) were sent to experts for identification, as indicated after each of these taxa in the list.

Flies of suborder Nematocera were examined and preserved in alcohol, while other flies were glued to pinned stiff paper points, and all are deposited at the King Saud University Museum of Arthropods, Riyadh, Saudi Arabia (KSMA).

Abbreviations used:

AF Afrotropical
BT Bait trap
HP Hand-collecting
KSMA King Saud University Museum of Arthropods, Riyadh, Saudi Arabia
Results

A total of 119 fly species belonging to 87 genera, 31 tribes, 42 subfamilies, and representing 30 families was recorded from SANR through the present study. Some species have been identified only to genus and listed herein as the genera were not previously recorded from KSA.

Most of the recorded fly species are characteristic of the Afrotropical region. Table (2) indicates the zoogeographic affinities of recorded species suggesting a closer affiliation to the Afrotropical region (46%) than to the Palearctic region (23.5%) or the Oriental region (2.5%).

Table 2. Zoogeographic affinities of fly species of Jabal Shada al-A’la Nature Reserve (SANR).

| Region            | Affinities |
|-------------------|------------|
|                   | No. of species | %    |
| Afrotropical      | 55          | 46    |
| Palaearctic       | 28          | 23.5  |
| Oriental          | 3           | 2.5   |
| Cosmopolitan      | 14          | 12    |
| Undetermined      | 19          | 16    |

List of species recorded at SANR to date

Order Diptera
Suborder Nematocera
Family Bibionidae

_Dilophus tridentatus_ Walker, 1848
15 February 2014 (MT1), 5 May 2015 (SW1).
Identification: Haenni (1985).
Known distribution: AF.
Family Ceratopogonidae
Subfamily Ceratopogoninae
Tribe Culicoidini
*Culicoides kingi* (Austen, 1912)
23 August 2014 (LT2, LT5).
Identification: Alahmed et al. (2010), Boorman (1989).
Known distribution: AF.

Subfamily Forcipomyiinae
*Forcipomyia sahariensis* Kieffer, 1923
23 August 2014 (LT1).
Identification: Lewanczyk et al. (2009).
Known distribution: AF. First record from KSA.

Family Culicidae
Subfamily Anophelinae
*Anopheles multicolor* Cambouliu, 1902
23 August 2014 (LT2), 15 February 2014 (LT3).
Identification: Glick (1992).
Known distribution: PA.

Subfamily Culicinae
*Aedes caspius* (Pallas, 1771)
15 February 2014 (LT1, PT4).
Identification: Alikhan et al. (2014).
Known distribution: PA.
*Culex pipiens* Linnaeus, 1758
23 August 2014 (PT4).
Identification: Thielman and Hunter (2007).
Known distribution: Cosmopolitan.

Family Sciaridae
*Chaetosciara* sp. Fig. 7
15 February 2014 (MT1), 23 August 2014 (LT2).
Remark: This seems to be the first record of Sciaridae from KSA..
Identification: Steffan (1981) and Mohrig et al. (2012).
Known distribution: Undetermined.
Figures 3–7. 3 *Promachus sinaiticus* Efflatoun 4 *Neolophonotus* sp.1 5 *Saropogon longicornis* (Macquart) 6 *Neolophonotus* sp.2 7 *Chaetosciara* sp.
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Suborder **Brachycera**
Infraorder **Asilomorpha**
Superfamily **Asiloidea**
Family **Asilidae**
Subfamily **Asilinae**
Tribe **Asilini**

*Neolophonotus* sp1. Fig. 4
14-15 February 2014 (MT1, MT3), 21 April 2014 (LT3), 27 January 2015 (MT2, MT3, MT5), 5 May 2015 (SW1), 27 July 2015 (LT2).
*Remark*: This seems to be the first record of this genus from KSA.
Identification: Dr. Jason G.H. Londt, from photos (personal communication).
Known distribution: Undetermined.

*Neolophonotus* sp2. Fig. 6
15 February 2014 (MT3), 15 November 2015 (MT3).
*Remark*: This seems to be the first record of this genus from KSA.
Identification: Dr. Jason G.H. Londt, from photos (personal communication).
Known distribution: Undetermined.

Subfamily **Apocleinae**

*Promachus sinaiticus* Efflatoun, 1934 Fig. 3
20 April 2014 (LT6), 3 June 2014 (LT2, MT4), 3-5 June 2014 (SW2), 15 November 2015 (MT6).
Identification: Efflatoun (1934, 1937).
Known distribution: PA. First record of the species from the KSA.

Subfamily **Dasypogoninae**
Tribe **Dasypogonini**

*Saropogon longicornis* (Macquart, 1838) Fig. 5
3 June 2014 (MT3).
Identification: Efflatoun (1934, 1937).
Known distribution: PA. First record from KSA.
*Saropogon* sp.
15 November 2015 (MT6).
*Remark*: This seems to be the first record of this genus from KSA.
Identification: Efflatoun (1934, 1937).
Known distribution: Undetermined.

Subfamily **Laphystiinae**

*Trichardis leucocomus* (Wulp, 1899)
3 June 2014 (MT5), 5 May 2015 (MT5).
Identification: Dr Torsten Dikow, from photos (personal communication).
Known distribution: PA.
Family Bombyliidae
Subfamily Bombyliinae
Tribe Bombyliini
Bombylla delicata Wiedemann, 1830
5 June 2014 (SW6), 28 July 2015 (SW3).
Identification: Magdi El-Hawagry using Greathead (1980, 1988).
Known distribution: AF.
Bombylius pallidipilus Greathead, 1967
15 February 2014 (MT1), 23 August 2014 (LT2).
Identification: Magdi El-Hawagry using Greathead (1980, 1988).
Known distribution: AF.
Systoechus horridus Greathead, 1980
21 April 2014 (LT2), 3 May 2015 (LT5), 14 November 2015 (LT6).
Identification: Magdi El-Hawagry using Greathead (1980, 1988).
Known distribution: PA.

Subfamily Anthracinae
Tribe Anthracini
Anthrax sticticus Klug, 1832
22 April 2015 (LT).
Identification: Magdi El-Hawagry using Greathead (1980, 1988).
Known distribution: AF, PA.
Spogostylum candidum (Sack, 1909)
4 June 2014 (SW6).
Identification: Magdi El-Hawagry using Greathead (1980, 1988).
Known distribution: OR, PA.
Spogostylum isis (Meigen, 1820)
29 July 2015 (PT5).
Identification: Magdi El-Hawagry using Greathead (1980, 1988).
Known distribution: PA.
Spogostylum tripunctatum (Pallas in Wiedemann, 1818)
4–5 June 2014 (SW2), 2 September 2015 (LT6).
Identification: Magdi El-Hawagry using Greathead (1980, 1988).
Known distribution: PA. First record from KSA.

Tribe Exoprosopini
Defilippia nigrifimbriata (Hesse, 1956)
17 October 2014 (MT5).
Identification: Magdi El-Hawagry using Greathead (1980, 1988).
Known distribution: AF.
Exoprosopa disrupta tihamae Greathead, 1980 Fig. 9
3 June 2014 (SW1).
Identification: Magdi El-Hawagry using Greathead (1980, 1988).
Figures 8–12. 8 Actocetor margaritatus Wiedemann 9 Exoprosopa disrupta tihamae Greathead 10 Desmometopa inaurata Lamb 11 Stomoxys niger Macquart 12 a Sarcophaga palestinensis (Lehrer), habitus b same, male genitalia.
Known distribution: AF.
_Heteralonia bisecta_ Greathead, 1988
29 July 2015 (PT5).
Identification: Magdi El-Hawagry using Greathead (1980, 1988).

Known distribution: AF.
_Pterobates chalybaeus_ (Röder, 1887)
3 November 2014 (HP6).
Identification: Magdi El-Hawagry using Greathead (1980, 1988).

Known distribution: PA.

Tribes _Villini_

_Exhyalanthrax triangularis_ Bezzi, 1924
27 January 2015 (MT5), 5 May 2015 (MT2, MT4), 15 November 2015 (MT4).
Identification: Magdi El-Hawagry using Greathead (1980, 1988).

Known distribution: AF.
_Pachyanthrax circe_ (Klug, 1832)
5 May 2015 (MT4).
Identification: Magdi El-Hawagry using Greathead (1980, 1988).

Known distribution: PA.
_Villa bivirgata_ Austen, 1937
3 June 2014 (SW4), 5 May 2015 (SW4).
Identification: Magdi El-Hawagry using Greathead (1980, 1988) and EL-Hawagry and Greathead (2006).

Known distribution: PA.
_Villa paniscoides_ Bezzi, 1912
3 June 2014 (SW4), 27-28 July 2015 (SW1), 15 November 2015 (MT4).
Identification: Magdi El-Hawagry using Greathead (1980, 1988) and EL-Hawagry and Greathead (2006).

Known distribution: AF.

Tribes _Xeramoebini_

_Desmatoneura_ sp.
4 June 2014 (SW4).
Identification: Magdi El-Hawagry using El-Hawagry and Evenhuis (2008).

Known distribution: Undetermined.
_Petrorossia albula_ Zaitzev, 1962
5 June 2014 (SW2), 27 July 2015 (SW1).
Identification: Magdi El-Hawagry using Greathead (1980, 1988).

Known distribution: PA.
_Petrorossia letho_ (Wiedemann, 1828)
5 June 2014 (SW4), 27 July 2015 (SW1).
Identification: Magdi El-Hawagry using Greathead (1980, 1988).
Known distribution: PA.

_Petrorossia tropicalis_ Bezzi, 1921
3-5 June 2014 (SW2, SW4), 5 May 2015 (MT3), 27 July 2015 (SW4).
Identification: Magdi El-Hawagry using Greathead (1980, 1988).
Known distribution: PA.

Family **Therevidae**

*Phycus* sp.
1 June 2014 (LT5), 24 August 2014 (LT6).

*Remark*: This seems to be the first record of the genus from KSA.

Identification: Dr Martin Hauser (personal communication).
Known distribution: AF.

Superfamily **Empidoidea**

Family **Dolichopodidae**

Subfamily **Diaphorinae**

_Asyndetus albifacies_ Parent, 1929
27 July 2015 (SW).
Identification: Grichanov (2007).
Known distribution: AF.

Subfamily **Dolichopodinae**

*Dolichopus* sp.
23 August 2014 (LT4), 10 December 2014 (LT6), 26 January 2015 (PT4), 27 July 2015 (LT6).
Identification: Grichanov (2007).
Known distribution: Undetermined.

_Tachytrechus planitarsis_ Becker, 1907
23 August 2014 (LT2).
Identification: Grichanov (2007).
Known distribution: PA.

Superfamily **Nemestrinoidea**

Family **Nemestrinidae**

_Trichopsidea costata_ Loew, 1858
10 December 2014 (LT6).
Identification: Narchuk (2007).
Known distribution: AF.
Superfamily **Tabanoidea**
Family **Tabanidae**
*Haematopota pluvialis* (Linnaeus, 1758)
15 November 2015 (LT6).
Identification: Amoudi and Leclercq (1992) and Leclercq (1982, 1986, 2000).
Known distribution: PA.

Infraorder **Muscomorpha**
Section **Aschiza**
Superfamily **Platypezoidea**
Family **Phoridae**
*Megaselia scalaris* (Loew, 1866)
23 April 2014 (PT2, PT3), 5 June 2014 (PT4), 2 March 2015 (PT4), 29 July 2015 (PT5), 23 August 2015 (LT3).
Identification: Magdi El-Hawagry.
Known distribution: Cosmopolitan.

Section **Schizophora**
Subsection **Acalyptratae**
Family **Carnidae**
*Hemeromyia* sp. 23 August 2014 (LT1).
Remark: This seems to be the first record of the genus from KSA.
Identification: Sabrosky (1987).
Known distribution: Undetermined.

*Meoneura palaestinensis* Hennig, 1937
23 August 2014 (LT1, PT2).
Identification: Papp (1978).
Known distribution: PA.

Family **Chloropidae**
Subfamily **Chloropinae**
*Pachylophus pellucidus* Becker, 1910
24 August 2014 (MT6).
Identification: Deeming and Al-Dhafer (2012).
Known distribution: AF.

*Thaumatomyia notata* (Meigen, 1830)
27 January 2015 (LT1).
Identification: Deeming and Al-Dhafer (2012).
Known distribution: AF, PA.

Subfamily **Oscinellinae**
*Anatrichus pygmaeus* Lamb, 1918
27 July 2015 (VC5).
Identification: Deeming and Al-Dhafer (2012).
Known distribution: AF.
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Aphanotrigonum subfasciellum Collin, 1949
4 June 2014 (SW4), 24 August 2014 (LT6).
Identification: Deeming and Al-Dhafer (2012).
Known distribution: PA.

Lasiochaeta vulgaris (Adams, 1905)
15 February 2014 (MT1), 8 December 2014 (VC1, VC4), 5 May 2015 (MT4).
Identification: Deeming and Al-Dhafer (2012).
Known distribution: AF.

Polyodaspis robusta (Lamb, 1918)
15 February 2014 (MT1, PT1), 17 October 2014 (LT1), 27 July 2015 (VC2).
Identification: Deeming and Al-Dhafer (2012) for genus, and Lamb (1918) for species.
Known distribution: AF.

Scoliophthalmus micantipennis Duda, 1935
5 May 2015 (MT6).
Identification: Deeming and Al-Dhafer (2012).
Known distribution: AF.

Scoliophthalmus trapezoides Becker, 1903
5 May 2015 (MT6).
Identification: Deeming and Al-Dhafer (2012).
Known distribution: AF.

Subfamily Siphonellopsinae

Apotropina gregalis (Lamb, 1937)
23 August 2014 (LT5, LT6, PT2, PT3, PT4, PT5, PT6), 17 October 2014 (LT5), 8 December 2014 (VC4), 2-3 March 2015 (PT4, PT5), 17 July 2015 (LT3, MT4), 15 November 2015 (LT6).
Identification: Deeming and Al-Dhafer (2012).
Known distribution: AF.

Family Chyromyidae
Subfamily Chyromyinae

Somatiosoma eremicolum Ebejer, 2008
15 February 2014 (MT4).
Identification: Ebejer (2008).
Known distribution: AF.

Family Conopidae
Subfamily Myopinae

Tribe Zodionini

Zodion cinereum (Fabricius, 1794)
5 May 2015 (MT6).
Mei & Stuke J-H (2008) has been consulted to identify this species.
Identification: Mei and Stuke (2008).
Known distribution: PA.
Family **Diopsidae**

*Diopsis apicalis* Dalman, 1817
5 May 2015 (LT2, SW1).
Identification: Dawah and Abdullah (2008).
Known distribution: AF.

*Sphyracephala beccarii* (Rondani, 1873)
2 June 2014 (LT6), 3 June 2014 (LT3, LT4), 3 June 2014 (MT2), 27 January 2015 (LT4), 5 May 2015 (LT1, SW1), 15 November 2015 (LT6).
Identification: Dawah and Abdullah (2008).
Known distribution: AF.

Family **Drosophilidae**

Subfamily **Drosophilinae**

Tribe **Drosophilini**

*Drosophila melanogaster* Meigen, 1830
17-18 October 2014 (LT3, PT2), 8 December 2014 (PT2), 26-27 January 2015 (LT1, MT1, MT2, PT1, PT2), 2 March 2015 (PT1, PT2, PT4).
Identification: Magdi El-Hawagry.
Known distribution: Cosmopolitan.

*Zaprionus indanus* Gupta, 1970
2 March 2014 (PT5), 23 August 2014 (LT2), 18 October 2014 (PT1, PT2, PT4, PT5).
Identification: Amoudi et al. (1991).
Known distribution: OR.

Family **Ephydridae**

Subfamily **Discomyzinae**

Tribe **Discomyzini**

*Actocetor indicus* (Wiedemann 1824)
23 April 2014 (PT4, PT5), 17 October 2014 (LT4).
Identification: Dawah and Abdullah (2006), Becker (1903) and Wiedemann (1824).
Known distribution: AF.

*Actocetor margaritatus* Wiedemann, 1830 Fig. 8
28 February 2014 (PT3), 23 August 2014 (PT1, PT2, PT4, PT5), 10 December 2014 (LT6), 5 May 2015 (LT4, SW1).
Identification: Dawah and Abdullah (2006), Becker (1903) and Wiedemann (1830).
Known distribution: AF.

Tribe **Psilopini**

*Psilopa nilotica* (Becker, 1903)
15 February 2014 (LT2, MT2), 4 June 2014 (SW4), 29 July 2015 (PT4, PT5).
Identification: Dawah and Abdullah (2006), Becker (1903).
Known distribution: AF, PA.
Subfamily **Hydrelliinae**
*Notiphila ignobilis* Loew, 1862
29 July 2015 (MT6).
Identification: Dawah and Abdullah (2006), Becker (1903).
Known distribution: AF.

Family **Lonchaeidae**
Subfamily **Lonchaeinae**
Tribe **Lonchaeini**
*Silba virescens* Macquart, 1851
15 February 2014 (SW6).
Identification: MacGowan & Friedberg (2009).
Known distribution: AF.

Family **Milichiidae**
Subfamily **Madizinae**
*Desmometopa inaurata* Lamb, 1914 Fig. 10
27 January 2015 (LT2), 29 July 2015 (PT4).
Identification: Deeming (1998).
Known distribution: AF. First record from KSA.
*Desmometopa varipalpis* Malloch, 1927
5 May 2015 (PT5), 29 July 2015 (PT6).
Identification: Identification: Deeming (1998).
Known distribution: AF.

Subfamily **Phyllomyzinae**
*Phyllomyza* sp.
15 February 2014 (LT2), 27 July 2015 (LT2).
Identification: Deeming (1998).
Known distribution: Undetermined.

Family **Pyrgotidae**
*Campylocera ferruginea* Macquart, 1843
15 November 2015 (LT6).
Identification: Dr Valery Korneyev, from photos (personal communication).
Known distribution: AF.
*Eupyrgota latipennis* (Walker, 1849)
3 June 2014 (LT2), 14 November 2015 (LT2).
Identification: Dr Valery Korneyev, from photos (personal communication).
Known distribution: AF.
Family **Sphaeroceridae**

* Rachispoda fuscipennis* (Haliday 1833)

15 February 2014 (PT2, PT3), 23 August 2014 (PT6), 18 October 2014 (LT3, PT1, PT2, PT3, PT4), 8-11 December 2014 (LT2, LT3, LT4, VC1, VC2).

Identification: Magdi El-Hawagry, compared with museum specimens.

Known distribution: PA.

**Family Tephritidae**

Subfamily **Dacinae**

Tribe **Dacini**

* Bactrocera zonata* (Saunders, 1842)

23 August 2014 (LT2), 5 May 2015 (SW1), 27 July 2015 (SW1).

Identification: Merz and Dawah (2005) and Efflatoun (1924).

Known distribution: OR.

Subfamily **Tephritinae**

Tribe **Tephritini**

* Acanthiophilus helianthi* (Rossi, 1794)

23 August 2014 (LT2).

Identification: Merz and Dawah (2005) and Efflatoun (1924).

Known distribution: AF, OR, PA.

* Dioxyna sororcula* (Wiedemann, 1830)

15 February 2014 (MT4), 3 June 2014 (MT4), 8 December 2014 (LT5, VC1).

Identification: Merz and Dawah (2005) and Efflatoun (1924).

Known distribution: AF.

* Goniurellia tridens* (Hendel, 1910)

23 August 2014 (LT2).

Identification: Hendel (1910).

Known distribution: PA.

* Trupanea stellata* (Fuesslin, 1775)

3 June 2014 (LT2).

Identification: Merz and Dawah (2005) and Efflatoun (1924).

Known distribution: PA.

**Family Ulidiidae**

Subfamily **Ulidiinae**

Tribe **Ulidiini**

* Physiphora alceae* (Preyssler, 1791)

15 February 2014 (MT1, LT1), 21 April 2014 (LT1), 6 June 2014 (LT1), 23 August 2014 (LT1), 17-18 October 2014 (LT3, PT3), 27 January 2015 (MT1, MT3), 5 May 2015 (LT1), 27 July 2015 (LT1, SW1), 15 November 2015 (LT6, MT4).

Identification: Al Dhafer and El-Hawagry (2016).

Known distribution: Cosmopolitan.
Subsection *Calypttratae*

Family *Anthomyiidae*

Subfamily *Anthomyiinae*

Tribe *Anthomyiini*

*Anthomyia pluvialis* (Linnaeus, 1758)
15 February 2014 (MT1), 27 January 2015 (MT3), 4-5 May 2015 (MT3, SW1), 15 November 2015 (LT5).

Identification: Michelsen (2008).

Known distribution: PA.

Tribe *Hydrophoriini*

*Delia platura* (Meigen, 1826)
15 February 2014 (LT1, LT2, LT3, MT1), 23 August 2014 (LT2), 17 October 2014 (LT1, LT2), 27 January 2015 (LT2, LT3, MT2).

Identification: Meigen (1826).

Known distribution: Cosmopolitan.

Family *Calliphoridae*

Subfamily *Calliphorinae*

*Calliphora croceipalpis* Jaennicke, 1867
15 February 2014 (MT4).

Identification: Setyaningrum and Al Dhafer (2014).

Known distribution: AF.

*Calliphora vicina* (Robineau-Desvoidy, 1830)
3 June 2014 (SW6).

Identification: Setyaningrum and Al Dhafer (2014).

Known distribution: Cosmopolitan.

Subfamily *Chrysomyinae*

*Chrysomya albiceps* (Wiedemann, 1819)
4 June 2014 (SW1), 2 September 2015 (LT6), 15 November (LT3).

Identification: Setyaningrum and Al Dhafer (2014).

Known distribution: AF.

*Chrysomya putoria* (Wiedemann, 1830)
3 June 2014 (SW4).

Identification: Setyaningrum and Al Dhafer (2014).

Known distribution: AF.

*Chrysomya regalis* Robineau-Desvoidy, 1830
15 February 2014 (MT3), 4 June 2014 (MT6), 10 December 2014 (LT6).

Identification: Setyaningrum and Al Dhafer (2014).

Known distribution: AF.
Subfamily **Luciliinae**
*Lucilia sericata* (Meigen, 1826)
16 February 2014 (HP6), 21 February 2014 (LT3), 10 December 2014 (LT6).
Identification:
Known distribution: Cosmopolitan.

Subfamily **Polleniinae**
*Pollenia hungarica* Rognes, 1987
17 October 2014 (LT6).
Identification: Setyaningrum and Al Dhafer (2014).
Known distribution: PA.

*Pollenia rudis* (Fabricius, 1794)
17 October 2014 (LT5).
Identification: Setyaningrum and Al Dhafer (2014).
Known distribution: PA.

Family **Muscidae**
Subfamily **Atherigoninae**
Tribe **Atherigonini**
*Atherigona humeralis* Wiedemann, 1830
15 November 2015 (SW5).
Identification: Pont (1991).
Known distribution: AF.

*Atherigona laevigata* (Loew, 1852)
15 February 2014 (MT1), 8 December 2014 (VC4).
Identification: Pont (1991).
Known distribution: AF.

*Atherigona reversura* Villeneuve, 1936
15 February 2014 (MT3), 23 August 2014 (LT2, LT3, LT5), 17 October 2014 (LT4, LT5, MT2, MT4), 5 May 2015 (MT2), 15 November 2015 (MT4), 2 September 2015 (LT6).
Identification: Pont (1991).
Known distribution: OR.

Subfamily **Coenosiiinae**
Tribe **Coenosiiini**
*Coenosia attenuata* Stein, 1903
15 February 2014 (MT4, PT4), 23 April 2014 (PT1), 23 August 2014 (LT2), 17 October 2014 (LT2, LT4, MT4), 18 October 2014 (PT5), 5 May 2015 (MT4), 15 November 2015 (MT4).
Identification: Pont (1991).
Known distribution: Cosmopolitan.
*Coenosia humilis* Meigen, 1826
5 May 2015 (MT6).
Identification: Pont (1991).
Known distribution: Cosmopolitan.

Tribe **Limnophorini**

*Lispe nivalis* Wiedemann, 1830
15 February 2014 (LT6).
Identification: Pont (1991).
Known distribution: AF.
*Lispe pectinipes* Becker, 1903
23 August 2014 (LT2, LT3), 17 October 2014 (LT5), 5 May 2015 (LT1, MT2), 14-15 November 2015 (LT4, LT5).
Identification: Pont (1991).
Known distribution: PA.

Subfamily **Muscinae**

Tribe **Muscini**

*Musca albina* Wiedemann, 1830
5 May 2015 (MT6).
Identification: Pont (1991).
Known distribution: AF, OR, PA.
*Musca autumnalis* De Geer, 1776
23 August 2014 (LT2), 5 May 2015 (MT2).
Identification: Pont (1991).
Known distribution: Cosmopolitan.
*Musca calleva* Walker, 1849
14 November 2015 (LT4).
Identification: Pont (1991).
Known distribution: AF.
*Musca domestica* Linnaeus, 1758
15 February 2014 (MT5, PT6), 3 June 2014 (MT2, SW6), 23 August 2014 (LT2, LT3), 5 May 2015 (MT6), 2 September 2015 (LT5), 15 November 2015 (LT6).
Identification: Pont (1991).
Known distribution: Cosmopolitan.
*Musca lucidula* (Loew, 1856)
3 June 2014 (MT6).
Identification: Pont (1991).
Known distribution: AF, PA.
*Musca sorbens* Wiedemann, 1830
5 May 2015 (MT1), 15 November 2015 (LT5).
Identification: Pont (1991).
Known distribution: AF.
Tribe **Stomoxyini**
*Stomoxys niger* Macquart, 1851 Fig. 11
15 February 2014 (MT4), 17 October 2014 (LT5).
Identification: Márcia et al. (2012).
Known distribution: AF. First record from KSA.

Subfamily **Phaoniinae**
Tribe **Dichaetomyiini**
*Dichaetomyia luteiventris* (Rondani, 1873)
2 March 2015 (PT5).
Identification: Pont (1991).
Known distribution: AF.

Tribe **Phaoniini**
*Helina coniformis* (Stein in Becker, 1903)
15 February 2014 (MT5, PT2), 21 April 2014 (LT2), 17 October 2014 (LT1, LT5, MT1, MT2, MT3, MT4), 27 January 2015 (MT2, MT3), 14-15 November 2015 (LT4, LT5, MT4).
Identification: Pont (1991).
Known distribution: AF.
*Helina lucida* (Stein, 1913)
21 April 2014 (LT5).
Identification: Pont (1991).
Known distribution: AF.

Family **Rhiniidae**
*Cosmina viridis* Townsend, 1917
15-16 February 2014 (MT1, MT3), 17 October 2014 (LT5), 27 January 2015 (LT1, MT3), 4-5 May 2015 (SW4, MT2).
Identification: Setyaningrum and Al Dhafer (2014).
Known distribution: AF.
*Isomyia terminata* (Wiedemann, 1830)
15 February 2014 (MT5, PT5).
Identification: Setyaningrum and Al Dhafer (2014).
Known distribution: AF.
*Rhinia apicalis* (Wiedemann, 1830)
15 February 2014 (MT5), 3 June 2014 (SW4), 17 October 2014 (LT2, LT3, LT5), 14-15 November 2015 (LT4, LT5, LT6).
Identification: Setyaningrum and Al Dhafer (2014).
Known distribution: AF.
Family **Sarcophagidae**

Subfamily **Miltogramminae**

*Taxigrama heteroneura* (Meigen, 1830)

15 February 2014 (MT5), 3 June 2014 (SW4), 27 January 2015 (MT4), 5 May 2015 (MT4, SW1), 27-29 July 2015 (PT5).

Identification: Thomas Pape (personal communication) and the first author.

Known distribution: NE, PA.

Subfamily **Paramacronychiinae**

*Wohlfahrtia erythroceria* Villeneuve, 1910

28 July 2015 (PT6).

Identification: Thomas Pape (personal communication) and the first author.

Known distribution: AF.

*Wohlfahrtia nuba* Wiedemann, 1830

3 May 2015 (PT5).

Identification: Thomas Pape (personal communication) and the first author.

Known distribution: AF.

Subfamily **Sarcophaginae**

*Blaesoxipha algeriensis* (Townsend, 1919)

23 August 2014 (LT5).

Identification: Thomas Pape (personal communication) and the first author.

Known distribution: PA.

*Blaesoxipha rufipes* (Macquart, 1839)

3 June 2014 (SW4).

Identification: Thomas Pape (personal communication) and the first author.

Known distribution: Cosmopolitan.

*Sarcophaga adhamae* (Lehrer and Abou-Zied, 2008)

21 April 2014 (BT6).

Identification: Lehrer and Abou–Zied (2008).

Known distribution: AF.

*Sarcophaga africa* (Wiedemann, 1824)

5 May 2015 (SW4).

Identification: Thomas Pape (personal communication) and the first author.

Known distribution: Cosmopolitan.

*Sarcophaga babiyari* (Lehrer, 1995)

3 June 2014 (LT6).

Identification: Thomas Pape (personal communication) and the first author.

Known distribution: AF.

*Sarcophaga dux* Thompson, 1869

15 February 2014 (MT1).

Identification: Thomas Pape (personal communication) and the first author.

Known distribution: Cosmopolitan.
Sarcophaga palestinensis (Lehrer, 1998) Fig. 12
21 February 2014 (LT1).
Identification: Thomas Pape (personal communication) and the first author.
Known distribution: PA.

Family Tachinidae
Subfamily Exoristinae
Tribe Eryciini
Drino lota (Meigen, 1824)
15-16 February 2014 (LT6, MT4, MT5, MT6, SW6), 17 October 2014 (LT4, LT5, LT6), 14-15 November 2015 (LT4, LT6).
Identification: Dawah (2011) and Tschorsnig and Herting (1994).
Known distribution: AF, PA.

Tribe Exoristini
Exorista larvarum (Linnaeus, 1758)
3 June 2014 (SW2, SW4).
Identification: Dawah (2011) and Tschorsnig and Herting (1994).
Known distribution: NE, PA.

Tribe Goniini
Gonia capitata (De Geer, 1776)
5 May 2015 (MT1). Identification: Dawah (2011) and Tschorsnig and Herting (1994).
Known distribution: PA.
Sturmia bella (Meigen, 1824)
15 February 2014 (MT1), 21 April 2014 (LT1), 3 June 2014 (SW4), 27-30 January 2015 (LT1, LT2, LT3), 27 July 2015 (LT5).
Identification: Dawah (2011) and Tschorsnig and Herting (1994).
Known distribution: OR, PA.

Subfamily Phasiinae
Tribe Cylindromyiini
Cylindromyia bicolor (Olivier, 1812)
7 June 2014 (SW4).
Identification: Dawah (2011), El-Hawagry et al. (2015) and Tschorsnig and Herting (1994).
Known distribution: PA.

Subfamily Tachininae
Tribe Tachinini
Dejeania bombylans (Fabricius, 1798)
10 December 2014 (LT6).
Identification: Dawah (2011) and Tschorsnig and Herting (1994).
Known distribution: AF.
Discussion

In terms of vegetation and speciation, the south-western part of KSA, including Al-Baha Province, is considered to be the most important part of the country and the Arabian Peninsula in general. Floristically and ecologically, this area is similar to the high altitude mountains of north-eastern and eastern parts of Africa, and like other areas in the south-western part of the Arabian Peninsula, contains montane woodlands and evergreen shrub lands, with strong Afromontane affinities (Bussmann and Beck 1995; Zohary 1973; Eig 1938).
Considering the insect fauna as a whole, El-Hawagry et al. (2013, 2015) attributed the extraordinary complex and the interesting insect fauna in Al-Baha Province to its geographical position at the junction of two of the world’s main zoogeographical regions, the Afrotropical and the Palaearctic.

Many present day biogeographers think that the biogeographical divisions within the eastern and the northeastern parts of Africa should be extended towards east within the Arabian Peninsula as well, covering the high altitude regions of the southern Al-Sarawat Mountains, namely “Afromontane Archipelago” (Zohary 1973; Eig 1938). Bolton (1994), Eig (1938), El-Hawagry et al. (2013 and 2015) and Sharaf et al. (2012a, 2012b) concluded that the insect faunal composition in Al-Baha Province has an Afrotropical flavor as the Afrotropical elements were predominantly indicated, they tended to agree with those biogeographers who think that parts of the Arabian Peninsula, including Al-Baha Province, should be included in the Afrotropical region, but they couldn’t indicate the northern border of this region exactly. All these facts seem to be reflected somehow on the fly faunal composition in Jabal Shada al-A’la Nature Reserve (SANR) as shown in the present results which obviously emphasize the fact that Al-Baha Province, as lying in the south-western part of the Arabian Peninsula, should be included in the Afrotropical Region rather than in the Palaearctic Region or the Eremic Zone.

Funding

The authors would like to extend their sincere appreciation to the Deanship of Scientific Research at King Saud University for its funding this research group NO (RGP-1437-009).

Acknowledgements

We are grateful to Prince Bandar Bin Saud Al Saud, Head of the Saudi National Commission for Wildlife Conservation and Development for the support during the study. We are also indebted to the following people for identifying specimens or providing critical assistance throughout this study: Dr John Deeming, National Museum Wales, Cardiff, Wales, UK; Dr Thomas Pape, Natural History Museum of Denmark, Copenhagen, Denmark; Dr Valery Korneyev, General and Applied Entomology Department, I.I. Schmalhausen Institute of Zoology, National Academy of Sciences of Ukraine; Dr Jason G. H. Londt, Natal Museum, Pietermaritzburg, South Africa; Dr Boris C. Kondratieff, Department of Bioagricultural Sciences and Pest Management, Colorado State University, USA; Dr Neal Evenhuis, Bishop Museum, Honolulu, Hawaii, USA; Dr Babak Gharali, Research Centre for Agriculture and Natural Resources, Iran; Dr Shaun Winterton and Dr Martin Hauser, Plant Pest Diagnostics Branch, California Department of Food & Agriculture, Sacramento, U.S.A.; Torsten Dikow, Smithsonian Institution, National Museum of Natural History, Washington, USA. Dr Francis Gil-
 bert, School of Life Sciences, University of Nottingham, UK; and Mr Ahmed Shams Al Ola, Plant Protection Department, College of Food and Agriculture Sciences, King Saud University, Saudi Arabia. Sincere thanks go to the research team of the KSMA for collecting and mounting specimens.

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