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Wasp fauna of (Eumeninae, Vespinae and Polistinae) of district Poonch, Azad Jammu and Kashmir (Pakistan)

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Abstract

This study records the Vespidae fauna of district Poonch of Azad Jammu and Kashmir during 2017 by conducting the field surveys. As a whole 11 species in three genera belonging to three sub-families of family Vespidae i.e. Eumeninae, Polistinae and Vespinae were recorded. Among the recorded fauna, two species under one genus were recorded for subfamily Eumeninae. However, subfamily Polistinae was represented by four species in one genus while seven species in one genus falls under subfamily Vespinae. Among them nine species reported first time from Azad Jammu and Kashmir.

Keywords: Wasps, Vespidae, Eumeninae, Polistinae, Vespinae, Poonch, Azad Jammu and Kashmir, Pakistan

Introduction

Vespidae is one of the large, diverse and cosmopolitan families of wasps which include nearly all the known eusocial and many solitary wasps [1]. This family contains more than 5000 species under 250 genera that belong to 6 subfamilies [2]. Vespidae wasps play an important role in pollination of fruit and vegetable crops [3] and also perform a valuable service in biological control of pests. Many species of wasps are predators; they feed on spiders, crickets or immature of other insects and caterpillars [4]. Wasps are also important pests of beekeeping industry [5] some species of genus *Vespa* prey on honey bee [6]. They also damage fruits and sting the people [5] and create problematic situation during harvesting of fruits and annoying agricultural worker. Despite the fact, Vespidae fauna of the world is well studied but the fauna of Azad Jammu & Kashmir is still incompletely documented. The present research work is baseline study for future research on Vespidae wasps of Azad Jammu & Kashmir. Geographically Poonch is mountainous area with valleys, plains, beautiful lakes, rivers and with fresh water reservoirs. Weather of Poonch is quite erratic. However, the climate of can be divided into four seasons, namely spring, summer, autumn and winter. Poonch has mild to warm temperatures during the spring and autumn, humid temperatures during summer and cold to snowy during the winter. This region receives rainfall in both winters and summers. District Poonch lies between latitude of 33° to 34°N & longitude of 74° to 75°E comprises its altitude 5393ft and an area of 2,792 square kilometer. Average rainfall exceeds 1400mm.

Materials and Methods

Adult wasps were collected from fields, orchards, gardens, forest of district Poonch. Following localities were visited i.e. Alisojal (Lat. 33°52'30.13"N, Long. 73°50'32.10"E, Alt. 5524 ft), Banjosa (Lat. 33°48'35.92"N, Long. 73°48'56.05"E, Alt. 5873 ft), Chaprian (Lat. 33°48'55.56"N, Long. 73°53'22.26"E, Alt. 5650 ft), Hajira (Lat. 33°46'06.36"N, Long. 73°54'01.06"E, Alt. 3076 ft), Mandhol (Lat. 33°40'47.85"N, Long. 73°57'23.60"E, Alt. 2778 ft), Paniola (Lat. 33°55'15.05"N, Long. 73°41'12.80"E, Alt. 4608 ft), Rawalakot (Lat. 33°51'42.18"N, Long. 73°45'33.70"E, Alt. 5345 ft), Khai-Gala (Lat. 33°50'42.10"N, Long. 73°49'44.88"E, Alt. 5761 ft), Topa (Lat. 33°36'21.14"N, Long. 74°08'19.24"E, Alt. 3217 ft) and Thorar (Lat. 33°50'47.80"N, Long. 73°38'25.77"E, Alt. 5269 ft).

Specimens were identified with the help of stereoscope (Labomet CZM4-4X) up to lowest possible taxa with available literature. Data of coordinates of localities and altitude, previous records from Pakistan and Azad Jammu and Kashmir and its world distribution for each recorded species was also recorded.

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Results and Discussion

Subfamily Eumeninae

Genus: *Delta* de Saussure, 1885

1. *Delta dimiatepennis* (de Saussure, 1852)

Material Examined: Azad Jammu and Kashmir: Poonch: Rawalakot, 3.iv.2017, 2♀; Banjosa, 18.viii.2017, 1♂. leg. Afshan.

Previous record from Pakistan: This species is already known from various localities of Pakistan such as Islamabad; Punjab: Attock, Chakwal, Faisalabad, Gujrat, Gujranwala, Jhang, Jhelum, Multan, Murree, Khyber-Pakhtunkhwa: Abbottabad, Balakot, Battagram, Dir, Mansehra, Noshkey, Peshawar; Azad Jammu and Kashmir: Bagh; Gilgit-Baltistan: Ghizer and Hunza [7-11, 13].

Remarks: This species is recorded first time from district Poonch.

Distribution: Afghanistan; Algeria; Chad; Djibouti; Egypt; Eritrea; Ethiopia; India; Iran; Jordan; Mauritania; Nepal; Niger; Morocco; Oman; Pakistan; Qatar; Saudi Arabia; Spain; Somalia; South Africa; Sudan; Syria; Tajikistan; Turkey; Turkmenistan; U.A.E.; Uganda; Yemen [1, 8, 14].

2. *Delta pyriforme pyriforme* (Fabricius, 1775)

Material Examined: Azad Jammu and Kashmir: Poonch: Rawalakot, 10.v.2017, 1♂; Banjosa, 18.viii.2017, 1♀. leg. Afshan.

Previous record from Pakistan: Already this species was reported from Islamabad; Punjab: Attock, Bakhar, Bahawalpur, D.G. Khan, Jhang, Jhelum, Khushab, Layyah, Mianwali, Muzafargarh, Rajanpur, Rawalpindi and Sargodha; Khyber-Pakhtunkhwa: Peshawar [9-11, 15].

Remarks: This species is new record for Azad Jammu and Kashmir.

Distribution: Bhutan; China; India; Myanmar; Nepal; Pakistan; Sri Lanka; Thailand; Vietnam [14, 15].

Subfamily Polistinae

Genus: *Polistes* Latreille, 1802

3. *Polistes (Polistella) quadricingulatus* Gusenleitner, 2006

Material Examined: Azad Jammu and Kashmir: Poonch: Rawalakot, 15.iii.2017, 1♂, 2♀; Khaigala, 17.iii.2017, 3♀; Banjosa, 11.vi.2017, 2♀; Chaprian, 17.iii.2017, 1♂; leg. Afshan.

Previous record from Pakistan: This species already reported from Khyber Pakhtunkhwa: Chitral, Bamboret valley and Brun [16].

Remarks: This species is new record for Rawalakot as well as Azad Jammu and Kashmir.

Distribution: India; Laos; Nepal; Pakistan [16].

4. *Polistes (Polistella) stigma tamula* (Fabricius, 1798)

Material Examined: Azad Jammu and Kashmir: Poonch: Rawalakot, 15.iii.2017, 3♂, 8♀; 2.iv.2017, 1♂, 3♀; Paniola, 15.iii.2017, 1♂; Khaigala, 17.iii.2017, 2♂, 8♀; 19.v.2013, 2♂, 5♀; Chaprian, 11.vi.2013, 2♂, 9♀; Banjosa, 11.vi.2013,

1♂, 2♀; 28.vii.2013, 1♀; 18.viii.2017, 1♂, 2♀; Ali Sojal, 18.viii.2017, 2♂, 5♀; Hajira, 16.iii.2017, 3♀; 3.iv.2017, 2♀; 10.vi.2017, 5♀; Mandhol, 16.iii.2017, 1♀; 18.v.2013, 1♀; 10.vi.2017, 2♂, 4♀; leg. Afshan.

Previous record from Pakistan: This species reported from Khyber-Pakhtunkhwa: Abbottabad, Ayubia, Battagram, Havelian, Miadam, Mansehra, Siadu Sharif and Swat [10, 12].

Remarks: This species is new record for Rawalakot as well as Azad Jammu and Kashmir.

Distribution: India; Pakistan; Sri Lanka [7, 17].

5. *Polistes (Gyrostoma) rothneyi carletoni* van der Vecht, 1968

Material Examined: Azad Jammu and Kashmir: Poonch: Rawalakot, 15.iii.2017, 1♂, 2♀; Paniola, 15.iii.2017, 2♂, 3♀; Khaigala, 17.iii.2017, 1♀; 19.v.2017, 2♀; Chaprian, 17.iii.2017, 8.vi.2017, 1♂, 3♀; Banjosa, 11.vi.2013, 1♂, 2♀; Mandhol, 16.iii.2017, 2♂, 2♀; 3.iv.2017, 2♀; leg. Afshan.

Previous record from Pakistan: Earlier this species reported from Khyber-Pakhtunkhwa: Abbottabad, Ayubia, Chitral, Bamboret valley, Balakot, Baffa, Brun, Dir, Gari habibullah, Havelian, Hazara, Jaba, Miadam, Mansehra, Mardan, Peshawar; Punjab: Attock Jhelum velley, Murree hills, Rawalpindi; Islamabad; Gilgit-Baltistan: Astore, Bagrot, Daimer, Sassi, Gech, Gilgit and Ghizer [10-13, 16, 18-20].

Remarks: This species is new record for Rawalakot as well as Azad Jammu and Kashmir.

Distribution: India; Nepal; Pakistan [13, 16, 19-21].

6. *Polistes (Gyrostoma) wattii* Cameron, 1900

Material Examined: Azad Jammu and Kashmir: Poonch: Rawalakot, 15.iii.2017, 4♀; Mandhol, 18.v.2017, 1♂; leg. Afshan.

Previous record from Pakistan: This species already reported from Punjab: Abbaspur, Bahawalpur (Chak 28 BC), Habib Massan, Salt Range (Khehra), Rawalpindi, Attock, Murree, Taxila; Islamabad: Sindh: Karachi, Ghotki, Drago, Sukkur, Rajab Ali Bharo, Allahyar; Khyber-Pakhtunkhwa: Dir, Peshawar, Kohat, Warsak, Abbottabad, Mansehra, Mardan; Gilgit-Baltistan: Hunza-Nagar, Diامر, Gilgit, Dassu, Basha, Chillas, Ghizer and Skardu [10-13, 15, 18, 19].

Remarks: This species is new record for Rawalakot as well as Azad Jammu and Kashmir.

Distribution: Afghanistan; China; India; Iran; Iraq; Mauritius; Oman; Pakistan; Saudi Arabia; Tajikistan; Turkmenistan; U.A.E. [15, 19, 21, 22].

Subfamily Vespinae

Genus: *Vespa* Linnaeus, 1758

7. *Vespa basalis* Smith, 1852

Material Examined: Azad Jammu and Kashmir: Poonch: Rawalakot, 15.iii.2017, 2♀; Hajira, 16.iii.2017, 3♀; Mandhol, 28.vii.2017, 1♂; leg. Afshan.

Previous record from Pakistan: This species reported from Gilgit-Baltistan; Islamabad; Khyber-Pakhtunkhwa:

Abbottabad, Havelian, Battagram, Mardan Mansehra, Baffa and Balakot; Punjab: Rawalpindi and Attock ^[10-12, 23].

Remarks: This species is new record for Rawalakot as well as Azad Jammu and Kashmir.

Distribution: China; India; Indonesia; Laos; Myanmar; Nepal; Pakistan; Taiwan; Thailand; Vietnam ^[10, 23-25].

8. *Vespa mandarinia* Smith, 1852

Material Examined: Azad Jammu and Kashmir: Poonch: Rawalakot, 17.v.2017, 1♂, 2♀; 15.iii.2017, 1♂, 1♀; Thorar, 10.vi.2017, 2♂; Mandhol, 28.vii.2017, 1♂; leg. Afshan.

Previous record from Pakistan: This species reported from Khyber-Pakhtunkhwa: Abbottabad and Mansehra; Islamabad and Azad Jammu and Kashmir ^[12].

Remarks: This species is recorded first time from district Poonch.

Distribution: Bhutan; China; India; Japan; Korea; Laos; Malaysia; Myanmar; Nepal; Pakistan; Russia; Sri Lanka; Thailand; Taiwan; Vietnam ^[12, 24]

9. *Vespa orientalis* Linnaeus, 1771

Material Examined: Azad Jammu and Kashmir: Poonch: Rawalakot, 15.iii.2017, 2♂, 1♀; Topa, 2.iii.2017, 3♀; Thorar, 10.vi.2017, 1♂; Mandhol, 28.vii.2017, 1♂; leg. Afshan.

Previous record from Pakistan: Earlier reported this species from Khyber-Pakhtunkhwa: Abbottabad, Havelian, Bannu, Battagram, Chitral, Bamboret valley, Brun, Peshawar, Kohat, Charsada, Warsak, Mardan, Mansehra, Baffa and Balakot; Gilgit-Baltistan: Astore, Chillas, Dassu, Ghizer, Gilgit, Nomal, Jaglot; Islamabad; Punjab: Rawalpindi, Attock, Fort Abbas, Murree, Chakwal ^[10-13, 15, 16].

Remarks: This species is new record for Rawalakot as well as Azad Jammu and Kashmir.

Distribution: Afghanistan; Algeria; Albania; Bahrein; Bosnia & Herzegovina; Bulgaria; China; Croatia; Cyprus; Egypt; Ethiopia; Georgia; Greece; Italy; Iraq; Israel; Iran; India; Jordan; Kazakhstan; Kyrgyzstan; Lebanon; Libya; Macedonia; Malta; Montenegro; Nepal; Oman; Pakistan; Russia; Romania; Saudi Arabia; Somalia; Syria; Turkey; Turkmenistan; Tajikistan; Uzbekistan; U.A.E.; Yemen; introduced into Czech Republic; Spain; Madagascar; Mexico; U.S.A. (not established) ^[16, 18, 19, 24].

10. *Vespa tropica* (Linnaeus, 1758)

Material Examined: Azad Jammu and Kashmir: Poonch: Rawalakot, 15.iii.2017, 2♂, 1♀; Hajira, 16.iii.2017, 1♂; Mandhol, 28.vii.2017, 1♂; leg. Afshan.

Previous record from Pakistan: This reported species from Khyber Pakhtunkhwa: Hazara Chitral (Bamboret valley, Brun) Battagram (Alia), Abbottabad (Havelian and Ayubia), Mansehra (Balakot, Oghi and Baffa), Peshawar; Punjab: Attock, Rawalpindi, Chakwal ^[10-12, 16, 20]

Remarks: This species is new record for Rawalakot as well as Azad Jammu and Kashmir.

Distribution: Afghanistan; Bhutan; Cambodia; China; India; Indonesia; Laos; Myanmar; Malaysia; Nepal; Pakistan; Philippines; Papua New Guinea; Singapore; Sri Lanka; Thailand; Vietnam ^[10, 16, 24].

11. *Vespa velutina* Lepelletier, 1836

Material Examined: Azad Jammu and Kashmir: Poonch: Rawalakot, 15.iii.2017, 2♂, 1♀; 17.v.2017, 1♂, 2♀; 6.vi.2017, 3♂; Topa, 2.ix.2017, 2♀; Thorar, 10.vi.2017, 2♂; Hajira, 16.iii.2017, 1♀; Mandhol, 28.vii.2017, 3♀; leg. Afshan.

Previous record from Pakistan: Earlier reported this species from Khyber-Pakhtunkhwa: Chitral, Nathia Gali, Swat, Charbagh, Shangla, Dir, Shougran, Garihabillah, Jaba, Nathia gali, Battagram, Alia, Abbottabad, Havelian, Mansehra, Oghi and Balakot; Gilgit-Baltistan: Diamar, Hunza-Nagar, Ghizer, Gilgit, Skardu, Chilas, Nomal; Islamabad; Punjab: Rawalpindi, Murree, Attock, Jhelum, Chakwal ^[10-13, 16].

Remarks: This species is new record for Rawalakot as well as Azad Jammu and Kashmir.

Distribution: Afghanistan; Bhutan; China; India; Indonesia; Laos; Malaysia; Myanmar; Nepal; Pakistan; Taiwan; Thailand; Vietnam; introduced into Belgium; France; Italy; Korea; Portugal; Spain; Tsushima; Yemen ^[10, 16, 24].

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