



FAUNISTICS OF BUTTERFLIES (LEPIDOPTERA: REPHALOCERA) WITH SOME NEW RECORDS FROM QUETTA, BALOCHISTAN, PAKISTAN

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ABSTRACT

This study was conducted to explore the butterfly fauna of Quetta, Balochistan. A totaling 286 specimens of butterflies have been collected from different localities of Quetta. Out of 286 collected specimens 27 species from 22 genera under 4 families Lycaenidae, Nymphalidae Papilionidae and Pieridae have been identified. Out of 27 identified species, 11 species represented family Lycaenidae, eight (08) species represented family Nymphalidae, seven (07) species identified under family Pieridae and one (01) species identified under family Papilionidae. One species, *Pseudochazara mamurra* recorded first time from Pakistan. Three (03) species, namely *Zizeeria maha*, *Zizula hylax* and *Zizina otis* are reported first time from Balochistan while five (05) species i.e. *Lampides boeticus*, *Polyommatus bogra*, *Polyommatus florenceae*, *Eumenis thelepessa* and *Eurema hecabe* are first time from Quetta.

1. INTRODUCTION

Healthy biological community depends on a healthy environment. Insects as herbivores, seed dispersers, bio-control agent, pollinators and ecological indicator cover more than half the earth's diversity of species [1] [2]. Among insects, butterflies are one of the most diverse and broadly recognized group of insects worldwide after coleopteran insects [3]. Butterfly is a well-studied insect taxon across the world since it is a sensitive insect group to habitat distraction that plays a very important role in the ecosystem.

The butterfly fauna of Pakistan have been well studies by many authors. However, among those few examples are [4][5] [6] [7] [8] [9] [10] [12][13] [14][15][16][17][18][19][20][21][22][23][24][25][26] [27] [28][29] [30] [31] [32]. Balochistan is the southwestern and largest province of Pakistan making about 40% of the area of Pakistan. District Quetta is situated at the northwest of Balochistan Province, is located at 30.18° 30°28 North latitudes, and 66.41° 67.09° East longitudes, covering an area of 2,653 Square kilometers. The climate of the district is dry. However, butterfly fauna of Balochistan is still poorly known. In this paper, some new records of butterflies will be added from Quetta and its vicinities.

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2. MATERIALS AND METHODS

Sampling was done from Shahbaz Park, Hazar Ghanji Chiltan National Park, Balochistan Agricultural Research Development Centre (BARDC) and Allama Iqbal Open University Campus (AIOU Campus), Quetta. All the specimens were identified with the help of available literatures and labeling from housed butterflies at National Insect Museum, National Agricultural Research Center, Islamabad.

3. RESULTS AND DISCUSSION

Result yielded 27 species from 22 genera under four families Lycaenidae, Nymphalidae Papilionidae and Pieridae as per following detail.

Family: Lycaenidae Leach, (1815) The Blues
Subfamily: Lycaeinae

Genus: Aricia Reichenbach, 1817

1. *Aricia agestis* (Denis and Schiffermuller, 1775) **The Orange Bordered Argus**

Material examined: Pakistan: Balochistan: Quetta, Shahbaz Park, 17.iv.2015, 2♀; Leg, F. Mengal. Hazar Ghanji Chiltan National Park, 5.iv.2015, 1♂; Leg, F. Mengal. AIOU Campus, 13.iv.2015, 4♀; Leg, F. Mengal.

Remarks: Previously reported from Quetta [32]. During the study, this species was collected from Shahbaz Park, Hazar Ghanji Chiltan National Park and Allama Iqbal Open University Quetta. Already, this species was reported from different localities of Pakistan: Khyber Pakhtunkhwa: Hazara, Chitral, Swat, Kohistan; Punjab: Murree [16]; Gilgit-Baltistan: Ultar peak [21].

Distribution: Central and Southern Europe, including, Corsica, Sicily and Crete, in west and central Russia including a southeast corner of Siberia and Amur land, Asia Minor, the Middle East, central Asia, up to the mountain ranges of Altai and Tien Shan, Iran, West Himalayas including Pakistan [16] [21] [33] [34].

Genus: Lampides Hubner, 1819

2. *Lampides boeticus* (Linnaeus, 1767)

The Pea Blue

Material examined: Pakistan: Balochistan: Quetta, Shahbaz Park, 01.iv.2015, 3♀; Leg, F. Mengal. Hazar Ghanji Chiltan National Park, 21.iv.2015, 5♀; Leg,

F. Mengal. BARDC, 9.iv.2015, 1♂; Leg, F. Mengal. AIOU Campus, 13.iv.2015, 6♀; Leg, F. Mengal.

Remarks: Previously reported from Balochistan [16]. However, this is the first record of *Lampides boeticus* from Quetta (Balochistan). During the study, this species was collected from Shahbaz Park, Hazar Ghanji Chiltan National Park, Balochistan Agricultural Research Development Center and Allama Iqbal Open University Quetta. However, this species was reported from Sindh: where it is very common; Punjab: Murree and Rawalpindi [16]; Gilgit-Baltistan: Gilgit: Kargah Valley [21].

Distribution: Occurs throughout Europe to Japan, Africa, Madagascar, the Middle East, India, Pakistan, South East Asia, Australia, ranging towards Oceania, and Hawaii [16] [33] [35].

Genus: Lycaena Fabricius, 1807

3. *Lycaena phlaeas* (Linnaeus, 1761)

The Common Copper

Material examined: Pakistan: Balochistan: Quetta, Shahbaz Park, 01.iv.2015, 5♀; Leg, F. Mengal. Hazar Ghanji Chiltan National Park, 5.iv.2015, 3♀; Leg, F. Mengal. BARDC, 9.iv.2015, 2♀; Leg, F. Mengal.

Remarks: Previously reported from Quetta [16] [32]. During the study, this species was collected from Shahbaz Park, Hazar Ghanji Chiltan National Park, Balochistan Agricultural Research Development Center Quetta. This species is also reported from Khyber Pakhtunkhwa: Peshawar, Chitral, Hazara, Swat, Kohistan, Buner, Malakand Agency and Swat [16] [17] [18]; Punjab: Murree and Attack [16]; Gilgit Baltistan: Hunza [21]; Sindh: Recently reported from various localities of Sindh [28].

Distribution: China, Europe, Indian subcontinent, Japan, North America, North Africa through temperate Asia including Pakistan [16] [21] [33].

Genus: Plebejus Kluk, 1780

4. *Plebejus pylaon* (Fischer von Waldheim, 1832) **The Balochi Jewel Blue**

Material examined: Pakistan: Balochistan: Quetta, Shahbaz Park, 8.vii.2015, 1♂; Leg, F. Mengal. Hazar Ghanji Chiltan National Park, 12.viii.2015, 2♀; Leg, F. Mengal. BARDC, 16.viii.2015, 1♂; Leg, F. Mengal.

Remarks: Previously this species was reported from Balochistan: Khojak Pass, Gwal forest, Murgha-Metharzai Pass and Quetta: Hanna valley [16]. During the study, this species was collected from

Shahbaz Park, Hazar Ghanji Chiltan National Park, Balochistan Agricultural Research Development Center Quetta. Also reported from Sindh: Karachi [16].

Distribution: Europe: (Atlantic islands to Ural Mountains), South Russia, North Africa: (Morocco to Egypt), Asia Minor and Near East, widely distributed in West Asia to Iran including Pakistan [16] [33] [35].

Genus: *Polyommatus* Latreille, 1804

5. *Polyommatus bogra* (Evans, 1932)

The Balochi Meadow Blue

Material examined: Pakistan: Balochistan: Quetta: Hazar Ghanji Chiltan National Park, 15.x. 2015, 3♀; Leg, F. Mengal. AIOU Campus, 21.ix. 2015, 4♀; Leg, Fariha Mengal.

Remarks: First time reported from Quetta. However, earlier this species was reported from Balochistan: Shingarh Range, Ziarat, Khojak and Bogra Hills near Chaman [16]. During the study, this species was collected from Hazar Ghanji Chiltan National Park, and Allama Iqbal Open University Quetta.

Distribution: North Africa, Europe, West Asia to Iran and Pakistan [16] [33] [36].

6. *Polyommatus florenceae* (Tytler, 1926)

The Silvery Meadow Blue

Material examined: Pakistan: Balochistan: Quetta: Shahbaz Park, 11.x. 015, 6♀; Leg, F. Mengal. Hazar Ghanji Chiltan National Park, 31.x.2015, 4♀; Leg, F. Mengal. AIOU Campus, 7.x.2015, 5♀; Leg, F. Mengal.

Remarks: First time reported from Quetta. During the study, this species was collected from Shahbaz Park, Hazar Ghanji Chiltan National Park and Allama Iqbal Open University Quetta. Before this species was reported from Khyber-Pakhtunkhwa: Chitral, Gazan, Broghil Pass and Hunza [16] [21] [37].

Distribution: North Africa and Arabia, widely distributed in West Asia to Iraq and Iran [33] and Pakistan [37].

7. *Polyommatus icarus* (Rottemburg, 1775)

The Common Blue

Material examined: Pakistan: Balochistan: Quetta: Shahbaz Park, 27.x.2015, 1♂; Leg, F. Mengal. Hazar Ghanji Chiltan National Park, 31.x.2015, 4♀; Leg, F. Mengal. BARDC, 19.x.2015, 3♀; Leg, F. Mengal. AIOU Campus, 21.ix.2015, 2♀; Leg, F. Mengal.

Remarks: Recently reported from Quetta [32]. However, already reported from Balochistan [16]. During the study, this species was collected from Shahbaz Park, Hazar Ghanji Chiltan National Park, Balochistan Agricultural Research Development Center and Allama Iqbal Open University Quetta. Also reported from Khyber Pakhtunkhwa: Chitral; While from Gilgit-Baltistan: Gilgit, Hunza; Ultar peak and from Punjab: Murree hills [16] [21].

Distribution: Occurs throughout the Canary Islands, temperate North Africa, Europe and temperate Asia including Pakistan [16] [21] [33].

Genus: *Zizeeria* Chapman, 1910

8. *Zizeeria knysna* (Trimen, 1862)

The Dark Grass Blue

Material examined: Pakistan: Balochistan: Quetta, Shahbaz Park, 18.v.2015, 2♀; Leg, F. Mengal. AIOU Campus, 14.v.2015, 2♀; Leg, F. Mengal.

Remarks: During the study, this species was collected from Shahbaz Park and Allama Iqbal Open University Quetta. Previously reported from all areas of Balochistan. Already reported from Sindh: Karachi [4]. Also reported from Khyber Pakhtunkhwa: Chitral and from Punjab: Attock and Murree [16].

Distribution: Pakistan [4] [16]. Africa, Tropical Asia and Australia, Canary Islands, South Portugal and South Spain [33].

9. *Zizeeria maha* (Kollar, 1848)

The Pale Grass Blue

Material examined: Pakistan: Balochistan: Quetta, Shahbaz Park, 8.ix.2015, 2♀; Leg, F. Mengal. Hazar Ghanji Chiltan National Park, 5.iv.2015, 1♂; Leg, F. Mengal. BARDC, 10.v.2015, 3♀; Leg, F. Mengal. AIOU Campus, 28.iv.2015, 5♀; Leg, F. Mengal.

Remarks: First time reported from Quetta and Balochistan. During the study, this species was collected from Shahbaz Park, Hazar Ghanji Chiltan National Park, Balochistan Agricultural Research Development Center and Allama Iqbal Open University Quetta. Previously reported from Punjab: Rawalpindi, Murree Hills, Hassan Abdul: Khyber Pakhtunkhwa: Peshawar, Khyber Pass, [16]; Gilgit Baltistan: Gilgit, Kargah, Nomal, Joglot, lower Hunza Valley [21].

Distribution: Europe, South Russia to Asia Minor, southern India, China and Pakistan [16] [21] [33].

Genus: *Zizula* Chapman, 1910

10. *Zizula hylax* (Fabricius, 1775)

The Tiny Grass Blue

Material examined: Pakistan: Balochistan: Quetta, Shahbaz Park, 24. viii. 2015, 4♀; Leg, F. Mengal. Hazar Ghanji Chiltan National Park, 29. ix.2015, 5♀; Leg, F. Mengal. AIOU Campus, 28.iv.2015, 4♀; Leg, F. Mengal.

Remarks: First time reported from Quetta. During the study, this species was collected from Shahbaz Park, Hazar Ghanji Chiltan National Park and Allama Iqbal Open University Quetta. Previously recorded from southern Sindh [16].

Distribution: Asia, Europe, Lebanon [33] and Pakistan [16].

Genus: *Zizina* Chapman, 1910

11. *Zizina otis* (Fabricius, 1787)

The Lesser Grass Blue

Material examined: Pakistan: Balochistan: Quetta, Shahbaz Park, 1.iv.2015, 1♂; Leg, F. Mengal. Hazar Ghanji Chiltan National Park, 5.iv.2015, 3♀; Leg, F. Mengal. BARDC, 9.iv.2015, 2♀; Leg, F. Mengal.

Remarks: First time reported from Quetta including Balochistan. During the study, this species was collected from Shahbaz Park, Hazar Ghanji Chiltan National Park, Balochistan Agricultural Research Development Center, Quetta. Previously reported from Khyber Pakhtunkhwa: Chitral [16].

Distribution: Europe, Temperate Asia, Japan and Pakistan [33]

Family: Nymphalidae Rafinesque, (1815)

Genus: *Danaus* Kluk, 1802

12. *Danaus chrysippus* (Linnaeus, 1758)

The Plain Tiger or African Monarch

Material examined: Pakistan: Balochistan: Quetta, Shahbaz Park, 11.x.2015, 3♀; Leg, F. Mengal. Hazar Ghanji Chiltan National Park, 29.ix.2015, 5♀; Leg, F. Mengal.

Remarks: Previously this species was reported from Quetta [10] [32]. During the study, this species was collected from Shahbaz Park, Hazar Ghanji Chiltan National Park, Balochistan Agricultural Research Development Center and Allama Iqbal Open University Quetta. This species was also reported from Islamabad (Federal capital area); Punjab: Lahore, Rawalpindi; [12] [13]. This species was

reported from Khyber-Pakhtunkhwa: Buner, Malakand Agency, lower Swat, Mansehra [17] [18] [25]. This species was also reported from Azad Jammu and Kashmir: Muzaffarabad, Kotli, Mirpur and Bhimber [22].

Distribution: Canary Islands, North Africa: Morocco, northern Algeria and Tunisia; coastal districts of southern Spain, southern France, Corsica, Sardinia, Sicily, western Italy, Montenegro, Albania, western and southern Greece, including Corfu and Crete, the Middle East and Australia [21] [38] [39].

Genus: *Vanessa* Fabricius, 1807

13. *Vanessa cardui* (Linnaeus, 1758)

The Painted lady

Material examined: Pakistan: Balochistan: Quetta, Hazar Ghanji Chiltan National Park, 22.v.2015, 3♀; Leg, F. Mengal. BARDC, 26.v.2015, 1♂; Leg, F. Mengal.

Remarks: Previously reported from all areas of Balochistan [8][16]. Recently, reported from Quetta[32]. During the study, this species was collected from Hazar Ghanji Chiltan National Park, Balochistan Agricultural Research Development Center and Allama Iqbal Open University Quetta. Alread reported from Punjab: Lahore, Rawalpindi; Islamabad (Federal capital area) [12] [13]; Khyber-Pakhtunkhwa: Buner, Malakand and lower Swat [17][18]; Gilgit-Baltistan: Skardu, from Gilgit, Hunza to Khunjerab [19][21]; Azad Jammu and Kashmir: Mirpur, Kotli, Bagh, Muzaffarabad and throughout the Poonch division [22][27].

Distribution: Cosmopolitan, rear in South America isolated in high valleys and Venezuela [21]

Genus: *Eumenis* Hubner, 1819

14. *Eumenis thelephassa* (Geyer, 1827)

The Balochi Rock Brown

Material examined: Pakistan: Balochistan: Quetta, Hazar Ghanji Chiltan National Park, 15.x.2015, 8♀; Leg, F. Mengal. BARDC, 16.viii. 2015, 6♀; Leg, Fariha Mengal.

Remarks: First time reported from Quetta. Previously, this species was reported from Takht-i-Suleiman (Balochistan) [16]. During the study, this species was collected from Hazar Ghanji National Park, Balochistan Agricultural Research Development Center Quetta. Already reported from Khyber Pakhtunkhwa: Swat, Kohistan [16].

Distribution: Afghanistan, Asia Minor, Iran, Iraq Turkey and Pakistan [8][16][40].

Genus: *Hipparchia* Fabricius, 1807

15. *Hipparchia parisatis* (Kollar, 1849)

White-edged rock brown also reported by noor

Material Examined: Pakistan: Balochistan: Quetta, Hazar Ghanji Chiltan National Park, 31.x.2015, 6♀; Leg, F. Mengal. BARDC, 19.x.2015, 9♀; Leg, F. Mengal.

Remarks: Recently, this species was reported from Quetta[32]. However, this species was earlier reported from all over Balochistan [8][16]. During the study, this species was collected from Hazar Ghanji National Park and Balochistan Agricultural Research Development Center Quetta. Already reported from Punjab: Hasan Abdal, Ghora gali and Murree [10][13]; Khyber-Pakhtunkhwa: Chitral [5], Malakand Agency, Swat, Buner and Kohat [17][18][24]; Gilgit-Baltistan: Widely distributed in Gilgit-Baltistan [21].

Distribution: Central Asia, Iran, North-west. Himalaya (Turkey, North East Iraq, Afghanistan, Pakistan, North West India and Oman [8][21].

Genus: *Junonia* Hubner, 1819

16. *Junonia lemonias* (Linnaeus, 1758)

The Lemon Pansy

Material examined: Pakistan: Balochistan: Quetta, Shahbaz Park, 3.vi.2015, 1♂; Leg, F. Mengal.

Remarks: Previously reported from Quetta [10]. During the study, this species was collected from Shahbaz Park, Quetta. This species was also reported from Islamabad (Federal capital area); Sindh: Mirpur Khas, Sakrand, Karachi; Punjab: Lahore; Khyber Pakhtunkhwa: Buner and Mansehra [10] [12] [13] [17].

Distribution: Africa, Australia, Bangla, Burma, Desh, India, Pakistan, Siera Leone, Sri Lanka, [21] [41] [42] [43] [44].

17. *Junonia orithya* (Linnaeus, 1758)

The Blue Pansy

Material examined: Pakistan: Balochistan: Quetta, AIOU campus, 4.ix.2015, 1♂; Leg, F. Mengal.

Remarks: Previously reported from Quetta, Astola Island and Harani [8] [10] [16]. During the study, this species was collected from Allama Iqbal Open University Quetta. This species was also reported from Islamabad (Federal capital area); Sindh: Karachi, Dadu; Punjab: Lahore; Khyber

Pakhtunkhwa: Chitral, Lower Swat, Buner, Mansehra and Abbottabad [6][10] [12][13][16][17][18][23][24] [45]. Azad Jammu and Kashmir: Bhimber, Kotli, Muzaffarabad and Rawalakot [20][22].

Distribution: Reported from Afghanistan, Africa, Arabia, Burma, Bangla Desh, Iran, India, Iraq, Jordan, Madagascar, Pakistan, South China, Sri Lanka, Malaysia and the Archipelago to Australia [8][12] [10].

Genus: *Maniola* Schrank, 1801

18. *Maniola davendra* (Moore, 1865)

The White Ringed Meadow Brown

Material examined: Pakistan: Balochistan: Quetta, BARDC, 19.x.2015, 2♀; Leg, F. Mengal. AIOU Campus, 30.v.2015, 2♀; Leg, F. Mengal.

Remarks: Common, species found in Balochistan [45]. During the study, this species was collected from Balochistan Agricultural Research Development Center and Allama Iqbal Open University Quetta. Also reported from Khyber-Pakhtunkhwa: Chitral and Lower Swat [18][45]. During study this species was reported form Quetta.

Distribution: Central Asia including Pakistan [8] [18] [45].

Genus: *Pseudochazara* (de Lesse 1951)

19. *Pseudochazara mamurra* (Herrich-Schäffer 1852)

Material examined: Pakistan: Balochistan: Quetta, Hazar Ghanji Chiltan National Park, 12.ix.2015, 3♀; Leg, F. Mengal.

Remarks: This is the first record of this species from Quetta and from Pakistan. During the study, this species was collected from Hazar Ghanji Chiltan National Park, Balochistan Agricultural Research Development Center and Allama Iqbal Open University Quetta.

Distribution: Albania, Iran, Syrian, Arab Republic and Republic of Armenia [46] [47] [48][49].

Family: Papilionidae Latreille, (1802)

Genus: *Papilio* Linnaeus, 1758

20. *Papilio machaon* (Linnaeus, 1758)

The Common Yellow Swallowtail

Material examined: Pakistan: Balochistan: Quetta, Hazar Ghanji Chiltan National Park, 12. viii. 2015, 2♀; Leg, F. Mengal. AIOU Campus, 28.iii. 2015, 2♀; Leg, Fariha Mengal.

Remarks: Recently, this species is reported from Quetta [32]. Previously, this species was reported from Balochistan: Urak, Ziarat and Shingar range. During the study, this species was collected from Hazar Ghanji Chiltan National Park and Allama Iqbal Open University Quetta. Also reported from Azad Jammu and Kashmir: Kotli, Mirpur and Bhimber; Punjab: Bahawalpur [16][50][22]; Gilgit-Baltista: Nomal and Naltar Valley, Khunjerab Valley: Barkhun [21].

Distribution: Whole Asia, Japan, Europe and North Africa [33][21].

Family: Pieridae Swainson, (1820)

Subfamily: Pierinae

Genus: *Belenois* Hubner, 1819

21. *Belenois aurota* (Fabricius, 1793)

Pioneer white

Material examined: Pakistan: Balochistan: Quetta, Shahbaz Park, 17.iv.2015, 5♀; Leg, F. Mengal. AIOU Campus, 14.v.2015, 2♀; Leg, Fariha Mengal.

Remarks: Recently, this species is reported from Balochistan: Quetta [32] Noor et al., 2018). Earlier this was reported from Balochistan: Sibi, and Harnai (Evans 1932). During the study, this species was collected from Shahbaz Park, Hazar Ghanji Chiltan National Park, Balochistan Agricultural Research Development Center and Allama Iqbal Open University Quetta. Also reported from Sindh: Karachi [4][8][9][28]; from Khyber Pakhtunkhwa: Buner, Kohat, Malakand Agency and Lower Swat; Punjab: Rawalpindi [17][13] [18]. Recently, reported this species from Punjab: Attock, Chakwal, Jhelum, Rawalpindi, Taxilla and Islamabad (Federal capital area) [51].

Distribution: Algeria, Afghanistan, Egypt, Iraq, Iran, India, Jordan, Lebanon, Malta, Pakistan, Palestine Tibet, and Uzbekistan [51].

Genus: *Catopsilia* Hubner, 1819

22. *Catopsilia pomona* (Fabricius, 1775)

The Lemon Emigrant

Material examined: Pakistan: Balochistan: Quetta, AIOU Campus, 7.x.2015, 1♂; Leg, Fariha Mengal.

Remarks: Recently reported from Quetta [32]. Earlier reported from Balochistan and Himalayas [16]. During the study, this species was collected from

Allama Iqbal Open University Quetta. Already known from Islamabad (Federal capital area); from Punjab: Jhelum, Rawalpindi, Chakwal and Attock [51]. Already reported from Azad Jammu and Kashmir: District Bhimber, Muzaffrabad, Sudhnutti and Poonch division [22][27].

Distribution: India, Pakistan, South-east Asia, New Guinea, North and East Australia, Solomon [51].

Genus: *Colias* Fabricius, 1807

23. *Colias erate* (Esper, 1805)

The Eastern Pale Clouded Yellow

Material examined: Pakistan: Balochistan: Quetta, Shahbaz Park, 2.v.2015, 3♀; Leg, F. Mengal. Hazar Ghanji Chiltan National Park, 5.iv.2015, 1♂; Leg, F. Mengal.

Remarks: Recently, reported from Quetta [32], before reported from Balochistan: Mastung [10]. However, this species occurs throughout the Balochistan [16]. During the study, this species was collected from Shahbaz Park, Hazar Ghanji Chiltan National Park, Balochistan Agricultural Research Development Center and Allama Iqbal Open University Quetta. Also, reported from Khyber Pakhtunkhwa: Chitral, Kohistan, Swat, Kohistan; Sindh: Karachi [4] [16]; from Gilgit-Baltistan: Hunza and Deosai Plateau, Khunjerab National Park [21]. Recently reported from Punjab: Hassan Abdal, Jhelum, Pind Dadan Khan, Rawalpindi, and Taxilla, Murree [16] [51]; and from Azad Jammu and Kashmir: Bagh, Poonch and Sudhnotti districts [27].

Distribution: Eastern Europe to southern Siberia, the Pamir and Altai, Afghanistan, western China, Mongolia and Japan [21].

24. *Colotis fausta* (Olivier, 1804) The Large Salmon Arab

Material examined: Pakistan: Balochistan: Quetta, Hazar Ghanji Chiltan National Park, 22.v.2015, 2♀; Leg, F. Mengal. BARDC, 26.v.2015, 6♀; Leg, F. Mengal.

Remarks: Recently, reported from Quetta [32]. However, earlier reported from Balochistan: Nushki and Bolan Pass. During the study, this species was collected from Hazar Ghanji Chiltan National Park, Balochistan Agricultural Research Development Center and Allama Iqbal Open University Quetta. Also reported from Punjab: Lahore, Attock, while from Khyber Pakhtunkhwa: North Waziristan: Tochi valley (Dawar); Sindh: commonly occurs in lower

Sindh however, also reported from upper Sindh: Sukkar [16].

Distribution: Afghanistan, North Africa, The Middle East, Iraq, Turkmaistan, Uzbekistan, Pakistan [52] and India [53].

Genus: *Eurema* Hubner, 1819

25. *Eurema hecabe* (Linnaeus, 1758)

The Common Grass Yellow

Material Examined: Pakistan: Balochistan: Quetta, Hazar Ghanji Chiltan National Park, 6.v.2015, 2♀; Leg, F. Mengal.

Remarks: This is the first record of this species from Quetta. However, earlier reported from Balochistan: Las Bela [16]. During the study, this species was collected from Hazar Ghanji National Park, Quetta. Reported from Khyber Pakhtunkhwa: Chitral, Buner, Kohat, Malakand Agency and Swat [16] [17] [18]. Also reported from Islamabad (Federal capital Area) [13]; Punjab and Sindh: widely occurs [16] and from Gilgit–Baltistan: Gilgit, Jaglot village [16] [21].

Distribution: Africa, Arabia, Indian subcontinent, south-east Asia, New Guinea, East Australia [51] and Japan [54].

Genus: *Pieris* Schrank, 1801

26. *Pieris brassicae* (Linnaeus, 1758)

The Large White

Material examined: Pakistan: Balochistan: Quetta, Shahbaz Park, 16.iii. 2015, 4♀; Leg, F. Mengal. BARDC, 24.iii. 2015, 2♀; Leg, F. Mengal.

Remarks: Recently reported from Quetta [32]. Earlier this species was reported from Balochistan [16]. During the study, this species was collected from Shahbaz Park, Hazar Ghanji Chiltan National Park and Balochistan Agricultural Research Development Center. However, this species was also reported from Khyber Pakhtunkhwa: Abbottabad, Ayubia, Buner, Chitral, Kohat, Swat [5][16][17]; Punjab: Attock, Chakwa, Jhelum, Lahore, Muree and Rawalpindi; Islamabad (Federal capital area) [12] [13] [51]; Sindh: throughout the Sindh province [16] [28]; Gilgit–Baltistan: Skardu, Shigar, Karmang, Sadpara, Kachura, Deosai, Naltar and Hunza [19] [21]; Azad Jammu and Kashmir: Muzaffarabad, Kotli, Mirpur and Bhimber [22].

Distribution: Portugal: (Azores, Madeira), North Africa, Canary Islands, Europe, Central Asia, The Middle East, East Russia, Himalayas, China: Assam

and Yunnan Turkey, Chile, USA, India, Pakistan, Mongolia, China and Japan [16][21][51].

27. *Pieris rapae* (Linnaeus, 1758)

The Small White

Material Examined: Pakistan: Balochistan: Quetta, L1, 19. vi. 2015, 4 adult leg, Fariha Mengal. L2, 7. vi. 2015, 9 adult leg, Fariha Mengal. L3, 11. vi. 2015, 8 adult leg, Fariha Mengal. L4, 15. vi. 2015, 6 adult leg, Fariha Mengal. During the study, this species was collected from Shahbaz Park, Hazar Ghanji Chiltan National Park, Balochistan Agricultural Research Development Center and Allama Iqbal Open University Quetta.

Remarks: Earlier reported from Quetta [10][32]. However, also reported from Balochistan [8] and Takht-i-Suleiman, Zhob [16]. During the study, this species was collected from Shahbaz Park, Hazar Ghanji Chiltan National Park, Balochistan Agricultural Research Development Center and Allama Iqbal Open University Quetta. This species was also reported from Khyber Pakhtunkhwa: Chitral [5][16]; Punjab: Murree [10], Rawalpindi and Islamabad [51]; Gilgit–Baltistan: Hunza (Gilgit and Ghizer border, Shandur Pass, Sosoom, Astore, Tarishing [8] [55] [21].

Distribution: From North Africa, Europe and Asia to Japan, introduced into Canada, North America and Australia [33] [21] [51].

4. CONCLUSION

From the present study it was observed that *Pieris brassicae*, *Pieris rapae* are the most common species while *Papilio machaon* is recorded less in number in Quetta. *Pseudochazara mamurra* is first time reported from Pakistan. Further Related analysis should be conducted on large scale to fully evaluate and explore the butterfly fauna of Quetta, Balochistan as it is least concern region of Pakistan in this regard. Proper protective measures should be taken in attention in order to minimize the natural habitat loss, as butterfly fauna is dependent upon host plants and accurate environmental conditions.

5. CONFLICT OF INTEREST

All authors have declared that there is no conflict of interest regarding publication of this article.

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