Introduction

Biological diversity is the base for upholding the ecosystems and the functional aspects of the species that provide goods and services for human well-being (Wilson, 1997). Insects are the most dominate group of invertebrates with distinct three body parts (head, thorax and abdomen), three pairs of legs, compound eyes and body covered with chitinous exoskeleton. Butterflies belong to order Lepidoptera and distributed globally wherever the flowering plants are found (Khan et al., 2004). Butterflies are taxonomically well studied group, which have received reasonable amount of attention through the world (Ghazoul, 2002). The total number of butterfly species in the world range from 7700 (Kirby, 1872) to 20,000 (Landing, 1984). India hosts 1501 species of butterfly (Gaonker, 1996) out of 19,238 species described globally (Heppner, 1998). They are very delicate, beautiful and attractive due to their colorful scaly wings, considered as the symbol of beauty and grace (Rafi et al., 2000). They are diurnal (active at daytime) in habitats and easily recognized by their beautiful colour, shape and stylish flight that give pleasure to everyone (Javed, 1978). Butterflies have always attracted the attention of naturalists, amateurs, environmentalists, biodiversity discoverers and conservationists (Rose and Walia, 2003). Butterflies are important pollinators for many varieties of plant because they fly over long distance, but at the same time, some of them are very serious pest of many crops and fruits. Caterpillars of most Pierid butterflies feed on various varieties of mustards (family Brassicaceae), legume and cabbage (Mal et al., 2013). The study of biological diversity encompasses both the intrinsic and anthropocentric values associated with it. The values of the biological elements are recognized in correspondence to the perceived importance by the human being, which is realized in terms of the ecosystem services (Daily, 1997). Biological diversity is the base for upholding the ecosystems and the functional aspects of the species that provide goods and services for human well-being. Monitoring of species diversity of a region enables estimation of the prospective functional roles of the species. Therefore, monitoring species diversity acts as an enormous source of information of Super families.
Papilionoidea from Punjab Agricultural University, Ludhiana. Furthermore, this checklist will be helpful for researchers to identify the species of butterfly.

**Material and Methods**

**Study area:** The present study was undertaken at Punjab Agricultural University (PAU), Ludhiana, established in 1962 and is the nation’s third-oldest agricultural university. It lies at 30.90°N and 75.85°E of Punjab in north-west India with an average elevation of 244mASL. The university covers an area of 1,510 acres (6.1 km²) on its main campus. The temperature ranges from 1°C (in December/January) to 45-46°C (in June) with the average annual precipitation of 730mm.

**Localities:** For study purpose, campus was divided into seven localities according to general landscape attributes (Figure 1). These were

1. Open fields
2. Orchards
3. Herbal and botanical gardens
4. Plant nursery
5. CIPHET, The Central Institute of Post-Harvest Engineering and Technology
6. Residential area
7. GADVASU complex

**Methodology Used**

The adults of the butterflies were collected with the help of insect collection net (circumference 93 cm, handle length 87cm and bag depth 77cm) sweeping method while exploring different localities of the campus. The collected adult specimens were killed with the killing agent like ethyl acetate, charged in the killing bottle. After killing, the dead specimens were kept in the relaxing jar for making the specimens soft. They were pinned using different size entomological pins (38mm×40mm; 38mm×55mm), and then stretching of dead specimens were done in the spreading board boxes (40cm×30cm×10cm). The stretched specimens were tagged with the labels carrying information such as name of collector, locality, altitude, date of collection, and then placed in the well fumigated (with naphthalene balls) air tight wooden showcases placed in the movable racks for storage. For wings slide preparation, the method proposed by Common (1970) and advocated by Zimmerman (1978) has been followed. The taxonomic procedures involves an examination of various morphological characters such as head, labial palpus, legs, wing shape, wing maculation and wing venation. Except wing venation, the rest of the characters have been directly examined from the dried specimens. The photographs of the adults belonging to different species were taken with the help of digital camera.
Observations


Order LEPIDOPTERA
Superfamily PAPILIONOIDEA
Family HESPERIIDAE
Subfamily HESPERIINAE
I. Genus *Pelopidas* Walker, 1870

1. *Pelopidas mathias* Fabricius (Photo 1a, b)

*Hesperia mathias* Fabricius, 1798; Ent. Syst. Suppl. 430, no. 289-90; TL: Tranquebar, S.India


*Distribution:* India (Chandrasekharan, 2017)

*Hostplant:* Arecaceae and Poaceae (Kunte, 2000)

II. Genus *Tarucus* Moore

2. *Tarucus callinara* Butler (Photo 2a, b)


*Distribution:* It ranges from North West Himalayas to Kumaun, the plains of northern India, central and Western India, Ceylon, Assam, Burma, Tenasserim (Bingham, 1907).

*Host plant:* Plants of the legume family, Plumbaginaceae and some of the citrus family Rutaceae (Kunte, 2006).

III. Genus: *Euchrysops* Butler

3. *Euchrysops cnejus* Fabricius (Photo 3a, b)

*Hesperia cnejus* Fabricius, (1798), Ent. Syst. Suppl. 430.


*Distribution:* India (Chandrasekharan, 2017)

*Hostplant:* Arecaceae and Poaceae (Kunte, 2000)

Table 1. Superfamilies, families, number of subfamilies, genera and species of butterflies recorded in PAU campus, Ludhiana (as per Van Nieukerken et al., 2011)

<table>
<thead>
<tr>
<th>Ssr. No.</th>
<th>Superfamily</th>
<th>Families</th>
<th>No. of sub-families</th>
<th>No. of genera</th>
<th>No. of species</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Papilionoidea</td>
<td>Pieridae</td>
<td>2</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Papilionidae</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nymphalidae</td>
<td>4</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lycaenidae</td>
<td>2</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hesperiidae</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>01</td>
<td>05</td>
<td>10</td>
<td>24</td>
<td>33</td>
</tr>
</tbody>
</table>
### Table 2.
List of species with common names and along with their distribution

<table>
<thead>
<tr>
<th>Sr. no.</th>
<th>Family/ Subfamily</th>
<th>Scientific Name</th>
<th>Common name</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Hesperiidae</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Hesperiinae</td>
<td>Pelopidas mathias Fabricius</td>
<td>Small branded swift</td>
<td>Common</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Polyommatinae</td>
<td>Tarucus callinara Butler</td>
<td>The spotted pierrot</td>
<td>Rare</td>
</tr>
<tr>
<td>3</td>
<td>Polyommatinae</td>
<td>Euchrysops cnejas Fabricius</td>
<td>The gram blue</td>
<td>Very common</td>
</tr>
<tr>
<td>4</td>
<td>Polyommatinae</td>
<td>Chilades pandava Horsfield</td>
<td>The plains cupid</td>
<td>Common</td>
</tr>
<tr>
<td>5</td>
<td>Polyommatinae</td>
<td>Catochrysops strabo Fabricius</td>
<td>The forget-me-not</td>
<td>Common</td>
</tr>
<tr>
<td>6</td>
<td>Polycnemoideae</td>
<td>Talicauda nyseus Guerin Meneville</td>
<td>The red pierrot</td>
<td>Rare</td>
</tr>
<tr>
<td>7</td>
<td>Lycaeninae</td>
<td>Rapala iarbus Fabricius</td>
<td>Common red flash</td>
<td>Very rare</td>
</tr>
<tr>
<td></td>
<td><strong>Lycaenidae</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Heliconiinae</td>
<td>Phalanta phalantha Drury</td>
<td>Common leopard</td>
<td>Very common</td>
</tr>
<tr>
<td>9</td>
<td>Nymphalinae</td>
<td>Vanessa cardui Linnaeus</td>
<td>Painted lady</td>
<td>Common</td>
</tr>
<tr>
<td>10</td>
<td>Nymphalinae</td>
<td>Hypolimnas missipus Linnaeus</td>
<td>Danaid eggfly</td>
<td>Less common</td>
</tr>
<tr>
<td>11</td>
<td>Nymphalinae</td>
<td>Hypolimnas bolina Linnaeus</td>
<td>The great egg-fly</td>
<td>Common</td>
</tr>
<tr>
<td>12</td>
<td>Nymphalinae</td>
<td>Junonia almana Linnaeus</td>
<td>Peacock pansy</td>
<td>Less common</td>
</tr>
<tr>
<td>13</td>
<td>Nymphalinae</td>
<td>Junonia atlites Linnaeus</td>
<td>Grey pansy</td>
<td>Very rare</td>
</tr>
<tr>
<td>14</td>
<td>Nymphalinae</td>
<td>Junonia lemonias Linnaeus</td>
<td>Lemon pansy</td>
<td>Very rare</td>
</tr>
<tr>
<td>15</td>
<td>Nymphalinae</td>
<td>Junonia orithya Linnaeus</td>
<td>Blue pansy</td>
<td>Common</td>
</tr>
<tr>
<td>16</td>
<td>Nymphalinae</td>
<td>Junonia hierta Fabricius</td>
<td>The yellow pansy</td>
<td>Less common</td>
</tr>
<tr>
<td>17</td>
<td>Danainae</td>
<td>Danaus chrysippus Linnaeus</td>
<td>The plain tiger</td>
<td>Very common</td>
</tr>
<tr>
<td>18</td>
<td>Danainae</td>
<td>Danaus genutia Cramer</td>
<td>The common tiger</td>
<td>Very Common</td>
</tr>
<tr>
<td>19</td>
<td>Danainae</td>
<td>Euploea core Cramer</td>
<td>Common crow</td>
<td>Rare</td>
</tr>
<tr>
<td>20</td>
<td>Danainae</td>
<td>Tirumala limniace Cramer</td>
<td>-</td>
<td>Very rare</td>
</tr>
<tr>
<td>21</td>
<td>Satyrinae</td>
<td>Melanitis leda Cramer</td>
<td>Common evening brown</td>
<td>Less common</td>
</tr>
<tr>
<td></td>
<td><strong>Nymphalidae</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Papilioninae</td>
<td>Papilio demoleus Linnaeus</td>
<td>Lime butterfly</td>
<td>Very common</td>
</tr>
<tr>
<td>23</td>
<td>Papilioninae</td>
<td>Papilio polytes romulus Cramer</td>
<td>Indian common mormon</td>
<td>Very common</td>
</tr>
<tr>
<td>24</td>
<td>Papilioninae</td>
<td>Graphium doson Felder</td>
<td>Common jay</td>
<td>Less common</td>
</tr>
<tr>
<td></td>
<td><strong>Papilionidae</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Pierinae</td>
<td>Belonois aurora Fabricius</td>
<td>The pioneer white</td>
<td>Less common</td>
</tr>
<tr>
<td>26</td>
<td>Pierinae</td>
<td>Cepora nerissa Fabricius</td>
<td>Common gull</td>
<td>Less common</td>
</tr>
<tr>
<td>27</td>
<td>Pierinae</td>
<td>Ixias mariane Cramer</td>
<td>White orange tip</td>
<td>Rare</td>
</tr>
<tr>
<td>28</td>
<td>Pierinae</td>
<td>Ixias pyrene Linnaeus</td>
<td>Yellow orange tip</td>
<td>Rare</td>
</tr>
<tr>
<td>29</td>
<td>Pierinae</td>
<td>Pieris brassicae Linnaeus</td>
<td>Large Cabbage White</td>
<td>Very common</td>
</tr>
<tr>
<td>30</td>
<td>Coliadinae</td>
<td>Catopsilia pomona Fabricius</td>
<td>Lemon emigrant</td>
<td>Less common</td>
</tr>
<tr>
<td>31</td>
<td>Coliadinae</td>
<td>Catopsilia pyranthe Linnaeus</td>
<td>Mottled emigrant</td>
<td>Less common</td>
</tr>
<tr>
<td>32</td>
<td>Coliadinae</td>
<td>Colias fieldi Ménétriés</td>
<td>The Dark clouded yellow</td>
<td>Less common</td>
</tr>
<tr>
<td>33</td>
<td>Coliadinae</td>
<td>Eurema hecabe Linnaeus</td>
<td>One-spot grass yellow</td>
<td>Common</td>
</tr>
</tbody>
</table>

**Distribution:** Species is spread throughout India except at very high elevations and is widely distributed in the Malayan subregion; extending to Australia and the South Sea Islands (Bingham, 1907).

**Host plant:** Fabaceae (Kunte, 2000).

IV. Genus: *Chilades* Moore

4. **Chilades pandava** Horsfield (Photo 4a, b)

*Lycaena pandava* Horsfield, [1829], *Descr. Cat. lepid. Ins.* 2: 84 (*Lycaena*).

**Material examined:** (17♂ 13♀). India: Punjab: Orchard (PAU) 12.viii.2015, Sachin and P.C. Pathania (1♂).

**Distribution:** It is found in Peninsular India south of the outer ranges of the Himalayas, Ceylon, Assam, Burma and extending into the Malayan Subregion (Talbot, 1939).

**Host plant:** Cycadaceae, Fabaceae and Ulmaceae (Saji et al., 2017).

V. Genus: *Catochrysops* Boisduval

5. **Catochrysops strabo** Fabricius (Photo 5a, b)

*Hesperia strabo* Fabricius (1793), *Ent. Sys.* 3:1:287 (*Hesperia*).


**Distribution:** Europe, Africa, South and Southeast Asia, and Australia (Bingham, 1907).

**Host plant:** Fabaceae (Kunte, 2000).

VI. Genus: *Talicada* Moore

6. **Talicada nyseus** Guérin Méneville (Photo 6a, b)

*Polyommatus nyseus* Guérin-Méneville (1843), *Deless Sour. Inde:* 78.t.22.f.i (*Polyommatus*).


**Distribution:** It found in Central, Western and Southern India, Assam, Ceylon and Burma (Bingham, 1907).

**Host plant:** Crassulaceae (Saji et al., 2017).

VIII. Genus *Phalanta* Doubleday

8. **Phalanta phalantha** (Horsfield) (Photo 8a,b)


**Distribution:** It occurs nearly throughout Continental India, Ceylon, Assam, Burma, Tenasserim; extending to China, Japan and the Malayan Subregion (Bingham, 1905).

**Host plant:** Flacourtia species (Bingham, 1905).

Subfamily NYMPHALINAE

IX. Genus *Vanessa* Fabricius

9. **Vanessa cardui** (Linnaeus) (Photo 9a,b)


**Distribution:** It occurs nearly throughout Continental India, Ceylon, Assam, Burma, Tenasserim; extending to China, Japan and the Malayan Subregion (Bingham, 1905).

**Host plant:** Flacourtia species (Bingham, 1905).

**Distribution:** The painted Lady is distributed over the whole world, it occurs in and is recorded from all parts of India, Ceylon, Burma and Tenasserim, more plentifully in the hills (Bingham, 1907).  

**Host plant:** Asteraceae, Fabaceae, Papaveraceae and Urticaceae (Kunte, 2000).

X. Genus *Hypolimnas* Hübner  

10. *Hypolimnas misippus* (Linnaeus) (Photo 10a,b)  

**Papilio misippus** Linnaeus, 1764, Verz. Bek. Schmett: 45.  


**Distribution:** Throughout our limits; abundant, in some districts found also in the Malayan Sub region, and in China and Japan (Bingham, 1905).  

**Host plant:** *Mimulus gracilis*, Rice crop (Bingham, 1905).

13. *Junonia atlites* (Linnaeus) (Photo 13a,b)  

**Papilio atlites** Linnaeus, 1763, Amoen Acad. 6: 407, n.72.  

**Material examined:** (1♂ 1♀). India: Punjab: PAU, 11.viii.2011, Birpal, Amit and P.C. Pathania (1♀).  

**Distribution:** It is found in Terai, at the foot of the Himalayas from Kumaun Sikkim; Eastern Bengal, Central Provinces, Kanara, Ceylon, Burma, extending to the Malaya sub region (Bingham, 1907).  

**Host plant:** Acanthaceae (Saji et al., 2017).

14. *Junonia lemonias* (Linnaeus) (Photo 14a,b)  

**Papilio lemonias** Linnaeus 1758, Syst. Nat : 473.  


**Distribution:** It occurs near the Himalayas as far as Kumaun; Punjab, Bengal, Western and Southern India, Ceylon (Bingham, 1907).  

**Host plant:** Acanthaceae and Cannabaceae (Saji et al., 2017).

15. *Junonia orithya* Linnaeus (Photo 15a,b)  

**Junonia orithya** Linnaeus, 1764, Mus. Ulr.: 278.  


**Distribution:** It occurs near the Himalayas as far as Kumaun; Punjab, Bengal, Western and Southern India, Ceylon (Bingham, 1905).  

**Host plant:** Acanthaceae and Cannabaceae (Saji et al., 2017).

16. *Junonia hierta* Fabricius (Photo 16a,b)  

**Junonia hierta** Fabricius, 1798, Ent. Syst. Suppl.: 424.

Host plant: Amaranthus, Sweet Potato (Bingham, 1905).

Subfamily DANAINAE

XII. Genus Danaus Linnaeus

17. Danaus chrysippus (Linnaeus) (Photo 17a,b)


Distribution: Found in Southern Europe, Syria, over a great part of the Ethiopian Region, through Arabia, Persia, and Afghanistan. Eastwards it extends to China and through the Malayan Subregion to Sulu and the Celebes (Bingham, 1905).

Host plant: Apocynaceae (Saji et al., 2017).

18. Danaus genutia (Cramer) (Photo 18a,b)


Distribution: British India (Bingham 1905).

Host plant: Apocynaceae (Saji et al., 2017).

XIII. Genus Euploea Fabricius

19. Euploea core (Cramer) (Photo 19a,b)


Distribution: Kashmir to Ceylon; Assam to upper Burma, up to a moderate elevation; extending to Persia and eastwards to China and Formosa (Talbot, 1939).

Host plant: Aegle marmelos, Chloroxylon swietenia, Citrus aurantifolia, Citrus grandis, Citrus limon, Citrus sinensis, Glycosmis arborea, Murreya koenigii, Ruta graveolens (Kunte, 2000).

23. Papilio polytes romulus Cramer (Photo 23a,b & 24a,b)


Distribution: Throughout Asia, Pakistan and southern Asia, including India and all regions east of it, Malaysia and Indonesia, and on the coast of southern China, the Philippine islands, and the southwestern islands of Japan (Suwarno, 2010).

Host plant: Atalantia racemosa, Aegle marmelos, Citrus aurantifolia, Citrus grandis, Citrus limon, Citrus medica, Citrus sinensis, Glycosmis arborea, Murreya koenigii, Murreya paniculata, Tripahsia sp., Zanthoxylum rhetsa (Kunte, 2000).

Distribution: Nicobar Islands (Talbot, 1939).

Host plant: Citrus, Murraya, Triphasia, Xanthoxylon (Talbot, 1939)

24. Graphium doson (Felder) (Photo 25a, b)


Distribution: South Japan to South China and Ceylon, southwards and eastwards to the Sunda Islands. Several subspecies are known, of which three occur in the Indian area (Talbot, 1939).

Host plant: Annona lawii, Cinnamomum macrocarpum, Magnolia grandiflora, Melia champaca, Mililusa tomentosum, Polyalthia longifolia, Annonaceae, Lauraceae, Magnoliaceae (Kunte, 2000).

Family PIERIDAE
Subfamily PIERINAE

XVIII. Genus Belonois Hubner

25. Belonois aurota Fabricius (Photo 26a, b)

Belonois aurota Fabricius, 1793, Ent. Syst. 3, 1: 197.


Distribution: It found in all India except Assam and Burma. A straggler is recorded from Great Nicobar. The subspecies also extends to Palestine and Africa (Talbot, 1939).

Host Plant: Cadaba fruticosa, Capparis decidua, Capparis pyrifolia, Capparis rheedii, Capparis sepiaria, Capparis spinosa, Capparis zeylanica, Maerua oblongifolia (Kunte, 2000).

XIX. Genus Cepora Billberg

26. Cepora nerissa Fabricius (Photo 27a, b)

Cepora Nerissa Fabricius, 1775. Syst. Ent.: 441.

Material examined: (13♂ 9♀). India: Punjab: PAU 5.xii.2012, Sunita, Kritika and P.C. Pathania (2♂ 2♀), PAU,

**Distribution:** It found in Ceylon, India, Burma, and Andaman Islands, north to Formosa, south to Sumbawa (Bingham, 1907).

**Host plant:** Cadaba fruticosa, Capparis decidua, Capparis rheedii, Capparis sepiaria, Capparis zeylanica, Maerua oblongifolia (Kunte, 2000).

XX. Genus *Ixias* Hubner

**27. Ixias mariane** Cramer (Photo 28a, b)


**Distribution:** It occurs in North West Himalayas as far as Kumaun; Punjab, Bengal, Western and Southern India, Ceylon (Bingham, 1907).

**Host plant:** *Capparis deciduas*, *Capparis divaricata*, *Capparis grandis*, *Capparis sepiaria* (Kunte, 2000).

28. *Ixias pyrene* Linnaeus (Photo 29a, b)


**Distribution:** It is the commonest and most widespread member of the genus. It is distributed in India, Pakistan to Taiwan, Malaysia, Borneo and the Philippines (Bingham, 1907).

**Host plant:** *Capparis sepiaria* (Kunte, 2000).

XXI. Genus *Pieris* Schrank

**29. Pieris brassicae** Linnaeus (Photo 30a, b)


**Distribution:** Baluchistan and Chitral (Pakistan) eastwards to Assam, very common in Himalayas and plains adjoining Himalayas, ascending to about 12,000 feet in Himalayas (Kumar, 2008).

**Host plant:** Brassicaceae (Kunte and Soman, 2017).

Subfamily COLIADINAE

XXII. Genus *Catopsila* Hubner

30. *Catopsilia pomona* Fabricius (Photo 31a, b)


**Distribution:** It found in Ceylon, India, Burma, Andaman Islands and Nicobar Islands; South China to Soloman Islands and Austerlia. (Bingham, 1907).

**Host plant:** *Cassia fistula* (Talbot, 1939)

31. *Catopsilia pyranthe* Linnaeus (Photo 32a, b)


**Distribution:** It found throughout India; Assam; Burma; Tenasserim; not ascending the Himalayas to above 7000 ft. It extends to China on the east and as far as Australia southwards (Bingham, 1907).

**Host plant:** *Cassia auriculata*, *Cassia fistula*, *Cassia occidentalis*, *Cassia tora*, *Gnidia glauca*, *Sesbania bispinosa* (Kunte, 2000).
XXIII. Genus: *Colias* Fabricius

32. **Colias electo fieldi** Ménétriers (Photo 33a, b)


**Distribution:** Baluchistan to North Punjab, Sikkim, northern Burma, more common in the Western Himalaya. (Bingham, 1907).

**Host plant:** Caterpillars feed on Fabaceae, for example vetches (Vicia). While most are thus beneficial by keeping weeds at bay, some occasionally become nuisance pests on crops like alfalfa (Kunte, 2000).

XXIV. Genus *Eurema* Hubner

33. **Eurema hecabe** Linnaeus (Photo 34a,b)


**Distribution:** British India (Bingham, 1905).

**Host plant:** The early stages of Common Grass Yellow are polyphagous with most of its host plants belonging to the Fabaceae family. The caterpillars feed on the young and tender leaves of the host plants. Eggs are laid on Abrus precatorius, Acacia spp., Aeschynomene spp., Albizia spp. and numerous other Leguminosae, Euphorbiaceae and Cucurbitaceae species (Kunte, 2000).

### Acknowledgements

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### References


Studies on butterfly diversity (Lepidoptera: Papilionoidea) from Punjab Agricultural University Campus, Ludhiana, Punjab, India

PLATE 1

Family: Hesperiidae

Figure 1. 1- Pelopidas mathias

Family: Lycaenidae

Figure 2-8. 2- Tarucus callinara; 3- Euchrysops cnejus; 4- Chilades pandava; 5- Catochrysops strabo; 6- Talicada nyseus; 7- Rapala airbus (a: Upper side, b: Lower side).
Studies on butterfly diversity (Lepidoptera: Papilionoidea) from Punjab Agricultural University Campus, Ludhiana, Punjab, India

Figure 8-21. 8- Phalanta phalantha; 9- Vanessa cardui; 10- Hypolimnas missipus; 11- Hypolimnas bolina; 12- Junonia almana; 13- Junonia atlites; 14- Junonia lemonias; 15- Junonia orithya; 16- Junonia hierta; 17- Danaus chrysippus; 18- Danaus genutia; 19- Euploea core; 20- Tirumala limniace; 21- Melanitis leda.
Family: Papilionidae

Figure 22-25.  22- Papilio demoleus; 23-24 Papilio polytes romolus; 25- Graphium doson (a: Upper side, b: Lower side).

Family: Pieridae

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Figure 26-34. 26- Belonois aurota; 27- Cepora nerissa; 28- Ixias marianne; 29- Ixias pyrene; 30- Pieris brassicae; 31- Catopsilia pomona; 32- Catopsilia pyranthe; 33- Colias fieldii 34- Eurema hecabe
(a: Upper side, b: Lower side).