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# A Contribution to the moth fauna (Lepidoptera, Heterocera) of Elazığ Province, Turkey

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## ABSTRACT

This study contributes to the Heterocera fauna of eastern Turkey. The paper presents a faunal list of 208 moth species belonging to 15 families, Arctiidae, Ctenuchidae, Cossidae, Drepanidae, Lasiocampidae, Lemoniidae, Lymantriidae, Notodontidae, Noctuidae, Psychidae, Pyralidae, Sphingidae, Thaumetopoeidae, Thyatiridae and Zygaenidae from Maden district of Elazığ Province. Among these moths, 150 species are recorded for the first time in Elazığ Province.

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## 1. Introduction

The moth fauna of Turkey is represented by 5158 species in 67 families (Koçak & Kemal, 2018). Information on the Turkish Lepidoptera fauna mostly based on the taxonomic and faunistic investigations. However, significant studies have been conducted in terms of finding out of the Turkish moth fauna. In this respect, examined and evaluated articles on the Heterocera fauna of Turkey and in point of the research region, are as follows: Staudinger (1878, 1881); Wagner (1929, 1930, 1931); Pfeiffer (1931); Zukowsky (1941); Kansu (1963); Kornoşor (1982a, 1982b); Freina & Hermann (1985); Hacker (1990); Koçak & Seven (1994a, 1994b, 1996); Okyar & Kornoşor (1994, 1997); Seven (1996); Kanat & Kornoşor (2000) and Akkuzu et al. (2007).

The moth species of Elazığ Province have been poorly studied. Although, some sporadic agricultural studies have been carried out by Bolu & Çınar (2005), Ayaz & Yücel (2010) and Gegeçkori & Didmanidze (2015), first exhaustive research was published by Koçak and Kemal with the study "Synonymical and distributional list of the species of Elazığ Province" in 2007 and they were reported totally 199 moth species in their paper (Koçak & Kemal, 2007). And following, they were reported 243 moth species in the latest current

article "A synonymical and distributional list of the species of the Lepidoptera of Turkey" in 2018 (Koçak & Kemal, 2018) from Elazığ Province. Seven & Çakır (2018) also presented 8 Sphingidae species from the study area and 5 of them: *Clarina kotschy* (Kollar, [1849]); *Dolbina elegans* A. Bang-Haas, [1913]; *Laotloe populeti* (Bienert, [1870]); *Macroglossum stellatarum* (Linnaeus, 1758) and *Marumba quercus* ([Denis & Schiffermüller], 1775) were added to the fauna of Elazığ.

In this paper, a total of 208 species of Heterocera species in the families, Arctiidae, Ctenuchidae, Cossidae, Drepanidae, Lasiocampidae, Lemoniidae, Lymantriidae, Notodontidae, Noctuidae, Psychidae, Pyralidae, Sphingidae, Thaumetopoeidae, Thyatiridae and Zygaenidae are listed faunistically from Maden district of Elazığ Province, eastern Turkey. And among them, 150 species are new reported for the fauna of Elazığ Province.

## 2. Material and Method

The materials in this study were collected between in April-August 2016 and March-October 2017 at irregular intervals from Maden district of Elazığ Province with UV light traps. The species were diagnosed according to the literature data by considering the external morphological and genital structures of the materials. Samples are deposited in the special collection

of the first author and in the Biology Laboratory of Batman University.

To identification and distribution of the species, the sources utilized are include: Wagner (1929, 1930, 1931); Kansu (1963); Freina & Hermann (1985); Freina & Witt (1987); Varga & Ronkay (1991); Fibiger (1997); Ronkay et al. (2001); Hacker et al. (2002); Zilli et al. (2005); Leraut (2006, 2012); Fibiger & Hacker (2007); Koçak & Kemal (2007); Fibiger et al. (2009; 2010); Seven (2014); Kemal & Koçak (2017); Koçak & Kemal (2018); and Seven & Çakır (2018).

### 3. Results

In this research, a total of 208 species are listed alphabetically under the related families. The new records for fauna of Elazığ Province are marked with “(\*)” an asterisk.

#### Faunal list of the species

##### Family Arctiidae

1. *\*Arctia festiva* (Hufnagel, 1766); 2. *Arctia villica* (Linnaeus, 1758); 3. *\*Manulea pseudocomplana* (Daniel, 1939); 4. *\*Paidia rica* (Freyer, [1855]); 5. *\*Phragmatobia fuliginosa* (Linnaeus, 1758); 6. *Phragmatobia placida* (Frivaldsky, 1835).

##### Family Ctenuchidae

7. *Dysauxes famula* (Freyer, 1836).

##### Family Cossidae

8. *\*Dyssa ulula* (Borkhausen, 1790).

##### Family Drepanidae

9. *\*Cilix asiatica* A.Bang-Haas, 1907; 10. *\*Watsonalla binaria* (Hufnagel, 1767).

##### Family Lasiocampidae

11. *\*Chondrostega palaestranum* Staudinger, 1892; 12. *Lasiocampa evermanni* (Kindermann, 1843); 13. *\*Lasiocampa grandis* (Rogenhofer, 1891); 14. *Malacosoma neustrium* (Linnaeus, 1758); 15. *\*Phyllodesma tremulifolium* (Hübner, [1810]).

##### Family Lemoniidae

16. *Lemonia ballioni* (Christoph, 1888).

##### Family Lymantriidae

17. *\*Euproctis chrysorrhoea* (Linnaeus, 1758); 18. *\*Euproctis melania* (Staudinger, 1892); 19. *\*Leucoma wiltshirei* Collenette, 1938; 20. *Lymantria dispar* (Linnaeus, 1758); 21. *\*Parocneria terebinthi* (Freyer, [1838]); 22. *Polymona lapidicola* (Herrich-Schäffer, [1852]).

##### Family Notodontidae

23. *\*Clostera pigra* (Hufnagel, 1766).

##### Family Noctuidae

24. *Acantholipes regularis* (Hübner, [1813]); 25. *\*Acontia titania* (Esper, [1798]); 26. *\*Acontiola moldavicola* (Herrich-Schäffer, [1851]); 27. *\*Acronicta aceris* (Linnaeus, 1758); 28. *\*Acronicta rumicis* (Linnaeus, 1758); 29. *\*Aedophron phlebophora* Lederer, 1858; 30. *Aegle semicana* (Esper, [1798]); 31. *\*Agrochola gratiosa* (Staudinger, 1882); 32. *\*Agrochola pistacina* (Goeze, 1781); 33. *\*Agrotis bigramma*

(Esper, [1790]); 34. *\*Agrotis ipsilon* (Hufnagel, 1766); 35. *Agrotis obesa* (Boisduval, 1829); 36. *\*Agrotis puta* (Hübner, [1803]); 37. *\*Agrotis segetum* ([Denis & Schiffermüller], 1775); 38. *\*Allophyes asiatica* (Staudinger, 1892); 39. *\*Ammonoconia caecimacula* (Fabricius, 1787); 40. *\*Amphipyra livida* ([Denis & Schiffermüller], 1775); 41. *\*Amphipyra micans* Lederer, 1857; 42. *\*Anthracia eriopoda* (Herrich-Schäffer, [1851]); 43. *Apamea maraschi* (Draudt, 1934); 44. *\*Apamea monoglypha* (Hufnagel, 1766); 45. *\*Aporophyla australis* (Boisduval, 1829); 46. *\*Atethmia centrargo* (Haworth, [1809]); 47. *Autophila einsleri* Amsel, 1935; 48. *\*Autophila ligaminosa* (Eversmann, 1851); 49. *\*Behounekia freyeri* (Frivaldsky, 1835); 50. *\*Calocucullia celsiae* (Herrich-Schäffer, 1850); 51. *\*Calophasia barthae* F.Wagner, 1929; 52. *Calophasia platyptera* (Esper, [1788]); 53. *Caradrina bodenheimeri* (Draudt, 1934); 54. *\*Caradrina clavipalpis* (Scopoli, 1763); 55. *\*Caradrina flavirena* (Guenée, 1852); 56. *\*Caradrina inumbrata* (Staudinger, 1900); 57. *\*Caradrina kadenii* (Freyer, 1836); 58. *\*Caradrina rjabovi* (Boursin, 1936); 59. *Catocala abacta* Staudinger, 1900; 60. *\*Catocala elocata* (Esper, [1787]); 61. *\*Catocala hymenaea* ([Denis & Schiffermüller], 1775); 62. *\*Catocala lupina* Herrich-Schäffer, [1851]; 63. *\*Catocala nymphagoga* (Esper, [1787]); 64. *Chazaria incarnata* (Freyer, 1838); 65. *\*Cleonymia opposita* (Lederer, 1870); 66. *Clytie syriaca* (Bugnion, 1837); 67. *\*Conistra ragusae* (Failla-Tedaldi, 1890); 68. *\*Cosmia confinis* Herrich-Schäffer, [1849]; 69. *\*Cryphia amasina* (Draudt, 1931); 70. *\*Cryphia maeonis* (Lederer, 1865); 71. *\*Cryphia occidentalis* (Osthelder, 1933); 72. *Cryphia ochsi* (Boursin, 1941); 73. *\*Cryphia raptricula* ([Denis & Schiffermüller], 1775); 74. *Cryphia receptricula* (Hübner, [1803]); 75. *\*Diarsia rubi* (Vieweg, 1790); 76. *Dichagyris amoena* (Staudinger, 1892); 77. *\*Dichagyris erubescens* (Staudinger, 1892); 78. *\*Dichagyris nachadira* (Brandt, 1941); 79. *\*Dichagyris nigrescens* (Hofner, 1888); 80. *\*Dichagyris singularis* (Staudinger, 1877); 81. *Dichagyris squalidior* (Staudinger, 1901); 82. *\*Dicycla oo* (Linnaeus, 1758); 83. *\*Diloba caeruleocephala* (Linnaeus, 1758); 84. *Drasteria caucasica* (Kolenati, 1846); 85. *\*Drasteria saisani* (Staudinger, 1882); 86. *\*Drasteria sesquilina* (Staudinger, 1888); 87. *\*Dryobotodes tenebrosa* (Esper, [1789]); 88. *\*Dysgonia algira* (Linnaeus, 1767); 89. *\*Dysgonia torrida* (Guenée, 1852); 90. *\*Earias clorana* (Linnaeus, 1761); 91. *Egira anatolica* (M.Hering, 1933); 92. *\*Epilecta linogrisea* ([Denis & Schiffermüller], 1775); 93. *\*Episema didymogramma* (Boursin, 1955); 94. *Episema korsakovi* (Christoph, 1885); 95. *\*Episema tersa* ([Denis & Schiffermüller], 1775); 96. *\*Eublemma aureola* Fibiger & Hacker, 2002; 97. *Eublemma gratissima* (Staudinger, 1892); 98. *\*Eublemma minutata* (Fabricius, 1794); 99. *\*Eublemma ostrina* (Hübner, [1808]); 100. *Eublemma pallidula* (Herrich-Schäffer, 1856); 101. *Eublemma panonica* (Freyer, 1840); 102. *\*Eublemma parva* (Hübner, [1808]); 103. *Eublemma polygramma* (Duponchel, [1842]); 104. *Eublemma straminea* (Staudinger, 1892); 105. *Eublemma suppura* (Staudinger, 1892); 106. *Eugnorisma pontica* (Staudinger, 1892); 107. *\*Eulocasta diaphora* (Staudinger, 1879); 108. *\*Eutelia adoratrix* (Staudinger, 1892); 109. *\*Euxoa cos* (Hübner, [1824]); 110. *\*Euxoa nigrofusca* (Esper, [1788]); 111. *\*Euxoa flavisca* ([Denis & Schiffermüller], 1775); 112. *\*Gortyna obelago* ([Denis & Schiffermüller], 1775); 113. *\*Hadena compta* ([Denis & Schiffermüller], 1775); 114. *\*Hadena gueneei* (Staudinger, 1901); 115. *\*Hadena magnolii* (Boisduval, 1828); 116. *\*Hadena ronkayorum* Hacker, 1996; 117. *Hadena roseocandida* Hacker, 1996; 118. *\*Hadena sancta* (Staudinger,

1859); **119.** *\*Hadena vulcanica* (Turati, 1907); **120.** *Hadula mendica* (Staudinger, [1895]); **121.** *\*Haemerosia renalis* (Hübner, [1813]); **122.** *\*Hecatera spinaciae* (Vieweg, 1790); **123.** *\*Hecatera weissi* (Boursin, 1952); **124.** *\*Heliothis peltigera* ([Denis & Schiffermüller], 1775); **125.** *\*Heterophya dumetorum* (Geyer, 1834); **126.** *\*Hoplodrina ambigua* ([Denis & Schiffermüller], 1775); **127.** *\*Hoplodrina octogenaria* (Goeze, 1781); **128.** *\*Hypena munitalis* Mann, 1861; **129.** *\*Leucania punctosa* (Treitschke, 1825); **130.** *Leucochaena muscosa* (Staudinger, 1892); **131.** *\*Lygephila amasina* (Staudinger, 1879); **132.** *Lygephila craccae* (Fabricius, 1787); **133.** *\*Megalodes eximia* (Freyer, 1845); **134.** *\*Meganola gigantula* (Staudinger, 1879); **135.** *\*Meganola togatalis* (Hübner, 1796); **136.** *\*Mesapamea didyma* (Esper, [1788]); **137.** *\*Mesogona acetosellae* (Goeze, 1781); **138.** *\*Mesoligia furuncula* ([Denis & Schiffermüller], 1775); **139.** *\*Mesoligia literosa* (Haworth, [1809]); **140.** *Metachrostis dardouini* (Boisduval, 1840); **141.** *Metalopha gloriosa* (Staudinger, 1892); **142.** *Mythimna alopecuri* (Boisduval, 1840); **143.** *\*Mythimna ferrago* (Fabricius, 1787); **144.** *\*Mythimna l-album* (Linnaeus, 1767); **145.** *Mythimna vitellina* (Hübner, [1808]); **146.** *\*Noctua comes* (Hübner, [1813]); **147.** *\*Noctua janthina* ([Denis & Schiffermüller], 1775); **148.** *Noctua orbona* (Hufnagel, 1766); **149.** *\*Noctua pronuba* (Linnaeus, 1758); **150.** *\*Nola chlamitulis* (Hübner, [1813]); **151.** *\*Olivenebula subsericata* (Herrich-Schäffer, 1861); **152.** *\*Oncocnemis confusa* (Freyer, [1839]); **153.** *\*Oncocnemis strioligera* Lederer, 1853; **154.** *\*Ophiusa lunaris* (Goeze, 1781); **155.** *\*Orthosia cerasi* (Fabricius, 1775); **156.** *\*Orthosia incerta* (Hufnagel, 1766); **157.** *\*Orthosia schmidtii* (Diószeghy, 1935); **158.** *Osthelderia gracilis* (Osthelder, 1933); **159.** *Pamparama acuta* (Freyer, [1837]); **160.** *\*Phylapora canescens* (Duponchel, 1826); **161.** *\*Plecoptera inquinata* (Lederer, 1857); **162.** *\*Polymixis serpentina* (Treitschke, 1825); **163.** *\*Polyphaenis propinqua* Staudinger, [1896]; **164.** *\*Polypogon proxima* (Christoph, 1893); **165.** *Pseudenargia deleta* (Osthelder, 1933); **166.** *\*Pseudenargia regina* (Staudinger, 1892); **167.** *Rhiza laciniosa* (Christoph, 1887); **168.** *\*Scotochrosta pulla* ([Denis & Schiffermüller], 1775); **169.** *\*Setoctena dentula* (Lederer, 1869); **170.** *\*Shargacucullia verbasci* (Linnaeus, 1758); **171.** *\*Sideridis luteago* ([Denis & Schiffermüller], 1775); **172.** *\*Simyra dentinosa* Freyer, 1839; **173.** *\*Spodoptera exiguum* (Hübner, [1808]); **174.** *\*Teinoptera oliva* (Staudinger, [1895]); **175.** *\*Tholera decimalis* (Poda, 1761); **176.** *Thria robusta* Walker, [1858]; **177.** *Tyta luctuosa* ([Denis & Schiffermüller], 1775); **178.** *\*Valeria oleagina* (Esper, [1786]); **179.** *\*Valerietta boursini* De Freina & Hacker, 1985; **180.** *Victrix boursini* (Draudt, 1936); **181.** *\*Victrix duelduelica* (Osthelder, 1932); **182.** *\*Xanthia icteritia* (Hufnagel, 1766); **183.** *\*Xestia cohaesa* (Herrich-Schäffer, [1849]); **184.** *\*Xestia ditrapezium* ([Denis & Schiffermüller], 1775); **185.** *Xestia palaestinensis* (Kalchberg, 1898); **186.** *\*Xestia sareptana* (Herrich-Schäffer, [1851]); **187.** *\*Xestia xanthographa* ([Denis & Schiffermüller], 1775); **188.** *\*Zekelita antiqualis* (Hübner, [1809]); **189.** *\*Zethes brandti* Janzon, 1977; **190.** *\*Zethes insularis* Rambur, 1833; **191.** *\*Zethes narghisa* Brandt, 1938.

#### Family Psychidae

**192.** *\*Megalophanes viciella* ([Denis & Schiffermüller], 1775).

#### Family Pyralidae

**193.** *Cynaeda gigantea* (Staudinger, 1879); **194.** *\*Nomophila noctuella* ([Denis & Schiffermüller], 1775); **195.** *\*Pyralis*

*farinalis* (Linnaeus, 1758).

#### Family Spingidae

**196.** *Clarina kotschyi* (Kollar, [1849]); **197.** *Dalbina elegans* A.Bang-Haas, [1913]; **198.** *Laothoe populeti* (Bienert, [1870]); **199.** *Macroglossum stellatarum* (Linnaeus, 1758); **200.** *Marumba quercus* ([Denis & Schiffermüller], 1775); **201.** *Rethera komarovi* (Christoph, 1885); **202.** *Smerinthus kindermanni* Lederer, 1852; **203.** *Theretra alecto* (Linnaeus, 1758).

#### Family Thaumetopoeidae

**204.** *\*Thaumetopoea solitaria* (Freyer, [1838]).

#### Family Thyatiridae

**205.** *\*Polyploca korbi* Rebel, 1901; **206.** *\*Tethea ocularis* (Linnaeus, 1767).

#### Family Zygaenidae

**207.** *\*Jordanita notata* (Zeller, 1847); **208.** *\*Zygaena graslini* Lederer, 1855.

### 3. Conclusions

In this survey, Heterocera specimens collected from Maden district of Elazığ Province, eastern Anatolia of Turkey are evaluated, and 208 species are detected. Totally 150 species in the families, Arctiidae (4), Cossidae (1), Drepanidae (2), Lasiocampidae (3), Lymantriidae (4), Notodontidae (1), Noctuidae (126), Psychidae (1), Pyralidae (2), Thaumetopoeidae (1), Thyatiridae (2) and Zygaenidae (2) are recorded for the first time in Elazığ Province. The largest rate among the gathered samples includes Noctuidae species with 81 %. With these results, the moth fauna of Elazığ Province has reached to 393 species. When this number is compared to 5158 known moth species in the Turkish fauna (Koçak & Kemal, 2018), it comprises approximately 9.6 % of the total species. It is clearly seen that this study offers a serious contribution to the Lepidoptera of the region. But, when considering the vegetation and location of the field, it needs to be studied in more detail.

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