



## ЭКОЛОГИЯ ЖИВОТНЫХ

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### ВИДОВОЙ СОСТАВ И ГЕОГРАФИЧЕСКОЕ РАСПРОСТРАНЕНИЕ СОВОК (LEPIDOPTERA, NOCTUIDAE) ПРИБРЕЖНЫХ И ОСТРОВНЫХ ЭКОСИСТЕМ СЕВЕРО-ЗАПАДНОГО КАСПИЯ

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Впервые анализируется видовой состав совков (Lepidoptera, Noctuidae) прибрежных и островных экосистем Северо-Западной части Каспийского моря. К настоящему времени в прибрежных и островных экосистемах Северо-Западного Каспия выявлено 492 видов совков прибрежных и островных экосистем, относящихся к 194 родам и 29 подсемействам. It is the first time as the species composition of owl moths (Lepidoptera, Noctuidae) of coastal and island ecosystems of the North-Western part of the Caspian Sea are analyzed. To date 492 species of owl moths of the coastal and island ecosystems are accurately identified in the coastal and island ecosystems of the North-Western Caspian Sea, these species are related to 194 genera and 29 sub-families.

**Ключевые слова:** совки, видовой состав совков, матрица, плеяда Терентьева

**Key words:** owl moths, species composition of the owl moths, matrix, pleiad of Terentjeva

Впервые анализируется видовой состав совков (Lepidoptera, Noctuidae) прибрежных и островных экосистем Северо-Западной части Каспийского моря.

В работе были использованы собственные сборы авторов в районах исследования в течение многих лет, а островные фауны затронуты только нами, кроме того в работе учтены и использованы опубликованные оригинальные работы авторов под ред. С.Ю. Синева (2008), А.Н. Полтавского (2010), Е.В. Ильиной (2012).

К настоящему времени в прибрежных и островных экосистемах Северо-Западного Каспия выявлено 492 видов совков прибрежных и островных экосистем, относящихся к 194 родам и 29 подсемействам (табл. 1).

Следует отметить, что значительная часть фауны – 110 видов – имеют локальные ареалы (указываются в одной точке). Впервые для фауны России приводится 1 новый вид, подсемейство и родо: Ophiderinae, Taracheria hueberi (Erschoff, 1874), для фауны Дагестана выявлен еще один вид Anumeta spilota (Erschoff, 1874), на о. Чечень нами был обнаружен Armada panaceorum (Menetries, 1849), который является второй находкой для фауны России, а ранее был отмечен в окрестностях г. Махачкала.

Дагестанская часть района исследования представлена 247 видами, из которых 29 видов характерны только для Дагестана в пределах России: Earias rjabovi (Filipjev, 1933), Hypenodes orientalis (Staudinger, 1901), Eublemma debilis (Christoph, 1884), E. gratissima (Staudinger, 1892), E. pudorina (Staudinger, 1889), Autophila libanotica (Staudinger, 1901), Clytie terrulenta (Christoph, 1893), Deltote delicatula (Christoph, 1882), Armada panaceorum (Menetries, 1849), Megalodes eximia (Freyer, 1845), Metopoplus excelsa (Christoph, 1885), Behounekia freyeri (Frivaldszky, 1835), Scythocentropus scripturosa (Eversmann, 1854), Luperina diversa (Staudinger, 1892), Pseudoluperina pozzii (Curo, 1883), Sesamia cretica (Lederer, 1857), Leucochlaena muscosa (Staudinger, 1891), Conisania poelli (Stertz, 1915), Hadenia pseudohyrcana (de Freina & Hacker, 1985), Leucania herrichi (Herrich-Schaffer, 1849), L. punctosa (Treitschke, 1825), Dichagyris achthalensis (I.Kozhantshikov, 1929), D. amoena (Staudinger, 1892), D. eurentocles (Boursin, 1940), D. flavina (Herrich-Schaffer, 1852), D. petersi (Christoph, 1887), Euxoa anatolica (Draudt, 1936), E. glabella (Wagner, 1930), Agrotis (spinifera) Hübner, 1808).

Выражаем особую благодарность за оказанную помощь и поддержку при уточнении видового состава совков, за полезные советы по работе, младшему научному сотруднику Зоологического Института РАН г. Санкт-Петербург, кандидату биологических наук Матову А.Ю.



Таблица 1.

Видовой состав совков прибрежных и островных экосистем Северо-Западного Каспия

| №   | НАИМЕНОВАНИЕ<br>ТАКСОНОВ              | Прибрежные экосистемы |                     |                     |                   |            |                |           |           |                   |                   |         |                       |         |        |          |
|-----|---------------------------------------|-----------------------|---------------------|---------------------|-------------------|------------|----------------|-----------|-----------|-------------------|-------------------|---------|-----------------------|---------|--------|----------|
|     |                                       | Астраханская область  | Республика Калмыкия | Республика Дагестан |                   |            |                |           |           |                   |                   |         |                       | Острова |        |          |
|     |                                       |                       |                     | Кизлярский район    | Аграханский залив | Пос. Сулак | Бархан Сарыкум | Махачкала | Ст. Манас | Каякентский район | Дербентский район | Дербент | Магарамкентский район | Тюлений | Чечень | Нордовый |
|     |                                       | R1                    | R2                  | R3                  | R4                | R5         | R6             | R7        | R8        | R9                | R10               | R11     | R12                   | R13     | R14    | R15      |
|     | NOCTUIDAE                             |                       |                     |                     |                   |            |                |           |           |                   |                   |         |                       |         |        |          |
|     | NOLINAE                               |                       |                     |                     |                   |            |                |           |           |                   |                   |         |                       |         |        |          |
|     | Nola Leach, 1815                      |                       |                     |                     |                   |            |                |           |           |                   |                   |         |                       |         |        |          |
| 1.  | aerugula (Hübner, 1793)               |                       |                     | +                   |                   |            |                | +         |           | +                 |                   |         |                       |         |        |          |
| 2.  | cicatricalis (Treitschke, 1835)       |                       |                     |                     |                   |            |                |           |           |                   | +                 |         |                       |         |        |          |
| 3.  | confusalis (Herrich-Schaffer, 1847)   |                       |                     |                     |                   |            |                |           |           |                   |                   |         | +                     |         |        |          |
| 4.  | squalida (Staudinger, 1871)           |                       | +                   |                     |                   | +          |                | +         |           |                   |                   |         |                       |         |        |          |
|     | Meganola Dyar, 1898                   |                       |                     |                     |                   |            |                |           |           |                   |                   |         |                       |         |        |          |
| 5.  | albula (Denis & Schiffermüller, 1775) |                       | +                   |                     |                   |            |                |           |           |                   | +                 |         |                       |         |        |          |
| 6.  | togatulalis (Hübner, 1798)            |                       |                     |                     |                   |            |                | +         |           |                   |                   |         |                       |         |        |          |
|     | Nycteola Hübner, 1822                 |                       |                     |                     |                   |            |                |           |           |                   |                   |         |                       |         |        |          |
| 7.  | asiatica (Krulikowsky, 1904)          |                       |                     | +                   |                   |            |                | +         |           |                   |                   | +       |                       |         |        |          |
|     | EARIADINAE                            |                       |                     |                     |                   |            |                |           |           |                   |                   |         |                       |         |        |          |
|     | Earias Hübner, 1825                   |                       |                     |                     |                   |            |                |           |           |                   |                   |         |                       |         |        |          |
| 8.  | clorana (Linnaeus, 1761)              |                       | +                   | +                   |                   |            |                |           |           |                   | +                 |         |                       |         | +      |          |
| 9.  | rjabovi (Filipjev, 1933)              |                       |                     |                     |                   |            |                | +         |           |                   | +                 |         |                       |         |        |          |
| 10. | vernana (Fabricius, 1787)             |                       |                     |                     |                   |            |                | +         |           |                   | +                 |         |                       |         |        |          |
|     | RIVULINAE                             |                       |                     |                     |                   |            |                |           |           |                   |                   |         |                       |         |        |          |
|     | Rivula Guenee, 1845                   |                       |                     |                     |                   |            |                |           |           |                   |                   |         |                       |         |        |          |
| 11. | sericealis (Scopoli, 1763)            |                       |                     |                     |                   |            | +              | +         |           |                   |                   |         | +                     |         |        |          |
|     | BOLETOBIINAE                          |                       |                     |                     |                   |            |                |           |           |                   |                   |         |                       |         |        |          |
|     | Hypenodes Doubleday, 1850             |                       |                     |                     |                   |            |                |           |           |                   |                   |         |                       |         |        |          |
| 12. | orientalis (Staudinger, 1901)         |                       |                     |                     |                   |            |                |           |           |                   | +                 | +       | +                     |         |        |          |
|     | Schrankia Hübner, 1825                |                       |                     |                     |                   |            |                |           |           |                   |                   |         |                       |         |        |          |
| 13. | balneorum (Alpheraky, 1880)           |                       |                     |                     |                   | +          |                | +         |           |                   |                   | +       |                       |         |        |          |
|     | EUBLEMMINAE                           |                       |                     |                     |                   |            |                |           |           |                   |                   |         |                       |         |        |          |
|     | Eublemma Hübner, 1821                 |                       |                     |                     |                   |            |                |           |           |                   |                   |         |                       |         |        |          |
| 14. | amoena (Hübner, 1803)                 |                       | +                   | +                   |                   |            |                | +         |           |                   |                   | +       |                       |         |        |          |
| 15. | candidana (Fabricius, 1794)           |                       |                     |                     |                   |            | +              |           |           |                   |                   |         |                       |         |        |          |
| 16. | debilis (Christoph, 1884)             |                       |                     |                     |                   |            | +              | +         |           |                   |                   |         |                       |         |        |          |
| 17. | gratissima (Staudinger, 1892)         |                       |                     |                     |                   |            |                |           |           |                   |                   | +       |                       |         |        |          |
| 18. | minutata (Fabricius, 1794)            |                       | +                   |                     |                   | +          |                |           |           |                   |                   |         |                       |         |        |          |
| 19. | ostrina (Hübner, 1790)                |                       | +                   |                     |                   |            | +              |           |           |                   |                   | +       |                       |         |        |          |
| 20. | pallidula (Herrich-Schaffer, 1856)    |                       | +                   |                     |                   |            |                |           |           |                   |                   |         |                       |         |        |          |
| 21. | pannonica (Freyer, 1840)              |                       | +                   | +                   |                   | +          | +              | +         |           |                   |                   | +       |                       | +       |        |          |
| 22. | parallela (Freyer, 1842)              |                       | +                   |                     |                   |            | +              |           |           |                   |                   |         |                       |         |        |          |



|     |  | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|-----|--|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| 23. | parva (Hübner, 1808)                     |    | +  |    |    | +  | +  | +  |    |    |     |     |     |     |     |     |
| 24. | polygramma (Duponchel, 1842)             |    |    | +  |    |    | +  |    | +  |    |     |     |     |     |     |     |
| 25. | pudorina (Staudinger, 1889)              |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
| 26. | purpurina (Denis & Schiffermüller, 1775) | +  | +  |    |    |    | +  | +  | +  |    |     | +   |     | +   | +   |     |
| 27. | pusilla (Eversmann, 1834)                |    | +  |    |    |    |    |    | +  |    |     |     |     |     |     |     |
| 28. | rosina (Hübner, 1803)                    |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
|     | <b>Odice</b> Hübner, 1823                |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 29. | arcuinna (Hübner, 1790)                  |    |    |    |    |    | +  | +  |    |    |     |     |     | +   | +   |     |
|     | <b>HERMINIINAE</b>                       |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|     | <b>Paracolax</b> Hübner, 1825            |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 30. | tristalis (Fabricius, 1794)              |    | +  |    |    |    | +  | +  |    | +  |     | +   |     |     |     |     |
|     | <b>Zanclognatha</b> Lederer, 1857        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 31. | lunalis (Scopoli, 1763)                  |    |    |    |    |    | +  |    |    | +  |     |     |     |     |     |     |
|     | <b>Pechipogo</b> Hübner, 1825            |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 32. | plumigeralis (Hübner, 1825)              |    |    |    |    |    |    | +  |    |    |     |     | +   |     |     |     |
|     | <b>Macrochilo</b> Hübner, 1825           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 33. | cribrumalis (Hübner, 1793)               |    | +  | +  |    |    |    | +  |    |    |     |     |     |     | +   |     |
|     | <b>Herminia</b> Latreille, 1802          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 34. | tarsicrinalis (Knoch, 1782)              |    |    |    |    |    |    |    | +  |    |     | +   |     |     |     |     |
|     | <b>HYPENINAE</b>                         |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|     | <b>Zekelita</b> Walker, 1863             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 35. | ravalis (Herrich-Schaffer, 1851)         |    | +  | +  |    |    | +  | +  | +  | +  |     | +   |     | +   |     |     |
| 36. | ravulalis (Staudinger, 1879)             |    | +  |    |    |    |    | +  |    |    | +   |     |     |     |     |     |
| 37. | tristalis (Lederer, 1853)                |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
|     | <b>Hypena</b> Schrank, 1802              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 38. | opulenta (Christoph, 1877)               |    |    |    |    | +  | +  | +  |    |    |     |     |     |     |     |     |
| 39. | rostralis (Linnaeus, 1758)               |    | +  |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|     | <b>PHYTOMETRINAE</b>                     |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|     | <b>Phytometra</b> Haworth, 1809          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 40. | viridaria (Clerck, 1759)                 |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
|     | <b>Colobochyla</b> Hübner, 1825          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 41. | salicalis (Denis & Schiffermüller, 1775) |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|     | <b>Laspeyria</b> Germar, 1810            |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 42. | flexula (Denis & Schiffermüller, 1775)   |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|     | <b>CALPINAE</b>                          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|     | <b>Calyptra</b> Ochsenheimer, 1816       |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 43. | thalictri (Borkhausen, 1790)             |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|     | <b>Scoliopteryx</b> Germar, 1810         |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 44. | libatrix (Linnaeus, 1758)                |    | +  |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|     | <b>CATOCALINAE</b>                       |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|     | <b>Anumeta</b> Walker, 1858              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 45. | atrosignata (Walker, 1858)               |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 46. | cestis (Menetries, 1849)                 |    | +  |    |    |    |    |    |    |    |     |     |     |     | +   |     |
| 47. | fractistrigata (Alpheraky, 1882)         |    | +  |    |    |    |    |    |    |    |     |     |     |     | +   |     |
| 48. | henkei (Staudinger, 1877)                |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 49. | ****spilota (Erschoff, 1874)             |    | +  |    |    |    |    |    |    |    |     |     |     |     | +   |     |
|     | <b>Lygephila</b> Billberg, 1820          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 50. | craccae (Denis & Schiffermüller, 1775)   |    |    |    |    |    | +  |    | +  |    |     | +   | +   |     |     |     |



|     |   | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|-----|---|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
|     | <b>Autophila</b> Hübner, 1823             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 51. | asiatica (Staudinger, 1888)               |    | +  |    |    |    | +  |    |    |    |     |     |     |     | +   |     |
| 52. | libanotica (Staudinger, 1901)             |    |    |    |    | +  |    |    |    |    |     |     |     |     |     |     |
| 53. | limbata (Staudinger, 1871)                |    |    |    |    | +  | +  |    |    |    |     |     |     |     |     |     |
|     | <b>Apopestes</b> Hübner, 1823             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 54. | noe (L.Ronkay, 1990)                      |    |    |    |    |    |    |    | +  |    |     |     |     |     |     |     |
|     | <b>Acantholipes</b> Lederer, 1857         |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 55. | regularis (Hübner, 1813)                  |    | +  | +  |    |    | +  |    | +  |    |     |     |     |     |     |     |
|     | <b>Arytrura</b> John, 1912                |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 56. | musculus (Menetries, 1859)                |    |    |    |    |    |    |    |    |    | +   |     |     |     |     |     |
|     | <b>Drasteria</b> Hübner, 1818             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 57. | cailino (Lefebvre, 1827)                  |    |    | +  |    |    |    |    |    |    |     |     |     |     |     |     |
| 58. | caucasica (Kolenati, 1846)                |    | +  | +  |    |    | +  |    |    |    |     |     | +   | +   | +   |     |
| 59. | flexuosa (Menetries, 1848)                |    | +  |    |    |    | +  |    |    |    |     |     |     | +   | +   |     |
| 60. | herzi (Alpheraky, 1892)                   |    |    |    |    |    | +  |    |    |    |     | +   |     |     |     |     |
| 61. | picta (Christoph, 1877)                   |    | +  |    |    |    | +  |    |    |    |     |     |     | +   | +   |     |
| 62. | saisani (Staudinger, 1882)                |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
| 63. | sesquistria (Eversmann, 1851)             |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 64. | tenera (Staudinger, 1877)                 |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|     | <b>Callistege</b> Hübner, 1823            |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 65. | fortalitium (Tauscher, 1809)              |    | +  | +  | +  |    | +  |    |    |    |     |     |     |     |     |     |
| 66. | mi (Clerck, 1759)                         |    | +  |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|     | <b>Gonospileia</b> Hübner, 1823           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 67. | munita (Hübner, 1813)                     |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 68. | triquetra (Denis & Schiffermüller, 1775)  |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|     | <b>Euclidia</b> Ochsenheimer, 1816        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 69. | glyphica (Linnaeus, 1758)                 |    | +  | +  |    |    | +  |    |    |    |     |     |     |     |     |     |
|     | <b>Catephia</b> Ochsenheimer, 1816        |    |    |    |    |    |    |    |    |    |     |     | +   |     |     |     |
| 70. | alchymista (Denis & Schiffermüller, 1775) |    | +  |    |    |    |    |    |    |    |     | +   |     |     |     |     |
|     | <b>Pericyma</b> Herrich-Schaffer, 1851    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 71. | albidentaria (Freyer, 1842)               |    | +  | +  |    | +  | +  | +  |    |    |     |     |     | +   | +   |     |
|     | <b>Minucia</b> Moore, 1885                |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 72. | lunaris (Denis & Schiffermüller, 1775)    | +  |    |    |    |    |    | +  |    |    |     |     | +   | +   | +   |     |
|     | <b>Clytie</b> Hübner, 1823                |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 73. | delunaris (Staudinger, 1889)              |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 74. | distincta (A. Bang-Haas, 1907)            |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 75. | gracilis (A. Bang-Haas, 1907)             | +  | +  |    | +  |    | +  | +  | +  |    | +   |     | +   | +   | +   |     |
| 76. | syriaca (Bugnion, 1837)                   |    |    |    |    |    | +  |    | +  |    |     |     |     | +   |     |     |
| 77. | terrulenta (Christoph, 1893)              |    |    |    |    |    | +  |    |    |    |     |     |     |     | +   |     |
|     | <b>Dysgonia</b> Hübner, 1823              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 78. | algira (Linnaeus, 1767)                   |    | +  | +  |    |    | +  | +  | +  |    | +   |     | +   |     |     |     |
| 79. | rogenhoferi (Bohatsch, 1880)              |    | +  | +  |    |    |    | +  |    |    |     | +   | +   |     | +   |     |
|     | <b>Grammodes</b> Guenee, 1852             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 80. | bifasciata (Petagna, 1787)                |    |    | +  |    |    |    |    |    |    |     |     |     |     | +   |     |
| 81. | stolida (Fabricius, 1775)                 | +  | +  | +  |    | +  | +  | +  | +  |    |     |     |     | +   | +   |     |
|     | <b>Catocala</b> Schrank, 1802             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 82. | conversa (Esper, 1783)                    |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
| 83. | deducta (Eversmann, 1843)                 |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 84. | elocata (Esper, 1787)                     |    | +  |    |    |    | +  | +  | +  |    |     |     |     |     |     |     |



|      |  | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|--|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| 85.  | hymenaea (Denis & Schiffermüller, 1775)    |    |    | +  |    |    |    | +  |    |    |     |     |     |     |     |     |
| 86.  | lupina (Herrich-Schaffer, 1851)            |    |    |    |    |    |    |    |    |    |     |     | +   |     |     |     |
| 87.  | neonympha (Esper, 1805)                    |    | +  | +  |    |    | +  | +  |    |    |     |     | +   |     |     |     |
| 88.  | nupta (Linnaeus, 1767)                     |    | +  |    |    |    |    |    |    |    |     |     | +   |     |     |     |
| 89.  | promissa (Denis & Schiffermüller, 1775)    |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
| 90.  | puerpera (Giorna, 1791)                    | +  | +  |    |    |    | +  |    |    |    |     |     |     |     |     |     |
| 91.  | sponsa (Linnaeus, 1767)                    |    | +  |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>EUTELIINAE</b>                          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Eutelia</b> Hübner, 1823                |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 92.  | adulatrix (Hübner, 1813)                   |    |    |    |    |    | +  |    |    |    |     | +   |     |     |     |     |
|      | <b>PLUSIINAE</b>                           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Abrostola</b> Ochsenheimer, 1816        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 93.  | asclepiadis (Denis & Schiffermüller, 1775) |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 94.  | triphasia (Linnaeus, 1758)                 |    |    |    |    |    |    | +  |    |    |     |     | +   |     |     |     |
|      | <b>Trichoplusia</b> McDunnough, 1944       |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 95.  | ni (Hübner, 1803)                          |    | +  | +  |    |    |    | +  |    |    |     | +   |     | +   | +   |     |
|      | <b>Chrysodeixis</b> Hübner, 1821           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 96.  | chalcites (Esper, 1789)                    |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Macdunnoughia</b> Kostrowicki, 1961     |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 97.  | confusa (Stephens, 1850)                   | +  | +  | +  |    | +  | +  | +  |    |    |     |     | +   | +   | +   |     |
|      | <b>Diachrysia</b> Hübner, 1821             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 98.  | chrysis (Linnaeus, 1758)                   |    | +  |    |    |    | +  |    |    |    |     |     | +   |     |     |     |
| 99.  | stenochrysis (Warren, 1913)                |    |    | +  |    |    |    |    |    |    |     |     |     |     |     |     |
| 100. | zosimi (Hübner, 1822)                      |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Euchalcia</b> Hübner, 1821              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 101. | siderifera (Eversmann, 1846)               | +  |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 102. | consona (Fabricius, 1787)                  |    | +  | +  |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Plusidia</b> Butler, 1879               |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 103. | cheiranthi (Tauscher, 1809)                |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Autographa</b> Hübner, 1821             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 104. | gamma (Linnaeus, 1758)                     | +  | +  | +  |    |    |    | +  |    | +  |     |     | +   | +   | +   | +   |
|      | <b>Cornutiplusia</b> Kostrowicki, 1961     |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 105. | circumflexa (Linnaeus, 1767)               |    |    |    |    |    |    |    |    |    |     |     |     |     | +   |     |
|      | <b>Plusia</b> Ochsenheimer, 1816           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 106. | festucae (Linnaeus, 1758)                  | +  | +  | +  |    |    | +  |    |    |    |     |     |     |     | +   |     |
|      | <b>EUSTROTINAE</b>                         |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Philophila</b> Oberthur, 1852           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 107. | obliterate (Rambur, 1833)                  |    |    | +  |    |    | +  |    |    |    |     |     |     | +   |     |     |
|      | <b>Protodeltote</b> Ueda                   |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 108. | pygarga (Hufnagel, 1766)                   |    |    | +  |    |    | +  |    |    |    |     | +   |     |     |     |     |
|      | <b>Deltote</b> Richenbach, 1817            |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 109. | bankiana (Fabricius, 1775)                 |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
| 110. | delicatula (Christoph, 1882)               |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
| 111. | uncula (Clerck, 1759)                      |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Acontia</b> Ochsenheimer, 1816          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 112. | lucida (Hufnagel, 1766)                    | +  | +  | +  |    |    | +  | +  |    | +  |     |     |     |     | +   |     |
| 113. | titania (Esper, 1798)                      |    |    | +  |    |    |    | +  |    |    |     | +   |     |     |     |     |
| 114. | trabealis (Scopoli, 1763)                  |    | +  | +  |    |    | +  | +  |    | +  |     |     | +   |     | +   | +   |



|      |  | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|--|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
|      | <b>Armada</b> Staudinger, 1884             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 115. | ****panaceorum (Menetries, 1849)           |    |    |    |    |    |    | +  |    |    |     |     |     |     | +   |     |
|      | <b>Aedia</b> Hübner, 1758                  |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 116. | funesta (Esper, 1786)                      |    | +  | +  |    |    |    | +  |    |    |     | +   |     |     |     |     |
| 117. | leucomelas (Linnaeus, 1758)                |    |    | +  |    |    |    |    |    |    |     |     | +   |     |     |     |
|      | <b>PANTHEHEINAE</b>                        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Colocasia</b> Ochsenheimer, 1816        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 118. | coryli (Linnaeus, 1758)                    |    |    | +  |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>DILOBINAE</b>                           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Diloba</b> Boisduval, 1840              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 119. | caeruleocephala (Linnaeus, 1758)           |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>ACRONICTINAE</b>                        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Acronicta</b> Ochsenheimer, 1816        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 120. | aceris (Linnaeus, 1758)                    |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 121. | cuspid (Hübner, 1813)                      |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 122. | megacephala (Denis & Schiffermüller, 1775) |    | +  | +  |    |    | +  | +  | +  |    |     | +   |     |     | +   |     |
| 123. | psi (Linnaeus, 1758)                       |    | +  |    |    |    |    | +  |    | +  |     |     | +   |     |     |     |
| 124. | rumicis (Linnaeus, 1758)                   |    | +  | +  |    |    | +  | +  |    | +  |     | +   | +   |     |     |     |
| 125. | tridens (Denis & Schiffermüller, 1775)     | +  | +  |    |    | +  | +  |    |    |    |     | +   |     |     |     |     |
|      | <b>Simyra</b> Ochsenheimer, 1816           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 126. | albovenosa (Goeze, 1781)                   |    | +  |    |    |    |    | +  |    |    |     | +   |     |     |     | +   |
| 127. | dentinosa (Freyer, 1838)                   |    | +  |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
| 128. | nervosa (Denis & Schiffermüller, 1775)     |    |    |    |    |    |    |    |    |    |     | +   |     |     |     |     |
|      | <b>Eogena</b> Guenee, 1852                 |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 129. | contaminei (Eversmarm, 1847)               |    | +  | +  |    |    |    | +  |    | +  |     | +   |     | +   | +   | +   |
|      | <b>Craniophora</b> Snellen, 1867           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 130. | pontica (Staudinger, 1879)                 |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>METOPONIINAE</b>                        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Aegle</b> Hübner, 1823                  |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 131. | kaekeritziana (Hübner, 1799)               |    | +  |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 132. | rebeli (Schawerda, 1923)                   |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Megalodes</b> Guenee, 1852              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 133. | eximia (Freyer, 1845)                      |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
|      | <b>Haemerosia</b> Boisduval, 1840          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 134. | vassilini (A. Bang-Haas, 1912)             |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
|      | <b>Mycteroplus</b> Herrich-Schaffer, 1850  |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 135. | puniceago (Boisduval, 1840)                | +  | +  | +  |    |    | +  | +  |    |    |     | +   |     | +   |     |     |
|      | <b>Metopoplus</b> Alpheraky, 1893          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 136. | excelsa (Christoph, 1885)                  |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
|      | <b>Tyta</b> Billberg, 1820                 |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 137. | luctuosa (Denis & Schiffermüller, 1775)    | +  | +  | +  |    |    | +  |    |    | +  | +   |     | +   | +   | +   |     |
|      | <b>CUCULLIINAE</b>                         |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Cucullia</b> Schrank, 1802              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 138. | argentina (Fabricius, 1787)                | +  | +  |    |    |    | +  | +  |    |    |     |     |     | +   |     |     |
| 139. | artemisiae (Hufnagel, 1766)                |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
| 140. | asteris (Denis & Schiffermüller, 1775)     |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |



|      |  | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|--|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| 141. | balsamitae (Boisduval, 1840)               |    | +  |    |    |    |    |    |    |    |     |     |     |     | +   |     |
| 142. | biornata (Fischer von Waldheim, 1840)      | +  | +  | +  |    |    |    | +  |    |    |     |     |     |     |     |     |
| 143. | cineracea (Freyer, 1841)                   |    |    |    |    |    |    |    |    |    | +   |     |     |     |     |     |
| 144. | chamomillae (Denis & Schiffermüller, 1775) |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 145. | lactea (Fabricius, 1787)                   |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
| 146. | lychnitis (Rambur, 1833)                   |    |    |    |    |    |    |    |    |    | +   |     |     |     |     |     |
| 147. | naruenensis (Staudinger, 1879)             |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 148. | scopariae (Dorfmeister, 1853)              |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
| 149. | tanacetii (Denis & Schiffermüller, 1775)   |    |    |    |    |    |    | +  |    |    | +   |     |     | +   |     |     |
| 150. | thapsiphaga (Treitschke, 1826)             |    |    | +  |    |    | +  |    |    |    |     | +   |     |     |     |     |
| 151. | umbratica (Linnaeus, 1758)                 |    | +  |    |    |    | +  |    |    |    |     |     |     |     |     |     |
| 152. | verbasci (Linnaeus, 1758)                  |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
| 153. | xeranthemi (Boisduval, 1840)               |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
| 154. | blattariae (Esper, 1796)                   |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>ONCOCNEMIDINAE</b>                      |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Calophasia</b> Stephens, 1829           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 155. | opalina (Esper, 1793)                      |    | +  |    |    |    | +  |    |    |    |     |     |     |     |     |     |
| 156. | lunula (Hufnagel, 1766)                    |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Behounekia</b> Hacker, 1990             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 157. | freyeri (Frivaldszky, 1835)                |    |    |    |    |    | +  | +  |    |    |     | +   |     |     |     |     |
|      | <b>Omphalophana</b> Hampson, 1906          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 158. | antirrhinii (Hübner, 1803)                 |    |    |    |    |    | +  |    |    |    |     | +   |     |     |     |     |
| 159. | durnalayana (Osthelder, 1933)              |    |    |    |    |    |    |    |    |    |     | +   |     |     |     |     |
|      | <b>Oncocnemis</b> Lederer, 1853            |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 160. | confusa (Freyer, 1842)                     |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
|      | <b>Epimecia</b> Guenee, 1839               |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 161. | ustula (Freyer, 1835)                      | +  |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
|      | <b>AMPHIPYRINAE</b>                        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Amphipyra</b> Ochsenheimer, 1816        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 162. | livida (Denis & Schiffermüller, 1775)      |    | +  |    |    |    |    |    |    |    | +   | +   |     |     |     |     |
| 163. | pyramidea (Linnaeus, 1758)                 | +  |    |    |    |    | +  | +  |    |    |     |     | +   |     |     |     |
| 164. | tetra (Fabricius, 1787)                    | +  | +  |    |    |    |    |    |    |    | +   |     |     |     |     |     |
| 165. | tragopoginis (Clerck, 1759)                |    |    |    |    |    | +  | +  |    | +  | +   | +   |     |     |     |     |
|      | <b>PSAPHIDINAE</b>                         |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Asteroscopus</b> Boisduval, 1828        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 166. | syriaca (Warren, 1910)                     |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Allophyes</b> Tarns, 1942               |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 167. | asiatica (Staudinger, 1892)                |    |    |    |    |    |    | +  |    |    |     |     | +   |     |     |     |
|      | <b>HELIOTHINAE</b>                         |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Aedophron</b> Lederer, 1857             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 168. | rhodites (Eversmann, 1851)                 |    | +  | +  |    |    |    | +  |    |    |     |     | +   |     |     |     |
|      | <b>Periphanes</b> Hübner, 1821             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 169. | delphinii (Linnaeus, 1758)                 | +  |    | +  |    |    |    | +  |    |    |     |     |     |     | +   |     |
| 170. | victorina (Sodoffsky, 1849)                |    |    |    |    |    |    |    |    |    |     | +   |     |     |     |     |
|      | <b>Pyrria</b> Hübner, 1821                 |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 171. | purpurina (Esper, 1804)                    |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 172. | umbra (Hufnagel, 1766)                     |    | +  | +  |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Schinia</b> Hübner, 1823                |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |



|      |   | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|---|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| 173. | cognata (Freyer, 1833)                    |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
|      | <b>Protoschinia</b> Hardwick, 1970        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 174. | scutosa (Denis & Schiffermüller, 1775)    |    |    | +  |    |    | +  | +  | +  | +  |     | +   |     | +   | +   | +   |
|      | <b>Heliothis</b> Ochsenheimer, 1816       |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 175. | adaucta (Butler, 1878)                    |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 176. | incarnata (Freyer, 1838)                  |    | +  |    |    |    | +  |    |    |    |     |     |     | +   | +   |     |
| 177. | nubigera (Herrich-Schaffer, 1851)         |    | +  |    |    |    |    | +  |    |    |     | +   |     | +   | +   |     |
| 178. | peltigera (Denis & Schiffermüller, 1775)  |    | +  | +  |    |    |    | +  | +  | +  |     |     |     | +   | +   |     |
| 179. | viriplaca (Hufnagel, 1766)                | +  | +  | +  |    |    | +  | +  | +  |    |     |     | +   |     |     |     |
|      | <b>Helicoverpa</b> Hardwick, 1965         |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 180. | armigera (Hübner, 1808)                   |    | +  | +  |    |    | +  | +  | +  |    |     |     | +   | +   | +   |     |
|      | <b>CONDICINAE</b>                         |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Hadjina</b> Staudinger, 1892           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 181. | lutosa (Staudinger, 1892)                 |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>ERIOPINAE</b>                          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Callopietria</b> Hübner, 1821          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 182. | juventina (Stoll, 1782)                   |    |    | +  |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>BRYOPHILINAE</b>                       |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Cryphia</b> Hübner, 1818               |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 183. | algae (Fabricius, 1775)                   |    | +  |    |    |    | +  | +  |    |    |     | +   |     |     |     |     |
| 184. | amasina (Draudt, 1931)                    |    |    |    |    | +  |    |    |    |    |     |     |     |     |     |     |
| 185. | fraudatricula (Hübner, 1803)              | +  | +  |    |    |    |    |    |    | +  |     | +   |     |     |     |     |
| 186. | muralis (Forster, 1771)                   |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
| 187. | raptricula (Denis & Schiffermüller, 1775) |    |    | +  |    |    | +  |    |    |    |     |     |     |     |     |     |
| 188. | recepticula (Hübner, 1803)                |    | +  |    |    | +  |    | +  |    |    |     | +   |     |     |     |     |
| 189. | rectilinea (Warren, 1909)                 |    |    |    |    | +  |    |    |    |    |     |     |     |     |     |     |
| 190. | seladona (Christoph, 1885)                |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
| 191. | uzahovi (Ronkay & Herczig, 1991)          |    |    |    |    |    |    |    |    |    |     |     |     | +   | +   | +   |
|      | <b>XYLENINAE</b>                          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Pseudeustrotia</b> Warren, 1913        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 192. | candidula (Denis & Schiffermüller, 1775)  |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Spodoptera</b> Guenee, 1852            |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 193. | exigua (Hübner, 1808)                     |    | +  | +  |    |    | +  | +  |    |    |     |     | +   |     | +   |     |
|      | <b>Elaphria</b> Hübner, 1821              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 194. | venustula (Hübner, 1790)                  |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
|      | <b>Caradrina</b> Ochsenheimer, 1816       |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 195. | albina (Eversmann, 1848)                  | +  | +  | +  |    |    | +  | +  |    |    |     | +   |     | +   | +   |     |
| 196. | armeniaca (Boursin, 1936)                 |    |    |    |    | +  |    |    |    |    |     |     |     |     |     |     |
| 197. | aspersa (Rambur, 1834)                    |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
| 198. | clavipalpis (Scopoli, 1763)               |    | +  | +  |    |    | +  | +  |    | +  |     | +   |     |     |     |     |
| 199. | expansa (Alpheraky, 1887)                 |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 200. | kadenii (Freyer, 1836)                    |    | +  | +  |    |    | +  | +  |    |    |     |     | +   |     | +   |     |
| 201. | morpheus (Hufnagel, 1766)                 | +  |    | +  |    |    | +  | +  | +  |    |     | +   | +   |     | +   |     |
| 202. | pertinax (Staudinger, 1879)               |    |    |    |    |    | +  |    |    |    |     | +   |     |     |     |     |
| 203. | terrea (Freyer, 1840)                     |    |    |    |    | +  |    | +  |    |    |     |     |     |     |     |     |
| 204. | vicina (Staudinger, 1870)                 |    |    |    |    |    | +  |    |    |    |     | +   |     |     |     |     |
|      | <b>Hoplodrina</b> Boursin, 1937           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |





|      |  | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|--|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| 205. | ambigua (Denis & Schiffermüller, 1775)             | +  | +  | +  |    |    | +  | +  |    | +  |     | +   | +   | +   | +   |     |
| 206. | blanda (Denis & Schiffermüller, 1775)              |    |    | +  |    |    |    |    |    | +  |     |     |     |     |     |     |
| 207. | octogenaria (Goeze, 1781)                          |    |    | +  |    |    |    | +  |    | +  |     |     | +   |     |     |     |
| 208. | superstes (Ochsenheimer, 1816)                     |    |    |    |    |    |    | +  |    | +  |     |     |     |     |     |     |
|      | <b>Stenodrina</b> Boursin, 1937                    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 209. | aeschista (Boursin, 1937)                          |    |    |    |    |    |    |    |    |    |     | +   |     |     |     |     |
|      | <b>Chilodes</b> Herrich-Schaffer, 1849             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 210. | maritima (Tauscher, 1806)                          | +  |    | +  |    |    |    | +  |    |    |     |     |     | +   | +   | +   |
|      | <b>Scythocentropus</b> Speiser, 1902               |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 211. | misella (Pungeler, 1907)                           |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
| 212. | scripturosa (Eversmann, 1854)                      |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Charanyca</b> Billberg, 1820                    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 213. | trigrammica (Hufnagel, 1766)                       |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
|      | <b>Athetis</b> Hübner, 1821                        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 214. | furvula (Hübner, 1808)                             |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
| 215. | gluteosa (Treitschke, 1835)                        |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
| 216. | hospes (Freyer, 1831)                              |    |    |    |    |    |    |    |    |    |     | +   | +   |     |     |     |
| 217. | lepigone (Moschler, 1860)                          | +  | +  |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
|      | <b>Enargia</b> Hübner, 1821                        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 218. | abluta (Hübner, 1808)                              |    |    |    |    |    | +  | +  |    |    | +   | +   |     |     |     |     |
|      | <b>Cosmia</b> Ochsenheimer, 1816                   |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 219. | affinis (Linnaeus, 1767)                           |    |    | +  |    |    |    |    |    |    | +   | +   | +   |     |     |     |
| 220. | diffinis (Linnaeus, 1767)                          |    |    | +  |    |    |    | +  |    | +  |     | +   |     |     |     |     |
| 221. | pyralina (Denis & Schiffermüller, 1775)            |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
| 222. | trapezina (Linnaeus, 1758)                         |    | +  | +  |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Atethmia</b> Hybner, 1821                       |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 223. | ambusta (Denis & Schiffermüller, 1775)             |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 224. | centrago (Haworth, 1809)                           | +  |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Dicycla</b> Guenee, 1758                        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 225. | oo (Linnaeus, 1758)                                |    |    |    |    |    |    |    |    |    |     | +   |     |     |     |     |
|      | <b>Mesogona</b> Boisduval, 1840                    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 226. | acetosellae (Denis & Schiffermüller, 1775)         |    | +  |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 227. | oxalina (Hübner, 1803)                             |    | +  |    |    |    |    |    |    |    |     |     | +   |     |     |     |
|      | <b>Dypterygia</b> Stephens, 1829                   |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 228. | scabriuscula (Linnaeus, 1758)                      | +  |    | +  |    |    | +  | +  |    |    |     |     |     |     |     |     |
|      | <b>Trachea</b> Ochsenheimer, 1816                  |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 229. | atriplicis (Linnaeus, 1758)                        |    | +  | +  |    |    |    | +  |    |    |     |     | +   |     |     |     |
|      | <b>Mormo</b> Ochsenheimer, 1816                    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 230. | maura (Linnaeus, 1758)                             |    | +  |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Polyphaenis</b> Boisduval, 1840                 |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 231. | sericata (Esper, 1787)                             |    |    |    |    |    |    | +  |    | +  |     |     |     |     |     |     |
|      | <b>Thalpophila</b> Hübner, 1766                    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 232. | matura (Hufnager, 1766)                            |    |    |    |    |    |    | +  |    |    |     | +   | +   |     |     |     |
|      | <b>Chloantha</b> Boisduval, Rambur & Graslin, 1836 |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 233. | hyperici (Denis & Schiffermüller, 1775)            |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |



|      |  | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|--|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
|      | <b>Phlogophora</b> Treischke, 1825             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 234. | meticulosa (Linnaeus, 1758)                    |    | +  |    |    |    | +  | +  |    |    |     |     | +   |     |     |     |
|      | <b>Auchmis</b> Hübner, 1821                    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 235. | detersa (Esper, 1787)                          |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
|      | <b>Oxytripita</b> Staudinger, 1871             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 236. | orbiculosa (Esper, 1799)                       |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Calamia</b> Hübner, 1821                    |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 237. | tridens (Hufnagel, 1766)                       |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Gortyna</b> Ochsenheimer, 1816              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 238. | hethitica (Hacker, Kuhna & Gross, 1986)        |    |    |    |    | +  |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Cervyna</b> L.Ronkay, Zilli & Fibiger, 2005 |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 239. | cervago (Eversmann, 1844)                      |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
|      | <b>Hydraecia</b> Guenee, 1841                  |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 240. | osseola (Eversmann, 1844)                      |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
| 241. | petasitis (Doubleday, 1847)                    |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
|      | <b>Amphipoea</b> Billberg, 1820                |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 242. | oculea (Linnaeus, 1761)                        |    |    |    |    |    |    | +  |    | +  |     |     |     |     |     |     |
|      | <b>Luperina</b> Boisduval, 1829                |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 243. | diversa (Staudinger, 1892)                     |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
| 244. | dumerillii (Duponchel, 1826)                   |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
| 245. | rjabovi (Kljutschko, 1967)                     |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 246. | taurica (Kljutschko, 1967)                     |    |    |    |    | +  |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Pseudluperina</b> Beck, 1999                |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 247. | pozzii (Curo, 1883)                            |    |    |    |    | +  |    | +  |    |    |     | +   |     |     |     |     |
|      | <b>Fabula</b> Fibiger, Zilli & L.Ronkay, 2005  |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 248. | zollikoferi (Freyer, 1836)                     |    |    |    |    |    |    | +  |    |    |     |     |     |     |     | +   |
|      | <b>Rhizedra</b> Warren, 1911                   |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 249. | lutosa (Hübner, 1803)                          |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
|      | <b>Sedina</b> Urbahn, 1933                     |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 250. | buettneri (Hering, 1858)                       |    | +  |    |    | +  |    |    |    |    |     |     |     |     |     |     |
|      | <b>Nonagria</b> Ochsenheimer, 1816             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 251. | typhae (Thunberg, 1784)                        |    | +  | +  |    |    |    | +  |    |    |     | +   |     |     |     |     |
|      | <b>Arenostola</b> Hampson, 1910                |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 252. | unicolor (Hübner, 1803)                        |    | +  | +  |    |    |    | +  |    |    |     |     |     | +   | +   | +   |
|      | <b>Lenisa</b> Fibiger, Zilli & L.Ronkay, 2005  |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 253. | geminipuncta (Haworth, 1809)                   |    | +  | +  |    |    | +  | +  |    |    |     | +   |     |     | +   | +   |
|      | <b>Archanara</b> Walker, 1866                  |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 254. | dissoluta (Treitschke, 1825)                   |    |    |    | +  |    |    |    |    |    |     |     |     |     | +   |     |
| 255. | neurica (Hübner, 1808)                         |    |    |    |    |    |    | +  |    |    |     | +   |     | +   | +   | +   |
|      | <b>Oria</b> Hübner, 1821                       |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 256. | musculosa (Hübner, 1808)                       |    | +  |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
|      | <b>Denticucullus</b>                           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 257. | pygmina (Haworth, 1809)                        |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
|      | <b>Photedes</b> Lederer, 1857                  |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 258. | extrema (Hübner, 1809)                         |    |    |    |    |    |    |    |    |    |     |     |     | +   |     |     |
| 259. | fluxa (Hübner, 1809)                           |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Protarchanara</b> Beck, 1999                |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 260. | brevilinea (Fenn, 1864)                        | +  |    |    |    |    |    |    |    |    |     |     |     | +   | +   | +   |



|      |  | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|--|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
|      | <b>Globia</b> Fibiger, Zilli, L.Ronkay & Goldstein, 2005 |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 261. | sparganii (Esper, 1790)                                  |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
|      | <b>Apamea</b> Ochsenheimer, 1816                         |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 262. | anceps (Denis & Schiffermüller, 1775)                    | +  | +  |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
| 263. | leucodon (Eversmann, 1837)                               |    | +  |    |    |    |    |    |    |    |     | +   |     |     |     |     |
| 264. | monoglypha (Hufnagel, 1766)                              |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
| 265. | sordens (Hufnagel, 1766)                                 |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 266. | unanimis (Hübner, 1813)                                  |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Laterologia</b>                                       |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 267. | ophiogramma (Esper, 1794)                                |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Abromias</b> Billberg, 1820                           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 268. | oblonga (Haworth, 1809)                                  |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Resapamea</b> (Graeser, 1889)                         |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 269. | hedeni (Varga, 1979)                                     |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Mesapamea</b> Heinicke, 1959                          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 270. | secalis (Linnaeus, 1758)                                 |    |    |    |    |    | +  | +  |    |    |     | +   |     |     |     |     |
|      | <b>Litoligia</b> Beck, 1999                              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 271. | literosa (Haworth, 1809)                                 |    |    |    |    |    |    |    |    |    |     | +   |     |     |     |     |
|      | <b>Mesologia</b> Boursin, 1965                           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 272. | furuncula (Denis & Schiffermüller, 1775)                 |    |    |    |    |    | +  | +  |    |    |     | +   |     |     |     |     |
|      | <b>Oligia</b> Hübner, 1821                               |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 273. | latruncula (Denis & Schiffermüller, 1775)                |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
| 274. | pseudodubia (Rezbanyai-Reser, 1997)                      |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
| 275. | strigilis (Linnaeus, 1758)                               |    |    |    |    |    |    |    |    |    |     |     | +   |     |     |     |
|      | <b>Sesamia</b> Guenee, 1852                              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 276. | cretica (Lederer, 1857)                                  |    |    |    |    |    |    |    |    |    |     | +   |     |     |     |     |
|      | <b>Episema</b> Ochsenheimer, 1816                        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 277. | glaucina (Esper, 1789)                                   |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
| 278. | lederi (Christoph, 1885)                                 |    |    |    |    |    | +  | +  |    |    |     | +   |     |     |     |     |
|      | <b>Cleoceris</b> Boisduval, 1836                         |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 279. | scoriacea (Esper, 1789)                                  |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
|      | <b>Leucochlaena</b> Hampson, 1906                        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 280. | muscosa (Staudinger, 1891)                               |    | +  |    |    | +  |    | +  |    |    |     | +   |     |     |     |     |
|      | <b>Ulochlaena</b> Lederer, 1857                          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 281. | hirta (Hübner, 1813)                                     |    | +  |    |    |    | +  | +  |    |    |     |     | +   |     |     |     |
|      | <b>Parastichtis</b> Hübner, 1821                         |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 282. | suspecta (Hübner, 1817)                                  |    |    | +  |    |    | +  | +  |    |    |     | +   | +   |     |     |     |
|      | <b>Apterogenum</b> Berio, 2002                           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 283. | ypsillon (Denis & Schiffermüller, 1775)                  |    | +  | +  |    |    |    | +  |    |    |     |     |     |     | +   |     |
|      | <b>Cirrhia</b> Hübner, 1821                              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 284. | fulvago (Clerck, 1759)                                   |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 285. | gilvago (Denis & Schiffermüller, 1775)                   |    | +  |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
| 286. | icteritia (Hufnagel, 1766)                               |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 287. | ocellaris (Borkhausen, 1792)                             |    | +  |    |    | +  |    |    |    |    |     |     |     |     |     |     |
|      | <b>Agrochola</b> Hübner, 1821                            |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |



|      |   | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|---|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| 288. | circellaris (Hufnagel, 1766)                  |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
| 289. | helvola (Linnaeus, 1758)                      |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 290. | humilis (Denis & Schiffermüller, 1775)        |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 291. | litura (Linnaeus, 1758)                       |    | +  |    |    |    | +  | +  |    |    |     |     | +   |     |     |     |
| 292. | lychnitis (Denis & Schiffermüller, 1775)      |    |    |    |    |    |    |    |    |    |     | +   |     |     |     |     |
| 293. | macilenta (Hübner, 1809)                      |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
| 294. | nitida (Denis & Schiffermüller, 1775)         |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Conistra</b> Hübner, 1821                  |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 295. | erythrocephala (Denis & Schiffermüller, 1775) |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 296. | rubiginea (Denis & Schiffermüller, 1775)      |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 297. | rubiginosa (Scopoli, 1763)                    |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
| 298. | vaccinii (Linnaeus, 1761)                     |    |    |    |    |    |    | +  |    |    |     |     | +   |     |     |     |
| 299. | veronicae (Hübner, 1813)                      |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Jodia</b> Hübner, 1818                     |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 300. | croceago (Denis & Schiffermüller, 1775)       |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Lithophane</b> Hübner, 1821                |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 301. | ornitopus (Hufnagel, 1766)                    |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
|      | <b>Xylena</b> Ochsenheimer, 1816              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 302. | exsoleta (Linnaeus, 1758)                     |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 303. | lunifera (Warren, 1910)                       |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 304. | vetusta (Hübner, 1813)                        |    |    |    | +  |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Eupsilia</b> Hübner, 1821                  |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 305. | transversa (Hufnagel, 1766)                   |    | +  |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Dryobotodes</b> Warren, 1911               |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 306. | eremita (Fabricius, 1775)                     |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 307. | monochroma (Esper, 1790)                      |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Pseudohadena</b> Alpheraky, 1889           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 308. | commoda (Staudinger, 1889)                    |    |    |    |    | +  |    |    |    |    |     |     |     |     |     |     |
| 309. | immunda (Eversmann, 1842)                     |    |    |    |    |    |    |    |    |    |     |     |     |     | +   | +   |
| 310. | stenoptera (Boursin, 1970)                    |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Ammoconia</b> Lederer, 1857                |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 311. | caecimacula (Denis & Schiffermüller, 1775)    |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 312. | senex (Geyer, 1828)                           |    |    |    |    |    | +  | +  |    |    |     |     | +   |     |     |     |
|      | <b>Aporophyla</b> Guenee, 1841                |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 313. | lutulenta (Denis & Schiffermüller, 1775)      |    |    |    |    |    |    | +  |    |    |     | +   | +   |     |     |     |
|      | <b>Polymixis</b> Hübner, 1820                 |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 314. | latesco (Fibiger, 2001)                       |    |    |    |    |    | +  | +  |    |    |     | +   |     |     |     |     |
| 315. | rufocincta (Geyer, 1828)                      |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
|      | <b>HADENINAE</b>                              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Orthosia</b> Ochsenheimer, 1816            |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 316. | cerasi (Fabricius, 1775)                      |    |    |    |    |    |    | +  |    |    | +   |     |     |     |     |     |
| 317. | gothica (Linnaeus, 1758)                      |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 318. | incerta (Hufnagel, 1766)                      |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 319. | miniosa (Denis & Schiffermüller, 1775)        |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |



|      |  | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|--|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
|      | <b>Perigrapha</b> Lederer, 1857          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 320. | i-cinctum (Denis & Schiffermüller, 1775) |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 321. | rorida (Frivaldszky, 1835)               |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Egira</b> Duponchel, 1845             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 322. | anatolica (M. Hering, 1933)              |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 323. | conspicillaris (Linnaeus, 1758)          |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Tholera</b> Hübner, 1821              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 324. | cespitis (Denis & Schiffermüller, 1775)  |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 325. | decimalis (Poda, 1761)                   |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 326. | hilaris (Staudinger, 1901)               |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Ceraptetyx</b> Curtis, 1833           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 327. | megala (Alpheraky, 1882)                 |    |    | +  |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Anarta</b> Ochsenheimer, 1816         |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 328. | dianthi (Tauscher, 1809)                 |    | +  |    |    |    |    | +  |    | +  |     |     | +   | +   | +   | +   |
| 329. | farnhami (Grote, 1873)                   |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 330. | mendax (Staudinger, 1879)                |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 331. | stigmata (Christoph, 1887)               |    | +  | +  |    |    | +  |    |    | +  |     | +   |     | +   | +   | +   |
| 332. | trifolii (Hufnagel, 1766)                |    | +  | +  |    |    | +  | +  | +  | +  |     | +   | +   | +   | +   | +   |
|      | <b>Cardepi</b> Hampson, 1905             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 333. | helix (Boursin, 1962)                    | +  |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
| 334. | hartigi (Parenzan, 1981)                 |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 335. | irrisoria (Erschoff, 1874)               |    | +  | +  |    |    | +  | +  |    | +  | +   |     |     | +   | +   |     |
|      | <b>Polia</b> Ochsenheimer, 1816          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 336. | bombycina (Hufnagel, 1766)               |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 337. | nebulosa (Hufnagel, 1766)                |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Lacanobia</b> Billberg, 1820          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 338. | blenna (Hübner, 1824)                    | +  | +  | +  |    |    |    | +  |    |    |     |     |     |     | +   |     |
| 339. | contigua (Denis & Schiffermüller, 1775)  |    |    | +  |    |    |    |    |    |    |     |     |     |     |     |     |
| 340. | oleracea (Linnaeus, 1758)                |    | +  | +  |    |    | +  | +  |    | +  |     |     | +   | +   | +   | +   |
| 341. | praedita (Hübner, 1813)                  |    | +  |    |    |    | +  | +  |    |    |     | +   | +   | +   |     |     |
| 342. | suasa (Denis & Schiffermüller, 1775)     | +  | +  | +  |    |    |    | +  |    |    |     |     |     |     |     |     |
| 343. | thalassina (Hufnagel, 1766)              |    |    |    |    |    |    |    |    |    |     |     | +   |     |     |     |
| 344. | w-latinum (Hufnagel, 1766)               | +  |    | +  |    |    | +  | +  |    | +  |     |     | +   |     |     |     |
|      | <b>Melanchra</b> Hübner, 1820            |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 345. | persicariae (Linnaeus, 1761)             |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Hada</b> Billberg, 1820               |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 346. | plebeja (Linnaeus, 1761)                 |    |    | +  |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Mamestra</b> Ochsenheimer, 1816       |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 347. | brassicae (Linnaeus, 1758)               |    | +  | +  |    |    |    | +  |    |    |     |     | +   |     |     |     |
|      | <b>Sideridis</b> Hübner, 1821            |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 348. | egena (Lederer, 1853)                    | +  | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 349. | dalmiae (Simonyi, 2010)                  |    |    |    |    |    |    |    |    |    |     |     | +   |     |     |     |
| 350. | rivularis (Fabricius, 1775)              |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 351. | turbida (Esper, 1790)                    |    | +  |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Saragossa</b> Staudinger, 1900        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 352. | demotica (Püngeler, 1902)                |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 353. | porosa (Eversmann, 1854)                 |    |    |    |    | +  |    |    |    |    |     |     |     |     |     |     |
| 354. | siccanorum (Staudinger, 1870)            |    | +  |    |    | +  |    |    |    |    |     | +   |     |     |     |     |



|      |   | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|---|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
|      | <b>Conisania</b> Hampson, 1905            |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 355. | arterialis (Draudt, 1936)                 |    | +  |    |    |    | +  | +  |    |    |     |     |     |     | +   |     |
| 356. | luteago (Denis & Schiffermttler, 1775)    |    | +  | +  |    |    | +  |    | +  | +  |     |     |     |     |     |     |
| 357. | poelli (Stertz, 1915)                     |    |    | +  |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Hecatera</b> Guenee, 1852              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 358. | accurata (Christoph, 1882)                |    |    |    |    |    | +  | +  |    |    |     | +   |     |     | +   |     |
| 359. | bicolorata (Hufnagel, 1766)               |    | +  |    |    |    | +  | +  |    | +  |     |     |     |     |     |     |
| 360. | cappa (Hübner, 1809)                      | +  |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 361. | dysodea (Denis & Schiffermüller, 1775)    | +  |    | +  |    |    |    | +  | +  |    |     |     | +   |     |     |     |
|      | <b>Enterpia</b> Guenee, 1850              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 362. | laudeti (Boisduval, 1840)                 |    | +  |    |    | +  | +  |    |    |    |     |     |     |     |     |     |
| 363. | picturata (Alpheraky, 1882)               |    | +  |    |    | +  |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Hadena</b> Schrank, 1802               |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 364. | albertii (Hacker, 1996)                   |    |    |    |    |    |    |    |    |    |     |     | +   |     |     |     |
| 365. | capsincola (Denis & Schiffermüller, 1775) |    | +  | +  |    |    | +  | +  | +  |    |     |     |     |     | +   |     |
| 366. | confusa (Hufnagel, 1766)                  |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 367. | filograna (Esper, 1788)                   |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
| 368. | irregularis (Hufnagel, 1766)              |    | +  | +  |    |    |    |    |    |    |     |     |     | +   | +   | +   |
| 369. | luteocincta (Rambur, 1834)                |    |    |    |    | +  | +  | +  |    |    |     | +   |     |     |     |     |
| 370. | magnolii (Boisduval, 1829)                |    |    | +  |    | +  |    | +  | +  | +  |     | +   |     |     |     |     |
| 371. | melanochroa (Staudinger, 1892)            |    |    |    |    | +  |    |    |    |    |     |     |     |     |     |     |
| 372. | perplexa (Denis & Schiffermüller, 1775)   |    |    |    |    |    |    | +  |    |    |     | +   | +   |     |     |     |
| 373. | persimilis (Hacker, 1996)                 |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
| 374. | pseudohyrcana (de Freina & Hacker, 1985)  |    |    | +  |    |    | +  | +  |    |    |     |     |     |     |     |     |
| 375. | silenes (Hübner, 1822)                    |    |    |    |    |    |    | +  |    | +  |     |     |     |     |     |     |
|      | <b>Mythimna</b> Ochsenheimer, 1816        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 376. | albipuncta (Denis & Schiffermüller, 1775) | +  | +  | +  |    |    | +  | +  |    | +  | +   |     |     | +   | +   |     |
| 377. | alopecuri (Boisduval, 1840)               |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
| 378. | andereggii (Boisduval, 1840)              |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 379. | congrua (Hübner, 1817)                    |    |    | +  |    |    |    | +  |    |    |     |     |     |     |     |     |
| 380. | conigera (Denis & Schiffermüller, 1775)   |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
| 381. | ferrago (Fabricius, 1787)                 |    |    | +  |    |    | +  | +  |    |    |     |     |     |     | +   |     |
| 382. | impura (Hübner, 1808)                     |    | +  |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 383. | l-album (Linnaeus, 1767)                  | +  | +  | +  |    |    | +  | +  | +  |    | +   | +   | +   |     |     |     |
| 384. | pallens (Linnaeus, 1758)                  | +  | +  | +  |    |    | +  | +  |    |    |     | +   |     | +   | +   | +   |
| 385. | pudorina (Denis & Schiffermüller, 1775)   |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 386. | straminea (Treitschke, 1825)              |    |    | +  |    |    |    | +  |    |    |     | +   |     | +   | +   |     |
| 387. | turca (Linnaeus, 1761)                    |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 388. | vitellina (Hübner, 1808)                  |    | +  | +  |    |    | +  | +  |    | +  |     | +   | +   | +   | +   | +   |
|      | <b>Leucania</b> Ochsenheimer, 1816        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 389. | comma (Linnaeus, 1761)                    |    |    |    |    |    |    |    |    |    |     |     | +   |     |     |     |
| 390. | herrichi (Herrich-Schaffer, 1849)         |    |    |    |    |    |    |    |    |    |     | +   |     |     |     |     |
| 391. | loreyi (Duponchel, 1827)                  |    |    |    |    |    |    |    |    |    |     | +   |     |     |     |     |
| 392. | obsoleta (Hübner, 1803)                   | +  | +  | +  |    |    | +  |    |    |    |     |     | +   | +   | +   | +   |



|      |   | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|---|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| 393. | punctosa (Treitschke, 1825)                 |    |    | +  |    |    | +  | +  |    |    | +   | +   | +   |     |     |     |
| 394. | zeae (Duponchel, 1827)                      |    |    | +  |    |    | +  | +  |    |    |     |     |     | +   | +   |     |
|      | <b>Senta</b> Stephens, 1834                 |    |    |    |    | +  |    |    |    |    |     |     |     |     |     |     |
| 395. | flammea (Curtis, 1828)                      |    | +  |    |    |    | +  |    |    |    |     |     |     |     |     |     |
|      | <b>Lasionycta</b> Aurivillius, 1892         |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 396. | impar (Staudinger, 1870)                    |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 397. | proxima (Hübner, 1809)                      |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>NOCTUINAE</b>                            |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Peridroma</b> Hübner, 1821               |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 398. | saucia (Hübner, 1808)                       |    |    |    |    | +  |    | +  |    |    | +   |     |     |     |     |     |
|      | <b>Actebia</b> Stephens, 1829               |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 399. | fugax (Treitschke, 1825)                    | +  |    |    |    |    | +  | +  |    |    |     |     |     | +   | +   |     |
| 400. | multifida (Lederer, 1870)                   |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 401. | praecox (Linnaeus, 1758)                    |    |    |    |    |    |    |    |    |    | +   | +   |     |     |     |     |
|      | <b>Dichagyris</b> Lederer, 1857             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 402. | achtalensis (I.Kozhantshikov, 1929)         |    |    |    |    | +  |    |    |    |    | +   |     |     |     |     |     |
| 403. | amoena (Staudinger, 1892)                   |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 404. | candelisequa (Denis & Schiffermüller, 1775) |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 405. | caucasica (Staudinger, 1877)                |    |    |    |    | +  | +  |    |    |    |     |     |     |     |     |     |
| 406. | eremicola (Standfuss, 1888)                 |    | +  |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 407. | eureteocles (Boursin, 1940)                 |    |    |    |    | +  | +  |    |    |    |     |     |     |     |     |     |
| 408. | flammatra (Denis & Schiffermüller, 1775)    | +  | +  | +  |    |    |    | +  |    |    |     |     | +   | +   | +   |     |
| 409. | flavina (Herrich-Schaffer, 1852)            |    |    |    |    |    |    | +  |    | +  |     | +   |     |     |     |     |
| 410. | forcipula (Denis & Schiffermüller, 1775)    |    | +  |    |    |    | +  | +  |    | +  |     | +   |     |     |     |     |
| 411. | forficula (Eversmann, 1851)                 |    |    |    |    |    | +  |    |    |    |     |     |     |     |     |     |
| 412. | himalayensis (Turati, 1933)                 |    |    |    |    |    |    |    |    |    | +   |     |     |     |     |     |
| 413. | multicuspis (Eversmann, 1852)               |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 414. | musiva (Hübner, 1803)                       |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 415. | orientis (Alpheraky, 1882)                  |    | +  | +  |    |    |    |    |    |    | +   |     |     |     | +   |     |
| 416. | petersi (Christoph, 1887)                   |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 417. | signifera (Denis & Schifferrnüller, 1775)   |    | +  |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 418. | squalidior (Staudinger, 1901)               |    | +  |    |    | +  |    | +  |    |    |     |     |     |     |     |     |
| 419. | squalorum (Eversmann, 1856)                 |    |    |    |    |    |    | +  |    | +  |     |     |     |     |     |     |
| 420. | stellans (Corti & Draudt, 1933)             |    |    |    |    | +  |    | +  |    |    |     |     |     |     |     |     |
| 421. | terminicineta (Corti, 1933)                 | +  |    |    |    | +  |    |    |    |    |     |     |     |     |     |     |
| 422. | truculenta (Lederer, 1853)                  |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 423. | tyrannus (A.Bang-Haas, 1912)                |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 424. | vallesiaca (Boisduval, 1837)                |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
|      | <b>Euxoa</b> Hübner, 1821                   |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 425. | acuminifera (Eversmann, 1854)               |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 426. | adumbrata (Eversmann, 1842)                 |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 427. | anatolica (Draudt, 1936)                    |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 428. | aquilina (Denis & Schiffermüller, 1775)     | +  | +  |    |    | +  | +  | +  |    |    | +   |     |     |     |     |     |
| 429. | basigramma (Staudinger, 1870)               |    | +  |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 430. | christophi (Christoph, 1877)                |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 431. | conspicua (Hübner, 1824)                    | +  |    |    |    |    | +  | +  |    |    | +   |     |     | +   | +   |     |



|      |   | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|---|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| 432. | cos (Hübner, 1824)                        |    |    |    |    | +  | +  |    |    |    |     |     |     |     |     |     |
| 433. | deserta (Staudinger, 1870)                |    | +  |    |    | +  | +  |    |    |    |     | +   |     |     |     |     |
| 434. | diaphora (Boursin, 1928)                  |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 435. | distinguenda (Lederer, 1857)              |    | +  |    |    |    | +  | +  |    |    |     | +   |     |     |     |     |
| 436. | fallax (Eversmann, 1854)                  |    | +  |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 437. | foeda (Lederer, 1855)                     |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 438. | glabella Wagner, 1930                     |    |    |    |    | +  |    |    |    |    |     | +   |     |     |     |     |
| 439. | hastifera (Donzel, 1847)                  |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 440. | heringi (Staudinger, 1877)                |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 441. | hilaris (Freyer, 1838)                    |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 442. | mustelina (Christoph, 1877)               |    | +  |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 443. | nigricans (Linnaeus, 1761)                | +  |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 444. | nigrofusca (Esper, 1788)                  |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 445. | obelisca (Denis & Schiffermüller, 1775)   |    |    |    |    |    |    | +  |    | +  |     | +   |     |     |     |     |
| 446. | segnilis (Duponchel, 1836)                |    | +  |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
| 447. | temera (Hübner, 1808)                     |    |    |    |    |    |    | +  |    |    |     | +   |     |     |     |     |
| 448. | triaena (I.Kozhantshikov, 1929)           |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Agrotis</b> Ochsenheimer, 1816         |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 449. | bigramma (Esper, 1790)                    |    | +  | +  |    |    | +  |    |    |    |     |     | +   |     |     |     |
| 450. | cinerea (Denis & Schiffermüller, 1775)    |    | +  |    |    |    |    |    |    | +  |     |     |     |     |     |     |
| 451. | clavis (Hufnagel, 1766)                   |    | +  |    |    |    |    |    |    |    |     |     | +   |     |     |     |
| 452. | desertorum (Boisduval, 1840)              | +  | +  |    |    |    |    |    |    |    |     |     |     | +   | +   |     |
| 453. | exclamationis (Linnaeus, 1758)            | +  | +  | +  |    |    | +  | +  |    | +  | +   |     | +   |     | +   |     |
| 454. | fatidica (Hübner, 1824)                   |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 455. | ipsilon (Hufnagel, 1766)                  | +  | +  |    |    |    | +  | +  |    | +  |     |     | +   | +   | +   |     |
| 456. | obesa (Boisduval, 1829)                   |    |    |    |    | +  |    | +  |    |    |     |     |     |     |     |     |
| 457. | segetum (Denis & Schiffermüller, 1775)    | +  | +  | +  |    |    | +  | +  |    | +  |     |     | +   | +   | +   |     |
| 458. | spinifera (Hübner, 1808)                  |    |    |    |    |    | +  | +  |    |    |     | +   | +   |     |     |     |
| 459. | vestigialis (Hufnagel, 1766)              |    | +  | +  |    |    | +  | +  |    |    |     | +   |     |     |     |     |
| 460. | villosus (Alpheraky)                      |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
|      | <b>Axylia</b> Hübner, 1821                |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 461. | putris (Linnaeus, 1761)                   |    |    | +  |    |    |    |    |    |    |     |     |     |     |     |     |
|      | <b>Ochropleura</b> Hübner, 1821           |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 462. | pecta (Linnaeus, 1761)                    |    |    | +  |    |    | +  |    |    |    |     |     | +   |     | +   |     |
|      | <b>Epipsilia</b> Hübner, 1821             |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 463. | grisea (Fabricius, 1794)                  |    |    |    |    |    | +  | +  |    |    |     |     |     |     |     |     |
|      | <b>Rhyacia</b> Hübner, 1821               |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 464. | arenacea (Hampson, 1907)                  | +  |    |    |    | +  | +  |    |    |    |     |     |     |     |     |     |
| 465. | nyctimerides (O.Bang-Haas, 1922)          |    |    |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 466. | simulans (Hufnagel, 1766)                 | +  |    |    |    | +  | +  | +  |    |    |     |     |     | +   | +   |     |
|      | <b>Chersotis</b> Boisduval, 1840          |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 467. | alpestris (Boisduval, 1837)               |    | +  |    |    |    |    | +  |    |    |     |     |     |     |     |     |
| 468. | margaritacea (De Villers, 1789)           |    | +  |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 469. | rectangula (Denis & Schiffermüller, 1775) |    |    |    |    |    | +  | +  |    |    |     |     |     | +   |     |     |
|      | <b>Standfussiana</b> Boursin, 1946        |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |
| 470. | lucerna (Linnaeus, 1758)                  |    |    |    |    | +  | +  |    |    |    |     |     |     |     |     |     |
| 471. | nictymera (Boisduval, 1834)               |    |    |    |    | +  | +  |    |    |    |     |     |     |     |     |     |
|      | <b>Noctua</b> Linnaeus, 1758              |    |    |    |    |    |    |    |    |    |     |     |     |     |     |     |





|      |   | R1        | R2         | R3         | R4       | R5        | R6         | R7         | R8        | R9        | R10       | R11        | R12       | R13       | R14       | R15       |
|------|---|-----------|------------|------------|----------|-----------|------------|------------|-----------|-----------|-----------|------------|-----------|-----------|-----------|-----------|
| 472. | comes (Hübner, 1813)                        |           |            | +          |          |           | +          |            |           |           |           | +          |           | +         |           |           |
| 473. | fimbriata (Schreber, 1759)                  |           |            | +          |          |           | +          | +          |           |           |           | +          |           |           |           |           |
| 474. | interposita (Hübner, 1790)                  |           |            |            |          |           |            | +          |           |           |           |            |           |           |           |           |
| 475. | janthe (Borkhausen, 1792)                   |           |            | +          |          |           |            | +          |           |           |           | +          | +         |           |           |           |
| 476. | janthina (Denis & Schiffermüller, 1775)     |           |            | +          |          |           | +          |            |           |           |           | +          |           |           |           |           |
| 477. | orbona (Hufnagel, 1766)                     | +         |            | +          |          |           |            | +          |           |           |           |            |           | +         | +         |           |
| 478. | pronuba (Linnaeus, 1758)                    |           | +          | +          |          |           | +          | +          |           | +         |           |            | +         | +         | +         |           |
|      | <b>Epilecta</b> Hübner, 1821                |           |            |            |          |           |            |            |           |           |           |            |           |           |           |           |
| 479. | linogrisea (Denis & Schiffermüller, 1775)   |           |            | +          |          |           | +          | +          |           |           |           |            |           |           |           |           |
|      | <b>Spaelotis</b> Boisduval, 1840            |           |            |            |          |           |            |            |           |           |           |            |           |           |           |           |
| 480. | ravida (Denis & Schiffermüller, 1775)       | +         | +          |            |          |           |            | +          |           |           |           |            |           | +         | +         |           |
|      | <b>Xestia</b> Hübner, 1818                  |           |            |            |          |           |            |            |           |           |           |            |           |           |           |           |
| 481. | baja (Denis & Schiffermüller, 1775)         |           |            |            |          |           |            | +          |           |           |           |            |           |           |           |           |
| 482. | c-nigrum (Linnaeus, 1758)                   | +         | +          |            |          |           | +          | +          |           |           |           |            | +         |           | +         |           |
| 483. | cohaesa (Herrich-Schaffer, 1849)            |           |            |            |          |           | +          | +          |           |           |           |            | +         |           |           |           |
| 484. | stigmatica (Hübner, 1813)                   |           |            |            |          |           |            | +          |           |           |           |            |           |           |           |           |
| 485. | trifida (Fischer von Waldheim, 1820)        | +         | +          |            |          |           | +          | +          |           |           |           | +          |           |           |           |           |
| 486. | xanthographa (Denis & Schiffermüller, 1775) |           |            |            |          |           | +          | +          |           |           |           |            |           |           |           |           |
|      | <b>Eugraphe</b> Hübner, 1821                |           |            |            |          |           |            |            |           |           |           |            |           |           |           |           |
| 487. | sigma (Denis & Schiffermüller, 1775)        |           | +          |            |          |           |            |            |           |           |           |            |           |           |           |           |
|      | <b>Eugnorisma</b> Boursin, 1946             |           |            |            |          |           |            |            |           |           |           |            |           |           |           |           |
| 488. | chaldaica (Boisduval, 1840)                 |           | +          |            |          | +         | +          |            |           |           |           |            |           |           |           |           |
| 489. | depuncta (Linnaeus, 1761)                   |           | +          |            |          |           |            | +          |           |           |           |            |           |           |           |           |
| 490. | insignata (Lederer, 1853)                   |           | +          |            |          |           |            |            |           |           |           |            |           |           |           |           |
| 491. | miniago (Freyer, 1839)                      | +         |            |            |          |           |            |            |           |           |           |            |           |           |           |           |
|      | <b>*OPHIDERINAE</b>                         |           |            |            |          |           |            |            |           |           |           |            |           |           |           |           |
|      | <b>**Tarachepia</b> Hampson 1926            |           |            |            |          |           |            |            |           |           |           |            |           |           |           |           |
| 492. | <b>***hueberi</b> (Erschoff, 1874)          |           |            |            |          |           |            |            |           |           |           |            |           |           | +         |           |
|      | <b>ВСЕГО</b>                                | <b>58</b> | <b>206</b> | <b>112</b> | <b>4</b> | <b>48</b> | <b>173</b> | <b>288</b> | <b>25</b> | <b>44</b> | <b>23</b> | <b>127</b> | <b>75</b> | <b>59</b> | <b>82</b> | <b>21</b> |

\* - Новое подсемейство для России;

\*\* - Новый род для России;

\*\*\* - Новый вид для России (Туркменский вид);

\*\*\*\* - Новый вид для Дагестана;

\*\*\*\*\* - Вторая находка для России (Первая находка была в г. Махачкала).

Проведенный математический анализ взаимоотношений обсуждаемых фаун показал достаточно сложные связи между ними (табл. 2-6, рис. 1-2).

В настоящее время предложено огромное число индексов общности, в которых мощность пересечения нормируются различными функциями их мощностей. Наиболее часто применяемые коэффициенты сходства (табл. 3):

$$\text{Жаккара } C_j(R_j; R_k) = \frac{m(R_j \cap R_k)}{m(R_j \cup R_k)} \text{ и Серенсена-Чекановского } C_s(R_j; R_k) = \frac{2m(R_j \cap R_k)}{m(R_j + R_k)}$$



Таблица 2.

Меры сходства и различия

| Сообщества | по Жаккару | в % | по Серенсену-Чекановскому | в % |
|------------|------------|-----|---------------------------|-----|
| R1R2       | 0,16       | 16  | 0,27                      | 27  |
| R2R3       | 0,25       | 25  | 0,40                      | 40  |
| R3R4       | 0,009      | 0,9 | 0,017                     | 1,7 |
| R4R5       | 0          | 0   | 0                         | 0   |
| R5R6       | 0,083      | 8,3 | 0,15                      | 15  |
| R6R7       | 0,28       | 28  | 0,43                      | 43  |
| R7R8       | 0,057      | 5,7 | 0,11                      | 11  |
| R8R9       | 0,095      | 9,5 | 0,17                      | 17  |
| R9R10      | 0,081      | 8,1 | 0,15                      | 15  |
| R10R11     | 0,049      | 4,9 | 0,093                     | 9,3 |
| R11R12     | 0,11       | 11  | 0,20                      | 20  |
| R12R13     | 0,16       | 16  | 0,27                      | 27  |
| R13R14     | 0,52       | 52  | 0,68                      | 68  |
| R14R15     | 0,23       | 23  | 0,37                      | 37  |
| R15R1      | 0,068      | 6,8 | 0,13                      | 13  |

Из таблицы видно что, сообщества R<sub>13</sub>R<sub>14</sub>, R<sub>6</sub>R<sub>7</sub>, R<sub>2</sub>R<sub>3</sub>, R<sub>14</sub>R<sub>15</sub> имеют наибольшее сходство 52%, 28%, 25%, 23% (по Жаккару) и 68%, 43%, 40%, 37% (по Серенсену-Чекановскому) соответственно. Наименьшее сходство имеют сообщества R<sub>3</sub>R<sub>4</sub>, R<sub>10</sub>R<sub>11</sub>, R<sub>15</sub>R<sub>1</sub> - 0,9%, 4,9%, 6,8% (по Жаккару) и 1,7%, 9,3%, 13% (по Серенсену-Чекановскому) соответственно. Не имеют сходства сообщества R<sub>4</sub>R<sub>5</sub>.

Наряду с симметричными мерами сходства обсуждаются и сравнительно малоизвестные несимметричные отношения, называемые мерами включения. В самом общем виде эти меры записываются как отношение мощности пересечения сравниваемых множеств (числа общих видов в двух списках) к мощности одного из них (числу видов в одном из сравниваемых списков). Содержательная интерпретация этого показателя проста и понятна из такого, например, сопоставления: если видовой список одного сообщества полностью входит в список другого сообщества, то мера его включения будет стопроцентной, уменьшаясь до нуля, по мере сокращения числа общих видов. Из таких сопоставлений можно заключить, что один из списков по составу видов более «оригинален» или «экзотичен», чем другой.

Математическое определение мер включения множеств (сообществ) либо по средовому градиенту, либо по разобленным местообитаниям имеет весьма важное значение для содержательного анализа данных, построения графических моделей и в целом для оценки структуры систем. Можно определенно заключить, что мера включения приносит дополнительную информацию по сравнению с мерами сходства и, следовательно, их надо рекомендовать к более широкому применению в экологических исследованиях.

Опираясь на эти суждения, пропишем меру включения множества N в множество M как отношение меры пересечения к множеству N

$$K(M; N) = \frac{m(M \cap N)}{m(N)}, \quad [1]$$

а меру включения множества M во множество N –

$$K(N; M) = \frac{m(M \cap N)}{m(M)} \quad [2]$$

На основе этих исходных данных подсчитаем по формулам [1] и [2] меры включения сообществ друг в друга, выразив результат в процентах.

$$K(R2; R1) = \frac{m(R1 \cap R2)}{m(R1)}$$

$$K(R1; R2) = \frac{m(R1 \cap R2)}{m(R2)}$$



Таблица 3.

Матрица мер пересечения

|     |    |     |     |   |    |     |     |    |    |    |     |    |    |    |    |
|-----|----|-----|-----|---|----|-----|-----|----|----|----|-----|----|----|----|----|
| R1  | 58 |     |     |   |    |     |     |    |    |    |     |    |    |    |    |
| R2  | 36 | 206 |     |   |    |     |     |    |    |    |     |    |    |    |    |
| R3  | 26 | 64  | 112 |   |    |     |     |    |    |    |     |    |    |    |    |
| R4  | 1  | 2   | 1   | 4 |    |     |     |    |    |    |     |    |    |    |    |
| R5  | 8  | 19  | 5   | 0 | 48 |     |     |    |    |    |     |    |    |    |    |
| R6  | 35 | 77  | 57  | 2 | 17 | 173 |     |    |    |    |     |    |    |    |    |
| R7  | 42 | 103 | 75  | 1 | 23 | 100 | 288 |    |    |    |     |    |    |    |    |
| R8  | 7  | 18  | 15  | 1 | 2  | 19  | 17  | 25 |    |    |     |    |    |    |    |
| R9  | 10 | 27  | 28  | 0 | 1  | 24  | 35  | 6  | 44 |    |     |    |    |    |    |
| R10 | 6  | 11  | 7   | 1 | 0  | 10  | 14  | 4  | 5  | 23 |     |    |    |    |    |
| R11 | 13 | 47  | 36  | 0 | 14 | 49  | 83  | 10 | 14 | 7  | 127 |    |    |    |    |
| R12 | 18 | 41  | 38  | 1 | 1  | 40  | 54  | 9  | 16 | 7  | 20  | 75 |    |    |    |
| R13 | 27 | 39  | 34  | 1 | 5  | 38  | 45  | 8  | 17 | 5  | 15  | 18 | 59 |    |    |
| R14 | 20 | 56  | 50  | 2 | 4  | 47  | 56  | 9  | 19 | 6  | 18  | 24 | 48 | 82 |    |
| R15 | 5  | 14  | 12  | 0 | 0  | 9   | 14  | 1  | 9  | 0  | 7   | 7  | 16 | 19 | 21 |

На основе этих данных по формулам [1] и [2] мы можем вычислить меры взаимного включения видовых списков по всем трем сообществам и составить матрицу порядка.

Таблица 4.

Матрица мер включения

|     | R1 | R2 | R3 | R4  | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|-----|----|----|----|-----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| R1  | -  | 62 | 45 | 20  | 14 | 60 | 72 | 12 | 17 | 10  | 22  | 31  | 47  | 34  | 86  |
| R2  | 17 | -  | 31 | 10  | 92 | 37 | 50 | 87 | 13 | 53  | 23  | 20  | 19  | 27  | 68  |
| R3  | 23 | 57 | -  | 10  | 42 | 51 | 67 | 13 | 25 | 6   | 32  | 34  | 30  | 45  | 11  |
| R4  | 25 | 50 | 25 | -   | 0  | 50 | 25 | 25 | 0  | 25  | 0   | 25  | 25  | 50  | 0   |
| R5  | 17 | 40 | 10 | 0   | -  | 35 | 48 | 4  | 21 | 0   | 29  | 21  | 10  | 83  | 0   |
| R6  | 20 | 45 | 33 | 12  | 10 | -  | 58 | 11 | 14 | 58  | 28  | 23  | 22  | 27  | 52  |
| R7  | 15 | 36 | 26 | 0,3 | 80 | 35 | -  | 6  | 12 | 49  | 29  | 19  | 16  | 19  | 49  |
| R8  | 28 | 72 | 60 | 4   | 8  | 76 | 68 | -  | 24 | 16  | 40  | 36  | 32  | 36  | 4   |
| R9  | 23 | 61 | 64 | 0   | 23 | 55 | 80 | 14 | -  | 11  | 32  | 36  | 39  | 43  | 20  |
| R10 | 26 | 48 | 30 | 43  | 0  | 43 | 61 | 17 | 22 | -   | 30  | 30  | 22  | 26  | 0   |
| R11 | 10 | 37 | 28 | 0   | 11 | 39 | 65 | 79 | 48 | 6   | -   | 16  | 12  | 14  | 55  |
| R12 | 24 | 55 | 51 | 13  | 13 | 53 | 72 | 12 | 21 | 9   | 27  | -   | 24  | 32  | 20  |
| R13 | 46 | 66 | 58 | 17  | 85 | 64 | 76 | 14 | 29 | 85  | 25  | 31  | -   | 81  | 12  |
| R14 | 24 | 68 | 61 | 24  | 49 | 57 | 68 | 11 | 23 | 73  | 22  | 29  | 59  | -   | 23  |
| R15 | 24 | 67 | 57 | 0   | 0  | 43 | 67 | 48 | 43 | 0   | 33  | 33  | 33  | 90  | -   |

Используя данные табл. 4 выясним отношение «банальности», порождаемых мерами включения. Для этого сначала зададим порог включения – некоторое произвольное число  $\Delta (0 \leq \Delta \leq 100\%)$  и каждое число выше этого порога, т.е.  $K(R_j; R_k) \geq \Delta$  заменим единицей, а остальные – нулем. В результате этой операции мы перейдем от матрицы мер включения к матрице отношений «банальности»  $B_\Delta$  в записи

$$\langle B_\Delta; R \rangle = \{ R_j, R_k \in R \mid K(R_j; R_k) \geq \Delta \}, \quad [3]$$

где  $j, k \in J$ . Выражение  $R_j \Delta R_k$  означает, что список  $R_k$  «банальнее»  $R_j$  при заданном пороге  $\Delta$ .

Иначе говоря,  $R_j$  и  $R_k$  находятся между собой в отношении « $\Delta$ -банальности».

Исходя из этих рассуждений, зададимся порогом  $\Delta = 35\%$ . В результате получим матрицу отношений «65% – банальности» (табл. 5)



Таблица 5.

Матрица отношений «35% – банальности» (B 35) на множествах R1...R3

|     | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|-----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| R1  | -  | 1  | 1  | 0  | 0  | 1  | 1  | 0  | 0  | 0   | 0   | 0   | 1   | 0   | 1   |
| R2  | 0  | -  | 0  | 0  | 1  | 1  | 1  | 1  | 0  | 1   | 0   | 0   | 0   | 0   | 1   |
| R3  | 0  | 1  | -  | 0  | 1  | 1  | 1  | 0  | 0  | 0   | 0   | 0   | 0   | 1   | 0   |
| R4  | 0  | 1  | 0  | -  | 0  | 1  | 0  | 0  | 0  | 0   | 0   | 0   | 0   | 1   | 0   |
| R5  | 0  | 1  | 0  | 0  | -  | 1  | 1  | 0  | 0  | 0   | 0   | 0   | 0   | 1   | 0   |
| R6  | 0  | 1  | 0  | 0  | 0  | -  | 1  | 0  | 0  | 1   | 0   | 0   | 0   | 0   | 1   |
| R7  | 0  | 1  | 0  | 0  | 1  | 1  | -  | 0  | 0  | 1   | 0   | 0   | 0   | 0   | 1   |
| R8  | 0  | 1  | 1  | 0  | 0  | 1  | 1  | -  | 0  | 0   | 1   | 1   | 0   | 1   | 0   |
| R9  | 0  | 1  | 1  | 0  | 0  | 1  | 1  | 0  | -  | 0   | 0   | 1   | 1   | 1   | 0   |
| R10 | 0  | 1  | 0  | 1  | 0  | 1  | 1  | 0  | 0  | -   | 0   | 0   | 0   | 0   | 0   |
| R11 | 0  | 0  | 0  | 0  | 0  | 1  | 1  | 1  | 1  | 0   | -   | 0   | 0   | 0   | 1   |
| R12 | 0  | 1  | 1  | 0  | 0  | 1  | 1  | 0  | 0  | 0   | 0   | -   | 0   | 0   | 0   |
| R13 | 1  | 1  | 1  | 0  | 1  | 1  | 1  | 0  | 0  | 1   | 0   | 0   | -   | 1   | 0   |
| R14 | 0  | 1  | 1  | 0  | 1  | 1  | 1  | 0  | 0  | 1   | 0   | 0   | 1   | -   | 0   |
| R15 | 0  | 1  | 1  | 0  | 0  | 1  | 1  | 1  | 1  | 0   | 0   | 0   | 0   | 1   | -   |

Непосредственный анализ табл. 6 по строкам показывает, что при заданном пороге включения ( $B_{35}$ ) список R<sub>13</sub> является наиболее «банальным» (восемь единиц), R<sub>8</sub>, R<sub>9</sub>, R<sub>14</sub>, R<sub>15</sub> (по семь единиц), а R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>10</sub> и R<sub>12</sub> – самыми оригинальными или «экзотичными» (имеются нули).

Таблица 6.

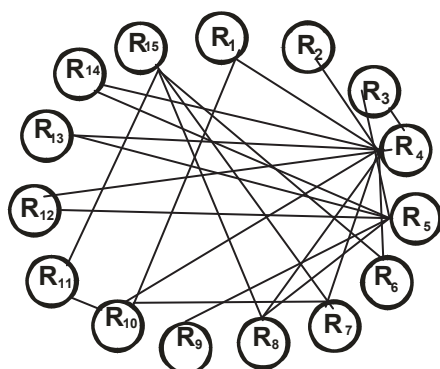
Матричный анализ данных

|     | R1   | R2   | R3   | R4   | R5   | R6   | R7   | R8   | R9   | R10  | R11  | R12  | R13  | R14  | R15  |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| R1  | -    | 0,27 | 0,31 | 0,03 | 0,15 | 0,30 | 0,24 | 0,17 | 0,20 | 0,06 | 0,14 | 0,27 | 0,46 | 0,29 | 0,13 |
| R2  | 0,27 | -    | 0,40 | 0,01 | 0,15 | 0,41 | 0,36 | 0,16 | 0,22 | 0,10 | 0,28 | 0,29 | 0,29 | 0,39 | 0,12 |
| R3  | 0,31 | 0,40 | -    | 0,02 | 0,06 | 0,40 | 0,38 | 0,22 | 0,36 | 0,10 | 0,30 | 0,41 | 0,40 | 0,52 | 0,18 |
| R4  | 0,03 | 0,01 | 0,02 | -    | 0    | 0,02 | 0,01 | 0,07 | 0    | 0,07 | 0    | 0,03 | 0,03 | 0,05 | 0    |
| R5  | 0,15 | 0,15 | 0,06 | 0    | -    | 0,15 | 0,14 | 0,05 | 0,02 | 0    | 0,16 | 0,02 | 0,09 | 0,06 | 0    |
| R6  | 0,30 | 0,41 | 0,40 | 0,02 | 0,15 | -    | 0,43 | 0,19 | 0,22 | 0,10 | 0,33 | 0,32 | 0,33 | 0,37 | 0,09 |
| R7  | 0,24 | 0,36 | 0,38 | 0,01 | 0,14 | 0,43 | -    | 0,11 | 0,21 | 0,09 | 0,40 | 0,30 | 0,26 | 0,30 | 0,09 |
| R8  | 0,17 | 0,16 | 0,22 | 0,07 | 0,05 | 0,19 | 0,11 | -    | 0,17 | 0,17 | 0,13 | 0,18 | 0,19 | 0,17 | 0,04 |
| R9  | 0,20 | 0,22 | 0,36 | 0    | 0,02 | 0,22 | 0,21 | 0,17 | -    | 0,15 | 0,16 | 0,27 | 0,33 | 0,30 | 0,28 |
| R10 | 0,06 | 0,10 | 0,10 | 0,07 | 0    | 0,10 | 0,09 | 0,17 | 0,15 | -    | 0,09 | 0,14 | 0,12 | 0,11 | 0    |
| R11 | 0,14 | 0,28 | 0,30 | 0    | 0,16 | 0,33 | 0,40 | 0,13 | 0,16 | 0,09 | -    | 0,20 | 0,16 | 0,17 | 0,09 |
| R12 | 0,27 | 0,29 | 0,41 | 0,03 | 0,02 | 0,32 | 0,30 | 0,18 | 0,27 | 0,14 | 0,20 | -    | 0,27 | 0,31 | 0,15 |
| R13 | 0,46 | 0,29 | 0,40 | 0,03 | 0,09 | 0,33 | 0,26 | 0,19 | 0,33 | 0,12 | 0,16 | 0,27 | -    | 0,68 | 0,40 |
| R14 | 0,29 | 0,39 | 0,52 | 0,05 | 0,06 | 0,37 | 0,30 | 0,17 | 0,30 | 0,11 | 0,17 | 0,31 | 0,68 | -    | 0,37 |
| R15 | 0,13 | 0,12 | 0,18 | 0    | 0    | 0,09 | 0,09 | 0,04 | 0,28 | 0    | 0,09 | 0,15 | 0,40 | 0,37 | -    |

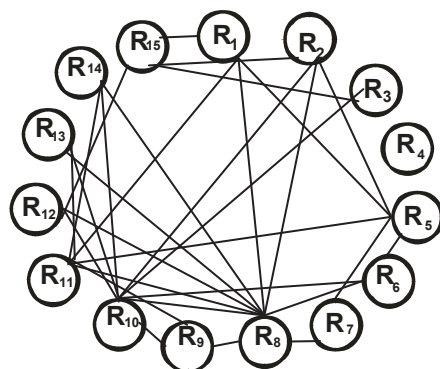
Одним из видов графического анализа сходства выборок может быть построение плеяды Терентьева. Плеяда представляет собой неориентированный граф в виде «корреляционного» цилиндра с разрезами на заданных уровнях (порогах) сходства. На рисунке 1 заданы шесть порогов сходства (0,68-0,52; 0,46-0,40; 0,39-0,30; 0,29-0,20; 0,19-0,10; 0,09-0,01). Линии отражают связи и меру сходства объектов. По мере снижения порога сходства число связей растет, и несвязный граф преобразуется в сильно связный. Следовательно, сообщества R<sub>13</sub> R<sub>14</sub> имеют больше сходства между собой. Наименьшее сходство имеют сообщества R<sub>2</sub>R<sub>4</sub>, R<sub>4</sub>R<sub>7</sub> и не имеют сходства сообщества R<sub>4</sub>R<sub>5</sub>, R<sub>4</sub>R<sub>9</sub>, R<sub>4</sub>R<sub>11</sub>, R<sub>4</sub>R<sub>15</sub>, R<sub>5</sub>R<sub>10</sub>, R<sub>5</sub>R<sub>15</sub>, R<sub>10</sub>R<sub>15</sub>.



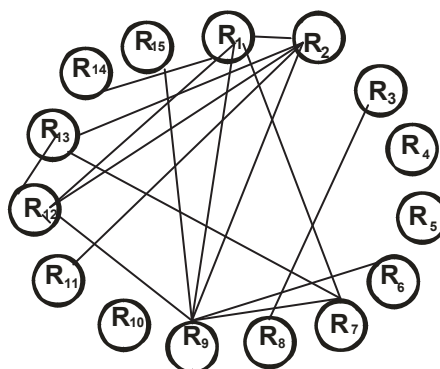
—0,09



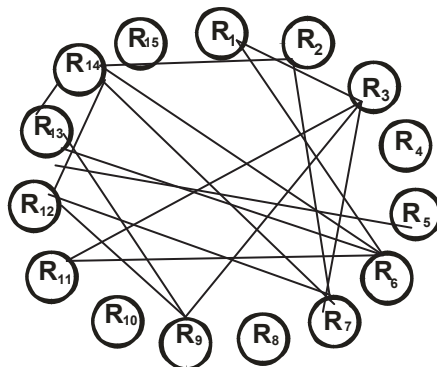
—0,19



—0,29

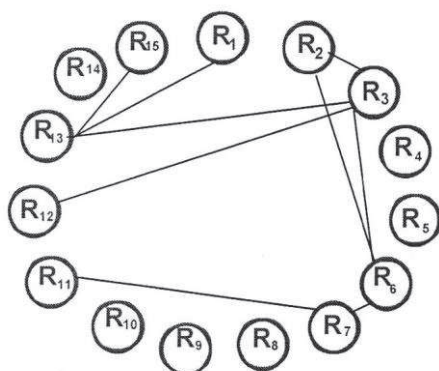


—0,39





— 0,46



— 0,68

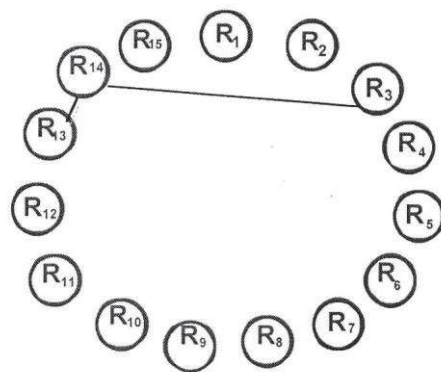


Рисунок 1. Плеяда Терентьева на заданных уровнях сходства

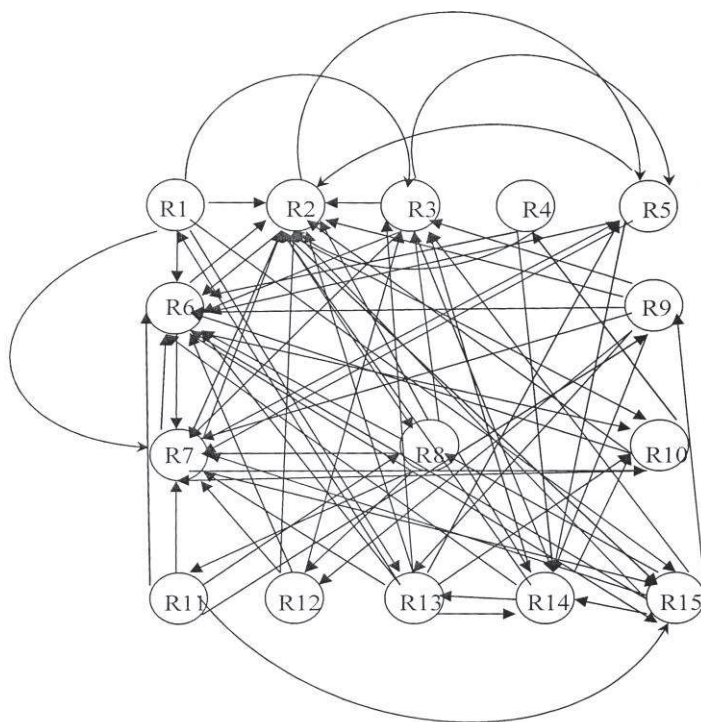


Рисунок 2. Орграф отношений «банальности» B35



Анализируя приведенный орграф можно заметить, что наибольшее число стрелок исходит из вершины R13, следовательно, данное сообщество наиболее «банальное», наоборот, в вершину R6 входит наибольшее число стрелок и соответственно данное описание является более оригинальными.

#### Библиографический список

1. Ильина, Е.В. Каталог совков (Lepidoptera, Nolidae, Erebidae, Noctuidae) Дагестана / Е.В. Ильина, А.Н. Полтавский, А.Ю. Матов, Н.М.-С. Гасанова. – Махачкала, 2012. – 192 с.
2. Полтавский, А.Н. Аннотированный каталог совков (Lepidoptera, Noctuidae) Северного Кавказа и сопредельных территорий юга России / А.Ю. Матов, В.И. Щуров, К.С. Артохин, под ред. К.С. Артохина и А.Н. Полтавского. - Ростов-на-Дону : издание 2-е, 2010. – Т. 1. - 284 с.
3. Полтавский, А.Н. Аннотированный каталог совков (Lepidoptera, Noctuidae) Северного Кавказа и сопредельных территорий юга России / А.Ю. Матов, В.И. Щуров, К.С. Артохин, под ред. К.С. Артохина и А.Н. Полтавского. - Ростов-на-Дону : издание 2-е, 2010. Т. 2. - 332 с.
4. Синев, С.Ю. Каталог чешуекрылых (Lepidoptera, Noctuidae) России / под ред. С.Ю. Синева. - СПб., М. : Товарищество научных изданий КМК, 2008. – 424 с.

#### Bibliography

1. Ilina E.V. Catalog of noctuid moths (Lepidoptera, Nolidae, Erebidae, Noctuidae) of Dagestan / E.V. Ilyin, A.N. Poltava, A.U. Matov, N.M.-S. Gasanov. - Makhachkala, 2012. – 192 p.
2. Poltavskii, A.N. Annotated catalog of the noctuid moths (Lepidoptera, Noctuidae) of the Northern Caucasus and adjacent territories of the South of Russia / A.U. Matov, V.I. Shurov, K.S. Artokhin - Rostov-on-don, 2nd ed., 2010. - V. 1. – 284 p.
3. Poltavskii, A.N. Annotated catalog of the noctuid moths (Lepidoptera, Noctuidae) of the Northern Caucasus and adjacent territories of the South of Russia / A.U. Matov, V.I. Shurov, K.S. Artokhin - Rostov-on-don, 2nd ed., 2010. - V. 1. – 332 p.
4. Sinev S.U. Catalogue of butterflies (Lepidoptera, Noctuidae) of Russia / M. : Partnership of scientific publications KMK, 2008. – 424 p.

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## ЗООГЕОГРАФИЧЕСКАЯ ХАРАКТЕРИСТИКА СОВОК (LEPIDOPTERA, NOCTUIDAE) ПРИБРЕЖНЫХ И ОСТРОВНЫХ ЭКОСИСТЕМ СЕВЕРО-ЗАПАДНОГО КАСПИЯ

© 2013 Абдурахманов Г.М., Абдурахманов А.Г., Курбанова Н.С., Меликова Н.М., Курамагомедов Б.М.  
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Впервые для района исследования дана зоогеографическая характеристика совков (Lepidoptera, Noctuidae). Ареалогический анализ совков прибрежных и островных экосистем Северо-Западного Каспия показал, что они представлены 9 зоогеографическими группами, что косвенно указывает на вероятные пути сложения данной фауны.

It is the first time as zoogeographical characteristics of owl moths (Lepidoptera, Noctuidae) is given. Areal analyze of owl moths of coastal and island ecosystems of the North-Western part of the Caspian Sea has shown they can be subdivided into 9 zoological groups and this indirectly points the ways of this fauna forming

**Ключевые слова:** совки, прибрежные и островные экосистемы, зоогеографический анализ.

**Key words:** owl moths, coastal and island ecosystems, zoogeographical analyze

Изучение биологического разнообразия, современных ареалов, расселение видов в их историческом и зоогеографическом аспектах является существенно важным для разработки теоретических вопросов зоологии, биогеографии и экологии.

По типам ареалов всех совков, обнаруженных на территории прибрежных и островных экосистем Северо-Западного Каспия, можно отнести к 9-ти зоогеографическим группам: Транспалеарктические, Европейские, Европейско-Сибирские, Средиземноморские, Восточно-Средиземноморские, Степные, Кавказские, Среднеазиатские и Палеотропические.

Анализ ареалов видов совков (Lepidoptera, Noctuidae) обсуждаемой фауны осуществлен с использованием классических работ по зоогеографии (А.С. Семенов-Тянь-Шанский, 1936; И.М. Пузанов, 1938; Крыжановский О.Л., 1965, 1975; Г.М. Абдурахманов, И.К. Лопатин и др., 2001) (табл. 1, рис. 1).