

## QUYI AMUDARYO DAVLAT BIOSFERA REZERVATI QANDALALARI (HETEROPTERA) TUR XILMA-XILLIGI

D.M. Musaev, G.S. Mirzaeva, Sh.N. Nazarov

O'zR FA Zoologiya instituti

[mirzayeva.gulnora@mail.ru](mailto:mirzayeva.gulnora@mail.ru)

**Annotation:** This article presents the species composition of bugs (Heteroptera) inhabiting the Lower Amudarya State Biosphere Reserve. The research revealed that the study area is home to 13 families, 39 genera, and 52 species of bugs. The highest number of species belongs to the families Miridae — 14 species (27%), and Pentatomidae and Reduviidae — with 7 species each (13% each). The lowest number of species was found in the families Tingidae, Pyrrhocoridae, and Alydidae.

Yarimqattiqqanotlilar hasharotlar sinfining katta qismini tashkil etib, yer sharining barcha hududlarida keng tarqalgan. Bugungi kunda dunyo miqyosida qandalalarning 75 oilaga mansub 50 mingdan ortiq turi tarqalgan bo'lsa, Markaziy Osiyo mamlakatlari, jumladan Qozog'istonda qandalalarning 32 oilaga mansub 1250 dan ortiq turi ro'yxatga olingan [1, 4, 5]. Qandalalar faunasi O'rta Osiyoda, jumladan, O'zbekistonda ham ularning xilma-xilligi boy bo'lib, endemik va qizil kitobga kiritilgan turlari bilan ajralib turadi. Ushbu vaziyat ekologik muhitning rang-barangligi bilan chambarchas bog'liqligini ko'rsatishi mumkin. Qoraqum, Qizilqum cho'llari va boshqa tekislik landshaftlari, yashil vohalar va tog' sistemalari, Pomir-oloy, Hissor, Tyan-Shan bilan uzviy bog'liqligi, qandalalar uchun qulay sharoitlarni tashkil topishiga olib kelganligidan dalolat beradi. Birgina Markaziy Osiyoning g'arbiy Tyan-Shan tog' va tog'oldi landshaftlarida qandalalarning 27 oila 247 avlodga mansub 523 turi tarqalgani aniqlangan [2, 3].

Tadqiqotlar 2024 yilning 8-10 iyun sanalarida Hitoy fanlar akademiyasi Zoologiya instituti ilmiy xodimlari hamkorligida Quy Amudaryo davlat biosfera rezervati qo'riqchasida olib borildi. Tadqiqotlarda qandalalarni tutish, saqlash va kolleksiya materiallarini tayyorlash V.B. Golub (2012), turlarni aniqlash, bioekologik xususiyatlari va tarqalishini o'rganish A.N. Kirichenko (1951), I.M. Kerjner (1962), Yu.A. Popov (1966) larning ma'lumotlari asosida olib borildi. Qandalalarni yig'ishda diametri 34-40 sm bo'lgan entomologik tutqich (sachok) va diametri 1m<sup>2</sup> bo'lgan oq mato (Beat sheet), Maleza va yorug'lik tutqichlaridan foydalanildi (1-rasm). Qandalalarni yig'ishda beda dalasining 5 ta nuktasidan sachokning 20 ta xarakati orqali namunalar olindi. Yig'ilgan materiallar 96 % li spitrda plastmassa idishlarda saqlandi. Shuningdek MBS-109 binokulyar, Motik V 1-220A -1, SZM -161-TL, P122 DISSECTING MICROSCOPE" mikroskoplari va Power Shot A 2500 Canon fotoaparatlaridan foydalanildi.

Qandalalarni tur darajasida aniqlashda O'zR FA Zoologiya instituti Entomologiya laboratoriyasida saqlanayotgan qandalalar kolleksiyalaridan foydalanildi.



1



2



3

**1-rasm:** Tadqiqot joyi va ishtirokchilari (1) qandalalarni yig'ishda foydalanilgan Maleza (2) va yorug'lik (3) tuzoqlari.

Tadqiqotlar natijasida Quyi Amudaryo davlat biosfera rezervati qo'riqhonasida yarimqattiqqanotli hasharotlarning 13 oila, 39 avlodga mansub 52 turining tarqalgani aniqlandi (jadval).

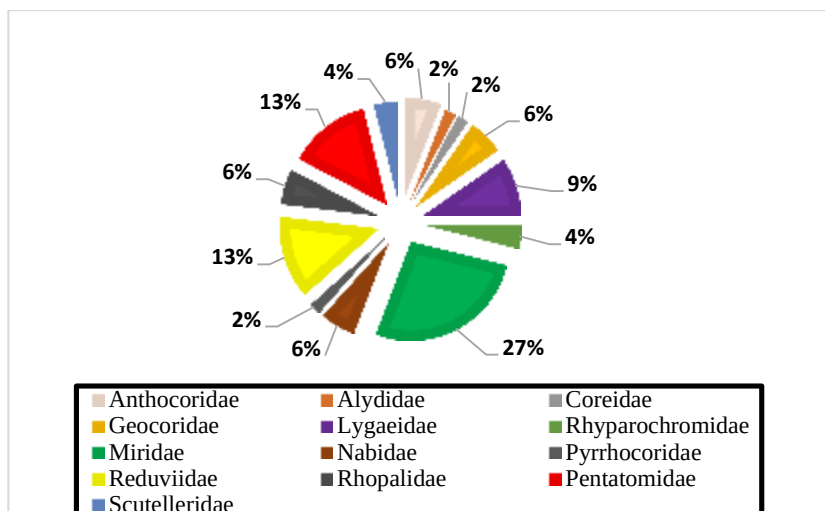
Jadval

**Quyi Amudaryo davlat biosfera rezervati qo'riqhonasida tarqalgan yarimqattiqqanotli hasharotlarning tur tarkibi**

| №  | Typ                                    | Авлод                                 | Оила                                              |
|----|----------------------------------------|---------------------------------------|---------------------------------------------------|
| 1  | <i>A. pilosus</i> Jakovlev, 1877       | <i>Anthocoris</i> Fallen, 1814        | <b>Anthocoridae</b><br>Fieber 1836                |
| 2  | <i>O. niger</i> Wolff.                 | <i>Orius</i> Wolff, 1811              |                                                   |
| 3  | <i>O. laevigatus</i> Fieber 1860       |                                       |                                                   |
| 4  | <i>C. lateralis</i> Germar, 1817       | <i>Camptopus</i> A& S, 1843           | <b>Alydidae</b><br>Amyot & Serville, 1843         |
| 5  | <i>C. marginatus</i> Linnaeus, 1758    | <i>Coreus</i> Fabricius, 1794         | <b>Coreidae</b><br>Leach, 1815                    |
| 6  | <i>G. ater</i> Fabricius, 1787         | <i>Geocoris</i> Fallén, 1814          | <b>Geocoridae</b><br>Baerensprung, 1860           |
| 7  | <i>G. arenarius</i> Jakovlev, 1867     |                                       |                                                   |
| 8  | <i>G. pallidipennis</i>                |                                       |                                                   |
| 9  | <i>L. equestris</i> Linnaeus, 1758     | <i>Lygaeus</i> Fabricius, 1874        | <b>Lygaeidae</b><br>Schilling, 1829               |
| 10 | <i>S. pandurus</i> Scopoli, 1763       | <i>Spilostethus</i> Stal, 1868        |                                                   |
| 11 | <i>N. ericae</i> Schull, 1868          | <i>Nysius</i> Dallas, 1852            |                                                   |
| 12 | <i>N. graminicola</i> Kolenati, 1845   |                                       |                                                   |
| 13 | <i>E. ciliatus</i> Horváth, 1875       | <i>Emblethis</i> Fieber, 1861         | <b>Rhyparochromidae</b> Amyot & Serville,<br>1843 |
| 14 | <i>A. atratus</i> Goeze, 1778          | <i>Aellopus</i> Wolff, 1802           |                                                   |
| 15 | <i>D. sylvaticus</i> Fabricius 1775    | <i>Drymus</i> Fieber, 1860            | <b>Miridae</b><br>Hahn, 1833                      |
| 16 | <i>D. punctulatus</i> Fallen, 1807     | <i>Deraeocoris</i> Kirsch, 1856       |                                                   |
| 17 | <i>D. serenus</i> Doug&Scot, 1868      |                                       |                                                   |
| 18 | <i>A. lineolatus</i> Goeze, 1778       | <i>Adelphocoris</i> Reuter, 1896      |                                                   |
| 19 | <i>A. seticornis</i> Fabricius, 1775   |                                       |                                                   |
| 20 | <i>L. pratensis</i> Linnaeus, 1758     | <i>Lygus</i> Hahn, 1833               |                                                   |
| 21 | <i>L. punctatus</i> Zetterstedt, 1838  |                                       |                                                   |
| 22 | <i>N. elongata</i> Geoffroy, 1785      | <i>Notostira</i> Fieber, 1858         |                                                   |
| 23 | <i>S. calcarata</i> Fallen, 1807       | <i>Stenodema</i> Laporte, 1832        |                                                   |
| 24 | <i>S. laevigata</i> Linnaeus, 1758     |                                       |                                                   |
| 25 | <i>T. ruficornis</i> Geoffroy, 1785    | <i>Trigonotylus</i> Fieber, 1858      |                                                   |
| 26 | <i>O. flavosparsus</i> Sahlberg, 1841  | <i>Orthotylus</i> Fieber, 1858        |                                                   |
| 27 | <i>A. onusta</i> Fieber, 1861          | <i>Atomoscelis</i> Reuter, 1875       |                                                   |
| 28 | <i>P. chrysantemi</i> Wolff, 1804      | <i>Plagiognathus</i> Fieber, 1858     |                                                   |
| 29 | <i>C. verbasci</i> Meyer-Dur, 1843     | <i>Campylomma</i> Reuter, 1878        |                                                   |
| 30 | <i>N. ferus</i> Linnaeus, 1758         | <i>Nabis</i> Latreille, 1802          | <b>Nabidae</b><br>Costa, 1852                     |
| 31 | <i>N. palifer</i> Seid, 1954           |                                       |                                                   |
| 32 | <i>N. rugosus</i> Linnaeus, 1758       |                                       |                                                   |
| 33 | <i>P. apterus</i> Linnaeus, 1758       | <i>Pyrrhocoris</i> Fillen, 1814       | <b>Pyrrhocoridae</b><br>Amyot & Serville 1843     |
| 34 | <i>C. aegyptius</i> Fabricius, 1775    | <i>Coranus</i> Curtis, 1833           | <b>Reduviidae</b><br>Latreille 1807               |
| 35 | <i>C. subapterus</i> De Geer, 1773     |                                       |                                                   |
| 36 | <i>R. iracundus</i> , Poda, 1761       | <i>Reduvius</i> Hahn, 1833            |                                                   |
| 37 | <i>R. pallipes</i> Klug 1830           |                                       |                                                   |
| 38 | <i>Oncocephalus brachymerus</i> Reut.  | <i>Oncocephalus</i>                   |                                                   |
| 39 | <i>Ectomocoris ululans</i> Rossi.      | <i>Ectomocoris</i>                    |                                                   |
| 40 | <i>Vachiria deserta</i> Beck.          | <i>Vachiria</i>                       |                                                   |
| 41 | <i>Rh. distinctus</i> (Signoret, 1853) | <i>Rhopalus</i> Schilling, 1827       | <b>Rhopalidae</b><br>Dallas 1852                  |
| 42 | <i>S. angustus</i> Reuter, 1900        | <i>Stictopleurus</i> Stal, 1872       |                                                   |
| 43 | <i>C. hyoscyami</i> (Linnaeus 1758)    | <i>Corizus</i> Fillen, 1814           |                                                   |
| 44 | <i>B. germari</i> Kalenati, 1846       | <i>Brachynema</i> Mulsant & Rey, 1852 | <b>Pentatomidae</b><br>Leach, 1815                |
| 45 | <i>C. fuscispinus</i> Boheman, 1849    | <i>Carpocoris</i> Kolenati, 1846      |                                                   |
| 46 | <i>D. baccarum</i> Linnaeus, 1758      | <i>Dolycoris</i> Mus & Rey, 1866      |                                                   |

|    |                                    |                                   |                                    |
|----|------------------------------------|-----------------------------------|------------------------------------|
| 47 | <i>N. viridula</i> Linnaeus, 1758  | <i>Nezara</i> Amyot, 1843         |                                    |
| 48 | <i>Eu.ornata</i> Linnaeus, 1758    | <i>Eurydema</i> Laporte, 1833     |                                    |
| 49 | <i>Eu.ventralis</i> Kolenati, 1846 |                                   |                                    |
| 50 | <i>Gr.lineatum</i> Linnaeus, 1758  | <i>Graphosoma</i> Laporte, 1833   |                                    |
| 51 | <i>O. angustatus</i> Jakovlev 1883 | <i>Odontotarsus</i> Laporte, 1833 | <b>Scutelleridae</b><br>Leach 1815 |
| 52 | <i>Eu. integriceps</i> Puton, 1881 | <i>Eurygaster</i> Laporte, 1833   |                                    |
|    | <b>52</b>                          | <b>39</b>                         | <b>Jami. 13</b>                    |

Aniqlangan qandala turlarining oila va avlodlarining turlar soni bo'yicha eng ko'pi Miridae 14 tur (27 %), Pentatomidae 7 tur (13 %), Reduviidae 7 tur (13 %), Lygaeidae 5 tur (10 %), oilalariga mansub. Eng kam tarqalgan turlar esa Tingidae, Pyrrhocoridae, Scutelleridae, Coreidae, Alydidae oilalariga to'g'ri kelishi qayd etildi (2-rasm).



**2-rasm:** Aniqlangan qandala turlarining oilalar kesimida taqsimlanishi.

Olingan natijalarga ko'ra ushbu hududda O'zbekistonning boshqa hududlarida kam uchraydigan Reduviidae oilasiga mansub *Ectomocoris ululans*, *Oncocephalus brachymerus*, Zoologiya instituti kolleksiyasida mavjud bo'lmagan, 1997 yil Rossiyalik mashhur entomologik olim I.M. Kerjner tomonidan Qizilqum cho'lidan yagona nusxada topilgan *Megacoelum brevirostre* turlarining ushbu qo'riqchona hududlarida uchrashi aniqlandi. Yuqoridagi turlarning barchasi tunggi yorug'lik tuzoqlarida tutildi. Shuningdek ushbu turlarning ilk bor tabiatdagi original foto suratlari olishga muvofiq bo'lindi (3-rasm).



**3-rasm:** Tadqiqotlarda qayd etilgan O'zbekistonda tarqalgan kamyob qandala turlari. 1. *Oncocephalus brachymerus*, 2. *Ectomocoris ululans*, 3. *Megacoelum brevirostre*.

Xulosa qilib aytganda, Quyi amudaryo davlat biosfera rezervati qandalalarning o'rganilgan xududlarda oilalar soni 13 tani, avlodlar soni 39 tani, turlar soni esa, 52 tani tashkil etishi aniqlandi. Qandalalar oila va avlodlarining turlar soni bo'yicha eng ko'pi Miridae 14 tur (27 %), Pentatomidae va Reduviidae 7 turdan (13 % dan) oilalariga mansub bo'ldi. Shuningdek, *Ectomocoris ululans*, *Oncocephalus brachymerus*, *Megacoelum brevirostre* kabi 3 ta kamyob turlar ushbu hududhda tarqalganligi aniqlandi.

#### Foydalanilgan adabiyotlar

1. Кириченко А.Н. (1957). Методы сбора настоящих полужесткокрылых и изучение местной фауны, М. Л., Изд-во АН СССР, – С.121.
2. Попов Ю.А. (1966). Видовой состав и распространение настоящих полужесткокрылых (Heteroptera) Западного Тянь-Шаня // Фауна и зоогеография насекомых Средней Азии. – С.76–78.

3. Kerzhner I. M. & Josifov M. (1999). Miridae, In: Aukema B. & Rieger Ch. (eds.): *Catalogue of the Heteroptera of the Palaearctic Region. Cimicomorpha II. Vol. 3*. The Netherlands Entomological Society;– 577 pp.
4. Panizzi, Antônio R., Grazia, Jocélia. (2015) True Bugs (Heteroptera) of the Neotropics. – Holland;– 902. pp
5. Schuh RT, Slater J.A. (1995). True bugs of the world (Hemiptera: Heteroptera): classification and natural history. New York; –336 pp.