

COSSIDAE (LEPIDOPTERA) OF PAKISTAN

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An annotated list of Cossidae of Pakistan, which includes 27 species of 18 genera from 3 subfamilies is presented. Four species (*Cossus afghanistana* Daniel, 1953, *Semagystia cossoides* (Graeser, 1892), *Zeuzera nepalense* Daniel, 1962, and *Azygophleps pusilla* (Walker, 1856)) are reported for the fauna of Pakistan for the first time.

Key words: fauna, Lepidoptera, Cossidae, Pakistan.

INTRODUCTION

Carpenter moths (Lepidoptera, Cossidae) of South Asia have been studied rather fragmentary. Sufficiently complete observations were published on the fauna of India (Arora, 1976), China (Hua et al., 1990), Lebanon (Saldaitis et al., 2007), Andaman Islands (Yakovlev, 2005), Thailand (Yakovlev, 2004a; b; c), Vietnam (Yakovlev & Witt, 2009), Afghanistan (Yakovlev et al., 2015) and Socotra Island (Borth et al., 2011). The fauna of Pakistan remains rather poorly studied. Only few species of Cossidae were described from its territory: *Eremocossus foedus* (Swinhoe, 1884), *Aholcocerus ronkayorum* Yakovlev, 2006, *Cossulus griseatellus* Yakovlev, 2006, *Phragmataecia gurkoi* Yakovlev, 2007, *Vartiania sapho* Yakovlev, 2007, *V. beludzhi* Yakovlev & Saldaitis, 2016 and *Dervishiya sindhi* Yakovlev & Saldaitis, 2016 (Swinhoe, 1884; Yakovlev, 2006a, 2007; Yakovlev & Saldaitis, 2016). In addition, some species were reported from Pakistan in various papers: *Cossulus strioliger* (Alpheraky, 1893) (Daniel, 1971), *Chinocossus acronyctoides* (Moore, 1879) and *Deserticossus arenicola iranica* (Austaut, 1897) (Arora, 1976), *Cryptoholcocerus mongolicus* (Erschoff, 1882) (Yakovlev, 2006b), *Cossulus turkomanicus albus* (Daniel, 1971) (Yakovlev, 2006c). Forest entomologists from Pakistan recorded *Zeuzera* sp. on *Juglans regia* (Gul & Wali-ur-Rehman, 1999) and *Zeuzera multistrigata* Moore, 1881 (Viqar et al., 2005).

MATERIAL AND METHODS

As a result of processing of the material deposited in different museums of Europe an exhaustive list of Cossidae of the fauna of Pakistan is presented. Following acronyms of the states and private collections with Lepidoptera depositaries are used in the text: AHU – collection of Armin Hauenstein (Untermünkheim, Germany); BMNH – The Natural History Museum (London, Great Britain); MNHW – Naturhistorisches Museum (Wien, Austria); MHUB – Museum für Naturkunde, Leibniz Institut für Evolution und Biodiversitätsforschung (Berlin, Germany); MSW – collection of Manfred Ströhle (Weiden, Germany); MWM – Entomological Museum of Thomas Witt (Munich, Germany); WSM – collection of Wolfgang Speidel, Munich, Germany; ZSM – Zoologische Staatssammlung München (Munich, Germany).

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RESULTS

Annotated list of species

1. *Catopta cashmirensis* (Moore, 1879) (Figures 1–2, 34)

General distribution: mountains in Northern India, Northern Pakistan, Eastern Tibet, Nepal, Bhutan (Yakovlev, 2011; Yakovlev et al., 2013).

Material examined: 58 males, 6 females, Pakistan, Kashmir, Himalaya Mts., Deosai Mts., Bubin Village, 3150 m, 74°59' E; 35°12' N, 19.08.1998, leg. Z. Varga et G. Ronkay (MWM); 4 males, Pakistan, Himalaja Mts, Kashmir, Chilam Chauki, 2900 m, 74°58' E ; 35°10' N, 7.09.1997, leg. Fabian & Ronkay (MWM); 1 male, Pakistan, Himalaja Mts, Kaghan Valley, 30 km S Babusar pass, 3500 m, 73°51' E ; 35°02' N, 27.06.1994, leg. Herczig, Laszlo & Ronkay (MWM); 2 males, Himalaja Mts, Kashmir, 6 km NW of Chilam Chauki, 3300 m, 74°59' E ; 35°08' N, 20.06.1998, leg. Fabian & Herczig (MWM); 1 male, Himalaja Mts, 12 km NW of Astor, Rama Lake, 3500 m, 74°43' E ; 35°16' N, 19–20.07.1994, leg. Herczig, Laszlo & Ronkay (MWM); 25 males, Pakistan, Karakoram Mts., Naltar Valley, 2800 m, 74°12' E; 36°09' N, 14.08.1998, leg. Z. Varga et G. Ronkay (MWM); 4 males, Pakistan, Karakoram Mts., Hunza, Karimabad, 2800 m, 74°41' E; 36°20' N, 2.09.1997, leg. Fabian et Ronkay (MWM); 17 males, 1 female, Pakistan, Hindukush Mts., Darkot, 2700 m, 73°25' E; 36°39' N, 9–10. 08.1998, leg. Z. Varga et G. Ronkay (MWM); 7 males, Pakistan, Hindukush Mts., 5 km E Laspur, Shandur pass, 4300 m, 72°27' E; 36°08' N, 12. 07.1994, leg. Herczig, Laszlo & Ronkay (MWM); 5 males, 1 female, NO – Pakistan, Nathia Gali, 2400 m, 27–30.06.1975, leg. W. Thomas (MWM); 1 male, Pakistan, Kohistan, Swat valley, Gund, 2200, leg. W. Thomas (MWM); 1 male, Pakistan: Changla-Gali, nw. Murree, 2400 m, 30.06.1982, Erbar & Heinz leg. (MWM); 4 males, Pakistan, Prov. NW Frontier, Kagan Valley, 2 km E of Naran, 2660 m, 17.07.1998, leg. Gsovári et Mikus (MWM); 9 males, N Pakistan, 8 km N Sost, 2800 m, 74°49' E; 36°74' N, 15.06.1992, leg. Hreblay & Csorbe (MWM); 4 males, Pakistan, Prov. NW Frontier, Kagan Valley, 8 km W of Malkandi, 2140 m, 6.08.1998, leg. Gsovári et Mikus (MWM); 63 males, Pakistan, Kaghan Valley, Tethabaya, 2200 m, 73°26' E; 34°36' N, 9–10.09.1997, leg. Fabian & Ronkay (MWM); 2 males, Pakistan, Kaghan Valley, 12 km E of Naran Battakundi, 3200 m, 73°40' E; 34°57' N, 26.07.1994, leg. Herczig, Laszlo & Ronkay (MWM); 3 males, Pakistan, Kaghan Valley, Seiful Muluk, 2900 m, 73°40' E; 34°54' N, 22.08.1996, leg. Varga & Ronkay (MWM); 2 males, 1 female, Pakistan, Kaghan Valley, 7 km S of Kaghan, Khanian Village, 2500 m, 1.07.1998, leg. Fabian & Herczig (MWM); 1 male, Pakistan, Prov. NW Frontier, Margalla Hills NP, 10 km N of Islamabad, 1110 m, 7.08.1998, leg. Gsovári et Mikus (MWM); 3 males, Pakistan, Prov. NW Frontier, Swat Valley, 1 km E of Utror, 2250 m, 30.07.1998, leg. Gsovári et Mikus (MWM); 3 males, Pakistan, Prov. NW Frontier, Swat Valley, 2 km W of Myandam, 1580 m, 29.07.1998, leg. Gsovári et Mikus (MWM); 7 males, Pakistan, Prov. NW Frontier, Kagan Valley, 8 km E of Kawai, 2180 m, 15.07.1998, leg. Gsovári et Mikus (MWM); 14 males, Pakistan, Prov. NW Frontier, 35 km N of Murree, Ayuba NP, 2300 m, 14.07.1998, leg. Gsovári et Mikus (MWM); 24 males, Pakistan, prov. Jammu & Kashmir, Khirim Valley, 8 km NW of Chilim Chauki, 3120 m, 21.07.1998, leg. Gsovári et Mikus (MWM); 9 males, 1 female, Pakistan, prov. Jammu & Kashmir, Gilgit Valley, Jundrot Village, 2250 m, 27.07.1998, leg. Gsovári et Mikus (MWM); 14 males, Pakistan, Gilgit Valley, Gakuch, Tourist Hotel, 1500 m, 73°43' E; 34°41' N, 15.07.1994, leg. Laszlo et Ronkay (MWM); 28 males, 1 female, Pakistan, NW Himalaja, Indus Kohistan, Kaghantal Naran, 2400–3000 m, 20.06.–16.07.1977, leg. de Freina (MWM); 1 female, Pakistan, Kohistan, Swat prov., 72°32' E; 35°10' N, Miandam, 1800 m, 25.06.–5.07.1992, Z. Weidenhoffer (MWM).

2. *Kotchevnik tapinus* (Püngeler, 1898) (Figures 3, 35)

General distribution: Turkmenistan, Tadzhikistan, Iran, Afghanistan and Pakistan (Yakovlev, 2011).

Material examined: 1 male, West Pakistan, Salt Range, Chingi, 4.03.1956, Ch. Lindemann leg. (ZSM).

3. *Aholcocerus ronkayorum* Yakovlev, 2006 (Figures 4, 36)

The species is described on a base of a single male which was collected in Margalla Hills Mts. near Islamabad.

Endemic of Pakistan.

Material examined: 1 male, holotype (MWM).

4. *Eremocossus foeda* (Swinhoe, 1884) (Figures 5–6, 37)

Described from Karachi. Type species of the genus *Eremocossus* Hampson, 1892. Endemic of the Southern Pakistan.

Material examined: 1 male, holotype (BMNH); 1 male, Karachi, Umgbg. Flughafen, 23.02–9.03.1961, E. & A. Vartian (MNHW).

5. *Chinocossus acronyctoides* (Moore, 1879) (Figure 7)

General distribution: India, Pakistan, China (Yunnan Prov.). Probably mistakenly reported for Pakistan by Arora (1976).

Host plant: *Tamarix articulata* Vahl. (Arora 1976).

6. *Dervishiya cadambae* (Moore, 1865) (Figures 8, 38)

General distribution: India and Pakistan.

Host plants: *Ficus* L., *Nauclea cadamba* Roxb., *Tectonia grandis* L. (Arora, 1976).

Material examined: 4 males, Swat, Marghazar, 79°21'E; 34°46'N; 1300 m, 6.07.1992, leg. Z. Weidenhoffer (MWM); 5 males, 2 females, Islamabad, 520 m, 25.06.1992, Csorba & Hreblay (MWM); 1 male, SW Himalaja, Indus-Kohistan, Kaghan, 1100 m, 26.06.77, de Freina (MWM); 1 male, NW Frontier Prov., Swat valley, 2 km E of Karora, 1050 m, 31.07.1998, Csovári & Mikus leg. (MWM); 1 female, Islamabad, 1 km S Hotel Adventure Inn, 500 m, 3.07.1998, leg. Fabian & Herczig (MWM); 1 female, Margalla Hills, Pir Sohawa, 1000 m, 73°08'E; 33°45'N; 4.07.98, leg. Fabian & Herczig (MWM).

7. *Dervishiya sindhi* Yakovlev & Saldaitis, 2016 (Figures 9–10, 39)

General distribution: Pakistan, Sindh Province.

Endemic of Pakistan.

Material examined: Holotype: male, Pakistan, Sindh prov., near Sanghar, Shahdadpur, 28.03.2009, leg. Azeemi, 2008, leg. Azeemi (MWM); paratypes (5 males, 3 females): 1 male, with same data as in holotype (MWM); paratype: 1 male, Pakistan, Sindh prov., Tharpark ar, Mitih, 24.04.2009, leg. Azeemi (MWM); paratypes: 3 males, Pakistan, Sindh prov., Naukot (mithi) park, 28.03.2009, leg. Azeemi (MWM); paratypes: 3 females, Pakistan, Sindh prov., Mirpurkhas, 20.03.2009, leg. Azeemi (MWM).

8. *Vartiania sapho* Yakovlev, 2007 (Figures 11, 40)

General distribution: NW Pakistan.

Endemic of Pakistan.

Material examined: 1 female (holotype), Pakistan, Prov. Jammu & Kashmir, Khirim Valley, 8 km NW of Chilim Chauki [N 35.0500°; E 75.1167°] (MWM).

9. *Vartiania beludzhi* Yakovlev & Saldaitis, 2016 (Figures 12–13, 41)

General distribution: Pakistan, Sindh Province.

Endemic of Pakistan.

Material examined: 1 male, 1 female (holotype and paratype) Pakistan, Sindh prov., Naukot (mithi) park, 2008, leg. Azeemi (MWM).

10. *Cossulus strioliger* (Alpheraky, 1893) (Figures 14, 42)

General distribution: Kirgystan, Tadzhikistan, Uzbekistan, Afghanistan and Pakistan. Reported from Quetta (Pakistan) by Daniel (1971).

Material examined: 1 male, Pakistan, 80 km NW v. Quetta, 2100 m, 15.05.1961, Kasy & Vartian leg. (MNHW).

11. *Cossulus turkomanicus* (Christoph, 1893) (Figures 15, 43)

In Pakistan subspecies *albus* Daniel, 1971.

General distribution of the subspecies *albus* Daniel, 1971: Afghanistan and Pakistan (Yakovlev et al., 2015).

Material examined: 1 male, Pakistan, Indus Kohistan, Kaghan Tal, 2200 m, 14.6.77, de Freina (MWM).

12. *Cossulus griseatellus* Yakovlev, 2006 (Figures 16, 44)

General distribution: Afghanistan and Pakistan.

Described from NW Pakistan (Swat Prov., Gabral-Tal).

Material examined: 2 males (holotype and paratype) NW Pakistan, Swat prov., Gabral-Tal, 2100 m, 15 km Nordl. Kalam, 6–9.07.1969, leg. Vartian (MNHV).

13. *Deserticossus arenicola* (Staudinger, 1879) (Figures 17, 45)

In Pakistan subspecies *iranica* (Austaut, 1897)

General distribution of the subspecies *iranica* (Austaut, 1897): Iran and Pakistan.

Material examined: 1 male, Baluchistan, Quetta Prov., 67°45'E, 30°11'N, Ziarat, 14.06.1992, leg. Z. Weidenhoffer (AHU).

14. *Cryptoholcocerus mongolicus* (Erschoff in Alpheraky, 1882) (Figures 18, 46)

General distribution: S. Kazakhstan, Kyrgyzstan, Tadjikistan, Uzbekistan, Afghanistan and Pakistan (Yakovlev, 2006a).

Material examined: 1 male, Pakistan, Hindukush Mts., 5 km E Shandur pass, 3750 m, 72°38' E; 36°07' N, 12.08.1998, leg. Varga & Ronkay (MWM).

15. *Cossus afghanistana* Daniel, 1953 (Figures 19, 47)

General distribution: Afghanistan, Pakistan (new record) (Yakovlev et al., 2015).

Material examined: 2 males, Baloutchistan Prov., Ziarat NP, 10–20.07.2009, leg. V. Gurko (MWM).

16. *Semagystia cossoides* (Graeser, 1892) (Figures 20, 46)

General distribution: S Kazakhstan, Kyrgyzstan, Tadjikistan and Pakistan (new record) (Yakovlev, 2011).

Material examined: 1 male, Pakistan, Hindukush Mts., 5 km E Shandur pass, 3250 m, 72°38' E; 36°07' N, 24.06.2000, leg. Varga & Ronkay (MSW).

17. *Zeuzera multistrigata* Moore, 1881 (Figures 21, 48)

General distribution: Japan, SE Russia, E China, India, Pakistan, Bangladesh, Myanmar, Vietnam, Cambodia, Thailand, Malaysia (Yakovlev, 2011).

Material examined: 1 male, Pakistan, Kaghan Valley, Tethabaya, 2400 m, 73,25 E; 34,41 N, 27.07.1994, leg. Herczig, Laszlo & Ronkay (MWM); 2 males, Kohistan, Kaghan valley, 3000 m, 27.07.1973, leg. Flauger (MWM); 1 male, NO Pakistan, Murree, 1700 m, 18–19.07.1975, leg. W. Thomas (MWM); 3 males, N Pakistan, NW Frontier, Dunga Gali, 2100 m, 1.08.1979, leg. W. Thomas (MWM); 2 males, N Pakistan, NW Frontier, Nathia Gali, 2300 m, 18.07.1979, leg. W. Thomas (MWM); 11 males, Pakistan, Prov. NW Frontier, Swat Valley, 2 km W of Myandam, 1580 m, 29.07.1998, leg. Gsovani et Mikus (MWM); 1 male, Pakistan, Himalaya Mts., Kaghan Valley, 20 km NE Balakot, Tatabaya, 73°25'E; 34°41'N, 27.07.1994, leg. M. Herczig, Gy.M. Laszlo & G. Ronkay (MWM).

18. *Zeuzera nepalense* Daniel, 1962 (Figures 22, 49)

General distribution: Nepal and Pakistan (new record).

Material examined: 5 males, 1 female, Pakistan, Kaghan Valley, 20 km NE Balakot, Tethabaya, 2400 m, 73°25' E; 34°41' N, 27.07.1994, leg. Herczig, Laszlo & Ronkay (MWM); 9 males, Pakistan, Kashmir, Himalaja Mts, 30 km N Murree, nera Nathia Ghali, Ajuba, 2600 m, 27.06.1998, leg. Fabian & Herczig (MWM); 2 males, Pakistan, Kaghan Valley, 7 km S of Kaghan, Khanian Village, 2500 m, 1.07.1998, leg. Fabian & Herczig (MWM); 1 male, Pakistan, Kohistan, Swat prov., 72°32' E; 35°10' N, Miandam, 1800 m, 25.06.–5.07.1992, Z. Weidenhoffer (MWM).

19. *Zeuzera nuristanensis* Daniel, 1964 (Figures 23–24, 50)

General distribution: Afghanistan and Pakistan (Yakovlev et al., 2015).

Material examined: 1 male, Pakistan, Margalla Hills, Pir Sohawa, 1000 m, 4.08.1998, 73,08 E; 33,49 N, leg. Varga & Ronkay (MWM); 9 males, Pakistan, Kashmir, Himalaja Mts, 20 km S Muzaffabad, Nara village, 73°29' E; 34°01' N, 750 m, 27.06.1998, leg. Laszlo et Ronkay (MWM); 3 males, Pakistan, Himalaja Mts, valley of Indus, between Chilas and Dassu, motel Barseen, 1100 m, 15.05.1998, leg. Laszlo et Ronkay (MWM); 4 males, Pakistan, Prov. NW Frontier, Kagan Valley, 6 km NW of Balakot, 1200 m, 17.04.1999, leg. Benedek et Szabo (MWM); 1 male, NW Pakistan, Khwazakhola, 1100 m, 34°55' N; 72°31' E, leg. Hreblay & Csorba (MWM); 1 male, Pakistan, Islamabad, Margalla Hills, 1000 m, 21.08.1997, 73,08 E; 33,49 N, leg. Fabian & Ronkay (MWM).

20. *Phragmacossia paghmana* Daniel, 1963 (Figures 25, 51)

General distribution: Afghanistan and Pakistan.

Material examined: 1 male, Pakistan, Hindukush, 3 km N of Pingal, 23.06.2000, leg. Z. Varga & G. Roncai (AHU).

21. *Phragmacossia territa* (Staudinger, 1878) (Figures 26, 52)

General distribution: Asia Minor and Central Asia (new record in Pakistan).

Material examined: 2 males, Pakistan, NWFP [North-Western Frontier Province], S. Waziristan agency, near Tanai village, 28.07.–12.08.2005, 1500–2500 m, Gurko leg. (MWM).

22. *Phragmataecia gurkoi* Yakovlev, 2007 (Figures 27, 52)

Described from NW Pakistan, North-Western Frontier Prov., S Waziristan agency, near Tanai village. Holotype in MWM.

Endemic of Pakistan.

23. *Azygophleps regia* (Staudinger, 1891) (Figures 28–29, 53)

General distribution: Turkey, Iran and Pakistan.

Material examined: 1 male, Pakistan, Prov. Jammu & Kashmir, Gilgit Valley, 3 km E of Gakuch Village, 1870 m, 26.07.1998, leg. Gsovvari et Mikus (MWM); 2 males, Pakistan, Prov. Jammu & Kashmir, Naltar Valley, Nomal Village, 1650 m, 24.07.1998, leg. Gsovvari et Mikus (MWM); 2 males, Pakistan, Prov. Jammu & Kashmir, Indus Valley, 8 km E of Sasli, 1530 m, 23.07.1998, leg. Gsovvari et Mikus (MWM); 2 males, Baloutchistan Prov., Ziarat NP, 10–20.07.2009, leg. V. Gurko (MWM).

24. *Azygophleps pusilla* (Walker, 1856) (Figures 30, 54)

General distribution: India, Pakistan (new record).

Material examined: 4 males, Pakistan, Margalla Hills, 20 km N Islamabad, Pir Sohawa, 600 m, 72°55' E; 33°50' N, 29–31.07.1994, leg. Herczig, Laszlo & Ronkay (MWM); 1 male, Pakistan, Islamabad, 200 m, Tures Motel, 7–9.07.1994, leg. Herczig, Laszlo & Ronkay (MWM).

25. *Azygophleps albofasciata* Walker, 1856 (Figures 31, 55)

General distribution: India and Pakistan.

Material examined: 1 male, Pakistan, Kohistan, Swat Prov., 79°21' E; 34°46' N, Marghazar, 1300 m, 4.07.1992, leg. Z. Weidenhoffer (WSM).

26. *Azygophleps scalaris* (Fabricius, 1775) (Figure 32)

General distribution: Palearctic Region (Yakovlev, 2011; Yakovlev & Dubatolov, 2013).

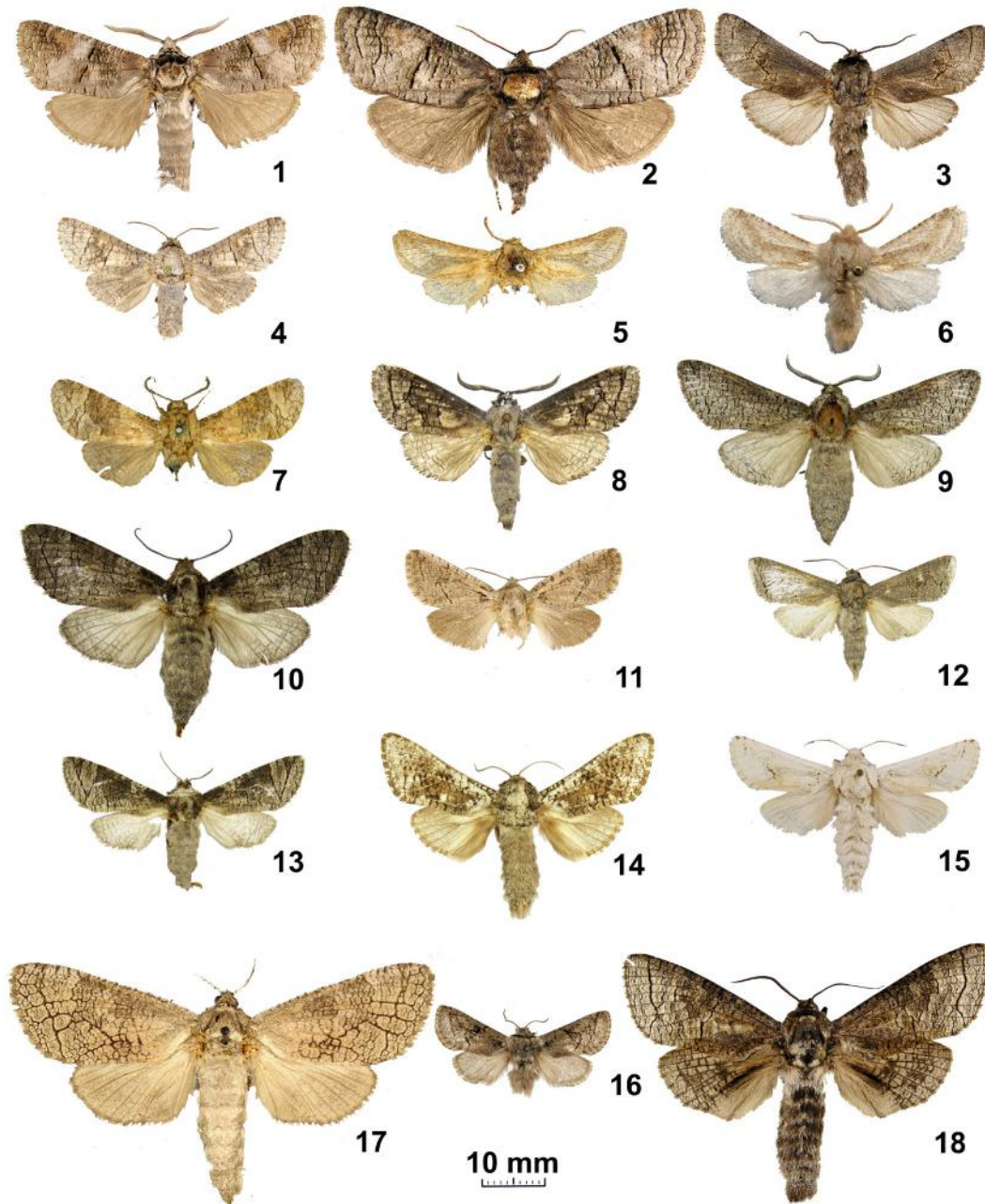
Reported from Pakistan by Arora (1976).

27. *Meharia incurvariella* Chrétien, 1915 (Figures 33, 56)

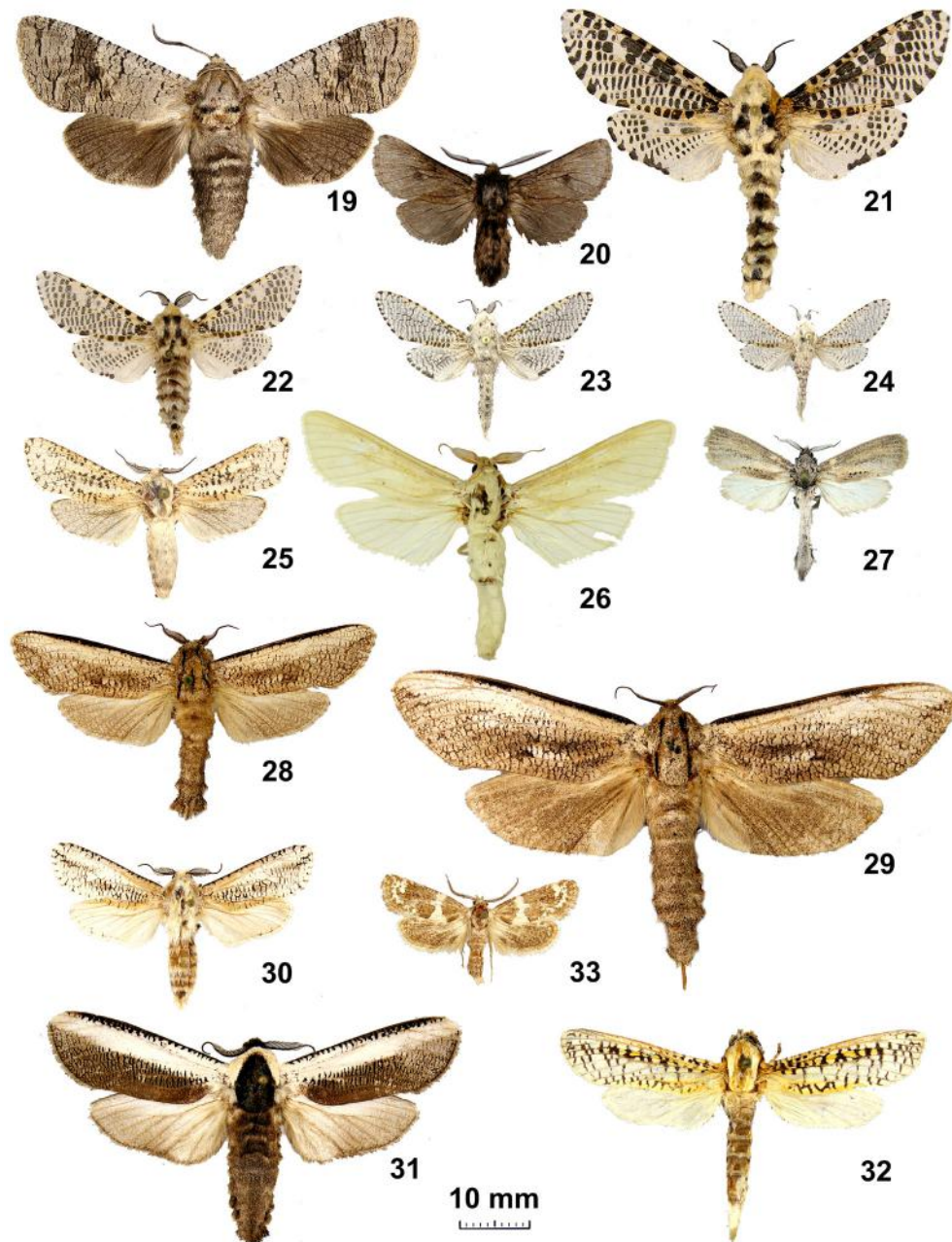
In Pakistan subspecies *persica* (Wiltshire, 1946)

General distribution: Iran, Afghanistan and Pakistan (Yakovlev et al., 2015).

Material examined: 3 males, Baluchistan, Quetta prov., 67°13' E, 30°06' N, Urak Valley, 2000 m, 13.06.1992, leg. Z. Weidenhoffer (WSM).



Figures 1–18. Cossidae, adult specimens: 1. *Catopta cashmirensis* (Moore, 1879), male, Pakistan, NW Himalaja, Indus Kohistan, Kaghantal Naran, 2400–3000 m, 20.06.–16.07.1977, leg. de Freina (MWM); 2. *C. cashmirensis*, female, Pakistan, Kashmir, Himalaya Mts., Deosai Mts., Bubin Village, 3150 m, 74°59' E; 35°12' N, 19.08.1998, leg. Z. Varga et G. Ronkay (MWM); 3. *Kotchevnik tapinus* (Püngeler, 1898), male, Turkmenistan, Kopet-Dagh Mts., Sayvana Valley, 5 km SW Sayvana, 28.06.1992, leg. Gy. Fabian, B. Herczig, A. Podlussany & Z. Varga (MWM); 4. *Aholcocerus ronkayorum* Yakovlev, 2006, male, holotype (MWM); 5. *Eremocossus foeda* (Swinhoe, 1884), male, holotype (BMNH); 6. *E. foeda*, male, Karachi, Umgbg. Flughafen, 23.02–9.03.1961, E. & A. Vartian (MNH); 7. *Chinocossus acronyctoides* (Moore, 1879), holotype (BMNH); 8. *Dervishiya cadambae* (Moore, 1865), male, Nepal, Pokhara, 1600 m, 1.7.1995, leg. Afonin & Sinyaev (MWM); 9. *Dervishiya sindhi* Yakovlev & Saldaitis, 2016, male, holotype (MWM); 10. *D. sindhi*, female, paratype (MWM); 11. *Vartiania sapho* Yakovlev, 2007, female, holotype (MWM); 12. *Vartiania beludzhi* Yakovlev & Saldaitis, 2016, male, holotype (MWM); 13. *V. beludzhi*, female, paratype (MWM); 14. *Cossulus strioliger* (Alpheraky, 1893), male, Afghanistan, Tangi Gharu, 1700 m, 8.06.1972, leg. Dr. Reshöft (MWM); 15. *Cossulus turkomanicus albus* Daniel, 1971, male, paratype, Afghanistan, 40 km SW Kabul, 2300 m, 17.06.1965, Kasy & Vartian (MNH); 16. *Cossulus griseatellus* Yakovlev, 2006, male, holotype (MNH); 17. *Deserticossus arenicola iranica* (Austaut, 1897), female, holotype, Perse, Sefid Kuh (BMNH); 18. *Cryptoholcocerus mongolicus* (Erschoff in Alpheraky, 1882), male, Pakistan, Hindukush Mts., 5 km E Shandur pass, 3750 m, 72°38' E; 36°07' N, 12. 08.1998, leg. Varga & Ronkay (MWM).

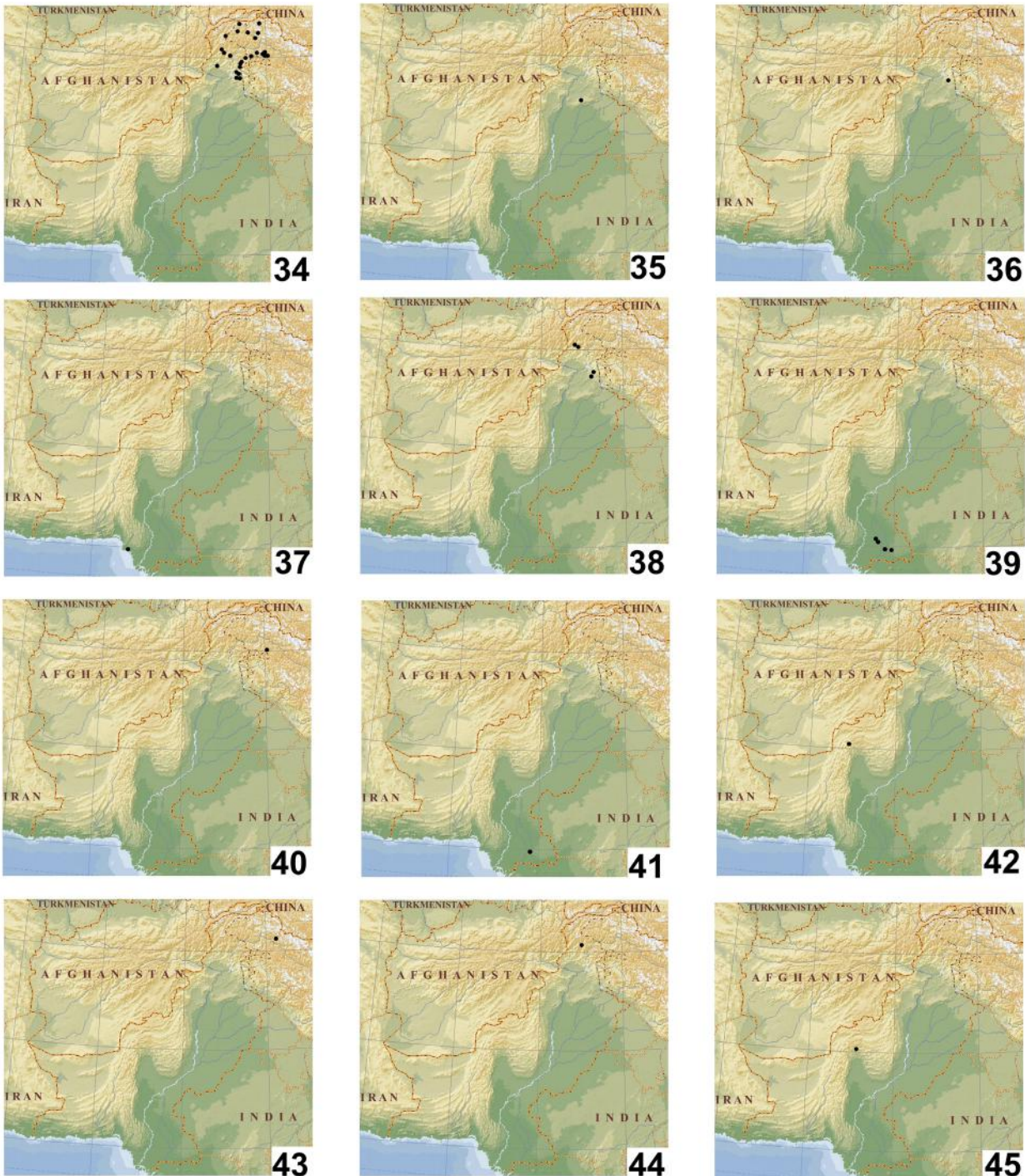


Figures 19–33. Cossidae, adult specimens: 19. *Cossus afghanistana* Daniel, 1953, male, Afghanistan, Panjshir Valley, Kotul-e-Shava, Astana, 2500 m, 2005, loc. Coll. (MWM); 20. *Semagystia cossoides* (Graeser, 1892), male, Pakistan, Hindukush Mts., 5 km E Shandur pass, 3250 m, 72°38' E; 36°07' N, 24. 06.2000, leg. Varga & Ronkay (MSW); 21. *Zeuzera multistrigata* Moore, 1881, male, Pakistan, Himalaya Mts., Kaghan Valley, 20 km NE Balakot, Tatabaya, 73°25'E; 34°41'N, 27.07.1994, leg. M. Herczig, Gy.M. Laszlo & G. Ronkay (MWM) ; 22. *Zeuzera nepalense* Daniel, 1962, male, Pakistan, Kaghan Valley, 20 km NE Balakot, Tethabaya, 2400 m, 73°25' E; 34°41' N, 27.07.1994, leg. Herczig, Laszlo & Ronkay (MWM); 23. *Zeuzera nuristanensis* Daniel, 1964, male, Pakistan, Kashmir, Himalaja Mts, 20 km S Muzaffabad, Nara village, 73°29' E; 34°01' N, 750 m, 27.06.1998, leg. Laszlo et Ronkay (MWM); 24. *Z. nuristanensis*, male, Pakistan, Margalla Hills, Pir Sohawa, 1000 m, 4.08.1998, 73,08 E; 33,49 N, leg. Varga & Ronkay (MWM); 25. *Phragmacossia paghmana* Daniel, 1963, male, Pakistan, Hindukush, 3 km N of Pingal, 23.06.2000, leg. Z. Varga & G. Roncai (AHU); 26. *Phragmacossia territa* (Staudinger, 1878), male, Pakistan, NWFP [North-Western Frontier Province], S. Waziristan agency, near Tanai village, 28.07.–12.08.2005, 1500–2500 m, Gurko leg. (MWM); 27. *Phragmataecia gurkoi* Yakovlev, 2007, male, holotype (MWM); 28. *Azygophleps regia* (Staudinger, 1891), male, cotype, Hadjin (MHUB); 29. *A. regia*, female, cotype, Hadjin (MHUB); 30. *A. pusilla* (Walker, 1856), male, Pakistan, Islamabad, 200 m, Tures Motel, 7–9.07.1994, leg. Herczig, Laszlo & Ronkay (MWM); 31. *A. albofasciata* Walker, 1856, Pakistan, Kohistan, Swat Prov., 79°21' E; 34°46' N, Marghazar, 1300 m, 4.07.1992, leg. Z. Weidenhofer (WSM); 32. *A. scalaris* (Fabricius, 1775), male, Calcutta, 23.06.1942, D.G. Sevastopulo (BMNH); 33. *Meharia incurvariella persica* (Wiltshire, 1946), male, Iran, 90 km S Gom, 20.06.1970, 1600 m, E. et A. Vartian (MNHW).

DISCUSSION

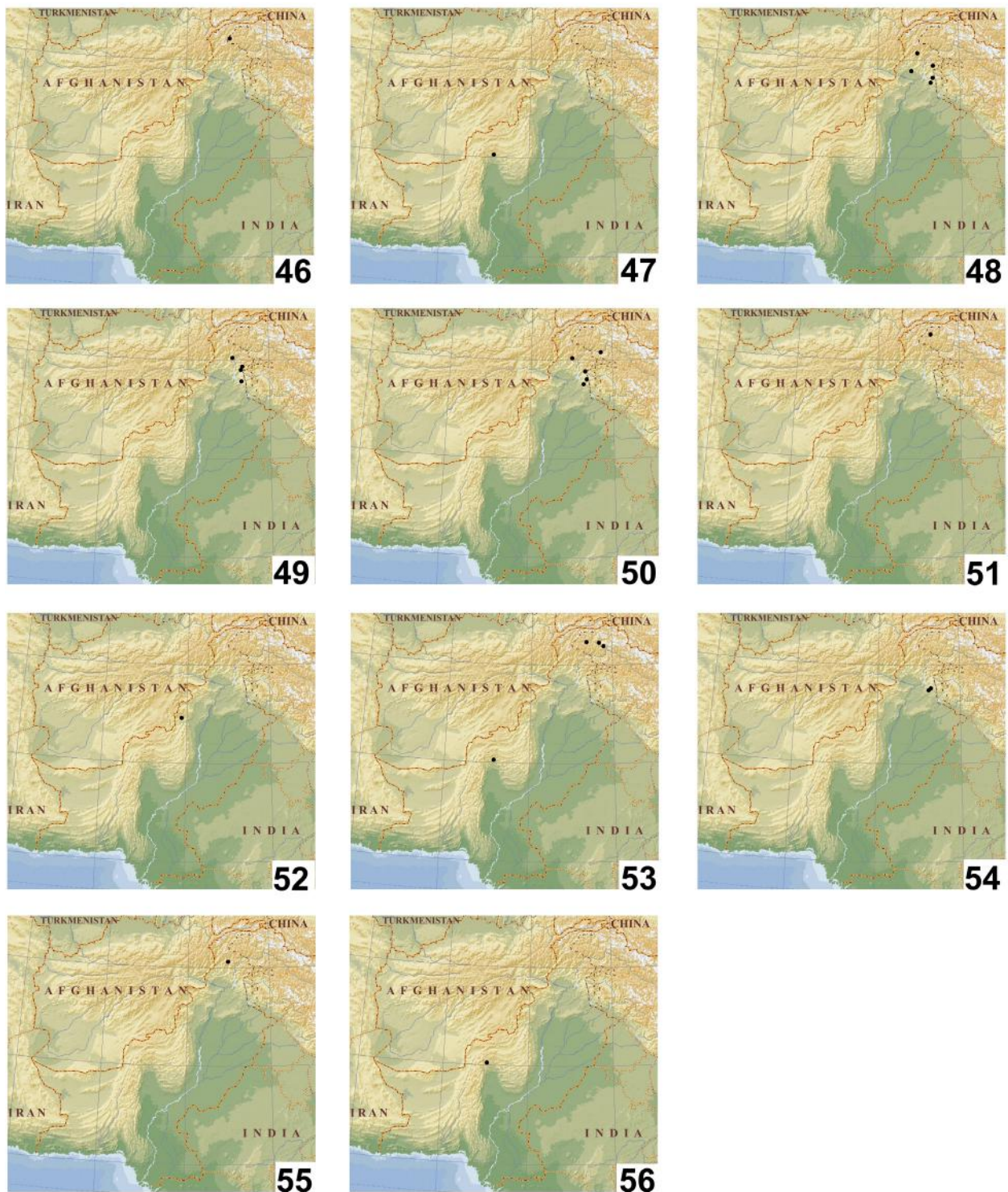
27 species of Cossidae from 18 genera are reported for the fauna of Pakistan.

7 species are endemics of Pakistan: *Aholcocerus ronkayorum* Yakovlev, 2006, *Eremocossus foeda* (Swinhoe, 1884), *Cossulus griseatellus* Yakovlev, 2006, *Vartiania sapho* Yakovlev, 2007, *V. beludzhi* Yakovlev & Saldaitis, 2016, *Dervishiya sindhi* Yakovlev & Saldaitis, 2016, and *Phragmataecia gurkoi* Yakovlev, 2007.



Figures 34–45. Distributional maps of Cossidae of Pakistan: 34. *Catopta cashmirensis* (Moore, 1879); 35. *Kotchevnik tapinus* (Püngeler, 1898); 36. *Aholcocerus ronkayorum* Yakovlev, 2006; 37. *Eremocossus foeda* (Swinhoe, 1884); 38. *Dervishiya cadambae* (Moore, 1865); 39. *Dervishiya sindhi* Yakovlev & Saldaitis, 2016; 40. *Vartiania sapho* Yakovlev, 2007; 41. *Vartiania beludzhi* Yakovlev & Saldaitis, 2016; 42. *Cossulus strioliger* (Alpheraky, 1893); 43. *Cossulus turkomanicus* (Christoph, 1893); 44. *Cossulus griseatellus* Yakovlev, 2006; 45. *Deserticossus arenicola* (Staudinger, 1879).

Zoogeographical structure of the fauna of Cossidae of Pakistan is represented by a combination of Palaearctic, Afrotropical elements and elements from South-Eastern Asia (Hindustanian) (Yakovlev & Dubatolov, 2013; Yakovlev, 2015).



Figures 46–56. Distributional maps of Cossidae of Pakistan: 46. *Cryptoholcocerus mongolicus* (Erschoff in Alpheraky, 1882) and *Semagystia cossoides* (Graeser, 1892); 47. *Cossus afghanistana* Daniel, 1953; 48. *Zeuzera multistrigata* Moore, 1881; 49. *Zeuzera nepalense* Daniel, 1962; 50. *Zeuzera nuristanensis* Daniel, 1964; 51. *Phragmacossia paghmana* Daniel, 1963; 52. *Phragmacossia territa* (Staudinger, 1878) and *Phragmataecia gurkoi* Yakovlev, 2007; 53. *Azygophleps regia* (Staudinger, 1891); 54. *Azygophleps pusilla* (Walker, 1856); 55. *Azygophleps albofasciata* Walker, 1856; 56. *Meharia incurvariella* Chrétien, 1915.

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