

The Noctuidae fauna of Turkmenia (Lepidoptera)

A. N. Poltavsky, A. V. Nekrasov, V. I. Petchen & E. A. Hatchikov

Abstract. A list of the Noctuidae of Turkmenia has been compiled using published reports, original collecting data in the period 1978-1985 and material in the museum collections of Moscow, St. Petersburg and Budapest. Altogether 394 species are known now from 8 natural regions of Turkmenia (44 localities), including 66 new species for the republic's fauna.

Samenvatting. De Noctuidae fauna van Turkmenia (Lepidoptera)

Een lijst van de Noctuidae werd samengesteld aan de hand van gepubliceerde gegevens, eigen onderzoek in de periode 1978-1985 en materiaal in de museumcollecties van Moskou, St. Petersburg en Budapest. In het totaal werden 394 soorten uit 8 natuurlijke streken van Turkmenia (44 vindplaatsen) vastgesteld, waaronder 66 soorten nieuw voor de fauna van de republiek Turkmenia.

Résumé. La faune des Noctuidae de Turkménistan (Lepidoptera)

Une liste des Noctuidae a été établie sur base de données publiées, d'observations personnelles pendant la période 1978-1985 et du matériel de collection des musées de Moscou, St. Petersburg et Budapest. Un total de 394 espèces en provenance de 8 régions naturelles de Turkménie (44 localités) a été trouvé, dont 66 espèces sont nouvelles pour la faune turkmène.

Резюме. Фауна совок Туркменистана (Lepidoptera: Noctuidae)

Фаунстический список совок Туркменистана составлен на основании литературных данных, собственных сборов за период с 1978 по 1985 г., а также материалов коллекций музеев Москвы, С.-Петербурга и Будапешта. В общей сложности для 8 природных регионов Туркменистана (44 местонахождения) приводится 396 видов, из которых 66 для фауны республики указываются впервые.

Key words: Turkmenia - Noctuidae - faunistics.

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1. Literature review

The first big review about Noctuidae of Turkmenia was undertaken by V. I. Kuznetsov (1960). He summed up the publications of Christoph (1897, 1884-1889, 1885), Püngeler (1899-1900); investigated materials of Eilandt (1893) and Gertz (1894), which are deposited in St. Petersburg's Institute of Zoology (ZIN) Academy of Science of Russia; then he mentioned subsequent publications of Bogush (1935) and Kozhantchikov (1937).

V. I. Kuznetsov himself investigated the Lepidoptera fauna the of West Kopet-Dagh in 1952-1953 (town Kara-Kala in the Ashkhabad region) and described some new Noctuidae species (Kuznetsov 1958). His complete Noctuidae list of Turkmenia includes 213 species.

Two *Catocala* species were described by J. L. Stschetkin (1963). Many Noctuidae studies in Turkmenia were made by M. A. Daritcheva. She published faunistic lists of Noctuidae of the south-east Kara-Kum desert (Daritcheva 1965, 1967, 1972, 1984), of the Kopet-Dagh mountain area (Daritcheva 1980), of the middle Amu-Darya-river region (Daritcheva et al. 1983), and she described one new species (Daritcheva 1961).

The latest publications were devoted to the Noctuidae fauna of the Repetek, Badhiz and Sjun-Hasardag State nature reserves (Sviridov 1971, Tsvetaev 1972, Petchen 1980, Devjatkin 1988) and of the West Kara-Kum desert (Remm & Viidalepp 1981).

Some data about Turkmenian Noctuidae can be found in the publications of Seitz (1913), Boursin (1940), Wiltshire (1979) and some others.

2. Nature conditions of Turkmenia

The Republic of Turkmenia is situated between: 35°5'00''–43°5'48'' N and 54°5'24''–66°5'48'' E. The Caspian Sea forms the western border and the north-east boundaries along Amu-Darya river; on the north it borders with Kazakhstan along the dry plateau Ustjurt and on the south with Iran and Afghanistan along the Kopet-Dagh and Paropamiz mountain areas. Turkmenia stretches from north-west to south-east on 750 km, its area is 488000 km².

There are 5 administrative regions in Turkmenia: Tashauz, Tschardzhou, Mary, Ashkhabad and Krasnovodsk regions.

Most of the territory is occupied by desert plains, of which Kara-Kum is the greatest desert of the World. It occupies 80% of the territory of Turkmenia. Typical landscapes of Kara-Kum are sandy ranges, hillocks and barchans. Especially these barchan sands are situated nearby the Amu-Darya area. The takirs –hard-clay tracts of land– are very typical for this type of desert too.

The desert summer is very hot, the average temperature in July in the Central Kara-Kum rises till 30–32°C. The maximum temperature for the Repetek Nature Reserve is 50°C. The average winter temperature is about 0°C for most parts of Kara-Kum, –3–4°C for the Caspian sea coast, and –1–2°C for south-east Kara-Kum.

The great rivers of south-east Kara-Kum are Tedjen and Murgab. They end up as dry deltas in the desert. There are several oases along the rivers.

The typical vegetation for the desert zone consists mainly of two species of *Saxaul*-bushes, 45 species of *Kandim*-bushes and different species of *Artemisia*-herbs.

The southern part of Turkmenia is occupied by the young mountain-range of Kopet-Dagh, which belongs to the dry subtropical zone. Actually, this is the northern part of the Turkmen-Khorasan mountain area. Mountains occupy 8% of the territory of Turkmenia. The Kopet-Dagh mountain-range stretches on 500 km along the southern boundary of Turkmenia, with a maximum altitude of 2912 m. It is intersected by valleys and ravines. Furthermore, there are two separate mountains at 20-40 km from the Kopet-Dagh range: Big Balhan and Small Balhan.

Kopet-Dagh has gentle southern slopes and steep northern slopes. Average temperatures at an altitude of 1500–2000 m: 5–2°C in wintertime and 18–20°C during summer. The soils in the mountain area consist of different subtypes of grey and brown soils. There are no forests, but mountain-steppe complexes and semisavans are very common. There are many Iranian and Caucasian elements of herbs. *Juniperus* associations occur to an altitude of 1500 m. In the most humid ravines some trees are able to grow: apple trees, plums, figs, pears, and walnuts.

The hill areas –Badhiz and Karabil– are situated in the far south-east of Turkmenia. They are separated by the river Murgab. There is a sharp continental climate with a hot dry summer. Average temperature in July 27°C, in January –2.3°C. There is a yearly precipitation of 258 mm.

Mountain flora is rather rich and includes about 600 species of plants, such families as: Asteraceae, Chenopodiaceae, Poaceae, Boraginaceae, Brassicaceae and others. The most common genera are: *Carex* and *Poa*. There are many different ephemerals too, which only blossom during the short spring period. The dominating plant in the landscape around Badhiz is a giant Apiaceae: *Pherula badrakena*.

There are agricultural regions along the rivers and canals. The most common agricultural plant is cotton. Furthermore, there are several orchards and melonfields.

3. Material and collecting localities

As a basis for the present study we retrieved material from different sources.

a). Original catches with light-traps: in Krasnovodsk region (town Nebit-Dagh, peninsula Dardja, Uzboj river) by E.A.Hatchikov in 1983-1985; in Badhiz Nature reserve by V.I.Petchen in 1978-1980, 1984-1985).

b). The studies of museum's collections: Zoological museum of Moscow State university; St. Petersburg's Zoological Institute Russian Academy of Science; Hungarian Natural History Museum (Budapest) ¹

c). All publications about Noctuidae of Turkmenia (see chapter 1).

d). Private collections of Moscow entomologists.

Systematics, nomenclature and some data about Noctuidae zoogeographical spreading were taken from publications of Seitz (1913), Boursin (1961a, b; 1968), Wiltshire (1970, 1979), Nye (1975), Parenzan (1979), Leraut (1980), Hacker (1985, 1990), Fibiger (1990).

On the enclosed map (fig. 1) the 44 localities where Noctuidae were caught in Turkmenia are indicated. They are grouped into 8 natural regions:

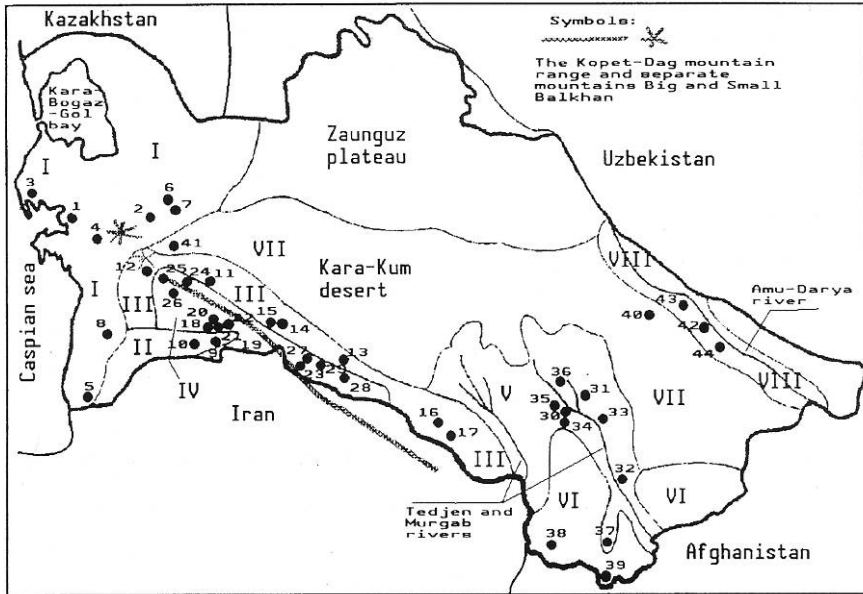


Fig. 1: Map of Turkmenia with natural regions and localities where Noctuidae were observed.

I. Unity of two regions: Near-by-Caspian sea coast sandy-salt-marsh region and Ustjurt clay-road-metal region. It includes the Caspian sea coast, Kara-Bogaz-Gol bay coast, mount Big Balhan, Krasnovodsk plateau, Tscheljungkir plateau and Kaplankir plateau.

- | | |
|------------------------------|---------------------------|
| 1. Peninsula Dardja | 5. Settlement Adjiap |
| 2. Sandy area Tschilmamedkum | 6. Settlement Kara-Takir |
| 3. Town Krasnovodsk | 7. Settlement Kizyl-Takir |
| 4. Town Nebit-Dagh | 8. Settlement Bugdaili |

¹ A vast collection of Noctuidae-moths from Kopet-Dag deposited in the Hungarian Natural History Museum. The catches were made by L. and G. Ronkay and M. Hreblyay. We use here only some data from their unpublished materials.

II. Atrek-Sumbar valley region. It includes the narrow belt along the rivers Atrek and Sumbar.

9. Town Kara-Kala and settlement Parhay

10. Settlement Tersakan, Sumbar valley

III. Near-by-Kopet-Dagh region. It includes the under-hill plains of the north-west and south-east Kopet-Dagh and oasis belt of the Kopet-Dagh central mountain-base area.

11. Settlement Kizyl-Arvat

15. Settlement Artschan

12. Mount Small Balhan

16. Mount Ipay-Kala

13. Town Ashkhabad and settlement Dagish

17. Settlement Dushak

14. Settlement Baharden

IV. Kopet-Dagh mountain region. It includes the mountain ranges above 500 m.

18. Kara-Kala mountain-desert area (m.d.)

24. Settlement Uzun-Su

19. Ravine Aj-Dere

25. Settlement Danata

20. Mount Sjunt

26. Mount Karagez

21. Ravine Iol-Dere

27. Settlement Germab

22. Mount Hosar-Dagh

28. Mount Annau

23. Settlement Tschuly

29. Settlement Firyuza

V. Murgab-Tedjen oasis region. It includes the area between the rivers Murgab and Tedjen.

30. Town Mary

34. Settlement Murgab

31. Town Bairam-Ali

35. Settlement Sakar-Tschaga

32. Town Imam-Baba

36. Settlement Akibay

33. Town Iolotan

37. Settlement Kala-i-Mor

VI. Badhiz-Karabil clay-hill region. It includes the hill-lands of Badhiz and Karabil.

38. Badhiz Nature Reservation, settlement Morgunovka

39. Town Kushka

VII. The Low-Karakumi sandy region. It includes the great territory of the central Kara-Kum desert.

40. Settlement Repetek

41. Lake Yaskhan

VIII. The middle Amu-Darya low-lands region. It includes the valley of the Amu-Darya river.

42. Town Tschardzhou

44. Settlement Lambe

43. Settlement Deynau

Collecting localities: abbreviations in the faunistic list:

1) Material of the Moscow State University, Zoological museum (on cotton-wool).

A: Aksentjev 1974

L: Lisecky 1961, 1966, 1969

V: Virkova 1952

Pt: Potopolsky 1953-1954

DI: Dlussky 1963

S: Selivanov 1974

Don: Donov 1927-1929

St: Stebaev 1953, 1958

Kel: Keleimikov 1970

Tr: Travinsky 1974

Kos: Kostilev 1937-1938

Ts: Tsvetaev 1946, 1965

Dor: Doronin 1967

2) Material of the St. Petersburg's Zoological Institute (on pins).

B: Bogush 1933

Mr: Murzin 1991

Dan: Dantchenko 1979

Z: Zaguljaev 1966

Kaz: Kazarjan 1981, 1982

ZIN: labels without collector

Kozh: Kozhantschikov 1912

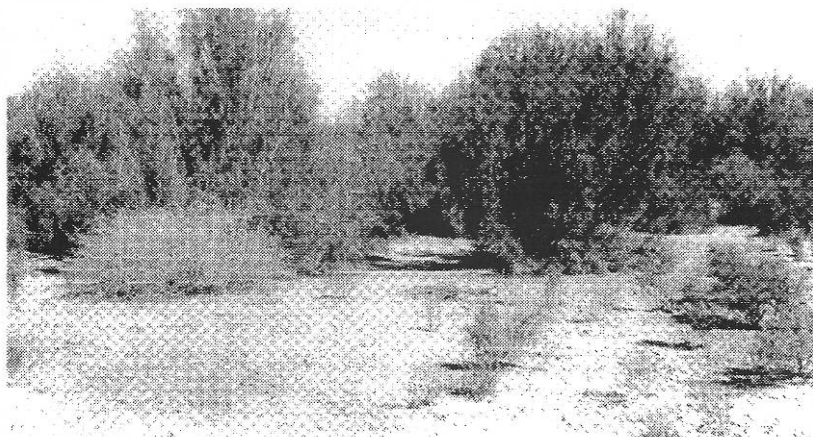


Fig. 2: Turkmenia, Tashaus region, saxaul bushes (photo: A. Belov).



Fig. 3: Turkmenia, Central Kopet-Dagh, sparse growth of pistachio-trees (photo: V. Petchen).

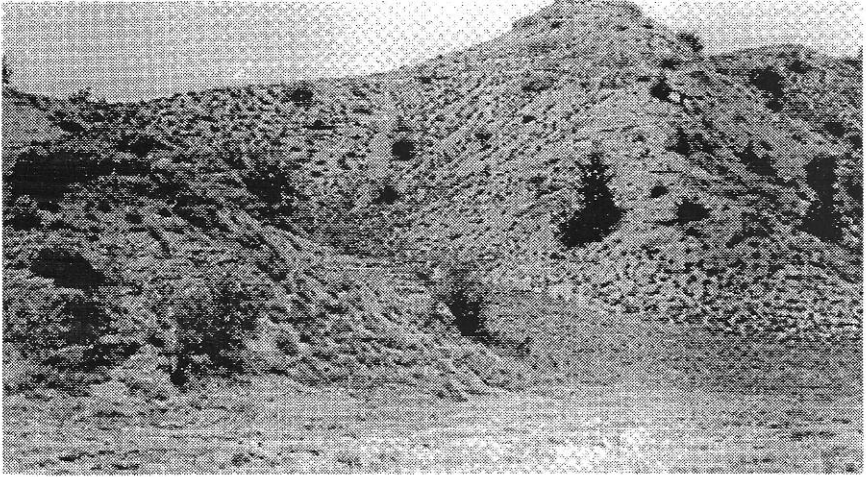


Fig. 4: Turkmenia, Badhiz, sandy hillock (photo: V. Petchen).

3) Material of the Hungarian Natural History Museum (Budapest) (on pins).

Hr, LR, GR: M.Hreblay, L.Ronkay,
G.Ronkay 1991–1992.

F, Her, Pod, Vr: Fabian, Herczig, Podlysseny,
Varga 1991–1992.

4) Publications.

BRSN: Boursin 1940, 1961a, 1968
D: Daritcheva 1963, 1965, 1967, 1968,
1972, 1980, 1983, 1984
Hack: Hacker 1985, 1990
Hreb: Hreblay 1992
K: Kuznetsov 1958, 1960
Kozh: Kozhantschikov 1937
P: Petchen 1980

RV: Remm, Viidalepp 1981
Sz: Seitz 1913
Sv: Sviridov 1971
Ts: Tsvetaev 1972
VR: Varga, Ronkay 1946
Vr: Vagra 1989
W: Wiltshire 1979

5) Private collections.

Dan: Dantchenko 1979
Dev: Devjatkin 1982, 1983, 1985–1987
Dub: Dubatolov 1990
H: Hatchikov 1983–1985
Hv: Hvilja 1982, 1986
Kaz: Kazarjan 1979–1982

Koz: Kozhutchitz 1985
Mak: Makarov 1989
Mim: Mimonov 1986
Mr: Murzin 1991
P: Petchen 1978–1980, 1982, 1985

4. Systematic list of the Noctuidae of Turkmenia

* – new species for Turkmenia

Subfamily Agrotinae

1. *Euxoa agricola* Boisduval, 1829 (transpalaeartic): Kara-Kala (K: 12.V–27.VI); Kara-Kala m.d., Aj-Dere, Sjung (K); Badhiz (P: 29.V, 10–6.X; Sv); Tschardzhou (Kozh: 23.IV); Repetek (Ts: V; Kos: 25.V); Danata (D: 22–27.V, 12–18.IX); Karagez (D: 12.VI); Deynau, Lambe (D: IV–VI); Krasnovodsk (Kaz: 22.V, 9.VI); Bairam-Ali (B: 20.VI); Nebit-Dagh (H: VI); Tschilmamedkum (H: V); Bugdaili (D: 22.V).

2. *Euxoa diaphora* Boursin, 1928 (central asian): Ashkhabad (VR 15.X).
- *3. *Euxoa basigramma* Staudinger, 1870 (ssp. *hyrcana* Corti, 1932) (west-palaeartic): Iolotan (V: 12.IX); Ashkhabad (Don: 8.VIII).
4. *Euxoa distinguenda* Lederer, 1857 (mediterranean): Aj-Dere (K: IX); Badhiz (Sv).
- *5. *Euxoa dsheiron* Brandt, 1938 (irano-turanish): Ashkhabad (Pt: 19.IX).
- *6. *Euxoa aquilina* Denis & Schiffermüller, 1775 (transpalaeartic): Badhiz (P: 2.VI; Sv).
7. *Euxoa heringi* Christoph, 1877 (f. *marcens* Staudinger, 1893) (irano-turanish): Kara-Kala m.d. (K: 7.IV-24.VI); Badhiz (Sv).
8. *Euxoa sigmata* Kozhantschikov, 1928 (irano-turanish): Ashkhabad (Ts: X); Tschuly (Ts: X).
9. *Euxoa transcaspica* Kozhantschikov, 1928 (central asian): Kara-Kala m.d. (K: 15.V-7.VI).
- *10. *Euxoa deserta* Staudinger, 1870 (central asian): Imam-Baba (Dan: 23.X); Kala-i-Mor (Hv: 15.X); Tschuly (L: 5.X); Ashkhabad (Pt: 9.X; B: 8.X); Murgab (ZIN: 20.IX); Bairam-Ali (B: 7.X).
11. *Euxoa enitens* Corti, 1926 (central asian): Kara-Kala (GR: 16.VIII).
12. *Euxoa acuminifera* Eversmann, 1854 (central asian): Deynau (D: 10.IX); Repetek (Ts: IX, X); Kizyl-Takir (H: VI); Yaskhan (RV); Krasnovodsk (Kaz: 19.X); Murgab (ZIN: 28.IX); Ashkhabad (RV).
13. *Agrotis vestigialis* Hufnagel, 1766 (transpalaeartic): Kara-Kala (Dor: VII).
14. *Agrotis biconica* Kollar, 1844 (= *spinifera* Hübner, [1809]) (tropical, subtropical): Kara-Kala (K: 9.VI); Badhiz (P: 5-13.VII).
15. *Agrotis segetum* Denis & Schiffermüller, 1775 (cosmopolite): Kara-Kala (K: 17.IV-10.VIII); Kara-Kala m.d. (K); Aj-Dere Kizyl-Arvat (K); Nebit-Dagh (Tr: 27.VIII; H: 15.IV-10.VI); Dardja (H: 19.IX); Yaskhan (RV: 27.IV-4.V); Badhiz (P: 13.VI-1.VII, 11-17.IX; Sv); Lambe, Deynau (D: IV-VI, IX); Repetek (Ts: XI); Bugdaili (D: 25-28.VI); Danata (D: 1.VI-12.IX).
16. *Agrotis ipsilon* Hufnagel, 1766 (cosmopolite): Kara-Kala (K: 17.V-22.VIII); Nebit-Dagh (Tr: 26.IX; H: 15.IV-10.VI, IX); Yaskhan (RV: 29.IV-24.IX); Badhiz (P: 27.IX-16.XI, Sv); Lambe, Deynau (D: IV-VI, IX); Repetek (Z: 10.III, Ts: XI); Bugdaili (D: 22.V).
17. *Agrotis exclamationis* Linnaeus, 1758 (transpalaeartic): Kara-Kala (K: 4.V-24.VIII); Badhiz (P: 24.IV; Sv); Kara-Kala m.d.(K: 24.VIII); Tschardzhou (S: 8.V-20.VIII); Bugdaili (D: 22.V).
18. *Agrotis bifurca* Staudinger, 1881 (central asian mountains): Dushak (Dub: X).
19. *Agrotis puta* Hübner, 1803 (mediterranean): Kara-Kala (K: IV); Aj-Dere (K); Baharden (K).
20. *Agrotis ripae* Hübner, 1823 (transpalaeartic): Tschuly (L: 5.X).
21. *Agrotis crassa* Hübner, 1824 (ssp. *golickei* Erschoff, 1874) (transpalaeartic): Sumbar (Kozh); Badhiz (P: 23.IX-30.X); Ashkhabad (B: 7-19.X).
22. *Agrotis obesa* Boisduval, 1829 (west-palaeartic): Sumbar (Kozh); Badhiz (P: 13-26.X).
23. *Powellinia lasserei* Oberthür, 1881 (east-mediterranean): Deynau (D: IX); Repetek (Ts: 11.X-7.XI); Badhiz (P: 3-19.X); Ashkhabad (Pt: 24.X); Murgab (ZIN: 30.IX-17.X).
24. (?) *Lycophorus villosus* Alpheraky, 1887 (central asian): Repetek (Ts: 26.IX); Badhiz (P: 13-19.X); Imam-Baba (Dan: 17-25.X); Krasnovodsk (Kaz: 19.IX).

² A. V. Tsvetaev (1972) determined this species as *Cladocerotis benigna* Corti.

25. *Ochropleura jacobsoni* Kozhantschikov, 1930 (central asian mountains): Kara-Kala (K: 24.V–24.VI); Parhay (Mim: 12.V).
- * 26. *Ochropleura clara* Staudinger, 1888 (central asian mountains): Badhiz (Ts).
27. *Ochropleura kirghisa* Eversmann, 1856 (central asian): Repetek (Ts: 16.V); Tschilmamedkum (H: VI); Ashkhabad (Pt: VII).
28. *Ochropleura celebrata* Alpheraky, 1897 (central asian mountains): Kara-Kala m.d. (K: 7.IV, 8.VI); Badhiz (P: 18.V).
29. *Ochropleura psammochroa* Boursin, 1940 (irano-turanish): Dushak (Hr, LR, GR: 8–10.VIII).
30. *Ochropleura squalidior* Staudinger, 1901 (east-mediterranean): Aj-Dere (K: 17.VI); Badhiz (Sv); Kara-Kala (Ts: 5.VI).
31. *Ochropleura squalorum* Eversmann, 1856 (east-mediterranean): Danata (D: 25.V).
32. *Ochropleura vallesiaca* Boisduval, 1834 (ssp. *griseotincta* Wagner, 1931) (irano-turanish): Kara-Kala m.d. (K: 7.IV).
33. *Ochropleura melanura* Kollar, 1846 (east-mediterranean): Kara-Kala, Kara-Kala m.d., Iol-Dere (K: IV, VI, VII); Repetek (Ts: 11.VII); Badhiz (Sv); Nebit-Dagh (H: 5.VI); Lambe (D: 10.VI); Danata (D: 27.V).
34. *Ochropleura multiscuspis* Eversmann, 1852 (central asian): Lambe (D: 18.V); Repetek (Ts: 11–13.V).
35. *Ochropleura forcipula* Eversmann, 1851 (ssp. *turana* Staudinger, 1891) (mediterranean): Kara-Kala, Kara-Kala m.d., Aj-Dere, Iol-Dere (K: 29.IV–27.V); Krasnovodsk (ZIN); Badhiz (P: 20–22.IV; Sv).
36. *Ochropleura renigera* Hübner, 1808 (east-mediterranean): Sumbar (K); Aj-Dere (K: 9.VI).
37. *Ochropleura humilis* Boursin, 1940 (central asian mountains): Dushak (Hr, LR, GR: 9–10.VIII).
- *38. *Ochropleura nigrescens* Hofner, 1888 (mediterranean): Ashkhabad (Pt: 13.VIII).
39. *Ochropleura forcipula* Denis & Schiffermüller, 1775 (mediterranean): Iol-Dere, Sjut (K: 1–12.VI); Kara-Kala, Kara-Kala m.d. (K: 18–26.V); Badhiz (P: VI).
- *40. *Ochropleura gracilis* Wagner, 1929 (mediterranean): Badhiz (P: 17.IX).
41. *Ochropleura lupinus* Brandt, 1941 (central asian mountains): Dushak (Dub: X); Badhiz (P: 17.IX).
42. *Ochropleura truculenta* Lederer, 1853 (central asian): Aj-Dere (K); Ashkhabad (Pt: 19.IX).
- *43. *Ochropleura unifica* Kozhantschikov, 1937 (central asian mountains): Badhiz (P: 4–12.V).
44. *Ochropleura glaucescens* Christoph, 1887 (central asian): Kara-Kala, Kara-Kala m.d. (K: 18–27.V); Danata (D: 26.V); Badhiz (P: 4.VI); Ashkhabad (Pt: 10.VII–7.VIII).
45. *Ochropleura strenua* Corti, 1926 (central asian mountains): Badhiz (P: 13.X).
46. *Ochropleura amoena* Staudinger, 1892 (central asian mountains): Tschuly (L: 5.X).
47. *Ochropleura anastasia* Draudt, 1936 (irano-turanish): Aj-Dere (K).
48. *Ochropleura herzi* Kozhantschikov, 1930 (endemic of Kopet-Dagh): Sumbar (K: 24.V); Parhay (Mim: 12.V).
49. *Ochropleura petersi* Christoph, 1887 (central asian): Repetek (Ts: 12.X); Tschilmamedkum (H: 1–17.X); Ashkhabad (Sz); Imam-Baba (Dan: 17.X).
50. *Ochropleura singularis* Staudinger, 1877 (irano-turanish): Kara-Kala (K: IX); Aj-Dere (K: 21.X); Badhiz (P: 21.IX–20.X); Tschuly (L: 5.X); Repetek (Ts: 4.X).

*51. (³) *Ochropleura danilevskyi* Stschetkin, 1965 (central asian): Tschuly (Kaz: 17.IX); Krasnovodsk (Kaz: 12.IX); Deynau (D: 18.IX); Repetek (Ts: IX, X); Bairam-Ali (B: 6.X); Iolotan (Ts: 7-9.X).

*52. *Ochropleura candelsequa* Denis & Schiffermüller, 1775 (mediterranean): Tschilmamedkum (H: VI).

53. *Ochropleura flammatra* Denis & Schiffermüller, 1775 (west-palaeartic): Kara-Kala, Kara-Kala m.d., Iol-Dere, Sjung, Hosar-Dagh (K: 29.IV-12.VI); Badhiz (P: 22.IV-12.V, 1.IX-21.X); Kizyl-Arvat (K: 9.VI); Deynau, Lambe (D: IV-VI, IX); Imam-Baba (Kozh: 1.IV-10.V); Nebit-Dagh (H: VI); Tschilmamed-kum (H: V); Mary (Kel: 16.IV); Repetek Kos: 25.V); Danata (D: 27.IX); Bugdaili (D: 24-27.V); Bairam-Ali (B: 22.X).

54. *Parexarnis sollers* Christoph, 1877 (irano-turanish): Tschilmamedkum (H: V); Repetek (Ts: V, IX; Kos: 5.VI); Lambe (D: IV-VI); Badhiz (P: 17-21.V); Tschardzhou (S: 20.VI).

*55. *Protexarnis confinis* Staudinger, 1881 (holarctic): Nebit-Dagh (H: 5.VI).

56. *Eugnorisma tamerlana* Hampson, 1903 (central asian): Bairam-Ali (B: 10-21.X); Aj-Dere (K); Mary (D); Ashkhabad (D; Pt: 19.IX); Tschuly (L: 7.V); Iolotan (B: 6.X); Murgab (ZIN: 28.IX); Imam-Baba (Dan: 14.X).

57. *Eugnorisma cuneifera* L. Ronkay, 1992 (endemic of Kopet-Dagh): Ipay-Kala (Hr, GR, LR: 16-23.VIII).

*58. *Eugnorisma spodia* Püngeler, 1899 (central asian): Ashkhabad (Pt: 17.IX); Aj-Dere (ZIN); Tschuly (Kaz: 17-23.IX); Bairam-Ali (B: 7-13.X); Badhiz (P: 13.X).

*59. *Eugnorisma eminens* Lederer, 1855 (central asian mountains): Ashkhabad (Pt: 17.IX).

60. *Eugnorisma gaurax* Püngeler, 1899 (central asian): Mary (VR).

*61. *Eugnorisma trigonica* Alpheraky, 1872 (central asian): Nebit-Dagh (H: 20.V-10.VI).

62. *Eugnorisma insignata* Lederer, 1853 (central asian): Iol-Dere (D: 20.VIII); Nebit-Dagh (H: 10.VII); Badhiz (Ts); Ashkhabad (Pt: 17.IX); Danata (D: 26-27.IX).

63. *Eugnorisma depuncta* Linnaeus, 1761 (west-palaeartic): Aj-Dere (K: 21.V-4.IX); Badhiz (P: 31.VIII-17.IX).

64. (*) *Eugnorisma pontica* Staudinger, 1891 (mediterranean): Ashkhabad (VR).

65. *Standfussiana nictymera* Boisduval, 1834 (ssp. *osmana* Wagner, 1929) (mediterranean): Ipay-Kala (Hr, GR, LR: 18-23.VIII).

*66. *Standfussiana socors* Corti, 1925 (irano-turanish): Dagish (Pt: 22.VI).

67. (⁵) *Rhyacia arenacea* Hampson, 1923 (east-mediterranean): Kara-Kala, Aj-Dere, Iol-Dere, Sjung (K: 29.IV-10.VI); Ashkhabad (D: 29.IV); Danata (D: 28.V); Badhiz (P: 22.IV, 10.XI); Dardja (H: VI); S. Balhan (Kaz: 5.V); Bairam-Ali (B: 8-10.X).

68. *Rhyacia psammia* Püngeler, 1906 (irano-turanish): Ashkhabad (Hack).

69. *Rhyacia diplogramma* Hampson, 1903 (irano-turanish): Ashkhabad (Hack).

70. *Chersotis sjuntensis* Kuznetzov, 1958 (endemic of Kopet-Dagh): Sjung (K); Dushak (F, Her, Pod, Vr: 29.VI).

71. *Chersotis semna* Püngeler, 1906 (east-mediterranean): Ashkhabad (Sz); Kara-Kala (Mim: V).

72. *Chersotis nitens* Brandt, 1941 (irano-turanish): Ipay-Kala (Hr, LR, GR: 16-23.VIII).

³ Tsvetaev (1972) and Daritscheva (1983) determined this species as *Ochropleura eureteocles* Boursin. We believe, that all specimens from Turkmenia are: *O. danilevskyi* Stshetkin.

⁴ *Eugnorisma chaldaica* Bsd. (Kuznetzov, 1960) is not included here, as its presence in Turkmenia is doubtful.

⁵ Petchen (1980) determined this species as: *Rhyacia simulans* Hufnagel.

73. *Chersotis capnistis* Lederer, 1872 (central asian): Ipay-Kala (Hr, LR, GR: 16-23.VIII).
74. *Chersotis obnubila* Corti, 1926 (irano-turanish): Ipay-Kala (Hr, LR, GR: 16-23.VIII).
75. *Chersotis juvenis* Staudinger, 1901 (irano-turanish): Dushak (F, Her, Pod, Vr: 6-9.VII).
76. *Chersotis hahni* Christ, 1885 (irano-turanish): Kara-Kala (K); Dushak (F, Her, Pod, Vr: 6-9.VII).
77. *Chersotis curvispina* Boursin, 1961 (irano-turanish): Tschuly (L: 13.IX): Kara-Kala (K: 10-21.V).
78. *Chersotis sarhada* Brandt, 1941 (irano-turanish): Sjung (K: 25.VII).
79. *Noctua pronuba* Linnaeus, 1758 (mediterranean): Kara-Kala (K: 18.V-22.VII); Badhiz (Sv); Lambe (D: 25.IV); Kara-Kala m.d. (K: 26.V); Sjung (K).
80. *Noctua orbona* Hufnagel, 1766 (mediterranean): Tschuly (L); Kara-Kala (K: 10.VI); Nebit-Dagh (H: VI); Badhiz (Sv).
81. *Noctua fimbriata* Schreber, 1759 (mediterranean): Kara-Kala (K: 26.VI); Iol-Dere (K: 26.VII).
82. *Noctua comes* Hübner, 1813 (mediterranean): Kara-Kala (K: 10.VI).
83. *Noctua janthina* Denis & Schiffermüller, 1775 (mediterranean): Aj-Dere (Dev: 14-15.VI).
84. *Spaelotis senna* Freyer, 1829 (mediterranean): Aj-Dere (K: 9.VI); Ashkhabad (Pt: 18.IX).
85. *Spaelotis degeniata* Christoph, 1877 (central asian): Sumbar (Kozh).
86. *Opigena polygona* Denis & Schiffermüller, 1775 (west-palaeartic): Iol-Dere (K: 17.VI); Ashkhabad (Pt: 19.IX).
87. *Eugraphe marcida* Christoph, 1893 (central asian mountains): Aj-Dere (K: 30.VIII); Ashkhabad (Pt: 19.IX); Badhiz (P: 13.X); Tschuly (Kaz: 17.IX).
88. *Peridroma saucia* Hübner, 1808 (cosmopolite): Kara-Kala (K: 10.VI); Kara-Kala m.d. (K: 15.VI); Badhiz (P: 1-10.VI).
89. *Eicomorpha koeppeni* Alpheraky, 1896 (irano-turanish): Aj-Dere (Mim: 2.V).
- *90. *Xestia xanthographa* Denis & Schiffermüller, 1775 (mediterranean): Ashkhabad (Pt: 19.IX); Badhiz (P: 6-19.X).
91. *Xestia miniago* Freyer, 1840 (mongolo-siberian): Badhiz (P: 30.X; Ts); Imam-Baba (Dan: 17.X).
92. *Xestia c-nigrum* Linnaeus, 1758 (cosmopolite): Bairam-Ali (B: 27.VIII).
93. *Xenophysa junctimacula* Christoph, 1887 (irano-turanish): Ashkhabad (Vr).

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94. *Discestra dianthi* Tauscher, 1809 (east-mediterranean): Kara-Kala (K: 21.IV-9.VII); Badhiz (P: 19.VIII-13.IX); Tschardzhou (S: 8.V); Repetek (Ts); Imam-Baba (Kozh: 10.V); Bugdaili (D: 22.V).
95. *Discestra trifolii* Hufnagel, 1766 (holarctic): Kara-Kala, Kara-Kala m.d., Iol-Dere (K: 21-23.VIII); Nebit-Dagh (H: VI-VII, IX); Tschardzhou (S: 29.VII-20.VIII); Deynau, Lambe (D: III-V); Tschilmamedkum (H: V); Baskhan (RV: 24.IX); Repetek (Ts: IV-V, IX); Badhiz (P: 19.VIII-13.IX); Imam-Baba (Kozh: 1.IV-10.V); Tschuly (Kaz: 22.VI); Krasnovodsk (Kaz: 22.V, 14.VI).
96. *Discestra stigmosa* Christoph, 1887 (mediterranean): Kara-Kala (K: 10.VII-16.X); Tschardzhou (S: 18.VIII); Deynau (D: 28.IV); Repetek (Ts: 25.IV); Nebit-Dagh (H: 10-20.V, IX; Tr: 11-16.IX); Yaskhan (RV); Bairam-Ali (B: 30.VII); Imam-Baba (Kozh: 1.IV-10.V); Badhiz (P: 7.V); Adjapi (D: 7.X).

- *97. *Discestra hoplites* Staudinger, 1901 (central asian): Kara-Kala (Kaz: 10.X).
98. *Cardepia sociabilis* de Graslin, 1850 (ssp. *irrisor* Erschoff, 1874) (mediterranean): Kara-Kala, Kara-Kala m.d. (K: 5.IV-10.VII); Artschan (K); Badhiz (P: 12.VII, 12.IX; Sv); Lambe, Deynau (D: IV-V); Yaskhan (RV); Nebit-Dagh (Tr: 26.IX); S. Balhan (D: 30.V).
99. (6) *Cardepia eremistis* Püngeler, 1904 (central asian): Mary (Don: 4.V); Transcaspien (Sz).
100. *Saragossa siccanorum* Staudinger, 1870 (east-mediterranean): Kara-Kala (K: 5.IX); Nebit-Dagh (Tr: 11-29.IX); Ashkhabad (Pt: 18.VIII).
101. *Hadula ptochica* Püngeler, 1899 (irano-turanian): Repetek (Ts: 15.IV); Tschardzhou (S: 8.V, 23.VII); Ashkhabad (Sz).
102. *Hadula sabulorum* Alpheraky, 1883 (mountain central asian): Kara-Kala m.d. (K: IV); Iol-Dere (K); Repetek Ts: IV); Bairam-Ali (B: 20.VIII); Kizyl-Arvat (H: VI); Mary (D: 2.V); Badhiz (P: 14.IV).
103. *Thargelia spinipes* Sukhareva, 1970 (irano-turanian): Repetek (Ts: 14-16.IV).
104. *Thargelia distincta* Christoph, 1884 (irano-turanian): Repetek (Ts).
105. *Odontelia sitiens* Püngeler, 1914 (irano-turanian): Repetek (Ts: I-III); Lambe (D: 21.IV).
106. *Odontelia margiana* Püngeler, 1901 (irano-turanian): Repetek (Ts: 22.II-25.III); Imam-Baba (Kozh: 1-16.III).
107. *Odontelia fissilis* Christoph, 1884 (irano-turanian): Repetek (Ts: III-IV); Lambe, Deynau (D: V-VI); Dardja (H: IV).
108. *Odontelia arenicola* Stschetkin, 1965 (irano-turanian): Repetek (Ts: III-IV); Nebit-Dagh (H: 20.VII); Dardja (H: 15-30.IV); Tschilmamedkum (H: IV-V); Kara-Takir (H: IV).
109. *Lacanobia w-latinum* Hufnagel, 1766 (transpalaeartic): Iol-Dere (K: 7.IV); Lambe (D: 5.VI); Aj-Dere (A: 14.VI).
- *110. *Lacanobia blenna* Hübner, 1824 (transpalaeartic): Tschardzhou (S: 8.V).
- *111. *Lacanobia suasa* Denis & Schiffermüller, 1775 (transpalaeartic): Tschardzhou (S: 23.VII).
112. *Lacanobia praedita* Hübner, 1813 (west-palaeartic): Kara-Kala (K: 12.VI-26.VII); Kara-Kala m.d. (K); Bairam-Ali (B: 28.V).
113. *Lacanobia oleracea* Linnaeus, 1758 (transpalaeartic): Kara-Kala (K: 19.V-19.VII); Lambe (D: 10.V); Yaskhan (RV: 27.VI).
114. *Hecatera dysodea* Denis & Schiffermüller, 1775 (west-palaeartic): Kara-Kala, Kara-Kala m.d. (K: VI); Badhiz (P: 6.V, 29.VIII-10.IX); Hosar-Dagh (K).

(continued)

⁶ We don't include here *Cardepia kaszabi* Sukhareva & Varga, 1973 (Sviridov 1971).