Observations and notes on Dermaptera, Mantodea and Orthoptera of Bahçesaray district (Van Province, East Turkey)

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Abstract: Observations and notes on Dermaptera, Mantodea and Orthoptera of Bahçesaray district (Van Province, East Turkey) Cesa News 145; 1-12, 24 figs.

In this paper, the first attempt at the beginning level on the fauna of Mantodea, Dermaptera and Orthoptera of Bahçesaray was made by the authors. In total, 30 species of 9 families in 3 pterygot orders are listed with synonyms, and distributional codes. Four species are mentioned as new for the fauna of Van Province. Observations made during field studies of the authors are supported by the illustrations.

Key words: Dermaptera, Mantodea, Orthoptera, fauna, Bahçesaray, Van, Turkey.

In the previous publication, the authors listed the dipteran species of Bahçesaray district (Kemal & Koçak, 2017). The material were collected by the authors during their several entomological trips to the district Bahçesaray (Van Province, East Turkey), in order to determine primarily the Lepidoptera fauna. The first results on the Lepidoptera, Hemiptera, Homoptera, and Diptera fauna of Bahçesaray were recently published in this serial.

The authors investigated the pterygot groups in Bahçesaray to some degree. Among the orders, the Orthoptera of Van is very little known by the authors. However, they published a few faunistic records from time to time (Kemal & Koçak, 2014, 2015, 2016a; Kemal et al., 2016; Koçak & Kemal, 2012). The orders Dermaptera and Mantodea are also very little studied in this province (Ehrmann, 2011; Anlaş & Kocarek, 2012).

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Observational papers on the pterygots of Bahçesaray are evaluated primarily from the faunistical standpoint. In the last publication, the authors reported the number of species represented in Pterygota fauna of Bahçesaray as 789 (Kemal & Koçak, 2017). The present paper comprises 30 species of 9 families of three orthopteroid orders, recorded from the Bahçesaray district. Thus, the total number of the Pterygota fauna of Bahçesaray reached to 819. To each species, synonymous names, and the range as codes are added (Koçak & Kemal, 2017). Some species, where observed in their living places of Bahçesaray are illustrated. Among them, we donot see two observational figures to identify possible at species level (Figs. 1, 13).

Figs. 1, 2 – Two different nymphs; from Upper Mukus Valley 1840m (65Am4) on 10 5 2016 (left); from Krapet Pass 3000m (65Abc), on 17 7 2017 (right), M. Kemal (Cesa)

List of the Dermaptera species

Totally 3 species are recorded from the district.

**Forficulidae**
Anlaş & Kocarek, 2012.

1. *Forficula auricularia* Linnaeus,1758
   Synonyms: auricularia Linnaeus,1758; major Degeer,1773; dentata Fabricius,1775; parallela Fabricius,1775; media Marsham,1802; neglecta Marsham,1802; infumata Megerle,1825; forcipata Stephens,1835; borealis Leach,1835; silanoides Karny,1911; caucasica Bei-Bienko,1926
   Range (in codes): ES FR SK HU BG UA BY RU KG CV TR TM CA US 02 03 05 06 07 08 09 13 14 15 16 17 18 19 21 23 27 28 30 31 33 34 35 37 38 40 42 44 45 46 47 48 49 50 53 55 60 61 62 65 67 73 13G 30a 31M 56A 56F 65A 65Ac 65F 65Nw 65Nm 65Nc 65Nm 73G
   Material examined: 1♂. Bahçesaray, Bağcılar 2040m (65As), on 4 6 2016, M. Kemal photo & leg. (Cesa). The species was also recorded previously in Gevaş and Tuşba districts of Van Province.

2. *Anechura bipunctata* (Fabricius,1781) (Fig.3)
   Semenov, 1901.
   Synonyms: bipunctata Fabricius,1781; fabricii Fieber,1854; anthracina Kolenati,1846; orientalis Krauss,1900; asiatica Semenov,1903 Range (in code): ES TR Arr RU FR SK AM KG CV TR TM CA US 04 05 06 07 13 16 25 30 31 35 36 38 46 51 62 65 69 13Gö 13Gğ 31F 65A 65Ac 65D 65F 65Fw 65Fx 65N 65Nğ 65Nm 65Nh 65Nk 65Np 65Nm 73G
   The species is reported here from Meteorology station of Bahçesaray 2570m (65Ac). It was also recorded previously in Çatak, Gevaş and Tuşba districts of Van Province.

3. *Anechura zubovskii* (Semenov,1901) (Fig.2)
   Semenov, 1901.
   Synonyms: zubovskii Semenov,1901; pirpanjalae Santokh Singh,1955 Range (in code): TR CN IN IR TM 46 65 76 65A 65Abc
   The nymph illustrated from Krapet Pass 3000m may belong to *A. zubovskii* Semenov. Anlaş & Kocarek (2012) distinguished *bipunctata* and *zubovskii* in the key by the colouration of the head, “reddish brown” and "entirely black”, respectively.
List of the Mantodea species

Mantids were unexpectedly poor in the district. Unfortunately only 2 species are recorded as nymphs. The species of *Mantis, Bolivaria, Rivetina, Ameles, Amorphoscelis* may also occur in Bahçesaray.

**Empusidae**

Ehrmann, 2011.

4. *Empusa fasciata* Brullé,1836  
(Figs. 4, 5)  
 Synonym: *fasciata* Brullé,1836  
 Range (in codes):  RO YU CY TR IQ Mos EG DZ GR HV B-H Cr II. Pa IR JO 05 06 07 08 13 16 21 23 24 25 30 31 34 35 42 44 45 46 51 56 57 65 73 13A 13Ab 13x 30B 30Be 30Bc1 31K 31Ka 44B 44M 44L 44Le 46B 46Bb 56F 56Fp 56G 65Am 65Am4 65F 65Fd 65Fp 65Fz 65K 65Kd 65Kg 65N 65Np 65Np2 65Np7 65Nr3 65Nm 73A 73Ac 73Ac1  
 In the other region of Turkey, during the summer, this species was recorded many times as adult. The present records are as nymphs in early May and late October. These cases clearly show that the species hibernates in the nymphal stadium.
Irididae
Ehrmann, 2011.

5. Iris oratoria (Linnaeus, 1758)
Synonyms: oratoria Linnaeus, 1758; dentata Goze, 1778; bella Germar, 1817; minima Charpentier, 1825; fenestrata Brulle, 1832
Range (in codes): ES MA EG DZ TN CY FR GR Cr IT JO II PA IN TD CA 06 10 12 13 16 23 24 25 31 33 34 35 36 45 48 56 65 73 12 A 12 Ab 13 A 13 Ab 13 X 24 E 34 4 H 4 4 F 4 4 1 4 A 4 F 5 6 F 5 6 F o 6 5 A 6 5 A e 6 5 A e 2 6 5 F 6 5 F e 6 5 F o 6 5 F z 6 5 F K 7 3 A 7 3 A d 7 3 A d 2
The species in the nymph stadium was recorded above Liman village (65Ac2) at 2200m in late summer of 2016.

List of the Orthoptera species
Totally 25 species of 6 families are reported here.

Acrididae

6. Calliptamus italicus (Linnaeus, 1758)
Synonyms: italicus Linnaeus, 1758; germanicus Fabricius, 1775; affinis Thunberg, 1815; fasciatum Hahn, 1836; marginellis Serville, 1838; cerisanus Serville, 1838; marmoratus Fischer von Waldheim, 1846; blandus Ivanov, 1888; bilineata Puschnig, 1910;
Range (in codes): ES FR BE NL DE CO Sa Si IT GR BG RO TR CY Cc AZ AM GG KG RU AF 01 03 04 06 07 08 09 13 14 16 18 19 22 23 28 32 34 35 36 39 42 43 44 45 46 49 52 55 56 59 60 63 65 63 C 65 A 65 A m 65 A m 4 65 D 65 D n 65 N 65 N p 7 65 N m
One of the commonest species with well developed populations in the district. Almost always it is seen together with some other acridid species in hot summer period.

7. Chorthippus (Glyptobothrus) bornhalmi Harz, 1971
Synonyms: bornhalmi Harz, 1971; lagrecai Harz, 1975
Range (in codes): IT SS YU B-H AL GR HV CY TR 05 06 07 14 17 18 19 22 23 28 32 34 35 37 39 42 44 45 52 53 55 59 60 63 65 63 C 65 A 65 A m 65 A m 4 65 D 65 D n 65 N 65 N p 7 65 N m
In the spring, this species is frequently observed in Van Province. Widely distributed in Turkey.

8. Dociostaurus (Notostaurus) anatolicus Krauss, 1896
Synonyms: anatolicus Krauss, 1896; castaneopicta Krauss, 1896; castaneopictus Jacobson, 1905
Range (in codes): YU GR BG TR Ce GG AZ SY JO II Pa IR Elb Th 01 02 03 04 05 06 07 08 10 12 13 16 17 18 21 23 24 25 26 31 32 33 34 35 36 37 38 39 41 42 43 44 45 46 47 49 50 51 56 60 62 63 65 66 71 73 76 80 04 C 04 D 04 E 04 H 08 A 13 F 13 F 71 13 F 72 13 G 13 G w 24 E 30 B 30 B o 31 B 31 C 31 H 36 E 36 E c 44 N 44 C 44 H 44 E 44 F 44 F b 44 L 44 N 46 A 46 B 46 B b 46 D 49 E 49 D 65 A 65 A e 65 D 65 F 65 F p 65 F z 65 N 65 N p 2 65 N m 73 A 73 A d 73 A d 76 B
One of the species in the acridid communities in summer. Locally seen, uncommon.

9. Oedaleus decorus (Germar, 1825)
Synonym: decorus Germar, 1825
Range (in codes): DZ LY ES FR IT Co GR BG RO UA TR RU Us Ce Da GG TM TJ KK KG CN U i 01 04 05 06 08 13 20 24 26 30 31 34 35 36 42 43 44 45 46 48 49 55 62 63 65 76 78 80 04 F 08 A 08 H 13 A 13 B 13 A x 13 F 13 F 7 13 F 7 13 G 13 G w 24 E 30 B 30 B o 31 B 31 C 31 H 36 E 36 E c 44 N 44 C 44 H 44 E 44 F 44 F b 44 L 44 N 46 A 46 B 46 B b 46 D 49 E 49 D 65 A 65 A e 65 D 65 E 65 E a 65 F 65 F e 65 F p 65 F z 65 G 65 G b 65 K 65 K 65 K g 65 N 65 N p 2 65 N p 4 65 N r 2 65 N r 4 65 N m 76 B
One of the species in the acridid communities in summer. Locally seen, uncommon.

10. Oedipoda aurea Uvarov, 1923
Synonym: aurea Uvarov, 1923
Range (in codes): TR JO Amm II PA SY LB GR Ac Le S m 03 04 06 07 10 12 16 20 21 23 24 27 31 33 35 42 43 44 45 49 63 65 04 E 12 A 12 Ab 24 E 31 B 31 H 44 N 44 F 44 F b 44 C 44 B 49 F 63 E 65 A 65 A m 65 A m 4 65 A m
Locally common, inhabits at warm places. Rarely found in the acridid communities.

11. Oedipoda caerulescens (Linnaeus, 1758)
Synonyms: caerulescens Linnaeus, 1758; coeruleipenne De Geer, 1773; fasciata Stal, 1873
Range (in codes): MA LY IT Sa ES PT FR DE CZ CH AT EE BY RO BG TR IR RU HU U A Cn Cc G G Tbl K K KG CN U i 04 05 06 07 08 09 12 13 15 16 18 20 21 30 31 34 35 36 38 43 44 46 48 49 51 55 56 58 60 61 65 67 80 04 D 04 E 08 A 08 G
Like the preceding species.

12. *Oedipoda schochii* Saussure, 1884
   Synonyms: schochii Saussure, 1884; caucasica Saussure, 1884; monotona Steinmann, 1965
   Range (in codes): TR CC GG SN IL PA JO SY HAL LB IQ IR AF 04 06 07 08 12 13 16 19 21 24 26 30 36 38 42 44 46 49 51 58 63 65 04C 04D 04E 04F 08H 24E 30B 30Bk 36C 36E 36Ec 44L 44B 44H 44C 44F 44Bb 44N 46A 46B 46Bb 49E 49Ed 56F 58G 58Gj 60G 65A 65Ai 65D 65Dp 65F 65Fz 65N 65Nc 65N 65Np 65Nr2 65Nr4 65Nm
   Like the preceding species, inhabits at warm, rocky places. The *Oedipoda* and *Sphingonotus* species are observed singly. It seems that these species are not associated with the species of *Dociostaurus*, *Pyrgodera*, *Oedaleus*, *Chortippus*, etc.

13. *Pyrgodera armata* (Fischer von Waldheim, 1820)
   Synonym: armata Fischer von Waldheim, 1820
   Range (in codes): TR CC GG RU KG AF TM IR IQ IL PA KK 01 02 04 05 06 07 08 12 13 16 19 21 23 25 26 27 30 32 33 36 38 42 44 46 47 49 50 51 56 58 62 63 65 71 76 04I 13A 13Ab 13Ax 13B 13G 30B 30Bk 36D 36Db 44C 44H 44M 44B 44E 44F 44Fb 44L 46A 65A 65Am 65Am1 76B
   One of the species in the acridid communities in summer. Locally seen, uncommon.

14. *Sphingonotus (s.str.) nebulosus* (Fischer von Waldheim, 1846)
   Synonym: nebulosus Fischer von Waldheim, 1846
   Range (in codes): TR CC NC MR IR Elb 06 23 24 25 26 27 29 36 44 45 48 51 65 04D 04E 04F 08H 24E 30Br 36D 36Db 44C 44H 44M 44B 44E 44Fb 44L 46A 65A 65Ac 65D 65De 65G 65Gz 65K 65Nz 65N 65Nm 65Np 65Np4 65Nr3 65Nr4 65Nm 676A
   Locally common, inhabits at warm, sandy places.

15. *Sphingonotus (s.str.) pilosus* Saussure, 1884
   Synonym: pilosus Saussure, 1884
   Range (in codes): TR CC IR Elb 06 23 24 25 26 27 29 36 44 45 48 51 65 65Gz 65N 65Nr4 65Nm
   Like the preceding species. New to the fauna of Van Province.

**Gryllidae**

16. *Oecanthus pellucens* (Scopoli, 1763)
   Synonyms: pellucens Scopoli, 1763; italicus Fabricius, 1781; lutaria Petagna, 1792; aqua Fabricius, 1798; varia Fischer von Waldheim, 1846; angustipennis Fitch, 1856
   Range (in codes): DZ PT FR DE AT CZ HU IT SA HV B-H YU RO RU SB FI UA CM TR CC SY LB II PA SA JO KG MN UG RZ 01 03 04 06 07 08 09 16 18 19 22 23 24 25 26 30 31 33 34 35 37 39 41 44 45 47 51 54 56 58 59 65 67 71 80 04C 08G 08H 18F 31B 31C 31F 31K 31Ka 33K 33Kb 44E 44Eh 44I 44Ic 44C 56F 58F 63F 65A 65At 65Fp 65Fz 65K 65Kd 65Ky1 65Kg 65N 65Nm 65Np 65Nr4 65Nm
   Uncommon.

**Gryllotalpidae**

17. *Gryllotalpa gryllotalpa* (Linnaeus, 1758)
   Synonyms: gryllotalpa Linnaeus, 1758; talpoid Olivier, 1791; vulgaris Latreille, 1804
   Range (in codes): DZ TN PT ES FR GB NL DE DK FI NO SE CH AT HU YU IT BG RO RU UA TR IQ BgD IR Ke SA SY LB II PA RE 01 02 03 04 06 07 08 09 13 16 17 21 23 24 25 31 33 34 35 39 42 44 45 47 50 51 54 56 63 65 76 31M 44C 56F 65A 65Au 76A 76Ac
   Common in the gardens as pest.

**Pamphagidae**

The members of this family are very interesting in Turkey from the zoogeographical standpoints. Most of the species are restricted to very narrow areas. It is also taxonomically very important group. Recently, Ünal (2007, 2016) published revisional studies in this family. The results show that more attention should be given to Pamphagidae family.

In the district two genera of this family, *Nocaracris* and *Paranothrote* are reported here.
18. **Nocaracris van Ünal, 2016** *(Figs. 6-8)*

Koçak & Kemal, 2016b; Ünal, 2016.

**Synonyms:** *rubripes* sensu Koçak & Kemal, 2016; *van* Ünal, 2016

**Range (in codes):** TR 65 65A 65Ai 65Aj 65B 65Bn 65F 65Fp 65Fz

The species was recently described by Ünal (2016) from İspiriz Mt. near Başkale city (Van Province). The identities of the species illustrated have been confirmed by Ünal (pers. comm.). In the district, this species is apparently common at high altitudes. Currently, the species is known only from Van Province (Başkale, Bahçesaray and Gevaş districts).

19. **Paranothrotes opacus** *(Brunner von Wattenwyl, 1882)* *(Figs. 9-10)*

**Synonyms:** *opacus* Brunner von Wattenwyl, 1882, *hakkariana* Demirsoy, 1973

**Range (in code):** IR Ak Ab Lo Km Kd IQ Mos Su Dk Pjw TR 23 30 47 63 65 73 23K 30B 30Bd 30Be 30Bk 30Bm 30C 30D 30Du 63H 65A 65Ai 65D 73A 73Aa 73C 73Ci

This species is distributed in SE Turkey (Urfa, Elazığ, Mardin, Şırnak, Van, Hakkari) and Iran. In the district, the species is represented by nominate subspecies (M. Ünal, pers. comm.).

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*Figs. 6, 7 - Nocaracris van*, in copula. From Bahçesaray, İmamlı 2610m (65Aj), on 25 6 2016 (left); female of the same species from Garipli 2300m (65Aq), on 4 6 2016 (right), M. Kemal (Cesa)

*Fig. 8 –* Dead male of *Nocaracris van*, a food for tenebrionids and ants. Bahçesaray, İmamlı 2550m, on 25 6 2016, M. Kemal (Cesa)*
Figs. 9, 10 - Paranothrotes opacus. From Bahçesaray, Paşaköy 1590m (65Ai), on 25 5 2016 among the leaves of Apiaceae (left); same specimen, lateral view (right), M. Kemal (Cesa)

Tettigoniidae

20. Depressotetrix depressa (Brisout,1848)
   Synonyms: depressa Brisout,1848; acuminata Brisout,1850; charpentieri Fieber,1853; elevata Fieber,1853; rudis Walker,1971; turcicus Demirsoy,1977
   Range (in codes): TR ES FR GR BG RO Cr IR Cc GG 01 03 04 06 08 09 13 16 18 21 22 23 24 25 26 34 35 36 42
   New to the fauna of Van Province.

21. Tetrix bolivari (Saulcy,1901)
   Synonym: bolivari Saulcy,1901
   Range (in codes): ES FR CZ YU SS B-H HV RO BG TR Cc GG RU KG TM UZ KK 04 06 08 12 13 14 21 23 31 34 35 36 42 44 50 61 63 71 04E 04I 08G 36D 44B 44C 44F 44L 63B 63C 63E 65A 65Ai
   New to the fauna of Van Province.

Figs. 11, 12 - Acrometopa syriaca. From Bahçesaray, Spindaran 2320m (65Ac3) on 10 8 2016 (left); Conocephalus fuscus (male). From Upper Mukus Valley (65Am4). Nocturnal, captured early in the morning at 5:43 a.m. (right), M. Kemal (Cesa)

Tettigoniidae

In Bahçesaray district, 9 species are reported here.

22. Acrometopa syriaca Brunner von Wattenwyl,1878 (Fig. 11)
   Synonyms: syriaca Brunner von Wattenwyl,1878; festae Giglio-Tos,1893; elsaes Werner,1937
   Range (in codes): GR CY EG II Pa Cc LB Bei SY Dms TR IQ 04 07 09 13 21 23 27 31 33 35 36 44 46 56 63 65 76 80 13F 13F7 13F71 27D 36D 44L 44N 44H 46D 56F 63C 63E 46A 65A 65Ac 65Am 65Am4 65D 65Df 65E 65Eb 65F 65Fp 65Fz 65N 65Np 65Nm 76A
   Common in summer.
23. *Conocephalus (Anisoptera) fuscus* (Fabricius,1793)  
(Fig. 12)

Synonyms: *fuscus* Fabricius,1793; *discolor* Thunberg,1815; *thoracicus* Fischer von Waldheim,1846; *concolor* Bolivar,1878; *ponticus* Nedelkov,1907; *turanicus* Semenov,1916; *dilatatus* Ramme,1951

Range (in codes): PL DE FR ES GB IT Sa SE YU HV B-H BG RO RU Ce AZ AM GG KG MN TR 01 02 05 06 07 08 09 10 12 13 14 16 19 21 23 25 26 30 31 33 34 35 36 39 43 44 46 47 50 53 56 59 61 62 63 65 71 76 81 25F 31M 44F 44Fb 56F 56Fp 63C 63E 65A 65Am 65Am4 65E 65Eb 65L 65La 76E

Material examined: 1♂. Bahçesaray, Upper Mukus Valley 1840m, 6 8 2016, M. Kemal & A.Koçak leg. (Cesa)

This species is easily distinguishable by its conical head, shorter tegmina than hindwing, and spined cercus of the male. The specimen came to the light trap and captured very early in the morning at Upper Mukus Valley. The species is also known Erciş and Edremit districts of Van Province.

24. *Isophya hakkarica* Karabağ,1962  
(Figs. 14-17)

Synonym: *hakkarica* Karabağ,1962

Range (in codes): TR IQ Su 30 65 30B 30Ba 65A 65Ai 65D 65De 65Dc?

The species described from Hakkari (Karadağ) (Karabağ, 1962), and also reported from northern Iraq (Ünal, 2005). Male, female and possibly the nymph of this species are recorded and illustrated from Paşaköy (Bahçesaray). The population from Yapılı (Çatak district) belong possibly to this species (M. Ünal, pers. comm.).

New to the fauna of Van Province.

(Fig.18)


Synonyms: *kurmana* sensu Karabağ,1958 nec Rme.,1939; *indivisa* Karabağ,1961

Range (in codes): TR 44 65 44C 65A 65Ai 65D 65Dr 65Drd 65F 65Fp 65Fz

The species was described by Karabağ (1961) from Artos Mt. (Gevaş district, Van Province). A topotypical specimen was illustrated in nature by the authors (Koçak & Kemal, 2012: fig.11). A nocturnal species, during day time, they are hidden between the rock cracks.
Figs. 14-17 - Isophya hakkarica. Above: Two males from Paşaköy 1600m. On 12 6 2016 (left), on 5 7 2017 (right). Bottom: Female from the same place, on 10 6 2016 (left), a nymph possibly of the same species from the same place, on 25 5 2016 (right), M. Kemal (Cesa)

26. Platycleis (s.str.) escaleraí Bolivar,1899
Synonyms: escaleraí Bolivar,1899; iphigeniae Adelung,1907; iranica Ramme,1929; graeca Harz,1966; #escaleraia Salman,1978
Range (in codes): TR Cc AZ Nv SY IR Ak Ab Elb Th IL Pa 01 04 06 08 13 14 21 27 31 35 36 44 46 63 65 73 76 04 C 04 F 04 H 08 A 13 A 13 Ae 13 Ax 27 D 31 C 36 B 36 D 44 H 44 C 44 B 44 M 44 L 46 Bb 63 E 65 A 65 Am 65 Am1 73 D 73 Da 76 A 76 Ae 76 D

Fig. 18 – Pezodrymadusa indivisa (female). Bahçesaray, Paşaköy 1600m, on 5 8 2016, M. Kemal (Cesa)
Figs. 19-20 – Female of *Polysarcus elbursianus* with spermatophore. Bahçeşaray İmamlı 2600m on 25 6 2016, M. Kemal (Cesa)

27. *Polysarcus elbursianus* (Uvarov,1930) (Figs. 19-20)
Kemal et al., 2016.

*Synonyms:* elbursianus Uvarov,1930; rechingeri Werner,1939

*Range (in codes):* IR Elb Dam TR 36 65 36F 65A 65Af 65Ah 65Aj 65F 65Fe

This species is recently reported from Bahçeşaray as a serious pest to the gardens, orchards in the city (Kemal et al., 2016). It was originally described from northern Iran, and after more than 80 years, it was also reported in Van Province (Bahçeşaray and Gevaş districts). In 2016, the authors observed the populations of this species in Bahçeşaray at high altitude about 2600m in May at young nymph stages, later nymph and adults together in June and July. In summer season, the populations were enormous and expanded downwards until the elevation 2000m. In the region, no predator of this species could be observed by the authors. Among the thousands adults, the authors could not observe any pair in *copula*. However, a few females were observed with spermatophore, attached by male after copulation. In 2017, the authors visited the same place at the same date, where the grasshopper recorded in swarm. It is interesting that the authors could not find any specimen there. The local people expect the swarm of this grasshopper next year again.

The reproduction biology of *Polysarcus elbursianus* should be urgently studied.

28. *Tettigonia viridissima* (Linnaeus,1758)

*Synonyms:* viridissima Linnaeus,1758; cantatrix De Geer,1773; flava Nedelkov,1907; meridionalis Shugurov,1912; paoli Capra,1936; intermedia Jannone,1937; trinacriae Jannone,1937

*Range (in codes):* DZ GB FR DE IT Sa SE EE LT BY RU HY B-H YU AL BG RO HU Cc AZ AM GG Tbl IR KG MN TR AF 01 03 05 06 07 08 09 12 14 16 21 23 24 25 26 28 30 31 33 34 35 36 39 42 44 45 46 48 50 52 54 55 56 57 58 59 63 65 67 71 08G 31B 31C 36D 44C 56F 56Fb 65A 65As 65D 65Df 65Fz

29. *Tylopsis lilifolia* (Fabricius,1793)

*Synonyms:* lilifolia Fabricius,1793; thymifolia Petagna,1792; gracilis Germar,1817; marginepunctata Audinet-Serville,1838; praeusta Fischer von Waldheim,1846; spinosus Fischer von Waldheim,1846; #liliifolia Bolivar,1877

*Range (in codes):* TR CY FR IT Sa YU HY B-H HU RO BG Cc AZ AM GG UA Cm 01 03 05 06 07 09 10 11 14 15 16 17 18 19 22 24 25 26 27 31 32 33 34 35 37 39 41 43 44 45 46 47 48 50 52 54 55 56 57 58 60 62 65 67 71 08G 31B 31C 36D 44C 44B 44H 56F 63F 63E 65A 65Am 65Am4 65D 65F 65Fp 65Fz 65N 65Nb

30. *Uvarovistia (s.str.) satunini* (Uvarov,1916) (Figs. 21-24)

*Synonym:* satunini Uvarov,1916

*Range (in codes):* TR Cc 12 13 21 23 30 49 56 62 65 30B 30Bm 56F 56Fb 65A 65Al 65D 65F 65Fp 65Fz 65N 65Np4 65Nm

This species is confined to SE Turkey. In Van Province, it was also observed previously as swarms at Çatak district, but uncommon at Tuşba, Gevaş and Bahçeşaray districts. Also in Şirvan district (Şirvan Province), this species was very common. Filming about its cannibalism at Şirvan was taken for the first time (Kemal, 2011).
**Figs. 21-24** – *Uvarovistia satunini*. Above: male specimen from Bahçesaray, Paşaköy 1600m, on 10 6 2016 (left), a young female of the same species from the same place, on 2 6 2016 (right). Bottom: Adult female from the same place, on 10 6 2016 (left), copulation from the same place – a very rare case for this species, on 25 6 2016 (right), M. Kemal (Cesa)

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