

## New records and a new synonym of Orthoptera from Bulgaria

Dragan P. Chobanov

### Abstract

After a revision of available Orthoptera collections in Bulgaria, 9 species with one subspecies are added and 15 species and one subspecies are omitted from the list of Bulgarian fauna. A supplement to the description and a diagnosis of *Isophya pavelii* Brunner von Wattenwyl (= *Isophya rammei* Peshev, **syn.n.**) is presented. Full reference and distributional data for Bulgaria are given for 31 taxa. Oscillograms and frequency spectra of the songs of *Barbitistes constrictus*, *Isophya pavelii* and *I. rectipennis* are presented.

### Zusammenfassung

Im Rahmen einer Durchsicht der verfügbaren Orthopterensammlungen in Bulgarien wurden in die Gesamtliste der bulgarischen Fauna insgesamt neun Arten und eine Unterart neu aufgenommen sowie 15 Arten und eine Unterart von der Liste gestrichen. In der vorliegenden Arbeit werden von 31 Taxa die Referenz- und Verbreitungsdaten aus Bulgarien aufgelistet. Für *Isophya pavelii* Brunner von Wattenwyl (= *Isophya rammei* Peshev, **syn.n.**) erfolgt eine Ergänzung der Artbeschreibung und Differenzialdiagnose. Die Stridulationen von *Barbitistes constrictus*, *Isophya pavelii* und *Isophya rectipennis* werden als Frequenzspektren und Oszillogramme dargestellt.

### Introduction

After a nearly 20-years break in the active studies on Orthoptera of Bulgaria, in the last years few works were published (POPOV et al. 2001, CHOBANOV 2003, ANDREEVA 2003, HELLER & LEHMANN 2004, POPOV & CHOBANOV 2004, POPOV 2007, ÇIPLAK et al. 2007) adding new faunistic and taxonomic data on the order in this country. POPOV (2007), incorporating all the published information on Orthoptera from Bulgaria up to date, including some unpublished data, counted 239 taxa for the country (221 species and 18 subspecies). This list does not include the synonymisation of *Poecilimon belasicensis* Popov with *P. ebneri* Ramme by HELLER & LEHMANN (2004) and the two taxa (*Eupholidoptera mařani* Peshev and *E. beybienkoi* Peshev) synonymised with *E. chabrieri* (Charpentier) by ÇIPLAK et al. (2007). Thus, the number of published species of Orthoptera in Bulgaria is 219. Yet, many taxonomic (mostly in the genera *Isophya* Br.W., *Poecilimon* Fischer, etc.) and faunistic problems remain unresolved.

During the preparation of a catalogue of the Bulgarian orthopterous fauna (D. Chobanov, PhD thesis in preparation) and revisions of some groups, most doubtful records were elucidated and many taxonomic problems were solved. Some of

these data are reported in the present paper. Preference is given to the new records for Bulgaria and deleting the wrongly reported taxa from the faunal list. One new synonym, *Isophya rammei* Peshev syn.nov. of *Isophya pavelii* Brunner von Wattenwyl, is established. As a result, 9 species and one subspecies are added to and 15 species and one subspecies are deleted from the Bulgarian fauna. Thus, at the moment the number of Orthoptera species in Bulgaria is 213 (*I. pyrenaea* was not subtracted from this number because Popov (2007) did not include it in the list). The new records do not include species of the superfamily Grylloidea and the genera *Isophya* (except one taxon) and *Poecilimon*, which will be dealt with in special works.

## Material and methods

During the present study material from several collections was surveyed – collection of the National Museum of Natural History (at that time incorporating also the former collection of Orthoptera of the Institute of Zoology), Bulgarian Academy of Sciences, Sofia; collection of the Natural History Department of the Regional History Museum in Blagoevgrad; collection of the Biological Faculty, Sofia University; the author's private collection, abbreviated in the text NMNH, HMB, BF and CC, respectively (if specimens observed only, collection abbreviation omitted); collection of the Naturkunde Museum, Berlin. For the species reported before the full literature data is given after the species name. Only references with original or supplementary information on the species' distribution are presented. The spelling of the species is according to the Check-List of European Orthoptera (HELLER et al. 1998). For each taxon a distributional map is prepared (sometimes more than one taxon on a map). The localities are mapped in a 10 x 10 km UTM grid (see below). For *Isophya pavelii* an oscillogram and description of the male song is presented. Songs were recorded with an electret condenser microphone (Knowles BT-1759-000) equipped with a custom-made preamplifier, connected to a PC through an external soundcard (TransitUSB, "M-Audio") (96 kHz). Song measurements were obtained manually in WaveLab5 (Steinberg). Figures of oscillograms of the song were prepared using Turbolab 4.0 (Bressner Technology, Germany). In the text the following abbreviations are used: BF – collection of the Biological Faculty, Sofia University; C – Central; CC – collection Chobanov; DC – D. Chobanov leg.; E – East; GP – G. Peshev leg.; HMB – collection of the Regional History Museum in Blagoevgrad; M – Mitte; N – North; NMNH – collection of the National Museum of Natural History in Sofia; S – South; W – West.

Investigated area and mapping: The territory of Bulgaria fits into the 34 and 35 UTM (Universal Transverse Mercator) Zones. By definition these zones split into squares of different scale, which, in the zone margins North and South of the Equator, deform due to the Earth's curvature. In the present work, for mapping the localities, a 10 x 10 km grid is used, squares designated by a 7-characters code (e.g. 34T FL99), here only last 4 characters taken (FL99) and placed before each locality.

In addition, the localities were referred to a physical-geographic subdivision of the territory of the country based on a really defined morphostructural territorial units (HUBENOV 1997) (Fig. 1).

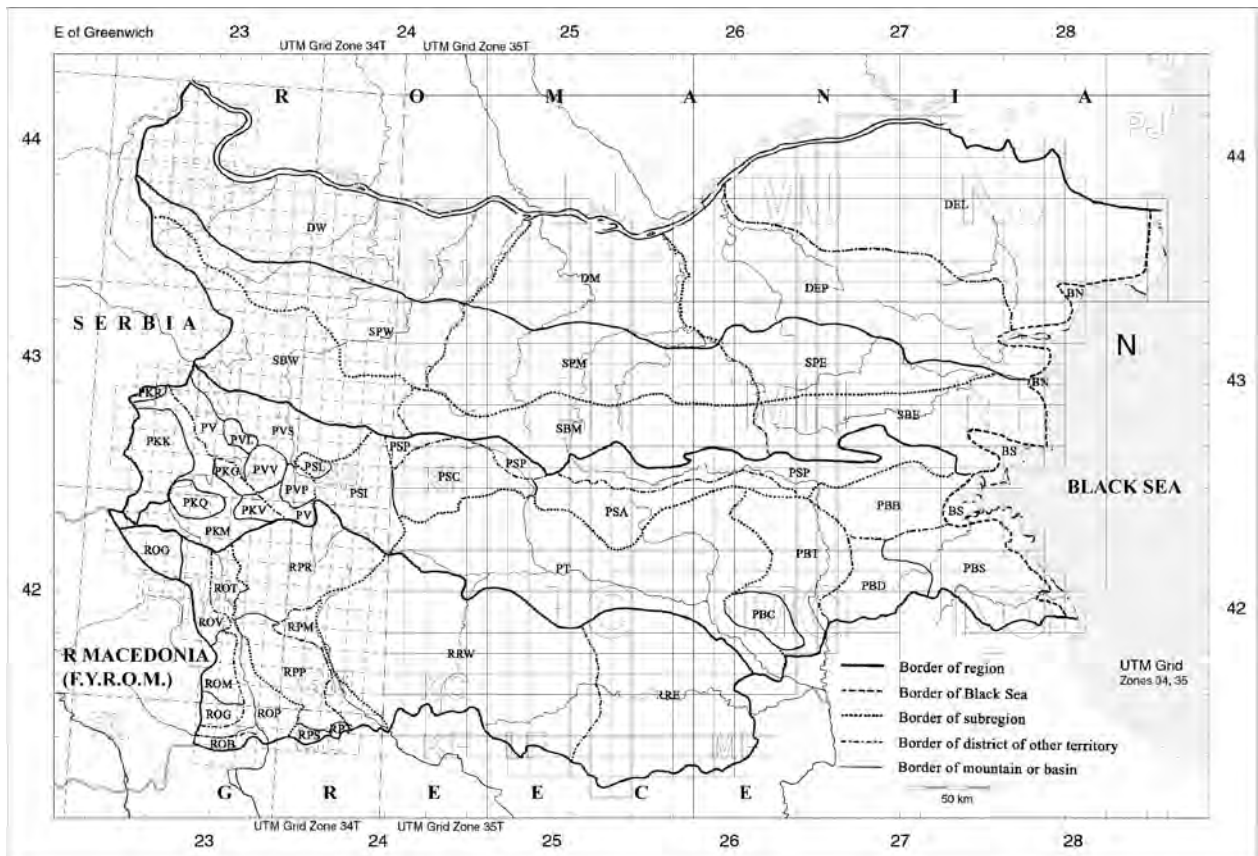


Fig. 1: Map of the physical-geographic territorial units of Bulgaria (after Hubenov 1997; with slight changes) united with the UTM grid of the territory (map designed by S. Abadjiev (ABADJIEV 2001); with slight changes).

Note to Fig. 1:

DANUBIAN PLAIN (D): Western (DW), Middle (DM), Eastern (DE): Popovo-Provadiya district (DEP), Loudogorie-Dobroudzha district (DEL); STARA PLANINA RANGE SYSTEM (S): Predbalkan range (SP): Western (SPW), Middle (SPM), Eastern (SPE); Stara Planina Mts (SB): Western (SBW), Middle (SBM), Eastern (SBE); TRANSITIONAL REGION (P): Kraishte-Konyavo district (PK): Kraishte-Konyavo kettles and small mountains (PKM), Ruy Mt. (PKR), Golo Burdo Mt. (PKG), Verila Mt. (PKV), Milevska-Kurvav Kamuk -Zemenska Mts (PKK), Konyavska Planina Mt. (PKQ); Vitosha district (PV): Vitosha district small kettles and mountains (PV), Sofia kettle (PVS), Lyulin Mt. (PVL), Vitosha Mt. (PVV), Plana Mt. (PVP); Srednogorie-Podbalkan region (PS): Podbalkan kettles (PSP); Sredna Gora Mts: Lozenska Planina Mt. (PSL), Ikhtimanska Sredna Gora Mt. (PSI), Sushtinska Sredna Gora Mt. (PSC), Surnena Sredna Gora Mt. (SPA); Tracian Lowland (PT); Tundzha-Strandzha region (PB): Sakar-Toundzha district (PBT), Sakar Mt. (PBC), Bakadzhik-Bourgas district (PBB), Strandzha-Dervent district (PBD), Strandzha Mts (PBS); RILA-RHODOPE MASSIF (R): Ossogovo-Belassitsa Mountain group (RO): Ossogovo Mt. (ROO), Vlakhina Mt. (ROV), Maleshevaska Planina Mt. (ROM), Ograzhden Mt. (ROG), Belassitsa Mt. (ROB); Strouma valley (Middle course): Boboshevo-Simitli kettles (ROT), Kroupnik kettle-Kresna gorge-Sandanski-Petrich kettle (ROP); Rila-Pirin Mountain group (RP): Rila Mts (RPR), Pirin Mts (RPP), Alibotoush (Slavyanka) Mt. (RPS), Sturgach Mt. (RPT), Mesta valley (RPM); Rhodope Mts (RR): Western (RRW), Eastern (RRE); BLACK SEA COAST (B): Northern (BN), Southern (BS).

## ENSIFERA

### PHANEROPTERIDAE

#### ***Acrometopa servillea servillea* (Brullé, 1832) (Fig. 2)**

New species for the fauna of Bulgaria.

**Localities & Material** (11 specimens investigated – all imago)

**E RHODOPE MTS: (MF29)** Humish hill NE of Ivaylovgrad, 250-300 m alt., xeric habitat with scarce grass vegetation and bushes of *Paliurus spina-christi* Mill., *Rubus* sp. etc., 22.06.2008. Males observed singing at 8:30-10 am. Common, 8 ♂♂ & 3 ♀♀ collected, DC, E. Warchalowska-Sliwa & B. Grzywacz (CC & NMNH).

The nominate subspecies is distributed from the Eastern Peloponnesus, through the whole Aegean coast of the Balkans and Anatolia and the southern coast of Anatolia, eastwards to Sanliurfa at the Turkish border with Syria.

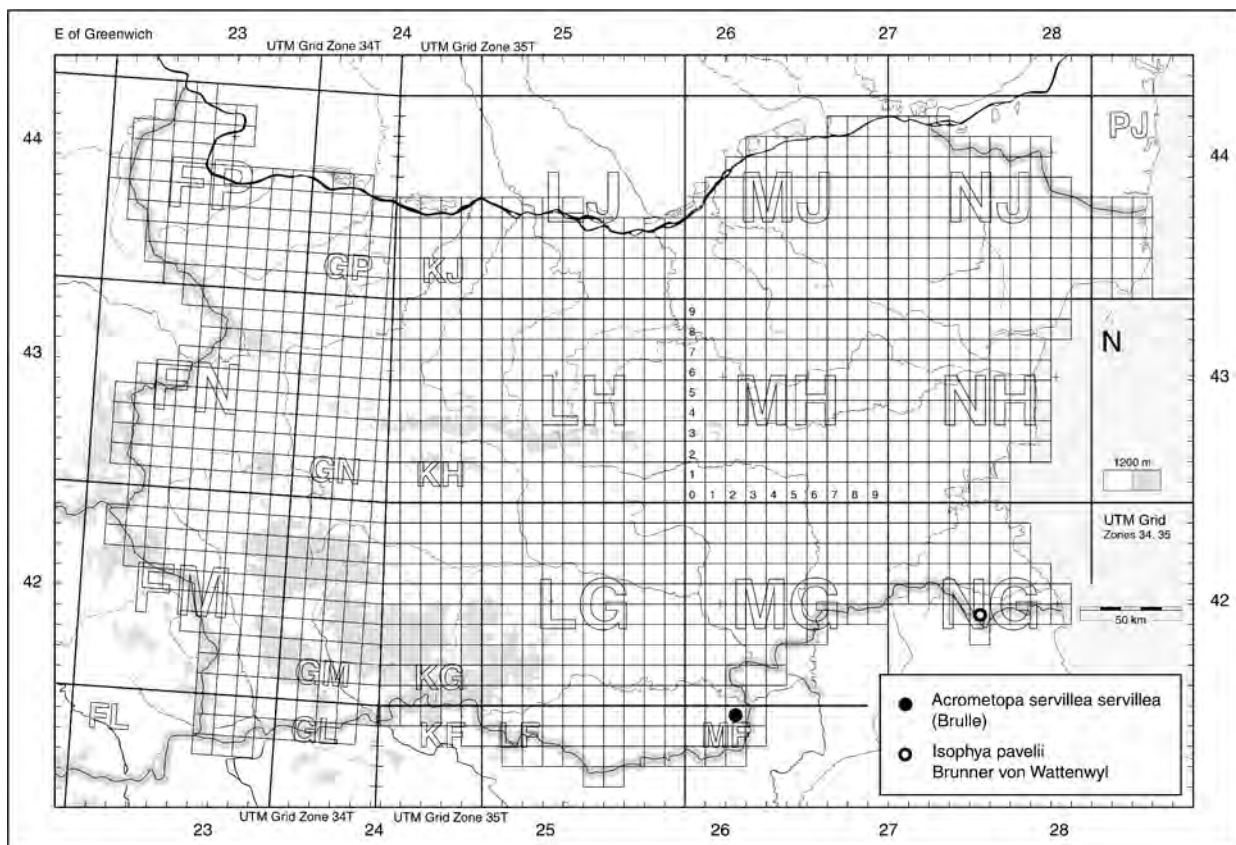


Fig. 2: Distribution of *Acrometopa servillea servillea* and *Isophya pavelii* in Bulgaria.

#### ***Isophya pavelii* Brunner von Wattenwyl, 1882 (Figs 2-5)**

*Isophya rammei* Peshev, 1981 **syn.nov.**: 1. PESHEV 1981: 27-30.

**Localities & Material** (40 specimens investigated - 39 imago and 1 nymph)

**STRANDZHA MTS: (NG44)** Chernogorovo place S of Malko Turnovo [1], 350 m alt., 19.06.1973, 1 ♂ (holotypus), 16 ♂♂ & 4 ♀♀ (paratypi) (after description 23 ♂♂ (incl.holotypus), 7 ♀♀), GP (NMNH) ♦ 16.06.1963, 1 ♀, GP (NMNH) ♦ 25.05.2006, about 15 nymphs last instar collected, imaginal moulted from end of May to beginning of June, 3 ♂♂, 6 ♀♀, 1 ♂ nymph LI, DC (CC) ♦ 25.06.2007, 7 ♂♂, 1 ♀, DC & M. Ilieva (CC).

BURESH & PESHEV (1958) first mention the possible occurrence of *I. pavelii* in the southeastern regions of Bulgaria. Later on PESHEV (1981), based probably on the lack of this species in the NMNH collection materials, described the new species *I. rammei* from Strandzha Mountains. Description by Peshev (l.c.) is detailed but lacks well argued diagnosis – the taxon is compared only with *I. hospodar* (Saussure), a species belonging to another species group (see WARCHAŁOWSKA-ŚLIWA et al. 2008). Nevertheless, the description combined with the data from figures raises the doubt that this case concern *I. pavelii*. The material presented in the NMNH collection (see above) and the new specimens collected proved this supposition. Herewith, *Isophya rammei* Peshev, 1981 is considered a subjective junior synonym of *I. pavelii* Brunner von Wattenwyl, 1882. Considering the weak informativeness of description of *I. rammei* and the fact that *I. pavelii* has not been investigated bioacoustically, yet, a supplement to the description of *I. pavelii* is given below.

### **A supplement to the description and a diagnosis**

*Isophya pavelii* Brunner von Wattenwyl belongs to the well taxonomically outlined group of species relative to *I. rectipennis* Br.W. WARCHAŁOWSKA-ŚLIWA et al. (2008) named this group *Isophya pavelii* group, though it is better to use the name *Isophya rectipennis* group, the latter specific name being published first. The group includes about 10 species, distributed mainly in Anatolia and the Eastern Balkan Peninsula. Within the group the closest relatives of *I. pavelii* are *I. stenocauda* Ramme, *I. nervosa* Ramme, *I. ilkazi* Ramme and *I. yaraligozi* Ünal (*I. obenbergeri* Mařan seems more remote, *I. obtusidens* Ramme – described only on 1 female), morphologically characterized with strong, massive and long (about  $\frac{3}{4}$  the hind pronotal margin; in *I. yaraligozi* longer) Cu<sub>2</sub>(CuP)-vein in males. Male wing has an obtuse anal angle (in *I. yaraligozi* right); Cu<sub>2</sub> and the next vein apically are well separated from each other. Female tegminal veins are more or less parallel. Female subgenital plate (except in *I. yaraligozi*) has an apical elongation.

*I. pavelii* differs than all the relative species with the remarkably widened male pronotal metazona, the apically thin cerci and the cercal apical spine form (Fig. 3A). The latter is long, narrow, and pointed, situated laterally at the cercal apex. In *I. yaraligozi* and *I. ilkazi* it is stout lateral, in *I. nervosa* and *I. stenocauda* – crest-like, apical. The male subgenital plate is remarkably short, reaching to the middle of cerci, while in the other species (also most species of *Isophya*) longer, reaching or almost reaching the cercus tip. In *I. pavelii* the ovipositor lower valve base forms an opened wide pit (similar to *I. obenbergeri*), while in the other species, the valve base is more protruded laterally, partly closing the pit. The ovipositor in *I. pavelii* is short, less than 2 times longer than the pronotum; in other species always more than 2 times longer. Femoral lower keels apically sometimes bear 1-2 spines, while these usually lack in the smaller *I. nervosa* and *I. ilkazi*. Stridulatory row in 2 studied specimens is about 2.9 mm long, 0.08 mm wide in middle, bearing about 100 (98 and 99) densely distributed teeth (Fig. 3B). Stridulatory row length, teeth number and distribution in *I. pavelii* and the other studied representatives of the *Isophya rectipennis* group are compared in Table 1. Female stridulatory apparatus is shown on Fig. 3C.

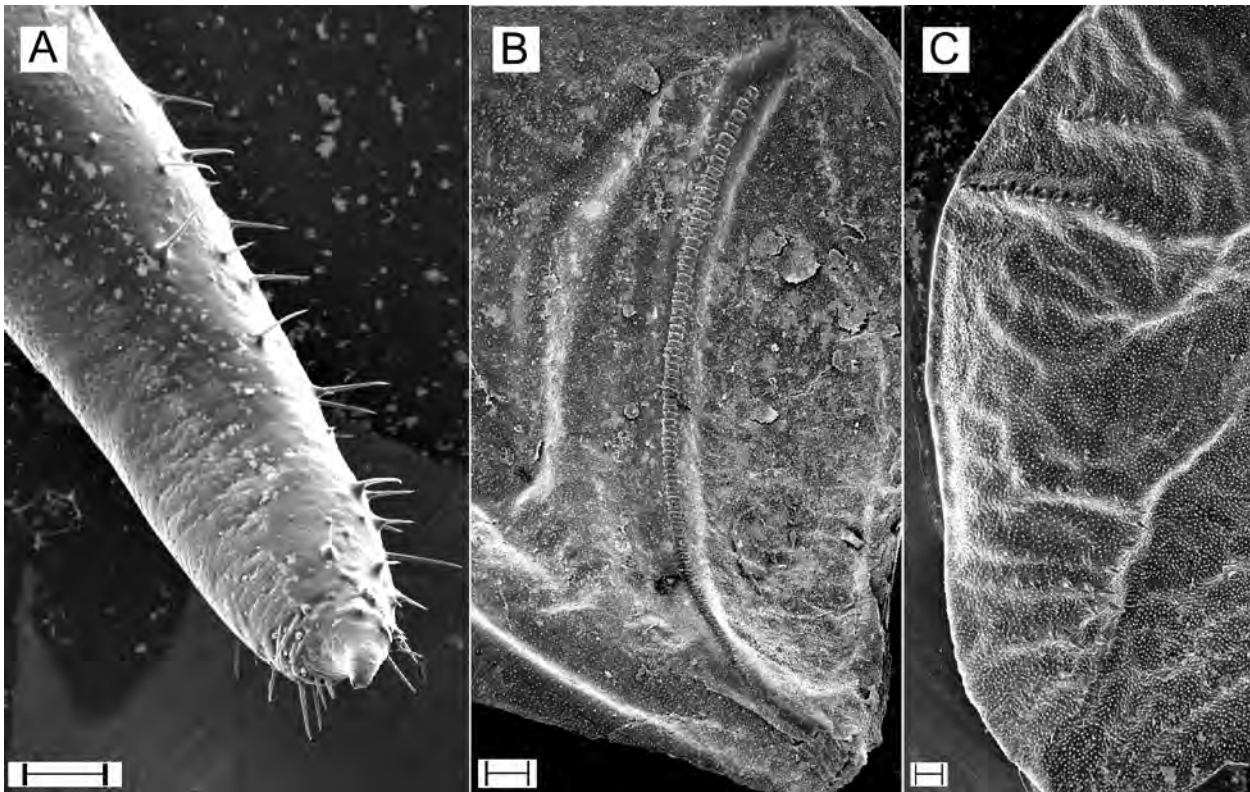


Fig. 3: Scanning Electron Microscope photos of taxonomically important morphological structures of *Isophya pavellii*. A: apical part of male cercus; B: male stridulatory file; C: female stridulatory apparatus (scales A, C - 100  $\mu$ m; B - 200  $\mu$ m).

Song (Fig. 4) description (song terminology follows RAGGE & REYNOLDS 1998 and HELLER et al. 2004). Male calling song consists of sequences (echeme-sequences) of 5-13 syllables (mean  $8.2 \pm 1.8$ ,  $n=21$ ), repeated in an interval of 9-15(26) s by actively singing males, especially when few males duetting; sometimes the interval is prolonged to more than half a minute. Each sequence starts with a slightly shorter syllable with lower amplitude; while the amplitude fastly reach maximum in the next 1-2 syllables. The syllables are compact, decrescending, consisting of about 30-45 impulses. The length of sequences, syllables and syllables interval (here measured as the syllable and the following interval to the first impulse of next syllable) are influenced by the body temperature. At 25 °C the respective duration was: sequences 3.7-7.3 s (mean  $5.6 \pm 1.2$ ,  $n=6$ ) with number of syllables 6-10 (mean  $7.5 \pm 1.4$ ,  $n=6$ ); first syllable interval 432-596 ms (mean  $520 \pm 57$ ,  $n=6$ ), next syllable intervals 675-2000 ms (mean  $960 \pm 321$ ,  $n=34$ ); first syllable ~40-50 ms, next syllables 89-112 (mean  $102 \pm 9$ ,  $n=5$ ). At 27 °C the duration was: sequences 2.3.-5.5 s (mean  $4.7 \pm 1.2$ ,  $n=15$ ) with number of syllables 6-13 (mean  $8.5 \pm 1.9$ ,  $n=15$ ); syllable intervals 428-846 ms (mean  $588 \pm 107$ ,  $n=37$ ) (first syllable interval here does not differ much that the others); first syllable 26-43 ms (mean  $35 \pm 8$ ,  $n=6$ ), next syllables 54-95 (mean  $68 \pm 11$ ,  $n=34$ ).

The frequency spectrum (Fig. 5) of the song lies between 10 and 20 kHz with a maximum at 13 kHz.

Generally the song much resembles those of *I. nervosa* and *I. ilkazi* (as partly described in HELLER 1990), though good diagnosis is still difficult. On the contrary,

the song of *I. pavelii* well differs from the song of *I. rectipennis* (see Fig. 5), which consists of echeme-sequences of more syllables (about 30), with a much higher repetition rate. The frequency spectrum is wider and higher – main part between 12 and 32 kHz, with a maximum at about 20 kHz. This is another evidence of the subgrouping within this species group.

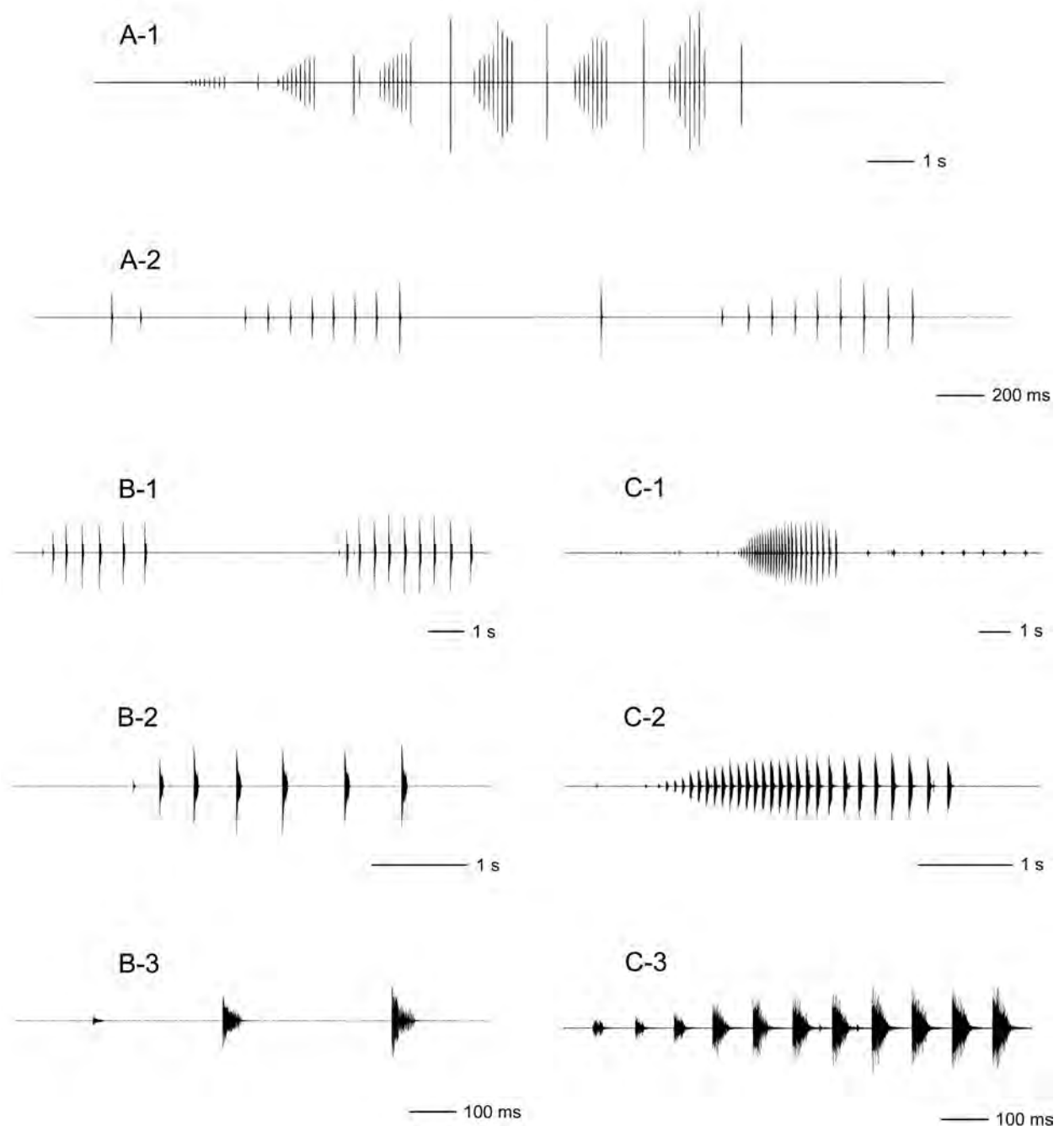


Fig. 4: Oscillograms of the male calling song.  
A: *Barbitistes constrictus* (E Stara Planina Mts: Zheravna vill., 24.06.2008), record 2008P042 at 28 °C;  
B: *Isophya pavelii* (Strandzha Mts: Chernogorovo, 26.06.2007), record 2007P146 at 25 °C;  
C: *Isophya rectipennis* (E Stara Planina Mts: Karandila place, 24.06.2008), record 2008P120 at 26 °C.

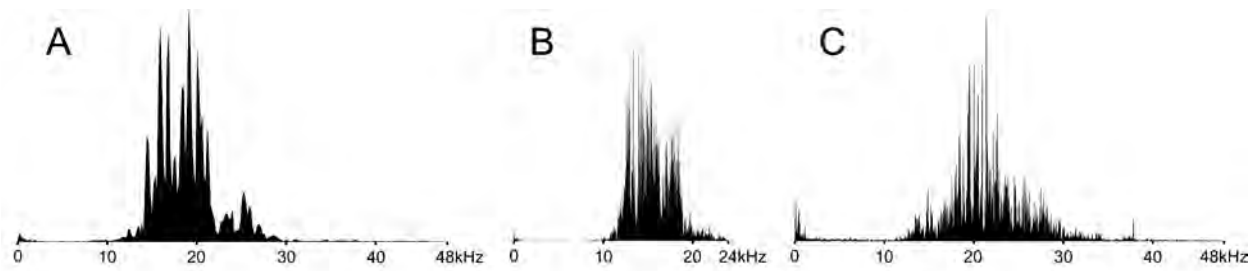


Fig. 5: Frequency spectrum of the male calling song (locality and recording data as in Fig. 4). A: *Barbitistes constrictus*, B: *Isophya pavellii*, C: *Isophya rectipennis*.

The species occurs in the Southwestern Pontic region. It was found before in Northwestern Anatolia and the region of Istanbul (ÜNAL 2003). The new data supports the statement that it ranges also northwards along the East of European Turkey, reaching the southeasternmost territory of Bulgaria. In Bulgaria it inhabits meso- to xeromesophyte (depending on the season) meadows with scrub of *Quercus* sp., *Prunus spinosa* L., *Carpinus orientalis* Mill., *Rosa* sp., etc., in a mixed deciduous forest.

Table 1: Comparison of the stridulatory apparatus of some species of *Isophya rectipennis* group.

Character SPECIES	Stridulatory row length	Number of stridulatory pegs (SP)	Number of SP in 0.5 mm of basal part	Number of SP in 1 mm of middle part	Number of SP in 0.5 mm of apical part
<i>I. pavellii</i> B. v. Wattenwyl	2.9mm	98-99	29	31	9
<i>I. nervosa</i> Ramme	2.8mm	139	37	51	10
<i>I. ilkazi</i> Ramme	3.2mm	151	40	46	13
<i>I. rectipennis</i> B. v. Wattenwyl	2.0-2.3mm	48-53	20	19	7
<i>I. triangularis</i> B. v. Wattenwyl	2.3mm	71	20	30	13
<i>I. thracica</i> Karabag	?	70	?	?	?

Note: Origin of the material studied, as follows: *I. pavellii* and *I. rectipennis* – Bulgaria (CC); *I. nervosa*, *I. ilkazi* – paratypes by Ramme (Naturkunde Museum, Berlin); *I. triangularis* – Ladakia, Leuthner leg. (Naturkunde Museum, Berlin); *I. thracica* – data from HELLER 1988.

### ***Barbitistes constrictus* Brunner von Wattenwyl, 1878 (Figs 4-6)**

*Barbitistes constrictus* Brunner von Wattenwyl: 1. RAMME 1921: 151 – 2. BURESCH & PESHEV 1958: 25 (cited same data) – 3. HARZ 1969: 75 (cited same data) – 4. CHOBANOV 2003: 229-230; *B. serricaudus* [sic] Fabricius: 5. PESHEV 1970: 186, 189, Table 1, 2 – 6. PESHEV 1974b: 70.

#### **Localities & Material** (15 specimens investigated – all imago)

W STARA PLANINA MTS [5 (800-1800 m alt.)]: (FN68) Kom peak, 1000-1800 m alt., 30.08.1961 [6]; M STARA PLANINA MTS: (KH83) Vezhen peak, 1900 m alt., 1.09.1960, 1 ♀, GP (NMNH) [6]; E STARA PLANINA MTS: (MH54) Vetrila Ridge above Zheravna Vill., 850-



900 m alt., mesophyte grass habitat with bushes of *Syringa vulgaris* L. at the ridge, 24.06.2008, 1 ♂ on *S. vulgaris*, DC (CC); RILA MTS: (GM18) Borovets resort [4], 22.08.1923, 1 ♂ ♦ 25.08.1927, 1 ♂, 08.1926, 1 ♀, all P. Drenski (NMNH) ♦ 21.07.1921, 1 ♀ ♦ 1300 m alt., 26.07.1939, 1 ♂ ♦ 30.07.1922 (publ. as 20.07.), 2 ♀♀ ♦ 30.07.1923, 1 ♂ ♦ 1350 m alt., 7.08., 1 ♀ ♦ 10.08.1923, 1 ♂ ♦ 23.08.1926, 1 ♂ ♦ 24.08.1923, 1 ♂, all I. Buresch (NMNH) ♦ 1450 m alt., 1 ♂, N. Atanassov (NMNH) ♦ Sitnyakovo place above Borovets, 1730 m alt., summer of 1916, 1 ♀ [1].

The species' range covers Central and Eastern Europe (from Germany to Volga river), southwards extending into the high mountains of the Balkan Peninsula as south as Rila Mts in Bulgaria. The new faunistic information proved the species' autochthonous occurrence on the Balkans. In Bulgaria *B. constrictus* was found along the Stara Planina Chain and at the northern slope of Rila Mountains. Though the species is connected with the coniferous tree vegetation, a specimen was also found on a low deciduous bush of *Syringa vulgaris* at an altitude of 900 m. Anyway, the song examination (see Figs 4, 5) proved the specimen's belonging to this taxon.

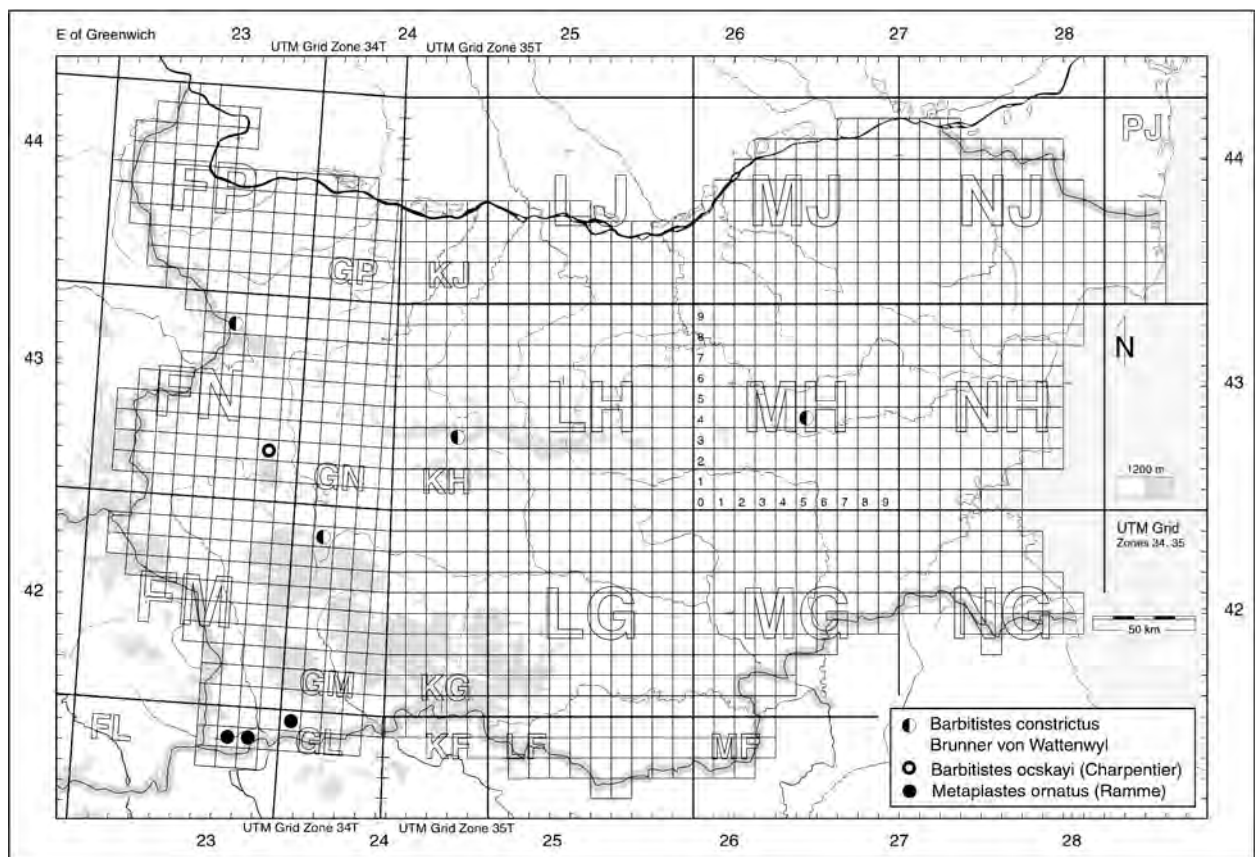


Fig. 6: Distribution of *Barbitistes constrictus*, *B. ocskayi* and *Metaplastes ornatus* in Bulgaria.

***Barbitistes ocskayi* (Charpentier, 1850) (Fig. 6)**

New species for the fauna of Bulgaria.

**Localities & Material** (2 specimens investigated – all imago)

VITOSHA MT.: (?FN82) "Sofia Vitosha", 19.07.1953, 1 ♀, V. Martino (NMNH) ♦ (FN82) Sofia - Boyana quarter, 13.07.1958, 1 ♂, M. Vitanova (NMNH).

The species is known from Romania, Serbia, Montenegro, Macedonia, Northern Greece, Albania, Bosnia and Hercegovina, Croatia, Slovenia and the north-easternmost part of Italy. With the present, its range is continued into Western Bulgaria.

**Metaplastes ornatus (Ramme, 1931) (Fig. 6)**

New species for the fauna of Bulgaria.

**Localities & Material** (3 specimens investigated, 1 identified by photo – imago)

**BELASSITSA MT.:** (FL78) above Samuilovo Vill., 15.06.2008, 1 m, R. Bekchiev (CC) (FL88) above Petrich towards Belassitsa chalet along the road, ~500 m alt., 12.06.2003, 1 ♀ on *Castanea sativa* Mill., photo D. Doychev; **ALIBOTOUSH (SLAVYANKA) MT.:** (GL09) Sveti Iliya hill near Kalimantsi Vill., 450-510 m alt., xerothermic *Quercus coccifera* L.-community, 4.06.-8.07.2003 (tree traps on *Q. coccifera*), 1 ♂, 1 ♀, N. Simov (CC).

Distribution of the species covers Albania, Macedonia, southwards to the central part of Continental Greece. The occurrence of the species in Belassitsa and Alibotoush Mountains probably outlines the eastern border of its range.

## TETTIGONIIDAE

**Metrioptera (Metrioptera) tsirojanni Harz et Pfau, 1983 (Fig. 7)**

New species for the fauna of Bulgaria.

*Bicolorana arnoldi* Ramme: 1. PESHEV & MAŘAN 1963: 34; *Bicolorana oblongicollis* Br.W.: 2. PESHEV & MAŘAN 1963: 35 (partim?).

**Localities & Material** (19 specimens investigated – imago)

**OSSOGOVO MTS:** (FM36) Tsrna Reka river flowing near Sazhdenik Vill., 1100 m alt., 3.07.2008, xeromesophyte stony slope with *Chamaecytisus eriocarpus* (Boiss.) Rothm., nymphs, DC (CC) ♦ (FM37) Slokoshtitsa lake above Slokoshtitsa Vill., 650 m alt., xero- and mesophyte ruderal grass and scrub associations, 4.-5.07.2008, 1 ♀ observed, DC ♦ (FM45) Vetren Vill., 800 m alt., 3.07.2008, 1 ♀, DC (CC) ♦ (FM56) Vaksevo Vill., 600 m alt., 3.07.2008, 1 ♀ nymph last instar observed, DC; **VLAKHINA MTS:** (FM63) northern slope of Kadyitsa peak towards Debochitsa Vill., 1500 m alt., mesophyte forest meadow, 5.08.2006, 1 ♂, DC (CC); **BELASSITSA MT.:** (FL77, FL87) transect Kongour peak - Radomir peak - Demir Kapiya pass, 1700-1900 m alt., xeromesophyte pseudosubalpine meadows with *Chamaecityssus* sp., *Rumex* sp., *Rosa* sp., 23.08.2000, 1 ♀, DC (CC); **ALIBOTOUSH (SLAVYANKA) MT.** [1, 2 (600-1600 m, 16.-20.08.1960)]: 27.07.1976, 1 ♂, 1 ♀, E. Andreeva (E. Andreeva det. as *Bicolorana oblongicollis*) (HMB) ♦ (GL18) above Petrovo Vill., 16.08.1960, 1200-1400 m alt., 1 ♀, J. Mařan (NMNH) ♦ "Alibotusch", 900 and 1300 m alt., 16.08.1960, 1 ♂, 7 ♀♀, GP (NMNH) ♦ (GL28) Tsarev Vrukh peak, 1400-1600 m alt., 20.08.1960, 1 ♂, J. Mařan & 2 ♀♀, GP (NMNH).

The range of the species covers Southeastern Serbia, Eastern Macedonia, the central part of Northern Greece (the region of Naoussa, Olymbos Mt. and the Halkidiki Peninsula) and as here reported also the southwestern Bulgarian Mountains. Interestingly, its range is inserted within the wider range of *M. oblongicollis* Brunner von Wattenwyl. Both species occur sympatrically but no syntopic occurrence was observed.

### ***Platycleis (Montana) medvedevi* (Miram, 1927) (Fig. 7)**

New species for the fauna of Bulgaria.

*Platycleis (Montana) medvedevi* (Miram, 1927): POPOV 2007: 250 (North Bulgaria).

**Localities & Material** (2 specimens investigated – imago)

M DANUBIAN PLANE: (LJ33) between Mousseliievo and Vubel vills, xerothermic steppe vegetation, 26.07.2005, 1 ♀ on the ground under scarce grass, DC (CC) ♦ (LJ63) Svishtov, 07., 1 ♀, N. Nedelkov (NMNH).

The species is known to occur in Northeastern Romania, Moldova, Ukraine, the Southeast of European Russia, and Kazakhstan. The occurrence in Bulgaria is based on female specimens but up to now there is no reason to doubt their specific status.

### **Genus *Platycleis* Fieber, 1853, subgenus *Tessellana* Zeuner, 1941**

During former investigations (see references below), five species of the subgenus *Tessellana* have been published from Bulgaria – *P. (T.) vittata* (Charpentier), *P. (T.) tessellata* (Charpentier), *P. (T.) nigrosignata* (Costa), *P. (T.) orina* Burr and *P. (T.) incerta* Brunner von Wattenwyl. After few years of field investigations, collections' revision and critical reading the literature, 3 species were found to occur in Bulgaria.

### ***Platycleis (Tessellana) incerta* Brunner von Wattenwyl, 1882 (Fig. 7)**

*Platycleis vittata* (Charpentier): 1. NEDELKOV 1908: 433 (partim?) (POPOV & CHOBANOV 2004 cited this data); ?*Platycleis* sp.: 2. NEDELKOV 1909: 95 ("Very similar to *P. vittata* but slightly larger. Slight difference in the colouration"). *Platycleis truncata* Werner: 3. NEDELKOV 1923: 47; ?*Platycleis nigrosignata* Costa: 4. NEDELKOV 1923: 48; *Metrioptera truncata* (Werner): 5. MÜLLER 1933: 1933; *Tessellana orina* (Burr): 6. BURESH & PESHEV 1958: 51-52 (the vineyards between Bourgas and Atanasskyoy; Sozopol, 25.10.1955, 1 ♂, leg. G. Peshev; Kurdzhali, 25.09.1955, 1 ♂ & 1 ♀, leg. G. Peshev; Petrich, 10.10.1956, 2 ♂ & 1 ♀, leg. G. Peshev); *Incertana incerta* (Brunner von Wattenwyl): 7. PESHEV 1962b: 67 – 8. PESHEV & MAŘAN 1963: 35 – 9. PESHEV 1964: 115 (partim) – 10. PESHEV 1971: 212-213 – 11. PESHEV & DJINGOVA 1974: 25 – 12. PESHEV 1974a 106, Table – 13. PESHEV 1974b: 73 – 14. PESHEV 1975: 98, Table – 15. PESHEV & ANDREEVA 1986: 91-92; *Platycleis (Tessellana) incerta* Brunner von Wattenwyl: 16. POPOV et al. 2001: 120 – 17. POPOV & CHOBANOV 2004: 261-262.

**Localities & Material** (235 specimens investigated – 223 imago, 12 nymphs)

N BLACK SEA COAST: (NH58) Pobitite Kamuni physiographic feature, 8.07.1969, 3 ♂♂ ♦ (NH74) Obzor, 7.08.1971, 5 ♂♂, 13 ♀♀, GP (NMNH) ♦ (NH77) Varna - Galata quarter, 18.08.2007, DC ♦ (NH78) Varna [2] ♦ (NH88) Euxinograd, 10.09.1925, 1 ♀, I. Buresch (NMNH) ♦ Botanical garden N of Varna, 50-80 m alt., 11.07.2002, 1 ♀ ♦ 26.&27.07.2002, 1 ♂, 1 ♀, both DC (CC) ♦ 26.08.2008, DC ♦ (NJ80) Obrochishte Vill. (labeled Oborishte Baltschischko), 10.07.1957, 1 ♂, GP (NMNH) ♦ (PJ10) Kaliakra cape – stone quarry "Yayla" [5]; E STARA PLANINA MTS [13]; SURNENA SREDNA GORA MT.: (LH70) Starozagorski Bani Vill. [9, 10], 1.10.1961, 2 ♂♂, GP (NMNH); THRACE LOWLAND: (KG77) Pazardzhik [2] ♦ (LG67) Chirpan [9, 10], 17.07.1957, 1 ♀, GP (NMNH) ♦ (LG95) Zlatopole Vill., 95 m alt., mesophyte meadow along Maritsa river, 22./23.08.1998, 2 ♀♀, DC (CC) ♦ (MG32) Svilengrad, 26.07.1962, 1 ♀, GP (NMNH) ♦ (MG37) Ovchi Kladenets Vill., 2.08.1998, 1 ♀, DC (NMNH); SAKAR-TOUNZHA DISTRICT: Sakar Mt. [9, 10]: (MG33) Levka Vill., 27.07.1962, 1 ♂ ♦ (?MG45) "Sakar", 700 m alt., 27.07.1962, 1 ♂, GP (NMNH) ♦ Bakadzhik hills: (MH60) Mogilla Vill., 1 specimen in pellets of *Buteo rufinus*, pellets collected on 26.05.2004, B. Milchev (CC); STRANDZHA MTS [11]: (NG36) Zvezdets Vill., 29.07.1962, 1 ♂, GP (NMNH) ♦ (NG44) Chernogorovo place S of Malko Turnovo, 350 m alt., 25.06.2007, nymphs, DC ♦ Malko Turnovo, 14.07.1975, 3 ♂♂, 3 ♀♀, 1 ♀

nymph last instar, GP (Andreeva det. as *Tessellana orina*; HMB) ♦ 2.08.1972, 1 ♂, 1 ♀, GP (NMNH) ♦ **(NG55)** Gramatikovo Vill., 20.&21.08.1959, 3 ♂♂, 3 ♀♀, GP (NMNH); S BLACK SEA COAST: **(NG39)** Poda place S of Bourgas, 28.08.1966, 1 ♂ ♦ **(NG58)** Arkoutino marsh, 12.08.1967, 1 ♂ ♦ 31.08.1966, 1 ♂ ♦ **(NG59)** Sozopol [2, 6], 25.10.1955, 1 ♂, all GP (NMNH) ♦ **(NG67)** Kiten Vill., 19.08.1960, 2 ♂♂, 1 ♀ ♦ 21.08.1960, 2 ♀♀, both M. Vitanova (NMNH) ♦ **(NG68)** Ropotamo reserve, 22.07.1958, 1 ♀ ♦ 28.07.1958, 1 ♂ ♦ 3.08.1962, 2 ♂♂ ♦ 29.08.1963, 1 ♂ ♦ Primorsko, 2.09.1963, 1 ♂ ♦ **(NG76)** Tsarevo, 28.08.1969, 2 ♂♂, 2 ♀♀ ♦ **(NG85)** Veleka river estuary (labeled Ahtopol, r. Veleka), 26.08.1969, 1 ♂, all GP (NMNH) ♦ 30.08.1998, 2 ♂♂, 1 ♀, DC (NMNH) ♦ **(NH30)** the vineyards between Bourgas and Atanassovsko Ezero lake [3, 4, 6] ♦ Bourgas [?1, ?2, 10], 30.08.1958, 2 ♂♂, 6 ♀♀ ♦ 24.10.1957, 3 ♂♂, 5 ♀♀, both GP (NMNH); OSSOGOVO MTS [15]; MALESHEVSKA PLANINA MTS: **(FM72)** above Gorna Breznitsa Vill., 400-1000 m alt., xerophyte meadows in xerothermic oak- and mesophyte beech forests, 6.07.2006, nymphs, DC; STROUMA VALLEY / BELASSITSA MT.: **(FL78)** 3 km W of Petrich, 150-200 m alt., 24.08.2000, 1 ♀, DC (CC) ♦ **(FL88)** Petrich [7, 10], 16.07.1970, 1 ♂, 2 ♀♀ ♦ 27.07.1974, 3 ♂♂ ♦ 28.07.1974, 5 ♂♂, 5 ♀♀ ♦ 29.07.1974, 1 ♀ ♦ 30.07.1974, 1 ♀, all E. Andreeva (HMB) ♦ 9.07.1959, 3 ♂♂ ♦ 14.07.1959, 1 ♂ ♦ 23.07.1960, 2 ♀♀ ♦ 24.07.1960, 2 ♂♂, 3 ♀♀ ♦ 4.08.1959, 7 ♂♂, 10 ♀♀ ♦ 5.08.1959, 2 ♂♂, 1 ♀ ♦ 28.09.1957, 2 ♂♂, 5 ♀♀ ♦ 10.10.1956, 2 ♂♂, 6 ♀♀ ♦ 600 m, 20.07.1960, 2 ♂♂, 1 ♀ ♦ 800 m, 21.07.1960, 1 ♂, all GP (NMNH) ♦ 450 m alt., 6.10.2001, DC; STROUMA VALLEY [15]: Kresna gorge [16]: **(FM72)** Kresnensko Khanche place, 13.-14.10.2006, DC ♦ Peyu Yavorov station [16]; Sandanski-Petrich kettle: **(FL68)** Zlatarevo border pass, 23.06.1975, 1 ♂, E. Andreeva (HMB) ♦ Klyuch Vill., 200 m alt., 20.09.2007, DC ♦ **(FL89)** Roupite place and Kozhouh hill, 100-200 m alt., 4.08.1997, 4 ♂♂, 1 ♀ ♦ 5.08.1997, 1 ♀ ♦ 10.1997, 2 ♀♀ ♦ 13.10.2001, all DC (NMNH & CC) ♦ 19.09.2007 & 30.09.2005, DC ♦ 31.10.-01.11.1998, 2 ♀♀, DC (CC) ♦ **(FL99)** Levounovo Vill., 29.08.1973, 1 ♀, E. Andreeva (HMB) ♦ **(FM71)** 2 km S of Kamenitsa Vill., 170-240 m alt., xerothermic community of *Q. coccifera*, 23.06.-8.08.2002 (soil traps), 1 ♀, DC (CC) ♦ 8.08.-7.09.2002 (soil traps), 1 ♂, M. Langourov (CC) ♦ 1.-2.09.2003, 1 ♀ ♦ 13.10.2006, DC ♦ 7.11.2003, 1 ♀, DC (CC) ♦ **(FM82)** Kresna, 9.07.1971, 1 ♂, GP (NMNH) & 2 ♂♂, E. Andreeva (HMB) ♦ 12.08.1970, 2 ♂♂, 2 ♀♀ ♦ **(FM90)** Sandanski, 11.07.1970, 1 ♂ ♦ 29.08.1973, 3 ♀♀ ♦ **(FM90)** Melnik, 24.07.1972, 1 ♂, 1 ♀ ♦ 4.10.1981, 1 ♀, E. Andreeva (HMB) ♦ **(GL08)** Novo Hodzhovo Vill., 7.10.2006, DC; PIRIN MTS [15]: **(GM00)** Rozhenski Manastir monastery, 14.&15.07.1975, 11 ♂♂, 7 ♀♀, 2 ♂♂ & 5 ♀♀ nymphs last instar, E. Andreeva (HMB); ALIBOTOUSH (SLAVYANKA) MT. [8, 9, 15]: **(GL09)** Sveti Iliya hill near Kalimantsi Vill., 450-510 m alt., xerothermic community of *Q. coccifera*, 10.05.-1.06.2002, 1 ♂ nymph 4<sup>th</sup> instar ♦ 8.07.-12.08.2003, 2 ♂♂, 2 ♀♀ ♦ 5.10.-9.11.2003, 1 ♂, all soil traps, all M. Langourov (CC) ♦ 22.06.-6.08.2002 (soil traps), 1 ♀ ♦ 7.08.2002, 1 ♂, 1 ♀, DC (CC) ♦ **(GL19)** Goleshovo Vill., 700-800 m alt., 17.08.1960, 1 ♂, 1 ♀, J. Mařan (NMNH) & 3 ♀♀, 1 ♀ nymph last instar, GP (NMNH); E RHODOPE MTS: **(LF48)** Zlatograd [10, 14] ♦ **(LF68)** Podkova Vill. [14] ♦ **(LF69)** Momchilgrad [17] ♦ **(LG61)** Kurdzhali [5, 10, 14] ♦ **(LG74)** Khaskovo [1, 3] ♦ **(LG80)** Boynik Planina ridge above Potocharka Vill., 15.08.2005, xerothermic wood (*Carpinus orientalis* Mill., *Quercus* spp., *Cornus mas* L., *Syringa vulgaris* L.), DC ♦ **(MF18)** Meden Bouk Vill. [17] ♦ **(MF28)** Mandritsa Vill. [17] ♦ **(MF29)** Houmish hill NE of Ivaylovgrad, 250-300 m alt., open xerothermic habitat with *Paliurus spina-christi* Mill., *Rubus* sp., etc., 22.06.2008, nymphs LI, DC ♦ Ivaylovgrad [14], 22.07.1968, 1 ♂, 1 ♀, GP (NMNH) ♦ Ivaylovgrad – Ludzha quarter [17], 24.08.1998, DC ♦ 25.08.1998, 1 ♀, DC (CC) ♦ **(MG00)** between Madzharovo and Chernichino Vill., forest clearings, 15.08.2005, DC ♦ **(MG01)** Madzharovo [17] – along Arda river, 28.05.-8.06.2001 (Malaise trap), 1 ♂ nymph, N. Simov (CC) ♦ 3.07.-15.08.2005 (soil traps), 135 m alt., riverside wood, 1 ♀, DC (CC) ♦ xeromesophyte scrub on sandy ground, 20.-24.10.2005, DC ♦ **(MG11)** Dubovets Vill. [17], 20.07.1968, 1 ♂, GP (NMNH).

Remark: the records of *P. vittata* by NEDELKOV (1908) from the region of Khaskovo and Bourgas arise doubt and are here referred to *P. incerta*. The latter is common in the mentioned places, while *P. vittata* was not observed during field trips in the Eastern Rhodopes. PESHEV (1975) mentions that *P. vittata* is common

in the E Rhodope Mountains without specifying any locality. No material of the species was found in the studied collections.

The species occurs in the southeastern and eastern part of the Balkan Peninsula (Southeastern Macedonia, the eastern part of Continental Greece southwards to the Northeastern Peloponnesus), Southern and Eastern Bulgaria to Southeastern Romania in Dobrogea), Anatolia and Syria.

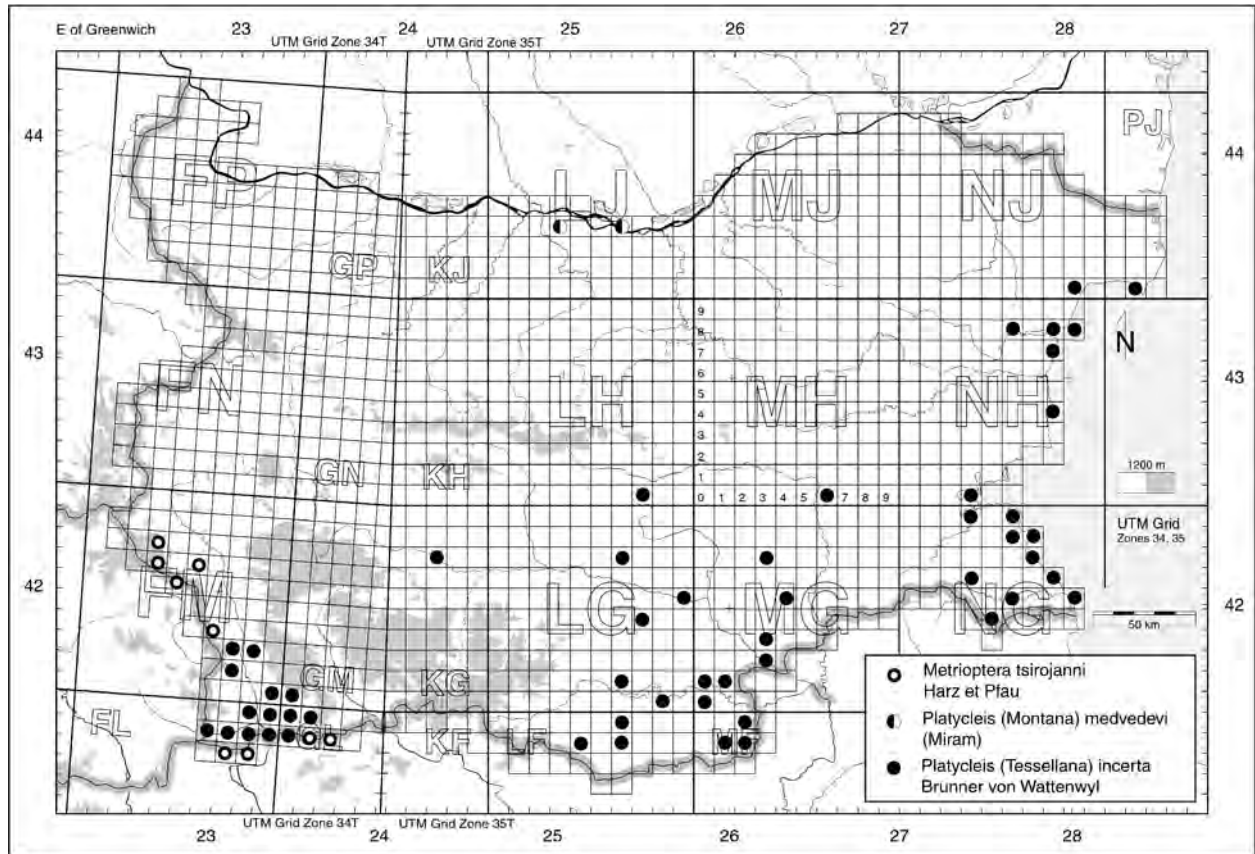


Fig. 7: Distribution of *Metrioptera tsirojanni*, *Platycleis medvedevi* and *P. incerta* in Bulgaria.

### ***Platycleis (Tessellana) nigrosignata* (Costa, 1836) (Fig. 8)**

*Tessellana nigrosignata* (Costa): 1. PESHEV 1962a: 182 – 2. PESHEV & MAŘAN 1963: 35 – 3. PESHEV 1971: 212 – 4. PESHEV & DJINGOVA 1974: 25 – 5. PESHEV 1974a: 106, Table – 6. PESHEV 1974b: 73 – 7. PESHEV 1975: 97, 106, Table – 8. PESHEV & ANDREEVA 1986: 91 – 9. POPOV & CHOBANOV 2004; 261; *Tessellana orina* (Burr): 10. PESHEV 1964: 115 – 11. PESHEV 1971: 212.

**Localities & Material** (213 specimens investigated – 199 imago, 14 nymphs)

**E STARA PLANINA MTS:** (MH54) Zheravna vill. [6]; **SAKAR-TOUNZHA DISTRICT:** Sakar Mt. [3, 10, 11 (27.07.1962, 18 ♂♂, 26 ♀♀)]; (MG33) Levka Vill., 27.07.1962, 7 ♂♂, 13 ♀♀ ♦ (?MG45) "Sakar", 600 m alt., 27.07.1962, 9 ♂♂, 10 ♀♀ ♦ 780 m alt., 28.07.1962, 5 ♂♂, 4 ♀♀, all GP (NMNH); **STRANDZHA MTS:** (NG36) Zvezdets Vill., 29.07.1962, 1 ♂, 5 ♀♀ ♦ (NG44) Malko Turnovo [4], 30.07.1962, 1 ♂, 3 ♀♀ ♦ 2.08.1972, 29 ♂♂, 21 ♀♀, all GP (NMNH); **STROUMA VALLEY:** Sandanski-Petrich kettle [8]: (FL98) Marino Pole Vill., 27.05.2000, 7 nymphs 3<sup>rd</sup>-5<sup>th</sup> instar, DC (CC) ♦ 27.07.1975, 4 ♂♂, 1 ♀, 2 ♀♀ nymphs last instar ♦ (FL99) Levounovo Vill., 22.07.1972, 5 ♂♂, 3 ♀♀ ♦ Hursovo Vill., 3.10.1981, 1 ♂ ♦ 10.07.1981, 1 ♂, 1 ♀, all E. Andreeva (HMB) ♦ 300 m alt., xerophyte grass-scrub community (*Juniperus*

*oxycedrus* etc.), 3.08.1997, 3 ♂♂, 2 ♀♀, DC (CC) & 3 ♂♂, 2 ♀♀, DC (NMNH) ♦ (FM90) Melnik, 24.07.1972, 1 ♂ ♦ 4.10.1981, 1 ♂, both E. Andreeva (HMB); PIRIN MTS: (GM00) Rozhenski Manastir monastery, 14.07.1980 (or 1970?), 3 ♂♂, 5 ♀♀, GP (NMNH) ♦ 14.&15.07.1970, 10 ♂♂, 16 ♀♀, 3 ♀♀ nymphs last instar, E. Andreeva (1 ♀ and 1 ♀ nymphs det. E. Andreeva as *Incertana incerta*; HMB); ALIBOTOUSH (SLAVYANKA) MT.: (GL09) Sveti Iliya hill near Kalimantsi Vill., 450-510 m alt., xerothermic *Quercus coccifera* L. community, 1 ♀, DC (CC) ♦ "Alibotoush", 800 m alt. [1] or 300 m alt. [2], 17.08.1960 [1, 2]; E RHODOPE MTS [5]: (MF29) Ivaylovgrad [7], 22.07.1968, 2 ♂♂, 7 ♀♀ ♦ 4.08.1963, 8 ♂♂, 11 ♀♀, both GP (NMNH) ♦ (MG01) Madzharovo [9], 28.05.-8.06.2001 (Malaise trap), 1 ♂ nymph, N. Simov (CC).

Distributed in the Apennine Peninsula, the Balkans (Slovenia, Croatia, ?Bosnia and Hercegovina, Serbia, Macedonia, Greece, Bulgaria, ?restricted in Romania) and Anatolia.

### ***Platycleis (Tessellana) veyseli* Koçak, 1984 (Fig. 8)**

*Platycleis vittata* (Charpentier): 1. NEDELKOV 1908: 433 (patim?) – 2. NEDELKOV 1909: 95; 3. MÜLLER 1933: 87; *Platycleis stricta* (Zeller): 4. NEDELKOV 1908: 426 (partim?); *Tessellana tessellata* (Charpentier): 5. BURESH & PESHEV 1958: 51 – 6. PESHEV 1970: Table 1, 2 (probably mistake); *Tessellana vittata* (Charpentier): 7. PESHEV 1964: 115 (cited NEDELKOV 1908) – 8. PESHEV 1970: 175, 179, Table 1, 2 – 9. PESHEV 1974a: 105, Table – 10. PESHEV 1974b: 73 – 11. PESHEV 1975: 98, Table – 12. ANDREEVA 2003: 92.

**Localities & Material** (61 specimens investigated – 58 imago, 3 nymphs)

W DANUBIAN PLANE: (FP47) Vidin [1] ♦ (GN08) Vratsa [1], 19.08.1907, 1 ♀, N. Nedelkov (NMNH); M DANUBIAN PLANE: (LJ23) Mouselievo Vill., 26.07.2005, 1 ♂, DC ♦ (LJ33) between Mpuselievo and Vubel Vills, xerophyte steppe vegetation, 26.07.2005, DC (CC) ♦ (LJ62) Bulgarsko Slivovo Vill., 27.07.2005, DC ♦ Dobrich – the avioclub, 29.07.2005, xeromesophyte steppe-like vegetation, DC ♦ 14.08.1998, 1 ♀, DC (NMNH) ♦ (LJ63) Ouspenie Bogorodichno monastery near Svishtov, 26.07.2005, 1 ♂, DC; E DANUBIAN PLANE: (LJ91) Byala, 1 ♀, DC (NMNH) ♦ (MJ84) Sveshtari Vill., 27.07.2005, DC ♦ (NJ37) Glavan Vill., 28.07.2005, DC ♦ (NJ56) Kapitan Dimitriev Vill., 28.07.2005, steppe community (*Stipa* sp.), DC ♦ (NJ62) Dobrich [3]; N BLACK SEA COAST: (NH48) Devnya, 07., 1 ♂, N. Nedelkov (NMNH) ♦ (NH78) Varna [1] - Maksouda quarter, 18.07.1954, 1 ♂, T. Marinov (NMNH); W PREDBALKAN: (FP33) Belogradchik [10], 12.08.1966, 1 ♂, 1 ♀, GP (NMNH); M PREDBALKAN: (LH46) Sevlievo [1]; W STARA PLANINA MTS [6, 8]: (FN78) Burziya Vill., 30.07.1996, 1 ♂, D. Terzieva (NMNH) ♦ 1.08.1996, 1 ♂ (BF); M STARA PLANINA MTS: (MH05) Elena [1]; SOFIA KETTLE: (FN82/92) Sofia [1, 4, 5], 31.07.190?, 1 ♂ ♦ 10.1905, 1 ♀, both N. Nedelkov (NMNH); VITOSHA: Vitosha Mt.: "Vitosha foothills" [1] ♦ (FN80) near Douhlata cave, 17.-18.07.1999, 1 ♂, I. Domozetov (BF) ♦; KRAISHTE: Roudini Mt.: (FN41) Svetlya Vill. [12]; PODBALKAN KETTLES: (LH61) Kazanluk [1] ♦ (MH42) Sliven [1]; IKHTIMANSKA SREDNA GORA MTS: Lozenska planina: (GN01) "Lozen pl.", 20.07.1966, 2 ♂♂, 1 ♀, 1 ♀ nymph last instar ♦ 21.07.1966, 2 ♂♂, 5 ♀♀ 1 ♀ nymph last instar ♦ 1.08.1966, 3 ♂♂, 9 ♀♀ ♦ 3.08.1966, 1 ♀ ♦ 5.08.1966, 3 ♂♂, 6 ♀♀, 1 ♂ nymph 1st instar, all M. Mechkova (NMNH); SUSHTINSKA SREDNA GORA MT.: "the foothills" [2] ♦ (KH61) Pagnagyurishte [2]; THRACE LOWLAND: (KG77) Pazardzhik [1], 4 ♂♂, 3 ♀♀, N. Nedelkov (NMNH) ♦ (KG87) Malo Konare Vill., 9.07.1960, 1 ♂, M. Vitanova (NMNH) ♦ (LG16) Plovdiv – along Maritsa river, 9.07.1923, 1 ♀ (NMNH) ♦ (LG67) Chirpan [1], 14.07.1907, 2 ♂♂, 1 ♀, N. Nedelkov (NMNH) ♦ (MH10) Nova Zagora [1]; STROUMA VALLEY: Sandanski-Petrich kettle: (FM71) 2 km S of Kamenitsa Vill., 170-240 m alt., xerothermic *Quercus coccifera* L. community, 11.08.-8.09.2003 (pitfall traps), 1 ♀, N. Simov (CC); E RHODOPE MTS [11 (probably wrong)].

The species occurs from Central, Southeastern (except Southern Bulgaria, Albania and whole Greece) and Eastern Europe to Central Asia and Western Siberia.

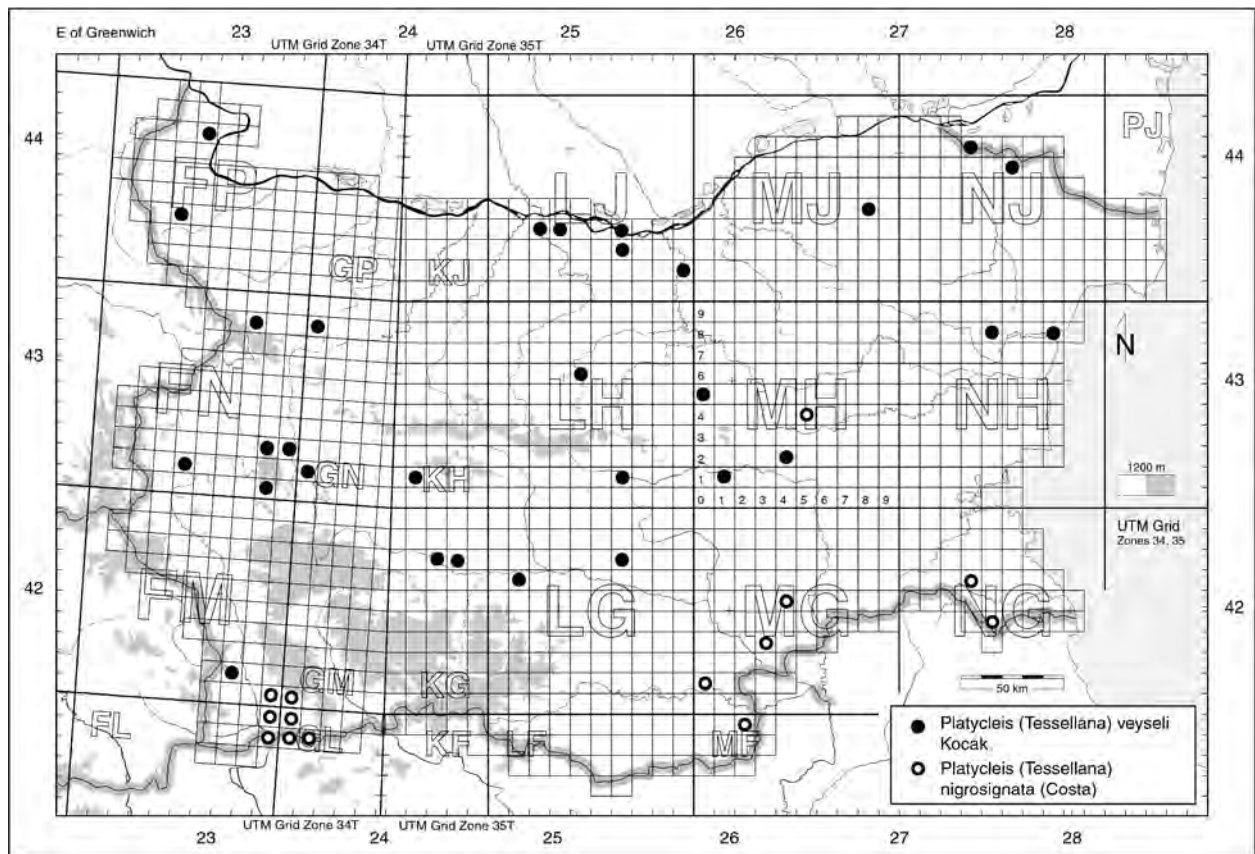


Fig. 8: Distribution of *Platycleis nigrosignata* and *P. veyseli* in Bulgaria.

## CAELIFERA

### ACRIDIDAE

#### **Genus *Odontopodisma* Dovnar-Zapolskij, 1933**

Up to now, three species of the genus *Odontopodisma* have been reported from Bulgaria: *O. schmidtii* (Fieber), *O. decipiens* Ramme and *O. rubripes* (Ramme). During recent investigations and revision of available collections, some uncertainty about the species diversity in this country appeared. Thus, an opportunity is taken here in elucidating this doubt, including whole the information available and the material checked.

#### ***Odontopodisma decipiens* Ramme, 1951 (Fig. 9)**

*Pezotettix mendax* Fisch.: 1. FREY-GESSNER 1892: 400; *Podisma schmidtii* Fieb. (*P. mendax* Fisch. Fr.): 2. NEDELKOV 1908: 424 – 3. NEDELKOV 1909: 92 – 4. DRENOVSKI 1938: 14; *Odontopodisma decipiens* Ramme: 5. BURESH & PESHEV 1958: 17-18 – 6. BEY-BIENKO & PESHEV 1960: 11 – 7. PESHEV 1964: 121 – 8. PESHEV 1970: 186, Table. 1, 2 – 9. PESHEV & DJINGOVA 1974: 28 – 10. PESHEV 1974a: 108, Table – 11. PESHEV 1974b: 77 – 12. PESHEV 1975: 100, 108, Table – 13. POPOV et al. 2001: 122; *Odontopodisma rubripes* (Ramme): 14. PESHEV 1974b: 77 (partim) – 15. PESHEV & ANDREEVA 1986: 98.

**Localities & Material** (135 specimens investigated – 126 imago, 9 nymphs)

?W DANUBIAN PLANE: (UTM: ?) "Ribariza Vidinsko", 8.07.1963, 2 ♀♀, 1 ♀ nymph last instar ♦ (FP38) Rakitnitsa Vill., 80 m alt., 12.06.1950, 1 ♀, both GP (NMNH); M DANUBIAN PLANE:

(**LH19**) Bohotska Gora forest near Pleven, 6.08.1973, 1 ♀ ♦ 15.08.1973, 1 ♀, both GP (NMNH) ♦ (**LJ63**) Svishtov [3], 07., 1 ♂♂, 2 ♀♀, N. Nedelkov (NMNH) ♦ (**LJ81**) Peychinovo Vill. (as Buruliiv [sic]) [5]; E DANUBIAN PLANE: (**LJ91**) Byala, 16.07.1996, 1 ♀ ♦ 08.1997, 2 ♂♂ (DC; NMNH) ♦ (**MJ01**) Volovo Vill. (labelled Dolna Manastiritsa), 20.06.1955, 4 ♂♂, 5 ♀♀, 1 ♂ & 1 ♀ nymphs last instar, GP (NMNH) ♦ (**NJ15**) Karakouz forest SW of Alfatar, 30.06.1958, 4 ♂♂, 8 ♀♀, 2 ♀♀ nymphs last instar, GP (NMNH); N BLACK SEA COAST: (**NJ70**) Batovo Vill., 26.06.1956, 1 ♂, 2 ♀♀, 2 ♀♀ nymphs last instar ♦ Batova Gora forest near Batovo Vill. [9], 9.07.1957, 1 ♀ ♦ 29.07.1970, 2 ♀♀ ♦ 10.08.1973, 1 ♂, all GP (NMNH) ♦ 23.07.1970, 3 ♀♀ (E. Andreeva det. as *O. schmidtii* (Fieber)), E. Andreeva (HMB) ♦ (**NJ80**) Obrochishte Vill. [9] (labelled Oborishte Baltschischko), 10.07.1957, 3 ♂♂, 3 ♀♀, GP (NMNH); W PREDBALKAN REGION: (**FP23**) Vedernik ridge above Belogradchik [11] ♦ (**FP33**) Belogradchik [11, 14], 19.06.1964, 1 ♀ nymph last instar ♦ 7.07.1963, 2 ♂♂, 2 ♀♀, both GP (NMNH); C PREDBALKAN REGION: (**KH67**) Zlatna Panega Vill., 26.07.2005, 1 ♂, 2 ♀♀ on high bushes of *Rosa* sp. and *Clematis vitalba* L., DC (CC) ♦ (**KH68**) Petrevene Vill., 23.06.1962, 5 ♀♀, GP (NMNH) ♦ (**KH78**) Dermantsi Vill., 13.09.1932, 1 ♀ ♦ 25.09.1933, 1 ♀, both N. Atanassov (NMNH) ♦ (**LH87**) Veliko Turnovo [2]; "Stara Planina Mts" [2]; W STARA PLANINA MTS [8]: (**FP15**) Vrushka Chouka Peak [11], 7.09.1964, 2 ♂♂, 1 ♀, GP (NMNH) ♦ (**GN08**) "Troposchansko" near Vratsa, 8.08.1906, 1 ♂, N. Nedelkov (NMNH) ♦ (**GN08**) Vratsa [2, 11], 23.06.1964, 1 ♂, 1 ♀, GP (NMNH) ♦ 07.1907, 2 ♂♂, 2 ♀♀, N. Nedelkov (NMNH) ♦ (**UTM: ?**) Iskur Gorge [11], 18.08.1966, 2 ♀♀, GP (NMNH); C STARA PLANINA MTS: (**KH84**) Ribaritsa Vill. [11]; VITOSHA MT. [2]: (**FN81** or **82**) "Vitosha", 1929, 1 ♀, Müller (NMNH) ♦ 11.07.1907, 1 ♂, 2 ♀♀, N. Nedelkov (NMNH) ♦ 11.07.1958, 3 ♀♀, 1 ♀ nymph last instar ♦ 15.09.1955, 3 ♂♂, 1 ♀ ♦ 1200-1400 m alt., 24.09.1958, 2 ♀♀ ♦ 1400-1700 m alt., 23.09.1958, 1 ♀, all GP (NMNH) ♦ 28.09.1932, 1 ♀, N. Atanassov (NMNH) ♦ (**FN81**) Fonfon chalet [5] ♦ Mecha Polyana place - Aleko chalet, 4.10.1953, 2 ♀♀ ♦ 5.10.1953, 1 ♂, both V. Martino (NMNH) ♦ (**FN82**) 1300-1500 m alt. [6] ♦ (**FN82**) Gradishte stronghold above Dragalevtzi quarter (Sofia), ~1200 m alt., 3.10.1953, 1 ♀, V. Martino (NMNH) ♦ Belite Brezi chalet, 7.09.1957, 1 ♂, M. Vitanova (NMNH) ♦ Bulgarian Academy of Sciences chalet, 1.08.1956, 1500 m alt., 1 ♀, GP (NMNH) ♦ Planinets chalet, 31.08.1971, 1 ♀ ♦ 6.10.1960, 1 ♀, both M. Dzhingova (NMNH); RUY MT.: (**FN24**) Ruy peak, 1650 m alt., small scrub of *Rubus idaeus* L. under the summit, 15.08.2007, 1 ♂, 1 ♀, DC (CC); KRAISHTE REGION: (**FM39/FN40**) Zemen gorge, 5.07.1997, 1 ♂, 1 ♀, DC (NMNH); no label (Southwestern Bulgaria), 1 specimen, E. Andreeva (HMB); IKHTIMANSKA SREDNA GORA MT.: Lozenska Planina: (**GN01**) Germanski Manastir monastery [5], 1.08.1911, 1 ♂, 1 ♀, A. Ourumova (NMNH); SUSHTINSKA SREDNA GORA MT. [2]: (**UTM: ?**) Chitashki Gyol [3] ♦ (**KH61**) the mountain ridge above Oborishte chalet, 1000 m alt., mesophyte thicket of *Rubus idaeus* L., *Rubus* sp. in *Fagus sylvatica* L.-wood, 25.06.2008, imago and nymphs observed, DC; THRACE LOWLAND: (**KG67**) Vetren Dol Vill. (as Eli-dere) [7, 12], 400 m alt., 7.10.1960, 1 ♀, GP (NMNH); STRANDZHA MTS: (**NG44**) N of Malko Turnovo, 350 m alt., 26.05.2006, nymphs 2<sup>nd</sup>-4<sup>th</sup> instar observed ♦ 11.06.2005, mesophyte scrub of *Urtica dioica* L., *Sambucus ebulus* L., *Rubus* sp., nymphs collected and moulted in captivity, both DC (CC) ♦ Malko Turnovo [9], 8.07.1967, 6 ♂♂, 7 ♀♀ ♦ 30.07.1962, 1 ♀, GP (NMNH); S BLACK SEA COAST: (**NG58**) Vessellie Vill. (as Saremussa): on the edge of old oak forest [1]; BELASSITSA MT.: (**FL88**) Petrich, 23.06.1957, 2 ♀♀ ♦ 4.08.1959, 1 ♀ ♦ 700 m alt., 13.08.1961, 1 ♀ ♦ 850 m alt., 21.07.1960, 1 ♀, all GP (NMNH); STROUMA VALLEY [15 (the lowland and surrounding mountains up to 1200 m alt.): (**FM72/73**) Kresna gorge [13], 8.07.1959, 1 ♂, 1 ♀, GP (NMNH); RILA MTS [2]: (**GM19**) Samokov [2] ♦ (**GM18**) Borovets resort, 850-1400 m alt. [5]; ALIBOTOUSH (SLAVYANKA) MT. [4]; MESTA VALLEY: (**GL49**) Sveti Dimitur chapel near Hadzhidimovo, 10.06.2004, 1 ♀ nymph last instar observed on *Carpinus orientalis* Mill. ♦ 28.09.2003, imago observed, both DC; W RHODOPE MTS: (**LG04**) Belocherkovski Manastir monastery [2]; E RHODOPE MTS: (**MG12**) Glouhite Kamuni historic site S of Malko Gradishte Vill., 550-600 m alt., mesophyte scrub of *Rubus* sp., *Sambucus ebulus* L. etc., 30.05.2006 and 23.06.2008, imago and nymphs observed, DC.

The range of the species covers Southeastern Europe from the Czech Republic and Ukraine to the Central Greece.



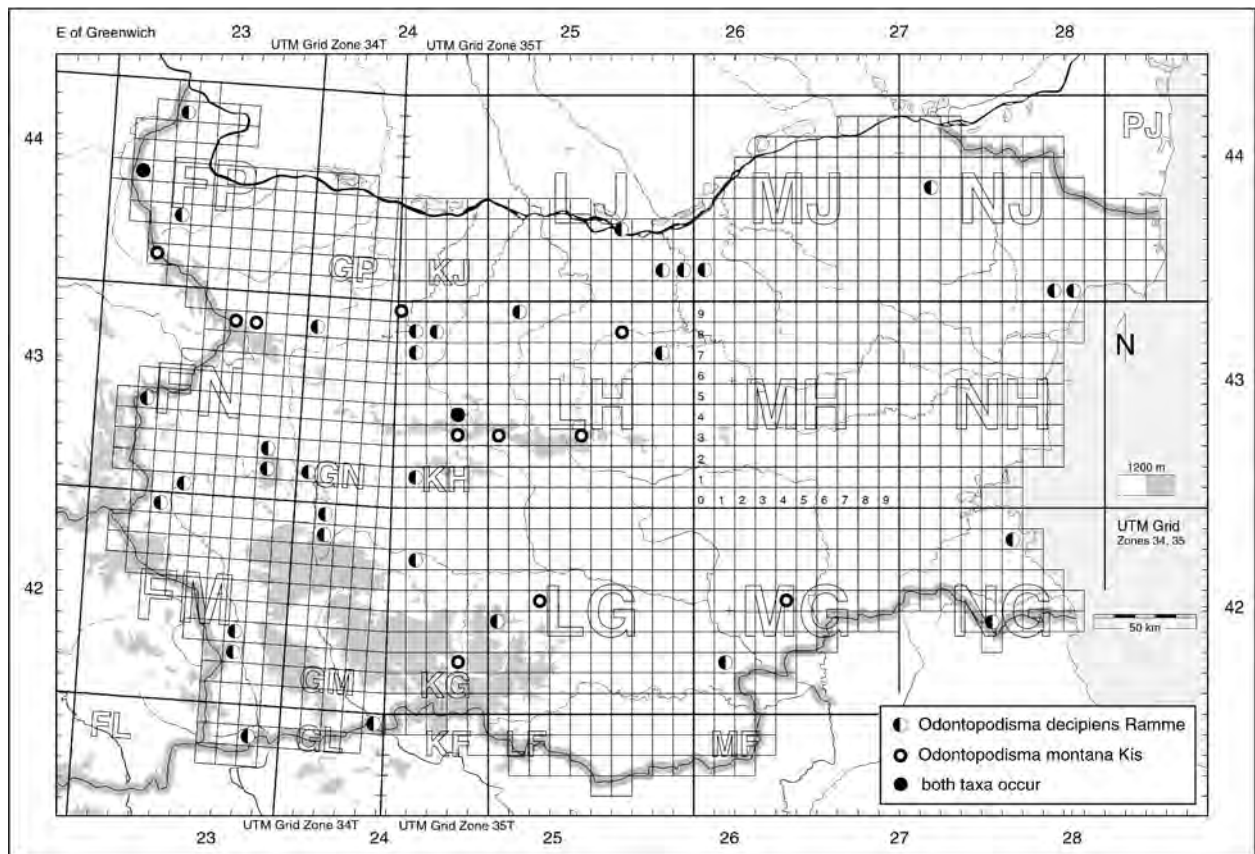


Fig. 9: Distribution of *Odontopodisma decipiens* and *O. montana* in Bulgaria.

### ***Odontopodisma montana* Kis, 1962 (Fig. 9)**

New species for the fauna of Bulgaria.

*Odontopodisma schmidti rubripes* (Ramme): 1. PESHEV 1954: 203 – 2. PESHEV 1964: 121 – 3. PESHEV 1970: 185, Table 1, 2 – ?4. PESHEV 1974a: 108, Table (Rhodope Mts) – ?5. PESHEV 1975: 100, Table; *Odontopodisma decipiens* Ramme var. *rubritarsis* nova var.: 6. BURESH & PESHEV 1958: 17-18; *Odontopodisma schmidti schmidti* (Fieber): 7. PESHEV 1970: 185, Table. 1, 2 – 8. PESHEV 1971: 215 – 9. PESHEV 1974a: 108, Table (Rhodope Mts) – 10. PESHEV 1974b: 77 – 11. PESHEV 1975: 100, Table; *Odontopodisma rubripes* (Ramme): 12. PESHEV 1974b: 77 (partim).

**Localities & Material** (47 specimens investigated – 44 imago, 3 nymphs)

**M DANUBIAN PLANE:** (LH68) Byala Cherkva, 5.07.1957, 1 ♀, GP; **W PREDBALKAN REGION:** (KH59) Resselets Vill., along Ruchene river, 23.07.1996, 1 ♀, D. Yanev; **W STARA PLANINA MTS** [3, 7, 10]: (FP15) Vrushka Chouka peak, 16.06.1964 [12] ♦ (?FP21) Sveti Nikolska Planina, 12.08.1966 [8] ♦ (FN68) Kom peak, 1900-1970 m alt., 29.08.1961 [8, 12], 1 ♂, 1 ♀, GP ♦ (FN78) Berkovitsa [12], 8.07.1963, 1 ♂, 1 ♀ nymph last instar; **M STARA PLANINA MTS:** (KH83) Bratanitsa peak, 2000 m alt., 24.08.1934, 1 ♂, 5 ♀♀, N. Atanassov ♦ (KH84) Ribaritsa Vill. [1, 6], 700 m alt., 4.09.1951, 2 ♂♂, 1 ♀ ♦ (LH03/13) Dermenkaya chalet, 1500 m alt. [12], 2.08.1971, 13 ♂♂, 10 ♀♀, 1 ♀ nymph last instar, all GP ♦ (LH43) Mazalat chalet, 1500 m alt., 24.07.1996, 2 ♀♀, 1 ♂ nymph last instar, A. Popov; **SAKAR-TUNDZHA DISTRICT:** (?MG45) Sakar Mt., 700-750 m alt., 2.07.1962 (published as 760 m alt., 27.-28.07.1962 [2]), 2 ♂♂, 2 ♀♀, GP; **W RHODOPE MTS:** (KG82) Devin, 24.07.1965 [5] ♦ (?LG25) Assenova Krepost stronghold, 19.07.1958 [11]. All specimens in coll. NMNH.

The data for *O. schmidtii* from Western Rhodope Mts (PESHEV 1974a; 1975) was not confirmed with material and it is placed under *O. montana* only tentatively, speculating with the other data and material by Peshev.

The species occurs in Romania and Bulgaria (see also under *O. rubripes* in "Omitted taxa"). Occurrence in Northeastern Serbia is quite probable.

The taxon is included in the IUCN Red List of Threatened Animals (IUCN 2008) as vulnerable. The new information on its distribution could require reconsideration of its status.

### ***Chorthippus oschei* v. Helversen, 1989** (Fig. 10)

New species for the fauna of Bulgaria.

*Stenobothrus elegans* Charpentier: 1. FREY-GESSNER 1892: 399; *Stenobothrus albomarginatus* (De Geer): 2. NEDELKOV 1908: 419 (as *Stenobothrus (Chorthippus) albomarginatus* (De Geer)) – 3. NEDELKOV 1909: 91 – 4. DRENOVSKI 1925: 253; *Chorthippus albomarginatus* (De Geer): 5. BURESH & PESHEV 1955: 64 – 6. PESHEV 1962b: 81 (in the lowland) – 7. PESHEV 1964: 126 – 8. PESHEV 1970: 187, Table 1, 2 – 9. PESHEV & DJINGOVA 1974: 35 (Bourgas region and Strandzha Mts) – 10. PESHEV 1974b: 81 – 11. KÖHLER & SANDER 1984: 262 (Sofia: Suhodol).

#### **Localities & Material** (56 specimens investigated – imago)

N BLACK SEA COAST: (NH78) Varna [5] – Maksouda quarter, 18.07.1954, 1 ♂, T. Marinov (NMNH) ♦ (NH88) Euxinograd [5]; W DANUBIAN PLANE/W PREDBALKAN: (FP33) Granitovo Vill. [10], 18.09.1964, 1 ♂, 3 ♀♀, GP (NMNH); W PREDBALKAN: (FP23) Vedernik peak [10] ♦ (FP33) Belogradchik [10]; M PREDBALKAN: (LH05) Shipkovo Vill. [5] ♦ (LH18) Umarevtsi Vill.; W STARA PLANINA MTS [8]: (FN78) Burziya Vill., 31.07.1996, 2 ♂♂, 2 ♀♀ ♦ 1.08.1996, 1 ♂, 1 ♀ (NMNH) ♦ Klisourski Manastir settlement [10], 1000 m alt., 22.08.1963, 1 ♀, P. Petkov (NMNH) ♦ (FP14) Rakovishki Manastir monastery [10], 14.09.1965, 1 ♂, 1 ♀, M. Vitanova (NMNH) ♦ 18.09.1964, 1 ♂, 1 ♀, GP (NMNH) ♦ (GN08) Vratsa [2] ♦ Purshevitsa chalet, 1250 m alt. [10]; M STARA PLANINA MTS: (KH84) Ribaritsa Vill. [5] ♦ (LH04) Beli Osum Vill. [5]; SOFIA KETTLE: (FN73) Sofia – Bankya quarter [4] ♦ (FN82) Sofia – Gorna Banya [4] ♦ Sofia – Souhodol quarter [11] ♦ (FN83) Bozhourishte Vill. [4] ♦ (FN92) Vrana residency [5] ♦ (GN23) Osoitsa Vill. [5]; VITOSHA (FN72) Lyoulin Mt. [2, 5], 27.08.1906, 1 ♂, N. Nedelkov (NMNH) ♦ Vitosha Mt.: the mountain foothills [2] ♦ (FN82) Sofia – Knyazhevo quarter [5], 29.08.1975, 1 ♂, E. Andreeva (det. E. Andreeva as *C. dorsatus*; HMB); IKHTIMANSKA SREDNA GORA MT.: Lozenska Planina Mt.: (GN01) "Lozenska Planina", 30.07.1966, 2 ♀♀, A. Betova (NMNH) ♦ Germanski Manastir monastery, 21.07.1967, 3 ♂♂, E. Andreeva (det. E. Andreeva as *C. dorsatus*; HMB); Ikhtimanska Sredna Gora: (GN30) Ikhtiman [2]; SUSHTINSKA SREDNA GORA MT. the mountain foothills [2]; THRACE LOWLAND [7]: (KG77) Pazardzhik [5] ♦ (LG67) Chirpan [2] 16.07.1957, 7 ♀♀, GP (NMNH) ♦ (LG89) Stara Zagora [5]; STRANDZHA MTS. [9]; S BLACK SEA COAST [9]: (NH30) Bourgas [5]; STROUMA VALLEY: Sandanski-Petrich kettle [6]; RILA MTS: (FM78) above Doupnitsa [1] ♦ (GM18) Borovets resort [2], 1350 m alt. [5], 1.-10.08.1922, 1 ♀, I. Buresch (NMNH) ♦ (GM19) Samokov [2] ♦ (GM28) Dolna Banya [2] ♦ (GM37) Belmeken lake, 2000 m alt., 25.07.1998, 1 ♀, DC (NMNH); MESTA VALLEY: (GM21) Banichan Vill., 15.07.1981, 4 ♂♂, 6 ♀♀, E. Andreeva (HMB); W RHODOPE MTS [2 (Rhodopes' foothills)]: (GM32) Vishteritsa valley W of Ossenovovo Vill., 1380 m alt., 26.08.1965, 1 ♂, 6 ♀♀ ♦ (GM43) Selishte place, 24.08.1965, 1 ♂, both M. Vitanova (NMNH) ♦ (GM45) Velingrad (labeled Ladzhani), 29.07.1925, 4 ♂♂, 1 ♀, P. Drenski (NMNH) ♦ (KG64/65) Batak lake, 1130 m alt., mesophyte meadows, 28.06.2002, nymphs, V. Vedenina (coll. V. Vedenina).

The species represents the Balkan clone of the *Chorthippus albomarginatus* species group. It is distributed in the whole Balkan Peninsula, including Southern Romania, where substitutes the northern *C. albomarginatus*.

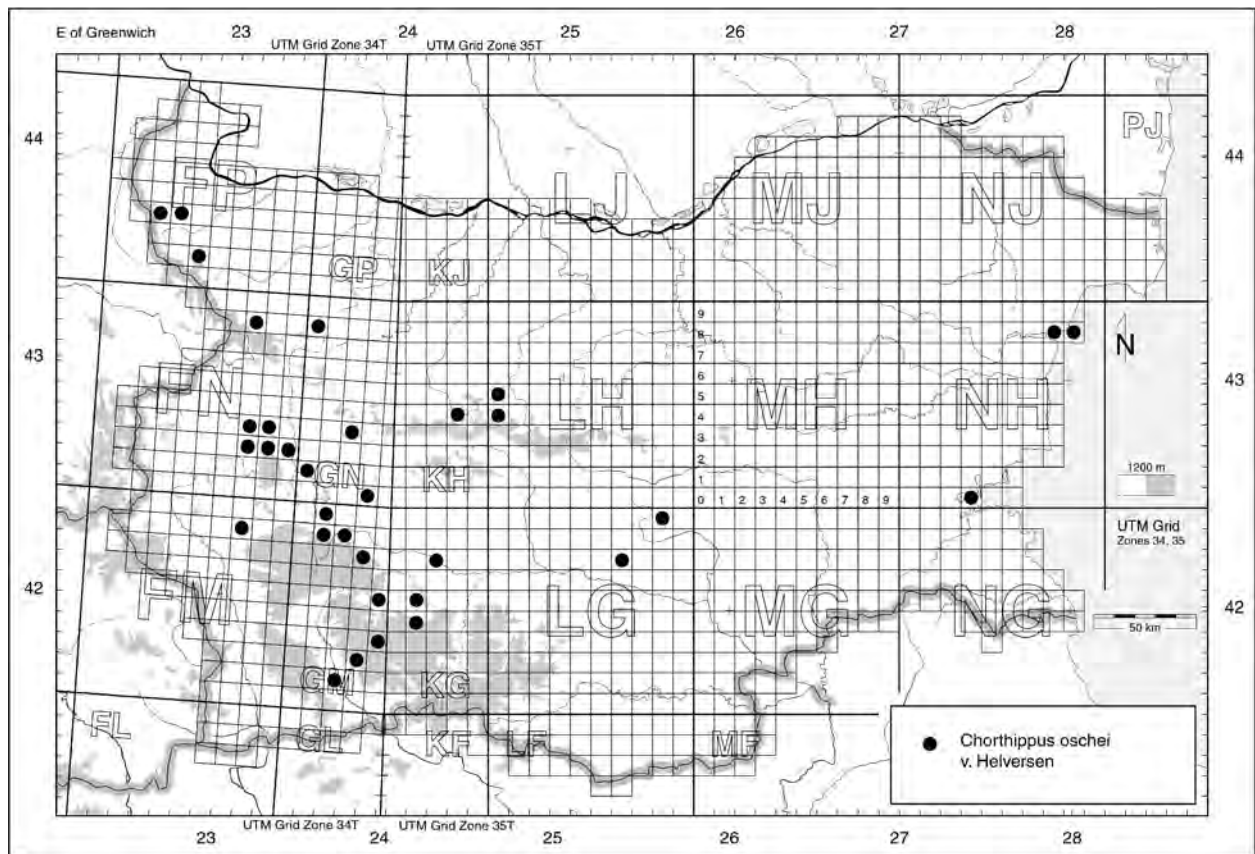


Fig. 10: Distribution of *Chorthippus oschei* in Bulgaria.

***Chorthippus vagans dissimilis* F. Willemse, v. Helversen et Odé, 2009**

(Fig. 11)

New species (see *C. vagans vagans* in "Omitted taxa") and subspecies for the fauna of Bulgaria.

*Chorthippus bornhalmi* Harz: 1. POPOV & CHOBANOV 2004: 284 (partim); *Chorthippus vagans dissimilis* ssp.n. in litt.: 2. WILLEMSE & WILLEMSE 2008: 49 (S. Bulgaria).; *Chorthippus vagans dissimilis* subsp. nov.: 3. WILLEMSE et al. 2009: 372-379.

**Localities & Material** (about 251 specimens investigated – 203 imago, about 48 nymphs) (determination of the nymphs sometimes doubtful). **STRANDZHA MTS:** (**NG55**) Gramatikovo Vill., 20.08.1959, 1 ♂, GP (NMNH); **S BLACK SEA COAST:** (**NG49**) Meden rid hill NW of Sozopol, 100-200 m [3], sparse xerothermic oak (*Quercus* spp.) forest, 21.08.2004, 2 ♂♂, 4 ♀♀, DC (NMNH) ♦ (**NG68**) Maslen Nos cape N of Primorsko, 70-80 m, xerothermic oak wood, 7.08.

2009, 1 ♂, DC (CC) & nymphs last instar, DC ♦ Primorsko, 1.09.1966, 2 ♀♀, GP (NMNH) ♦ (**NG85**) Veleka river estuary, 20-30 m, xerothermic oak forest, 30.08.1998, 1 ♂, DC (NMNH); **STROUMA VALLEY:** Kresna gorge: (**FM82**) "Tissata" reserve N of Kresna, 350-450 m [3], xerothermic grass-scrub community (*Q. pubescens*, *J. excelsa*, *J. oxycedrus*), 27.09.1997, 1 ♂, 5 ♀♀, DC (NMNH); **Sandanski-Petrich kettle:** (**FL89**) Kozhouh hill near Roupite Vill., 100-200 m [3], xerothermic grass-scrub community (*Quercus pubescens*, *Ulmus minor*, *P. spina-christi*, *Dianthus* sp., *Asparagus acutifolius*), 13.10.2001, 1 ♂, DC (NMNH) ♦ 10.1997, 1 ♂, 1 ♀ ♦ 5.08.1997, 1 ♂, 3 ♀♀, 3 ♀ nymphs last instar, 1 ♀ nymph last but one instar, DC (NMNH) ♦ (**FM71**) 2 km S of Kamenitsa Vill., 170-250 m [3], xerothermic *Quercus coccifera*-community, 3.06.-7.07.2003 (soil traps), 2 ♂♂ & 1 ♀ nymphs last instar, 2 ♂♂ & 1 ♀ smaller nymphs [2 ♀♀ nymphs 3rd instar], N. Simov (NMNH) ♦ 23.06.-8.08.2002 (soil traps), 3 ♂♂, 1 ♀ nymph last instar, 1 nymph last but one instar, DC (CC) ♦ 7.07.-11.08.2003 (soil traps), 1 ♂, 3 ♀♀, 2 ♀♀ nymphs last instar [?1 ♂, 2 ♀♀ smaller nymphs), M. Langourov & N. Simov (NMNH & CC) ♦

11.08.-8.09.2003 (soil traps), 4 ♂♂, 8 ♀♀ & (tree traps), 1 ♂, N. Simov (CC) ♦ 8.09.-4.10.2003 (soil traps), 4 ♂♂, [?] ♀♀, M. Langourov & S. Beshkov (CC) ♦ 8.08.-7.09.2002 (soil traps), 5 ♂♂, 4 ♀♀ ♦ 7.-27.09.2002 (soil traps), 1 ♂, 1 ♀ ♦ 27.09.-2.11.2002 (soil traps), 7 ♂♂, 5 ♀♀, all M. Langourov & DC (CC) & 1 ♂, 1 ♀, tegmens of 2 ♂♂ & 1 ♀ (NMNH) ♦ 4.10.-8.11.2003 (soil traps), 7 ♂♂, 6 ♀♀ ♦ 7.11.2003, 2 ♂♂ ♦ 2.11.-3.12.2002 (soil traps), 1 ♂, 1 ♀, all M. Langourov & DC (CC) ♦ 8.11.-6.12.2003 (soil traps), 4 ♂♂, 1 ♀, M. Langourov & S. Lazarov (CC) ♦ 12.-13.10.2006, 15 ♂♂, 4 ♀♀, DC (NMNH); **ALIBOTOUSH (SLAVYANKA) MT.:** (**GL09**) SE slope of Sveti Iliya hill near Kalimantsi Vill., 450-510 m [3], xerothermic *Quercus coccifera*-community, 4.06.-8.07.2003 (soil traps), 1 ♂ & 1 ♀ nymphs last but one instar, 2 ♂♂ & 2 ♀♀ nymphs 3<sup>rd</sup> instar, N. Simov (NMNH) ♦ 22.06.-6.08.2002 (soil traps), 1 ♂, 1 ♀, 1 ♂ nymph last instar ♦ 8.07.-12.08.2003 (soil traps), 2 ♂♂, 2 ♀♀, 2 ♂♂ nymphs last instar, [? 2 ♂♂ nymphs 3<sup>rd</sup> instar, 1 ♀ nymph 2<sup>nd</sup> instar] ♦ 6.08.-8.09.2002 (soil traps), 6 ♂♂, 5 ♀♀, 1 ♀ nymph last instar, 1 ♀ nymph last but one instar ♦ 12.08.-11.09.2003 (soil traps), 2 ♂♂, 4 ♀♀, [? 5 ♂♂ & 1 ♀ nymphs last instar, 1 ♂ & 2 ♀♀ nymphs last but one instar] ♦ 8.-28.09.2002 (soil traps), 6 ♂♂, 5 ♀♀ & (tree traps), 1 ♀ ♦ 11.09.-5.10.2003 (soil traps), 6 ♂♂, 6 ♀♀ ♦ 28.09.-3.11.2002 (soil traps), 4 ♂♂, 10-11 ♀♀, all M. Langourov & DC (CC) ♦ 11.09.-5.10.2003 (soil traps), 4 ♂♂, 4 ♀♀, M. Langourov (NMNH) ♦ 7.08.2002, 1 ♂, 3 ♀♀ nymphs last instar, DC (CC); **E RHODOPE MTS:** (**MF19**) Plevoun Vill. [1], 22.07.1968, 2 ♀♀ ♦ (**MF29**) Ivaylovgrad [1], 22.07.1968, 1 ♂ ♦ (**MG11**) Dubovets Vill. [1] (labeled "Dubovo"), 20.07.1968, 4 ♂♂, 2 ♀♀, 2 ♀♀ nymphs last instar, all GP (NMNH).

New subspecies of *Chorthippus vagans* from Greece, Bulgaria and Western Anatolia has been recently described (WILLEMSE et al. 2009). In Bulgaria it occurs in the southernmost low parts of the country from the Strouma valley to the Southern Black Sea coast (l.c.; unpublished data).

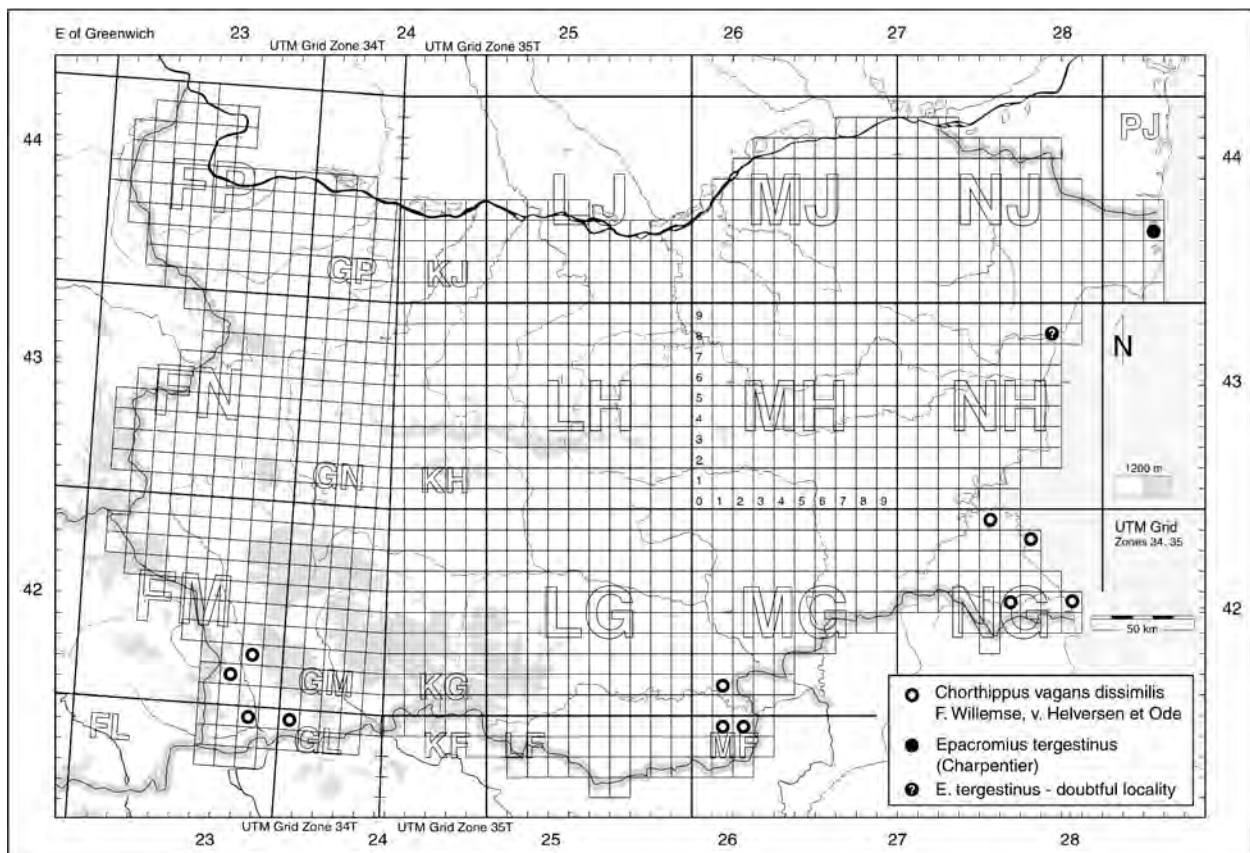


Fig. 11: Distribution of *Chorthippus vagans dissimilis* and *Epacromius tergestinus* in Bulgaria.

### **Note on *Epacromius tergestinus* (Charpentier, 1825) (Fig. 11)**

The records on the species' occurring in Southwestern Bulgaria (PESHEV 1962b; PESHEV 1970; PESHEV & ANDREEVA 1986; PESHEV & ANDREEVA 1988), as well as the mistaken placing the species in the table for the Rhodope Mountains (PESHEV 1974a) (see CHOBANOV 2003), were found to concern a misidentification. Three male specimens labelled *E. tergestinus* (det. Peshev) (3 ♂♂ Petrich, 16.06.1959, leg. Peshev) were identified with no doubt as belonging to *Aiolopus thalassinus* (Fabricius) (det. Chobanov 2008). Thus, the only possible locality before 2003 is the doubtful record by BURESH & PESHEV (1955) for Varna. The species was found to occur in the Dourankoulak lake surroundings (CHOBANOV 2003).

### **Omitted taxa**

#### ***Isophya rammei* Peshev, 1981**

**= *I. pavelii* Brunner von Wattenwyl, 1882**

(see under *I. pavelii*)

#### ***Isophya pyrenaea* (Serville, 1839)**

**= *I. rectipennis* Brunner von Wattenwyl, 1878**

"? *Jsophya* [sic] *pyrenaea* Serv. (Camptoxypha [sic] Fieb.)": NEDELKOV 1908: 426 (Stara planina Mts, Veliko Turnovo above Preobrazhenski manastir monastery, Vitohsa, Vratsa).

Though Nedelkov reported this species 100 years ago, the species has not been mentioned in any of the latter works, neither as occurring in Bulgaria, nor in a synonymic list of a taxon. From the material, reported by NEDELKOV (1908) as *I. pyrenaea* only the material from Veliko Turnovo was found (1 ♂ Turnovo, 05., Nedelkov leg., NMNH) and determined as belonging to *I. rectipennis*. Nedelkov reported from the same locality also *I. modesta* (Frivaldszky) (2 ♂♂ same data). Though *I. modesta modesta* does not occur in Bulgaria (POPOV 2007), the specimens mentioned belong to a species from the *Isophya modesta* group, as defined in WARCHAŁOWSKA-ŚLIWA et al. (2008) (D. Chobanov, unpublished data). In addition, Nedelkov has obviously recognized the different species-groups, therefore it is unlikely that he included more than one taxon under the mentioned name. *I. rectipennis* was reported for the first time for Bulgaria by RAMME (1941) and at present it is known to occurs in all the localities mentioned by NEDELKOV (1908) (material in NMNH; D. Chobanov, unpublished data). On the contrary, *I. pyrenaea* is found in the Southern France and the Spanish part of the Pyrenees and *I. camptoxypha* in the Carpathians, Western and Southern Hungary and the neighbouring territories of Austria (HELLER et al. 2004). Thus, the information by Nedelkov about the occurrence in Bulgaria of *I. pyrenaea* or *I. camptoxypha* is here referred to *I. rectipennis*.

#### ***Isophya camptoxypha* (Fieber, 1853)**

**= *Isophya speciosa* (Frivaldszky, 1865)?**

*Isophya brevipennis* Brunner von Wattenwyl: KÖHLER 1988: 78 (1 ♀ Vihren-Massiv).

KÖHLER (1988) reports the species from the Pirin Mountains in Southwestern Bulgaria. The range of the species, however, does not reach the Balkan Peninsula (see above). Moreover, determination by a female within the genus *Isophya* is

frequently quite difficult. In this region (Vikhren peak) at the height (above 1950 m alt.) the specimen is collected, only two species of *Isophya* occur: *I. speciosa* (Frivaldszky) and *I. bureschi* Peshev. Though it is difficult to say which species is concerned in that case, the size and the general body shape of the females of *I. speciosa* and its higher tolerance to bigger altitudes make this species more probable candidate for this confusion.

**Barbitistes serricauda (Fabricius, 1798)**

**= *Ancistrura nigrovittata* (Brunner von Wattenwyl, 1878)**

*Barbitistes serricaudus* Fabricius: 1. NEDELKOV 1908: 426 (Vratsa) – 2. NEDELKOV 1923: 49 (Assenovgrad) – 3. BURESH & PESHEV 1958: 25-26 (cited the last two references) – 4. PESHEV 1974a: Table (probably based on the data by NEDELKOV 1923) – 5. PESHEV 1975: 108, Table (probably based on the data by NEDELKOV 1923).

**Barbitistes serricauda (Fabricius, 1798)**

**= *Barbitistes constrictus* Brunner von Wattenwyl, 1878**

(see under *B. constrictus*)

The records by NEDELKOV (1908, 1923), cited by BURESH & PESHEV (1958) both concern incorrect determination of *Ancistrura nigrovittata* Brunner von Wattenwyl, a species at that time unknown for the Bulgarian fauna. In his first record of the species NEDELKOV (1908) mentions that the identification of the specimen from Vratsa is doubtful due to an accretion of cerci. Actually the male specimen (1 ♂ Vratsa, 07., leg. N. Nedelkov, coll. NMNH) is intact, with no aberrations and a typical representative of *Ancistrura*. The material by Nedelkov from Assenovgrad (1 ♀) was not found. Anyway, *A. nigrovittata* is common in the region and no doubt this record should be referred to the latter species. Peshev's records for occurring of *B. serricauda* in Assenovgrad (PESHEV 1974a, 1975) are referred to the Nedelkov's data. The records from Stara Planina Mountains (PESHEV 1970, 1974b) are here referred to *B. constrictus* following the new information on the distribution of the latter and the specimen from Vezhen peak (see above), misidentified by Peshev.

**Platycleis (Tessellana) tessellata (Charpentier, 1825)**

*Tessellana tessellata* Charp.: 1. BURESH & PESHEV 1958: 51 (1 ♂ from the southern outskirts of Sofia, 17.07.1951, leg. S. Minkova) – 2. PESHEV 1975: 106, Table (mentioned by mistake or after Buresh & Peshev).

The mentioned specimen was not found in the NMNH-collection but the case quite probably concerns incorrect identification of a macropterous specimen of *P. veyseli*. Considering the range of *P. tessellata* (southern part of Western Europe eastwards to European Russia and Western Asia, penetrating on the Balkans only in Slovenia and Croatia) its occurring in Bulgaria is quite doubtful. Thus, the species is excluded from the fauna of the country.

**Platycleis (Tessellana) orina Burr, 1899**

**= *Platycleis (Tessellana) incerta* Brunner von Wattenwyl**

(see under *P. incerta*)

**Platycleis (Tessellana) orina Burr, 1899**  
**= Platycleis (Tessellana) nigrosignata (Costa)**  
(see under *P. nigrosignata*)

Notes to the references: 1. PESHEV 1974a: 105 (E Rhodope Mts) (mentioned by mistake) –  
2. PESHEV 1975: Table (mentioned by mistake).

The species' range is restricted to the Western Balkan Peninsula (Croatia, Bosnia and Hercegovina, Montenegro, Albania, Southwestern Macedonia, Western and Southern Continental Greece and the Ionian islands. The following materials by BURESH & PESHEV (1958) were determined and found to belong to *P. incerta*: 2 ♂♂, 6 ♀♀ Petrich, 10.10.1956, leg. G. Peshev; 1 ♂ 25.10[not 09].1955, leg. G. Peshev. Thus, in accordance with the information by PESHEV (1962a) the earlier records for *P. orina* from Bulgaria have to be considered a misidentification. Subsequently PESHEV (1964) reports the species as a new for the Bulgarian fauna. The material presented in the NMNH-collections from the same date and region include specimens of *P. nigrosignata* (7 ♂♂, 13 ♀♀ Levka Vill., 27.07.1962; 9 ♂♂, 10 ♀♀ "Sakar pl.", 27.07.1962; all leg. G. Peshev) and *P. incerta* (1 ♂ Levka Vill., 27.07.1962; 1 ♂ "Sakar pl.", 27.07.1962; both leg. G. Peshev). Considering the higher number of specimens shown for '*Tessellana orina*' than for '*Incertana incerta*', both found on the same place, it is speculated here that the records for *P. orina* by PESHEV (1964; 1971) concern actually *P. nigrosignata*. Thus, the species is here omitted from the Bulgarian fauna.

**Platycleis (Montana) stricta (Zeller, 1849) = ?**

*Platycleis stricta* Zeller: 1. FREY-GESSNER 1892: 402 (Elinine Voch (2000 m) im Rilo-Gebirge) –  
2. NEDELKOV 1908 (Rila-planina) (partim?) (probably cited the latter author).

**Platycleis (Montana) stricta (Zeller, 1849)**  
**= Platycleis (Tesselana) veyseli Koçak, 1984**  
(see under *P. veyseli*)

The records of this species are probably due to incorrect determination of specimens of *P. veyseli*. At least this was proved for the Nedelkov's locality "Sofia" with the material found in NMNH (1 ♂ Sofia, 31.07.190? & 1 ♀ Sofia, 10.1905, leg. N. Nedelkov, coll. NMNH). As to the data by Frey-Gessner (Rila Mts: Elenin Vrukh peak) cited by NEDELKOV (1908) it also should be considered as incorrect though it is still unknown which species the data concerns.

**Pachytrachis frater Brunner von Wattenwyl, 1882**  
**= P. gracilis (Brunner von Wattenwyl, 1861)**

*Pachytrachelus frater* Brunner von Wattenwyl: 1. NEDELKOV 1908: 431 (Vratsa, Rhodope Mts, Razgrad) – 2. NEDELKOV 1909: 94 (Bachkovo Vill – the vineyards, 08.). *Pachytrachis frater* Brunner von Wattenwyl: 3. BURESH & PESHEV 1958: 66-67 (Kotel, 1 ♂, 1951, V. Georgiev; Bachkovo Vill – the vineyards, 08.1907, 1 ♂, N. Nedelkov; Vitosha Mt., 07., 1 ♂, N. Nedelkov).

The material mentioned in the literature under the name *P. frater* and found in the NMNH collection follows: W Stara Planina Mts: 1 ♀ nymph last instar Vratsa, 07., leg. N. Nedelkov; W Rhodope Mts: 2 ♂♂ above Bachkovski Manstir monastery, 08., N. Nedelkov leg. et det. as *P. frater* Brunn.; 1 ♀ "Rhodope Mts", 12.09.1907, leg. N. Nedelkov. Though NEDELKOV (1908) reported also *P. gracilis* from Vratsa, the other two localities are obvious, with the material checked also by BURESH &

PESHEV (1958) and identified as *P. frater*. Anyway, these specimens, as well as all determined material of *Pachytrachis* from Bulgaria (40 imago, 7 nymphs and additional field observations) was undoubtedly identified as belonging to *P. gracilis*. Thus, the species *Pachytrachis frater*, occurring in the coastal region of the Northwestern Balkan Peninsula (Slovenia, Croatia, Bosnia and Hercegovina, Montenegro, Albania) is omitted from the Bulgarian fauna, where it is replaced by *Pachytrachis gracilis*.

**Odontopodisma schmidtii (Fieber, 1853) = *O. decipiens* Ramme, 1951**

(see under *O. decipiens*)

**Odontopodisma schmidtii (Fieber, 1853) = *O. montana* Kis, 1962**

(see under *O. montana*)

The records by NEDELKOV (1908) and DRENOVSKI (1938) are here referred to *O. decipiens* Ramme. Originally the material was identified as *Podisma schmidtii*, based on the fact, that only this taxon of the present genus *Odontopodisma* had been recognized before 1951. The range of *O. schmidtii* covers the Southeastern Alps, Hungary, and the Northwestern Balkan Peninsula as South as Bosnia and Hercegovina and as East as Western Serbia and does not reach the eastern part of the Balkan Peninsula. In addition, part of the material by Nedelkov was revised (Svishtov, Vratsa region and Vitosha), and found to belong to *O. decipiens*. The records by PESHEV (1970, 1971) were placed under *O. montana*, since the specimens found from Kom peak (1 ♂, 1 ♀ same date as the published) belong to that species.

**Odontopodisma rubripes (Ramme, 1931) = *O. montana* Kis, 1962**

(see under *O. montana*)

**Odontopodisma rubripes (Ramme, 1931) = *O. decipiens* Ramme, 1951**

(see under *O. decipiens*)

*Odontopodisma rubripes* is a Carpathian species, found in the Carpathians' northern part in Romania, Hungary and Slovakia. The identification of the whole available material of 'red-legged' *Odontopodisma* in the NMNH-collections has shown its belonging to *O. montana*. The latter was up to now considered an endemic of Romania. At present its range is found to embrace few much southerly disposed mountain ranges in Bulgaria (probably occurs also in the northeasternmost Serbia). On account on low or no variation in the morphology of genitalia even in the isolated populations (e.g. Sakar Mt.) and lack of comparison with topotypic material, all the specimens investigated are arranged here within *O. montana* Kis.

**Epacromius coerulipes (Ivanov, 1887)**

**= *Aiolopus thalassinus* (Fabricius, 1781)**

*Epacromius coerulipes* (Ivan.): PESHEV & DJINGOVA 1974: 35.

The specimen mentioned by Peshev and Djingova (l.c.) (a male, not a female as reported; 1 ♂ Sozopol, 11.07.1968, leg. Peshev, Peshev det. as *E. coerulipes*) was found to belong to *Aiolopus thalassinus* (Fabricius). Though the sex of the



specimen differs from the reported, I believe this is an additional mistake and the case is similar to another (see "Note on *Epacromius tergestinus*").

**Dociostaurus kraussii (Ingenizkij, 1897) = *D. brevicollis* (Eversmann, 1848)**

*Staurunotulus* [sic] *kraussi kraussi* (Ingen.): PESHEV & DJINGOVA 1974: 34.

The specimens mentioned by Peshev & Djingova (l.c.) were found in the NMNH collection (2 ♀♀ 11.06.1968 Pobiti Kamuni, leg. Peshev, Peshev det. as *D. kraussi*), together with another 1 ♂ and 1 ♀ nymph last instar (reported as *D. brevicollis* in the paper mentioned). All the specimens were identified as *D. brevicollis* (Eversmann). Thus, the occurrence of *D. kraussii* in Bulgaria, though possible, remains unproved.

**Dociostaurus tartarus Shchelkanovtsev, 1921**

**= *D. maroccanus* (Thunberg, 1815)**

*Dociostaurus tartarus* Uv.: 1. PESHEV 1962a: 185 – 2. PESHEV 1962b: 78;

The species occurs from the low course of Volga River, through Central Asia to Afghanistan. Thus, the records mentioned have been lately arising doubt about the species' occurrence on the Balkan Peninsula. The revision of the NMNH collection proved this uncertainty. Two specimens (1 ♂, 1 ♀ Marino Pole, 29.05.1961 (reported as 27.05.1961), leg. G. Peshev), labelled *D. tartarus*, were now identified as belonging to *Dociostaurus maroccanus*.

**Chorthippus montanus (Charpentier, 1825)**

**= *C. parallelus* (Zetterstedt, 1821)**

*Chorthippus montanus* (Charpentier, 1825): 1. PESHEV 1970: 189, 196, Table 1, 2 (Kom peak, 1800-2000 m alt., 29.08.1961, 16.08.1966; "new for the Bulgarian fauna") – 2. PESHEV 1971: 220 (same data) – 3. PESHEV 1974b: 81 (same data plus Sveti Nikolska Planina Mt., 1600 m alt., 14.08.1966; Vrachanska Planina Mt., 1400 m alt., 18.08.1966).

The material by Peshev found in the NMNH-collection (5 ♂♂ Sveti Nikolska Planina above Chouprene Vill., 1020 m alt., 12.08.1966 (not 1600 m, 14.08. as published); 2 ♂♂ Kom peak 16.08.1966, 1800-2000 m alt.; 1 ♂ Vrachanska Planina, 18.08.1966, 1300 m alt. (not 1400 m as published); 1 ♂ Vurshets, 22.06.1964 (unpublished), all leg. Peshev, labelled *Chorthippus montanus*) belongs actually to *Chorthippus parallelus* (Zetterstedt, 1821), which was confirmed by comparison with material of *C. montanus* from Poland (NMNH). The latter has northern distribution and penetrates on the Balkan Peninsula only in its northwestern part. Thus, the species is deleted from the Bulgarian fauna.

**Chorthippus albomarginatus (Charpentier, 1825)**

**= *C. oschei* v. Helversen, 1989**

(see under *C. oschei*)

**Chorthippus vagans vagans (Eversmann, 1848) = ?**

*Stenobothrus vagans* Fieb.: 1. FREY-GESSNER 1892: 399 (Rila Mts: Eline Voch peak) – 2. NEDELKOV 1908: 419 (as *Stenobothrus (Stauroderus) vagans* Fieb.) (Rila Mts) – 3. NEDELKOV 1923: 48 (Lyulin Mt.); *Chorthippus vagans* (Eversmann): 4. BURESH & PESHEV 1955: 59-60 (Rila Mts: Rilski Manastir monastery; cited earlier data).

### ***Chorthippus vagans vagans* (Eversmann, 1848)**

#### **= *C. parallelus* (Zetterstedt, 1821)**

*Chorthippus vagans* (Eversmann, 1848): 5. PESHEV 1970: 196-197, Table 1, 2 (Vrachanska Mt., Purshevitsa chalet, 1200 m alt., 14.09.1964, ♂) – 6. PESHEV 1971: 220 (same data) – 7. PESHEV 1974b: 80 (same data).

PESHEV (1970, 1971) stated that there was no material of *C. vagans* before him and earlier records are wrong. I support his statement. The material by Peshev found in the NMNH-collection (Purshevitsa chalet 1 ♀ 14.09.1964, 1200 m alt., leg. Peshev, labelled *Chorthippus vagans*) (a female, not a male as in PESHEV 1970; in PESHEV 1971 sex not specified) belongs actually to *Chorthippus parallelus* (Zetterstedt, 1821). The specimen is a large, brownish coloured macropterous female. The side keels are dark banded, which occurs mostly in the high-mountain populations of *C. parallelus*. Hence, a misidentification with another taxon of the genus is possible. Anyway, the morphology (incl. ovipositor, wing venation) is typical for the macropterous specimens of the latter species. Thus, the taxon *Chorthippus vagans vagans* is deleted from the Bulgarian fauna.

### **Conclusions**

After a revision of available Orthoptera collections from Bulgaria, 8 species with one subspecies – *Acrometopa servillei* (Brullé) with its nominate subspecies, *Barbitistes ocskayi* (Charpentier), *Metaplastes ornatus* (Ramme), *Metrioptera tsirojjanni* Harz et Pfau, *Platycleis medvedevi* (Miram), *Odontopodisma montana* Kis, *Chorthippus oschei* v. Helversen, *Chorthippus vagans dissimilis* F. Willemse, v. Helversen et Odé, are now added and 14 species and one subspecies – *Isophya pyrenaea* (Serville), *Isophya camptoxypha* (Fieber), *Barbitistes serricauda* (Fabricius), *Platycleis tessellata* Charpentier, *Platycleis orina* Burr, *Platycleis stricta* (Zeller), *Pachytrachis frater* Brunner von Wattenwyl, *Odontopodisma schmidtii* (Fieber), *Odontopodisma rubripes* (Ramme), *Epacromius coerulipes* (Ivanov), *Dociostaurus kraussii* (Ingenizkij), *Dociostaurus tartarus* Shchelkanovtsev, *Chorthippus montanus* (Charpentier), *Chorthippus albomarginatus* (De Geer), *Chorthippus vagans vagans* (Eversmann), are omitted from the Bulgarian fauna. *Isophya rammei* Peshev is synonymised with *Isophya pavelii* Brunner von Wattenwyl and thus the number of added taxa is finally 9, and omitted taxa - 15. An addition to the description and diagnosis of the latter species is presented. Full reference and distributional data are given for 31 taxa reported for Bulgaria, including the above mentioned and *Barbitistes constrictus* Brunner von Wattenwyl, *Platycleis incerta* Brunner von Wattenwyl, *Platycleis nigrosignata* (Costa), *Platycleis veyseli* Koçak, *Odontopodisma montana* Kis and *Epacromius tergestinus* (Charpentier). Figures of the song of *Barbitistes constrictus* from Bulgaria and the unpublished songs of *Isophya pavelii* and *I. rectipennis* are submitted.

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Author:

Dragan Petrov Chobanov

Institute of Zoology, Bulgarian Academy of Sciences

1 Tsar Osvoboditel boulevard

1000 Sofia

Bulgaria

e-mail: dchobanov@gmail.com

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