A REVIEW ON THE GENERA *PSEUDOVADONIA* LOBANOV ET AL., 1981 AND *VADONIA* MULSANT, 1863 (COLEOPTERA: CERAMBYCIDAE: LEPTURINAE)

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ABSTRACT: All taxa of the genera *Pseudovadonia* Lobanov et al., 1981 and *Vadonia* Mulsant, 1863 in the whole world are evaluated. These genera are also discussed in detail. The main aim of this catalogic work is to clarify current status of the genera in the world.

KEY WORDS: *Pseudovadonia, Vadonia,* Lepturinae, Lepturini, Cerambycidae.

Subfamily LEPTURINAE Latreille, 1802

Tribe LEPTURINI Kirby, 1837

= Lepturidae Kirby, 1837
= Lepturaires Mulsant, 1839
= Lepturitae Thomson, 1864

The tribe includes currently at least 109 genera as *Acanthoptura* Fairmaire, 1894; *Alosterna* Mulsant, 1863; *Analeptura* Linsley & Chemsak, 1976; *Anastrangalia* Casey, 1924; *Anoplodera* Mulsant, 1839; *Asilaris* Pascoe, 1866; *Batesiata* Miroshnikov, 1998; *Bellamira* LeConte, 1873; *Brachyleptura* Casey, 1913; *Carlandrea* Sama & Rapuzzi, 1999; *Cerrostrangalia* Hovore & Chemsak, 2005; *Charisalia* Casey, 1913; *Chloriolaus* Bates, 1885; *Chontalia* Bates, 1872; *Choriolaus* Bates, 1885; *Corennys* Bates, 1884; *Cornumutila* Letzner, 1843; *Cribroleptura* Vives, 2000; *Cyphonotida* Casey, 1913; *Dokhtouroffia* Ganglbauer, 1886; *Dorcasina* Casey, 1913; *Elacomia* Heller, 1916; *Ephies* Pascoe, 1866; *Etorofus* Matsushita, 1933; *Eurylemma* Chemsak & Linsley, 1974; *Euryptera* Lepeletier & Audinet-Serville in Latreille, 1828; *Eustrangalis* Bates, 1884; *Formosopyrrhona* Hayashi, 1957; *Fortuneleptura* Villiers, 1979; *Gnathostrangalia* Hayashi & Villiers, 1985; *Hayashiella* Vives & N.Ohbayashi, 2001; *Idiopidonia* Swaine & Hopping, 1928; *Idiostrangalia* Nakane & Ohbayashi, 1957; *Japanostrangalia* Nakane & Ohbayashi, 1957; *Judolia* Mulsant, 1863; *Judolidia* Plavilstshikov, 1936; *Kanekoa* Matsushita & Tamanuki, 1942; *Kanoa* Matsushita, 1933; *Katarinia* Holzschuh, 1991; *Kirgizobia* Danilevsky, 1992; *Leptalia* LeConte, 1873; *Leptochoriolaus* Chemsak & Linsley, 1976; *Leptostrangalia* Nakane & Ohbayashi, 1959; *Leptura* Linnaeus, 1758; *Lepturalia* Reitter, 1913; *Lepturobosca* Reitter, 1913; *Lepturopsis* Linsley & Chemsak, 1976; *Lycidocerus* Chemsak & Linsley, 1976; *Lycochoriolaus* Linsley & Chemsak, 1976; *Lycomorphoides* Linsley, 1970; *Lygistopteroides* Linsley & Chemsak, 1971; *Macrochoriolaus* Linsley, 1970; *Macroleptura* Nakane et Ohbayashi, 1957; *Megachoriolaus* Linsley, 1970; *Meloemorpha* Chemsak & Linsley, 1976; *Metalloleptura* Gressitt & Rondon, 1970; *Metastrangalis* Hayashi, 1960; *Mimiptera* Linsley, 1961; *Mimostrangalia* Nakane & Ohbayashi, 1957; *Mordellistenomimus* Chemsak & Linsley, 1976; *Munamizoa* Matsushita &

Tamanuki, 1940; *Nemognathomimus* Chemsak & Linsley, 1976; *Neobellamira* Swaine & Hopping, 1928; *Neoleptura* Thomson, 1860; *Neopiciella* Sama, 1988; *Nivellia* Mulsant, 1863; *Nustera* Villiers, 1974; *Ocalemia* Pascoe, 1858; *Oedecnema* Thomson, 1857; *Ohbayashia* Hayashi, 1958; *Orthochoriolaus* Linsley & Chemsak, 1976; *Ortholeptura* Casey, 1913; *Pachytodes* Pic, 1891; *Papuleptura* Gressitt, 1959; *Paracorymbia* Miroshnikov, 1998; *Paranaspia* Matsushita & Tamanuki, 1940; *Parastrangalis* Ganglbauer, 1889; *Pedostrangalia* Sokolov, 1897; *Platerosida* Linsley, 1970; *Pseudalosterna* Plavilstshikov, 1934; *Pseudoparanaspia* Hayashi, 1977; *Pseudophistomis* Linsley & Chemsak, 1971; *Pseudostrangalia* Swaine & Hopping, 1928; *Pseudotypocerus* Linsley & Chemsak, 1971; *Pseudovadonia* Lobanov , Danilevsky et Murzin, 1981; *Pygoleptura* Linsley & Chemsak, 1976; *Pygostrangalia* Hayashi, 1976; *Pyrocalymma* Thomson, 1864; *Pyrotrichus* LeConte, 1862; *Pyrrhona* Bates, 1884; *Rapuzziana* Danilevsky, 2006; *Robustoanoplodera*; *Rutpela* Nakane et Ohbayashi, 1957; *Stenelytrana* Gistel, 1848; *Stenoleptura* Gressitt, 1935; *Stenostrophia* Casey, 1913; *Stenurella* Villiers, 1974; *Stictoleptura* Casey, 1924; *Strangalepta* Casey, 1913; *Strangalia* Audinet-Serville, 1835; *Strangalidium* Giesbert, 1997; *Strangaliella* Bates, 1884; *Strangalomorpha* Solsky, 1873; *Strophiona* Casey, 1913; *Trachysida* Casey, 1913; *Trigonarthris* Haldeman, 1847; *Trypogeus* Lacordaire, 1869; *Typocerus* LeConte, 1850; *Vadonia* Mulsant, 1863 and *Xestoleptura* Casey, 1913. However, *Cortodera* Mulsant, 1863 and *Grammoptera* Audinet-Serville, 1835 was placed in the tribe Lepturini by Villiers (1978) and Vitali (2007).

Genus *PSEUDOVADONIA* Lobanov, Danilevsky & Murzin, 1981

= *Pseudalasterna* Auct.
= *Vadonia* Auct. partim
= *Leptura* Auct. partim
= *Anoplodera* Auct. partim

Type species: *Leptura livida* Fabricius, 1776

Body short and wide. Head broad at the level of eyes, temples reduced completely, mouth narrow and lengthened, cheeks so long as the half of eyes. Eyes large, hard but dilated. Antennae inserted at the level of the lower edge of the eye, very thickened towards the apex, exceed three fifth of elytra in males, more thick and exceeding only barely the middle of the elytron in the females; scape very arched and flattened underneath; second article equal to one third of the third, third article almost equal to the fourth, the fifth a little longer, following articles thickened and diminished size.

Pronotum a little longer than wide, very shrunk forward, rounded laterally, with the fine swelling collar and a transverse depression in front of the base. Pronotum strongly bisinuate, side rounded, nonprojecting angles. Scutellum subtriangular, bifid in the apex. Elytra relatively short, convex, separately round in the apex. Legs rather short, middle and hind tibiae rather strongly thickened in the apex. First article of hind tarsi longer than the two following joined articles together.

Larval development is in humus particles of soil and parts of the roots infested by fungus *Marasmius oreades* (Bolt.). Pupation is in late spring or early summer in the soil. Adults can be found on flowers.

The Palaearctic genus is monotypic.

livida Fabricius, 1776
ssp. ***livida*** Fabricius, 1776
ssp. ***pecta*** Daniel & Daniel, 1891
ssp. ***desbrochersi*** Pic, 1891

Original combination: *Leptura livida* Fabricius, 1776

Other names. *pastinacea* Panzer, 1795; *bicarinata* Arn., 1869; *caucasica* Daniel & Daniel, 1891 (nomen nudum); *corallipes* Reitter, 1894; *bicarinatoides* Plavilstshikov, 1936; *steigerwaldi* Heyrovský, 1955

The species is represented by three subspecies in Turkey. *P. livida desbrochersi* (Pic, 1891) occurs in East or North-East Turkey, *P. livida pecta* (Daniel & Daniel, 1891) occurs in South and West Turkey and the nominative *P. livida livida* occurs in other parts of Turkey. However, we think that the real status of distribution patterns of these subspecies needs to be clarified. According to Sama (2002), the taxonomy of this species needs revision. In Danilevsky (2008b) stated that "*according to J. Voříšek (personal communication,1992), Pseudovadonia livida livida does not occur eastwards France; in Italy - Pseudovadonia livida pecta; in Greece, Black sea coast of Bulgaria, Transcaucasie and Turkey - Pseudovadonia livida desbrochersi Pic; but near Sochi - Pseudovadonia livida pecta*". Also, *"Pseudovadonia livida caucasica Daniel was recorded for Mashuk and Zheleznovodsk. The taxon was never described, so Pseudovadonia livida caucasica Runich, Kasatkin, Lantzov, 2000 must be regarded as nomen nudum"*. Danilevsky (2008b) stated that "*As it was reliably mentioned by G. Sama (2002), Pseudovadonia livida consists of many morphological determined populations, which need to be adequately reflected in nomenclature (different length, color and direction of elytral and pronotal pubescence, different color of legs and abdomen). For example it was mentioned (Sama, 2002), that populations from Middle East looks closer to European populations than to Anatolian. Leptura livida was described from Germany. Specimens (my materials and collection of Zoological Museum of Moscow University) from France, Germany, Austria, Czechia, Hungary and Greece seem to have relatively longer pronotal erect pubescence, than specimens from Italy (type locality of Vadonia livida pecta), Bulgaria, Ukraine, Russia and Kazakhstan. So, traditional separation of the east subspecies Pseudovadonia livida pecta seems to be adequate. Besides the black abdomen in females is rather typical for western populations Including Italy and Greece. All known to me females from Bulgaria, Moldavia, Ukraine, Russia, Kazakhstan, Caucasus and Turkey have red abdomen. Certain populations of P. livida from Transcaucasia and Turkey consist only of specimens with totally red legs (Armenia: Amberd-Biurakan, Goris, Khosrov; Georgia: Aspindza, Atskuri; Azerbajdzhan: Adzhikent; Turkey: Kagyzman, Sarykamysh), others are similar to East European populations with black legs (Armenia: Takerlu-Artavaz, Kirovakan-Vanadzor, Goris; Georgia: Mtzheta, Dviri, Borzhomi; Azerbajdzhan: Altyagach; Turkey: Kazikoporan). I regard them as two subspecies. P. livida with red legs was described several times: Vadonia livida var. desbrochersi from Bitlis (Turkey), Leptura l. var. corallipes from Armenia. I do not know specimens from Bitlis and provisionally regard both names as synonyms, so the name of the reg-legs subspecies is P. livida desbrochersi (= corallipes). Populations with partly red legs also exist (Artvin env., Turkey). Certain Transcaucasian populations are characterized by much shorter elytral and*

pronotal erect pubescence, than P. l. pecta (similar form seems to be known from Spain); Transcaucasian subspecies with black legs and short pubescence most probably needs a new name".

RECORDS IN TURKEY: İstanbul prov.: Alem Mountain (Bodemeyer, 1906); Amasya prov., Gümüşhane prov.: Torul, Bayburt prov. and Erzurum prov.: Kop Mountain as *Leptura livida pecta* (Villiers, 1959); İstanbul prov.: Polonez village / Alem Mountain / Beykoz / Anadoluhisarı / Çengelköy, İzmir prov.: near Central / Kemalpaşa / Efes / Bergama, Antalya prov.: near Central / Belkıs (Aspendos, Cumali) / Antitoros Mountains (Bey Mountains / Korkuteli) / Alanya and near, Isparta prov.: Eğirdir and near as *Leptura livida* m. *pecta* (Demelt & Alkan, 1962); Ankara prov. (Villiers, 1967); Ankara prov. (Tuatay et al., 1972); Turkey (Demelt, 1963; Lobanov et al., 1981; Danilevsky & Miroshnikov, 1985; Svacha & Danilevsky, 1988; Althoff & Danilevsky, 1997; Lodos, 1998; Sama & Rapuzzi, 2000; Sama, 2002); Turkey as *P. livida pecta* (Daniel, 1891) (Demelt, 1963; Lobanov et al., 1981; Danilevsky & Miroshnikov, 1985); Giresun prov.: Kümbet (Sama, 1982); Ankara prov.: Kalecik (Öymen, 1987); Antalya prov.: Kemer / Kumluca (Yeniceköy) / Termessos / Manavgat-Sorgun, İçel prov.: Erdemli (Aslanlı), Osmaniye prov.: Nurdağı pass as *Pseudovadonia livida pecta* (Adlbauer, 1988); Antalya prov.: Arapsuyu, Artvin prov.: Ardanuç (Akarsu) / Şavşat (Çayağzı) / Çalmaşur (Karagöl) / Yusufeli (Sarıgöl), Bayburt prov.: Maden, Bilecik prov.: Central, Erzincan prov.: Ballıköy / Kemaliye, Erzurum prov.: Central (Palandöken) / Ilıca (Atlıkonak) / İspir / Oltu (Sütkans) / Pazarroad (Gölyurt pass) / Şenkaya (Turnalı) / Tortum (Aşağı Meydanlar), Kars prov.: Sarıkamış (Akkurt) / Karakurt (Şeytangeçmez) (Tozlu et al., 2002); Isparta prov.: Yalvaç (Bağkonak, Sultan mountains), Uşak prov.: Ulubey (Ovacık village, Gökgöz hill), Gümüşhane prov.: Kelkit (Günyurdu village) (Özdikmen & Çağlar, 2004); Ankara prov.: Central / Çubuk (Karagöl), Kars prov.: Sarıkamış, Isparta prov.: Gölcük (Çakıören) (Özdikmen et al., 2005); Manisa prov.: Turgutlu Çardağı (Aysekisi hill / Domunludeve valley), İzmir prov.: Menderes (Efem çukuru village), Kocaeli prov.: İzmit (Ballıkayalar Natural Park / Beşkayalar Natural Park,), Osmaniye prov.: Zorkun plateau road (Olukbaşı place) / Yarpuz road (Karataş place) / Bahçe (Yaylalar village), Gaziantep prov.: Nurdağı (plateau of Kazdere village) / Kuşçubeli pass, Hatay prov.: Hassa (Zeytinoba village, Aktepe) (Özdikmen & Demirel, 2005); Antalya prov.: Irmasan pass, Artvin prov.: from Şavşat to Çam pass, Bolu prov.: Abant, Bursa prov.: Uludağ / Central, Çankırı prov.: Çerkeş, Kırklareli prov.: Demirköy, Hatay prov.: Yayladağı, İçel prov.: Erdemli-Güzeloluk / Güzeloluk / Silifke (Ortagören to Mut), Rize prov.: İkizdere, Samsun prov.: Kavak (Hacılar pass) (Malmusi & Saltini, 2005); Adıyaman prov.: Nemrut Mountain, Artvin prov.: from Şavşat to Çam pass, Bitlis prov.: Güroymak, Erzurum prov.: İspir-Çamlıkaya / İspir, Kars prov.: Sarıkamış, Rize prov.: Artvin-Şavşat / Şavşat-Çam pass as *P. livida desbrochersi* (Pic, 1891) (Malmusi & Saltini, 2005); Ankara prov.: Beytepe (Özdikmen & Demir, 2006); Ankara prov.: Kızılcahamam (Güvem / Yenimahalle village / the peak of Bel), Niğde prov.: Altunhisar-Çiftlik road (entry of Çiftlik) (Özdikmen, 2006); Karabük prov.: Safranbolu (Bulak village, Mencilis Cave env., Gürleyik National Park), between Eflani–Pınarbaşı, Kastamonu prov.: Küre (Masruf pass env.), Ağılı–Azdavay road (Yumacık village), Azdavay, between Azdavay–Pınarbaşı, Pınarbaşı–Azdavay road (Karafasıl village), Küre–Seydiler road (Masruf pass), Pınarözü, Yaralıgöz pass, Dipsiz Göl National Park, Ilgaz–Kastamonu road (Kadın Çayırı village), Tosya (Ilgaz), Hanönü env., Şenpazar-Azdavay road (Yumacık village), Doğanyurt-Şenpazar road, between Daday-Araç, between Araç-Kurşunlu (Boyalı), Bolu prov.:

Mengen (Devrek–Mengen), Bartın prov.: Kalecik village, Artvin prov.: Karagöl (Özdikmen, 2007) (Map 1)

DISTRIBUTION: Europe (Portugal, Spain, France, Italy, Sicily, Albania, Slovenia, Croatia, Bosnia-Herzegovina, Serbia, Macedonia, Greece, Bulgaria, European Turkey, Romania, Hungary, Austria, Switzerland, Belgium, Netherlands, Denmark, Germany, Luxembourg, Great Britain, Ireland, Czechia, Slovakia, Poland, Estonia, Latvia, Lithuania, Belorussia, Ukraine, Crimea, Moldavia, European Russia, European Kazakhstan), Siberia, China, Caucasus, Transcaucasia, Armenia, Turkey, Lebanon, Syria, Israel, Iran

CHOROTYPE: Sibero-European + E-Mediterranean (Palaestino-Taurian)

Genus *VADONIA* Mulsant, 1863

= *Neovadonia* Kaszab, 1938
= *Leptura* Auct. partim
= *Anoplodera* Auct. partim

Type species: *Leptura unipunctata* Fabricius, 1787

As *Pseudovadonia* Lobanov et al., 1981 but scutellum triangular, not truncate, broader, temples longer, subangular behind, third article of antennae distinctly longer than the fourth, elytra more lengthened, subtruncate in the apex, metasternum without longitudinal carinae.

Larval development is unknown for most species of the genus. Probably, larvae are in underground parts of herbaceous living plants (e. g. according to Svacha & Danilevsky, 1988, *Knautia arvensis, Scabiosa ochroleuca, Euphorbia niciciana*). Bense (1995) stated that development for many species of the genus is in *Euphorbia* species probably. Pupations are unobserved in general. Adults can be found on the host plants probably and on flowers.

The main aim of this catalogic work is to clarify current status of the genus in the world. As commonly accepted that this chiefly Palaearctic genus *Vadonia* Mulsant, 1863 (except the orientalic species *V. eckweileri* Holzschuh, 1989 from Pakistan) is represented by 23 species (with 16 subspecies) in the whole world. Fourteen species are endemic to different countries. In Turkey, it is represented by 15 species as *Vadonia bicolor* (Redtenbacher, 1850), *Vadonia bipunctata* (Fabricius, 1781), *Vadonia bisignata* (Brullé, 1832), *Vadonia bitlisiensis* (Chevrolat, 1882), *Vadonia bolognai* Sama, 1982, *Vadonia ciliciensis* K. Daniel & J. Daniel, 1891, *Vadonia danielorum* Holzschuh, 1984, *Vadonia frater* Holzschuh, 1981, *Vadonia imitatrix* K. Daniel & J. Daniel, 1891, *Vadonia instigmata* (Pic, 1889), *Vadonia ispirensis* Holzschuh, 1993, *Vadonia moesiaca* K. Daniel & J. Daniel, 1891, *Vadonia monostigma* Ganglbauer, 1881, *Vadonia soror* Holzschuh, 1981 and *Vadonia unipunctata* (Fabricius, 1787). The seven species as *Vadonia bolognai* Sama, 1982, *Vadonia ciliciensis* K. Daniel & J. Daniel, 1891, *Vadonia danielorum* Holzschuh, 1984, *Vadonia frater* Holzschuh, 1981, *Vadonia instigmata* (Pic, 1889), *Vadonia ispirensis* Holzschuh, 1993 and *Vadonia soror* Holzschuh, 1981 are endemic to Turkey. The four species as *Vadonia aspoeckorum* Holzschuh, 1975, *Vadonia insidiosa* Holzschuh, 1984, *Vadonia mainoldii* Pesarini & Sabbadini, 2004 and *Vadonia parnassensis* (Pic, 1925) are endemic to Greece. On the other side, *Vadonia eckweileri* Holzschuh,

1989, *Vadonia hirsuta* K. Daniel & J. Daniel, 1891 and *Vadonia saucia* (Mulsant et Godart, 1855) are endemic to Pakistan, Romania and Crimea respectively. All taxa of this genus in the world are presented as follows:

aspoeckorum Holzschuh, 1975

Original combination: *Vadonia aspoeckorum* Holzschuh, 1975

This species was synonymized by Slama & Slamova (1996) with *Vadonia parnassensis* (Pic, 1925). However, it was restored by Pesarini & Sabbadini (2004).

DISTRIBUTION: Greece
CHOROTYPE: Greek endemic

bicolor Redtenbacher, 1850

Original combination: *Leptura bicolor* Redtenbacher, 1850

Other names. *tuerki* Heyden, 1879

RECORDS IN TURKEY: Turkey (Lobanov et al., 1981); Northern Turkey (Danilevsky & Miroshnikov, 1985) (Map 2)

DISTRIBUTION: Caucasus, NE Turkey, Iran
CHOROTYPE: SW-Asiatic (Anatolo-Caucasian + Irano-Caucasian + Irano-Anatolian)

bipunctata Fabricius, 1781

ssp. ***bipunctata*** Fabricius, 1781
ssp. ***steveni*** Sperk, 1835
ssp. ***adusta*** Kraatz, 1859
ssp. ***mulsantiana*** Plavilstshikov, 1936
ssp. ***puchneri*** Holzschuh, 2007

Original combination: *Leptura bipunctata* Fabricius, 1781

Other names. *fischeri* Zubkov, 1829; *litigiosa* Mulsant, 1863; *globicollis* Desbrochers, 1870; *laterimaculata* Motschulsky, 1875; *pfuhli* Reineck, 1920; *rufonotata* Pic, 1926; *sareptana* Pic, 1941; *beckeri* Pic, 1941; *bilitigiosa* Pic, 1941.

The systematics of this species was evaluated by Danilevsky (2008a,b) in detail. Now we share the approach of Danilevsky about this subject. According to this status, *Vadonia bipunctata* Fabricius, 1781 has five subspecies as *Vadonia bipunctata bipunctata* Fabricius, 1781 occurs in European Russia, Slovakia, European Kazakhstan, *Vadonia bipunctata steveni* Sperk, 1835 that was given by Sama (2002) as a separate species occurs in Europe (Moldova, West and Central Ukraine), *Vadonia bipunctata adusta* Kraatz, 1859 occurs in Europe (Slovenia, Macedonia, Hungary, Slovakia, Romania, ?Bulgaria), *Vadonia bipunctata mulsantiana* Plavilstshikov, 1936 occurs in South Ukraine, Moldova, European Russia and *Vadonia bipunctata puchneri* Holzschuh, 2007 occurs in Ukraine, Crimea, European Russia. Shortly, the nominate subspecies is eastern

populations of this species. Other subspecies are more or less western populations of it. This species was recorded from Turkey as *Leptura bipunctata mulsantiana*.

Danilevsky (2008b) stated that "*Vadonia bipunctata from Crimea was described as a separate species V. puchneri Holzschuh, 2007 ("10km N Eupatoria, Suvorovo"[Suvorovskoe] and "40km 40 km NE Eupatoria, Krasnoyarske" [36km NNW Evpatoria, Kraskoyarskoe]) on the base of rough pronotal punctation (similar to V.unipunctata). The main character of V. bipunctata is the shape of parameres, which are long and narrow – finger-like, while in V. unipunctata (which is often sympatric with V.bipunctata) parameres are strongly dilated, flat. Vadonia bipunctata with rough pronotal punctation is widely distributed in Ukraine (from about Ochakov and Kherson to Donetzk and Lugansk) and in South Russia from about Rostov region to North Caucasus (Teberda, Piatigorsk). In Crimea such specimens are known everywhere with the exception of south coast (from Tarkhankut cape to Evpatoria and Simferopol environs, and then to Belogorsk, Kazantip and Kerch; specimens from Dzhankoj have a little less rough punctation. Inside this area certain populations of V. bipunctata have very fine pronotum as in typical populations from the East (Askania-Nova, Sochi, Eysk). Specimens from the north part of Odessa region, Dnepropetrovsk and from near Kiev, as well as certain specimens from near Kerson have moderately rough pronotum, which look as a transition from rough pronotum of V. b. puchneri (similar to V. unipunctata) and V. b. steveni to finer pronotum of V. b. mulsantiana and V. b. bipunctata. Specimens of V. b. bipunctata with rough pronotal punctation (as well as with a single spine of hind tibiae) were mentioned by A. I. Kostin (1973: 147) from Kazakhstan. That is why he wrongly supposed: bipunctata = unipunctata = steveni. Parameres in V. bipunctata puchneri (from Ochakov, Kerson, Evpatoria, Simferopol, Kerch, Dzhankoj, Donetzk, Lugansk, Rostov, Piatigorsk and Teberda) are usually wider than in V. b. bipunctata, V. b. mulsantiana or V. b. steveni (never close to V.unipunctata), but in general rather variable and often indistingushed from parameres of other subspecies. Apex of aedeagus in V. unipunctata has a distinct swelling, which is specially big and arrow-like in V. saucia. In V. bipunctata apex of aedeagus is never modified. The presence of long erect setae on hind femora of V. bipunctata is also a very important character. In V. b. puchneri erect setae of hind femora are usually not so long and dense as in other subspecies, but transitional situations are also known. The finest pronotal punctation (nearly indistinct) can be observed in certain specimens of V. bipunctata from NE Kazakhstan (Naurzum – ZMM). Generally very fine, small pronotal punctation is more usual for eastern populations (Kazakhstan: Kapchagaj, Aktjubinsk, Karachocat near north bank of Aral see, Janvartzevo and Uralsk environs, Urda in the north-west Kazakhstan; Russia: Orenburg and Volgograd regions, Dagestan, Sochi, north part of Rostov region. But in Embacity environs (NW Kazakhstan) pronotal punctation of V.bipunctata is moderately big. Several Ukranean populations also consist of specimens with fine punctation (Cherkasy, Askania-Nova, Nikolaev, Odessa region), but other populations have moderately big pronotal punctation: Kharkov environs, north part of Odessa region, Kiev environs (that is close to Podolia – type area of V. steveni). Possibly the description of several other local subspecies of V. bipunctata is desirable, as near Askania-Nova in Ukraine specimens with very fine pronotal punctation are distributed, specimens from Piatigorsk have the roughest pronotum known in the species. The stable pale elytral color of certain easten populations (Urda environs) could be also the reason for a subspecies*

separation. V. b. bipunctata from Sarepta was described as Leptura (Vadonia) saucia var. beckeri Pic, 1941 (: 14) and Vadonia steveni var. sareptana Pic, 1941 (: 15). Vadonia bipunctata beckeri Pic, 1941 could be accepted as a valid name for those eastern V. bipunctata populations, which consist of specimens with partly black elytra. The name var. bilitigiosa Pic, 1941 (: 15) was proposed as a replacing name for Leptura steveni ab. litigiosa Muls. sensu Plav., 1936 (: 343, 556 – so, for V. bipunctata steveni) as Mulsant (1863) described ab. litigiosa from Austria - there it is Vadonia bipunctata adusta (Kraatz, 1859)".

Danilevsky (2008a) also stated that "*Leptura (Vadonia) bipunctata mulsantina was described without published holotype and precisely mentioned type locality. Lectotype (my designation, in press) of Leptura bipunctata mulsantiana (designated as "Type" by Plavilstshikov in Moscow Zoological Museum) has the label: "Bessarabia, circ. Izmail, 2.6.1915 P.Elsky". Specimen is relatively light with black elytral apex and black suture. The series of paralectotypes (16ex. - each designated as "cotype") includes specimens from Crimea (and so V.b.puchneri Holz.), Ekaterinoslav (=Dnepropetrovsk), Chir river, Kustanaj, Uralsk, Kislovodsk. Lectotype is a member of a big series of specimens with same label ("Bessarabia, circ. Izmail, 2.6.1915 P.Elsky") identified by N.N. Plavilstshikov as Vadonia steveni (type locality – Podolia! – West Ukraine northwards upper half of Dnestr river). V. steveni is traditionally regarded as a species with males with a single spine on hind male tibia. Now I see, that this character is not of species level. Such specimens (with a single hind tibia spine) are known among different V. bipunctata (described from "Siberia") with different type of pronotal punctation from different parts of its area (Kazakhstan, south Russia, Ukraine), but dominated in the West. Inside a homogeneous series of V. bipunctata from Nikolaev (S Ukraine, ZIN) three males have one spine on hind tibiae and one male has two spines on hind tibiae. Among two males of V. bipunctata from Sochi (NW Caucasus, ZIN) one has two spines on hind tibia, another – one spine on hind tibia. A male with one spine on hind tibiae is also known from Eysk (N Krasnodar region, ZIN). A homogeneous series from near Izmail (type locality of V. b. mulsantiana) with 4 similar males has 1 male with a single hind tibia spine identified by Plavilstshikov as V.steveni, 1 male with different left and right hind tibiae (with a single spine and with a pair of spines) also identified by Plavilstshikov as V. steveni, and two males with paired hind tibiae spines: one of them was designated as a "type" of L. b. mulsantiana, but another was also identified as V. steveni, but its paired spines are conjugated! The presence of specimens with one tibiae spine in Central Kazakhstan (Aktiubinsk region) was mentioned by A. I. Kostin (1973). Generally two spines of hind tibiae in westertn populations often are situated much closer to each other, than in eastern populations. My series from Hungary totally consists of males with one hind tibiae spine – so called "Vadonia steveni", but pronotal and elytral punctation here differs from typical Ukranian specimens and from Russian specimens. This form can be named V. bipunctata adusta Kraatz, 1859. According to G. Sama (personal message of 2006 based on published data), the type series of V. steveni also includes males with one and two hind tibiae spines (G. Sama wrongly believes now that it represents two different species). I don't know specimens from Podolia (type locality of V. steveni), but specimens from the north part of Odessa region, from near Kiev and from near Dnepropetrovsk have considerably rougher pronotal punctation, than in specimens from near Izmail or from Askania-Nova. So, populations from West and Central Ukrane can be separated as V. bipunctata steveni (Podolia,*

north part of Odessa region, Kiev region, Dnepropetrovsk region). Populations from South Ukraine and Moldavia represent another subspecies with finer pronotum - V. b. mulsantiana (Izmail, Dolinkoe – northwards Odessa, Nikolaev, Askania-Nova). Both western subspecies often includes males with a single hind tibiae spine. to the west from about Podolia or from about Izmail. Yellow elytral color in both is much darker (orange-brown), than pale (yellow) elytral color of the nominative subspecies or in V. b. puchneri. The occurrence of very dark (nearly black) and pale specimens in Orenburg region can not be the reason to reject the separation of the species in two subspecies, as it was proposed by A. Shapovalov et al. (2006). In general the specimens V. b. bipunctata with wide black elytral areas (sometimes elytra are nearly totally black) are known from the east part of species area (Orenburg, north Kazakhstan, Volgograd environs, Tchir river valley), though populations with all specimens pale are also known in the east: north shore of Aral see, Mugodzhary Mts, Astrakhan region eastwards Volga river. All eastern populations (from Orenburg to Volgograd regions) are now preliminary regarded by me as V. b. bipunctata. The record of V. bipunctata for Iran (Daniel & Daniel, 1891; Plavilstshikov, 1936) looks strange, as it is not known to me (very rare?) from Transcaucasia, neither from Turkmenia".

RECORDS IN TURKEY: İstanbul prov.: Polonez village (Demelt & Alkan, 1962); İstanbul prov.: Polonez village as *Leptura bipunctata* m. *mulsantiana* (Demelt, 1963); Turkey (Lodos, 1998) (Map 3)

DISTRIBUTION: European Russia, European Kazakhstan, Moldova, Ukraine, Slovenia, Macedonia, Hungary, Slovakia, Romania, ?Bulgaria, Crimea, NW Turkey, ?Turkmenia, ?Iran
CHOROTYPE: European or Turano-European

bisignata Brullé, 1832

= ssp. ***bisignata*** Brulléi 1832
= ssp. ***laurae*** Pesarini et Sabbadini, 2007

Original combination: *Leptura bisignata* Brullé, 1832

Other names. *grandicollis* Mulsant, 1863; *inapicalis* Pic, 1897

According to Pesarini & Sabbadini (2007), *Vadonia bisignata mahri* Holzschuh, 1986 that is described from eastern Greek Macedonia is a form of *Vadonia dojranensis* Holzschuh, 1984. However, they described a new subspecies, *Vadonia bisignata laurae,* from Greece in their paper. So this species has two subspecies again. The nominative subspecies, *Vadonia bisignata bisignata* (Brullé, 1832) occurs in Bulgaria, Greece, ?European Turkey and *Vadonia bisignata laurae* Pesarini & Sabbadini, 2007 occurs only in Greece (NW Greece and W Greek Macedonia).
RECORDS IN TURKEY: Turkey (Winkler, 1924-1932; Lodos, 1998); Antalya prov.: Antitoros Mountains (Bey Mountains) (Demelt & Alkan, 1962); Antalya prov.: Bey Mountain / Alanya, Isparta prov. (Demelt, 1963); European Turkey (Althoff & Danilevsky, 1997); Artvin prov.: Yusufeli (Tauzin, 2000) (Map 4)

DISTRIBUTION: Greece, Bulgaria, ?European Turkey, ?Ukraine
CHOROTYPE: Turano-Mediterranean (Balkano-Anatolian)

bitlisiensis Chevrolat, 1882

Original combination: *Leptura bitlisiensis* Chevrolat, 1882

Other names. *bistigmata* Pic, 1889; *cribricollis* Pic, 1889; *armeniaca* Pic, 1903

Vadonia bitlisiensis var. *instigmata* Pic, 1889 was accepted by some authors as a separate species. *Vadonia instigmata* (Pic, 1889) differs from this species mainly by completely red eltra and having any black point on elytra. So it is evaluated as a separate species in this work.

RECORDS IN TURKEY: Bitlis prov. (Pic, 1889); Van prov.: Çatak road (Görentaç village), North-East Turkey, East Anatolian Region (Villiers, 1959); Tunceli prov.: Selepür (Demelt, 1967); Turkey (Lobanov et al., 1981; Danilevsky & Miroshnikov, 1985; Lodos, 1998; Erzurum prov.: Pasinler (Adlbauer, 1988); Gümüşhane prov.: Köse (Tauzin, 2000); Bilecik prov.: Central, Erzincan prov.: Kemaliye, Erzurum prov.: Dumlu (Köşk) / Güngörmez / Kargapazarı Mts. / Aşkale / Hacıhamza / Ilıca / Sorkunlu / İspir (Madenköprübaşı) / Oltu (Sütkans) / Pasinler (Çalıyazı) / Tortum / Aksu / Uzundere (Dikyar) (Tozlu et al., 2002) (Map 5)

DISTRIBUTION: Caucasus (Armenia), E Turkey
CHOROTYPE: SW-Asiatic (Anatolo-Caucasian)

bolognai Sama, 1982

Original combination: *Vadonia bolognai* Sama, 1982

This species is endemic to Turkey.

RECORDS IN TURKEY: Holotype: Samsun prov.: Kavak (Sama, 1982); Amasya prov.: Aydınca (İnegöl Mountain), Samsun prov.: Kavak (Hacılar pass), Kastamonu prov.: Yaraligöz (Malmusi & Saltini, 2005) (Map 6)

DISTRIBUTION: N Turkey
CHOROTYPE: N-Anatolian

ciliciensis K. Daniel & J. Daniel, 1891

Original combination: *Vadonia ciliciensis* K. Daniel & J. Daniel, 1891

This species is endemic to Turkey.

RECORDS IN TURKEY: Turkey (Winkler, 1924-1932; Acatay, 1963); Burdur prov.: Bucak (Kavacık forest), Antalya prov.: Elmalı (Çığlıkara, Suluçukur place and Bucak forest) (Tosun, 1975); Denizli prov.: Acıpayam and Tavas, Burdur prov.: Bucak, Antalya prov.: Elmalı (Çanakçıoğlu, 1983); Turkey (Lodos, 1998) (Map 7)

DISTRIBUTION: S and SW Turkey
CHOROTYPE: Anatolian

danielorum Holzschuh, 1984

Original combination: *Vadonia danielorum* Holzschuh, 1984

This species is endemic to Turkey.

RECORDS IN TURKEY: Antalya prov.: Taşağıl, Termessos (Adlbauer, 1992) (Map 8)

DISTRIBUTION: S Turkey
CHOROTYPE: Anatolian

dojranensis Holzschuh, 1984
= ssp. ***dojranensis*** Holzschuh, 1984
= ssp. ***mahri*** Holzschuh, 1986

Original combination: *Vadonia dojranensis* Holzschuh, 1984

According to Pesarini & Sabbadini (2007), *Vadonia bisignata mahri* Holzschuh, 1986 that described from eastern Greek Macedonia is a form of *Vadonia dojranensis* Holzschuh, 1984. This species has two subspecies. The nominative subspecies, *Vadonia dojranensis dojranensis* Holzschuh, 1984 occurs in Macedonia and *Vadonia dojranensis mahri* (Holzschuh, 1986) occurs in Greece and Bulgaria.

Danilevsky (2008a) stated that "*The area of Vadonia dojranensis was mistakenly mentioned as "BG" (Bulgaria) by Althoff and Danilevsky (1997: 12), as it was described from Rep. of Macedonia. I've got a pair from Bulgaria with label: "Bulgaria mer., Kresna, VI.1982 Strba leg." The species was also recorded for Bulgaria (Kalimansti env. in Pirin) by E. Migliaccio et al. (2007). V. dojranensis from Bulgaria is V. dojranensis mahri*".

DISTRIBUTION: Macedonia, Greece, Bulgaria
CHOROTYPE: East Mediterranean (NE Mediterranean) or ?Turano-Mediterranean (Balkano-Anatolian)

eckweileri Holzschuh, 1989

Original combination: *Vadonia eckweileri* Holzschuh, 1989

This species is endemic to Pakistan.

DISTRIBUTION: Pakistan
CHOROTYPE: Asiatic or Orientalic

frater Holzschuh, 1981

Original combination: *Vadonia frater* Holzschuh, 1981

This species is endemic to Turkey.

RECORDS IN TURKEY: Adana prov.: Nurdağı pass (Holzschuh, 1981) (Map 9)

DISTRIBUTION: Turkey
CHOROTYPE: Anatolian

hirsuta K. Daniel & J. Daniel, 1891

Original combination: *Vadonia hirsuta* K. Daniel & J. Daniel, 1891

This species is endemic to Romania. Danilevsky (2008a) stated that "Vadonia hirsuta was often considered as an individual variation of V. unipunctata. It was regarded as a species by Panin, Savulescu (1961), Althoff, Danilevsky (1997), Miroshnikov (1998: 407). The considerable defference in the shape of aedeagus apex between V. hirsuta and V. unipunctata was shown by R. Serafim (2006).

DISTRIBUTION: Romania
CHOROTYPE: Romanian endemic

imitatrix K. Daniel & J. Daniel, 1891

Original combination: *Vadonia imitatrix* K. Daniel & J. Daniel, 1891

Other names: *saucia* Ganglbauer, 1881; *externerufa* Pic, 1926; *koechlini* Pic, 1926

RECORDS IN TURKEY: European Turkey as *V. i.* a. *externerufa* Pic, 1926 and *V. i.* a. *koechlini* Pic, 1926 (Winkler, 1924-1932); Turkey (Lodos, 1998) (Map 10)
DISTRIBUTION: Europe (Italy, Croatia and Bosnia and Herzegovina, Serbia, ?Bulgaria), European Turkey
CHOROTYPE: E-Mediterranean (NE-Mediterranean)

insidiosa Holzschuh, 1984

Original combination: *Vadonia insidiosa* Holzschuh, 1984

This species is endemic to Greece.

DISTRIBUTION: Greece
CHOROTYPE: Greek endemic

instigmata Pic, 1889

Original combination: *Vadonia bitlisiensis* var. *instigmata* Pic, 1889

This species is endemic to Turkey. This species is accepted by some authors as a synonym of *Vadonia bitlisiensis* (Chevrolat, 1882). *Vadonia instigmata* (Pic, 1889) differs from it mainly by completely red eltra and having any black point on elytra. So it is evaluated as a separate species in this work.

RECORDS IN TURKEY: Bitlis prov. (Pic, 1889); Adıyaman prov.: Arsameia (Old Kahta) and peak region of Nemrut Mt. (Rejzek & Hoskovec, 1999); Adıyaman prov.: Nemrut Mt. (Malmusi & Saltini, 2005) (Map 11)

DISTRIBUTION: SE Turkey
CHOROTYPE: Anatolian

ispirensis Holzschuh, 1993

Original combination: *Vadonia ispirensis* Holzschuh, 1993

This species is endemic to Turkey.

RECORDS IN TURKEY: Erzurum prov.: Ispir (Holzschuh, 1993; Malmusi & Saltini, 2005) (Map 12)

DISTRIBUTION: NE Turkey
CHOROTYPE: Anatolian

mainoldii Pesarini & Sabbadini, 2004

Original combination: *Vadonia mainoldii* Pesarini & Sabbadini, 2004

This species is endemic to Greece.

DISTRIBUTION: Greece
CHOROTYPE: Greek endemic

moesiaca K. Daniel & J. Daniel, 1891

Original combination: *Vadonia moesiaca* K. Daniel & J. Daniel, 1891

RECORDS IN TURKEY: Turkey (Winkler, 1924-1932; Lodos, 1998); Antalya prov.: Taşağıl (Adlbauer, 1988); Çankırı prov.: Çerkeş, Kırklareli prov.: Demirköy (Malmusi & Saltini, 2005) (Map 13)

DISTRIBUTION: Serbia, Macedonia, Greece, Bulgaria, Turkey
CHOROTYPE: Turano-Mediterranean (Balkano-Anatolian)

monostigma Ganglbauer, 1881

Original combination: *Vadonia monostigma* Ganglbauer, 1881

RECORDS IN TURKEY: Turkey (Winkler, 1924-1932; Lodos, 1998); Antalya prov.: Bey Mountains (Antitoros) (Demelt & Alkan, 1962; Demelt, 1963); Amasya prov. (Gfeller, 1972); Amasya prov.: Central / Merzifon, Samsun prov.: Çakallı (Kavak), Kastamonu prov.: Yaralıgöz (Devrekani) / Akkaya (Adlbauer, 1992); Bolu prov.: Abant, Samsun prov.: Kavak (Hacılar pass) (Malmusi & Saltini, 2005) (Map 14)

DISTRIBUTION: Greece, Turkey
CHOROTYPE: Turano-Mediterranean (Balkano-Anatolian)

parnassensis Pic, 1925

Original combination: *Leptura bisignata* var. *parnassensis* Pic, 1925

This species is endemic to Greece.

DISTRIBUTION: Greece
CHOROTYPE: Greek endemic

saucia Mulsant et Godart, 1855

Original combination: *Leptura bipunctata* var. *saucia* Mulsant et Godart, 1855

This species is endemic to Crimea.

Danilevsky (2008a,b) stated that "*I know 7 totally black specimens (my collection and collection of Moscow Zoological Museum) from Crimea: Simferopol, Bajdary, Koreiz, Mukhalatka (between Faros and Alupka) described as Leptura saucia Mulsant et Godart, 1855. The identification is based on the original description (type locality – Crimea) of totally black specimen with small yellow spots near humeri. All series are characterized by very rough elytral and pronotal punctation, as well as by the absence of erect setae along hind femora and represent a local taxon close to V. unipunctata (not V. bipunctata! as it was considered by K. Daniel & J. Daniel, 1891; Plavilstshikov,1936 and Sama, 2002) with typically shaped (axe-like) parameres of V. unipunctata, but with very special big triangilar swelling of aedeagus apex. Populations of V. saucia distributed along south bank of Crimean peninsula from about Simferopol to Staryj Krym also include yellow specimens with black spots. Holzschuh (2007) supported traditional opinion and attributed V. saucia to V.bipunctata on the base of wrong interpretaion of the description by K. Daniel & J. Daniel (1891: 20), who in fact wrote nothing about genital structures of the type of V. saucia. It is evident that V. saucia is unknown for Holzschuh and his statement: "Die Zuordnung [of V. saucia] als Unterart zu V. unipunctata war wohl nur deshalb moglich, dass keine Untersuchung der Parameren vorgenommen wurde." was wrong*".

DISTRIBUTION: Crimea
CHOROTYPE: Crimean endemic

soror Holzschuh, 1981
= ssp. ***soror*** Holzschuh, 1981
= ssp. ***tauricola*** Holzschuh, 1993

Original combination: *Vadonia soror* Holzschuh, 1981

This species has two subspecies. The nominative subspecies, *Vadonia soror soror* Holzschuh, 1981 and *Vadonia soror tauricola* Holzschuh, 1993. Both are distributed in S Turkey. So it is endemic to Turkey. Içel record of Adlbauer (1988) should be *Vadonia soror taurica* Holzschuh, 1993.

RECORDS IN TURKEY: Denizli prov.: Pamukkale (Holzschuh, 1981); İçel prov.: Silifke (Gülnar) and Kuzucubelen (Adlbauer, 1988); Antalya prov. as ssp. *tauricola* (Hoskovec & Rejzek, 2008)(Map 15)

DISTRIBUTION: Turkey
CHOROTYPE: Anatolian

unipunctata Fabricius, 1787
= ssp. ***unipunctata*** Fabricius, 1787
= ssp. ***dalmatina*** Müller, 1906
= ssp. ***ohridensis*** Holzschuh, 1989
= ssp. ***makedonica*** Holzschuh, 1989
= ssp. ***syricola*** Holzscuh, 1993

Original combination: *Leptura unipunctata* Fabricius, 1787

Other names: *unistigmata* Pic, 1891; *occidentalis* Daniel & Daniel, 1891; *obscurepilosa* Pic, 1892; *jacqueti* Pic, 1900; *xambeui* Pic, 1900

This species is the type species of *Vadonia* Mulsant, 1863. As commonly accepted it has five subspecies in the world. The species is represented by the nominative subspecies in Turkey. The other known subspecies, *V. unipunctata dalmatina* Müller, 1906 occurs in Croatia, Bosnia and Herzegovina, ?Greece, *V. unipunctata ohridensis* Holzschuh, 1989 occurs in Macedonia, *V. unipunctata makedonica* Holzschuh, 1989 occurs in Greece and *V. unipunctata syricola* Holzschuh, 1993 occurs in Syria.

RECORDS IN TURKEY: Antalya prov.: Toros Mountains, Niğde prov.: Çamardı (Bodemeyer, 1900); Isparta prov.: Eğirdir, Ankara prov.: Gölbaşı, Afyon prov. (Demelt & Alkan, 1962; Demelt, 1963); Amasya prov. (Villiers, 1967); Bingöl prov., Elazığ prov.: Harput, Nevşehir [Kayseri] prov.: Ürgüp (Göreme), Malatya prov.: Darende (Fuchs & Breuning, 1971); Isparta prov. (Tuatay et al., 1972); İzmir prov.: Kemalpaşa (Gül-Zümreoğlu, 1975); Erzurum prov. and near (Özbek, 1978); Turkey (Lobanov et al., 1981; Danilevsky & Miroshnikov, 1985; Svacha & Danilevsky, 1988; Althoff & Danilevsky, 1997; Lodos, 1998; Sama, 2002); Ankara prov.: Kavaklıdere, Amasya prov.: Ezinepazarı (Öymen, 1987); Uşak prov.: Banaz, Nevşehir prov.: Göreme, Aksaray prov.: Sultanhanı, Afyon prov.: Dinar, Burdur prov.: Bucak, Niğde prov.: Çiftehan (Adlbauer, 1988); Artvin prov.: Şavşat (Karagöl), Bilecik prov.: Central, Bayburt prov.: Aydıntepe, Erzurum prov.: 4. Kuyu / University Campus / Kargapazarı Mts. / Horasan (Okçular) / İspir (Madenköprübaşı) / Oltu (Başaklı) / Çamlıbel / Sarısaz / Sütkans / Olur (Coşkunlar) / Pazarroad (Kartal Plateau) / Tortum (Çiftlik) / Pehlivanlı / Uzundere (Dikyar) / Öşvank / Şelale, Kars prov.: Sarıkamış, Sivas prov.: Central, Tokat prov.: Central (Tozlu et al., 2002); Isparta prov.: Yalvaç (Eleği village) (Özdikmen & Çağlar, 2004); Isparta prov. (Özdikmen et al., 2005); Kocaeli prov.: İzmit (Ballıkayalar Natural Park), Osmaniye prov.: Yarpuz road (Karataş place) / Yeşil village (Hasanbeyli) (Özdikmen & Demirel, 2005); Artvin prov.: Şavşat / from Şavşat to Çam pass, Bitlis prov.: Güroymak, Çankırı prov.: Çerkeş, Erzurum prov.: İspir / İspir-Çamlıkaya / from Pazarroad to Gölyurt pass, Kayseri prov., Kars prov.: Sarıkamış / Karakurt, Kırşehir prov.: Mucur, Kastamonu prov.: Yaraligöz, Rize prov.: Şavşat-Çam pass (Malmusi & Saltini, 2005); Kahramanmaraş prov.: Afşin (Kabaağaç / Emirli (Gergel) / Göksun (Göksun-

Çardak road, Gücük plateau / Mehmetbey (Özdikmen & Okutaner, 2006); Osmaniye prov.: Central, Kastamonu prov.: Kastamonu–Tosya road (Tosya–Ilgaz pass), Ağılı–Azdavay road (Yumacık village), between Azdavay–Pınarbaşı, Pınarbaşı–Azdavay road (Karafasıl village), Azdavay (Ballıdağ Wild Life Protection District), Küre (Masruf pass env.), Devrekani–Çatalzeytin road, Yaralıgöz pass, Tosya–Ilgaz pass, Tosya–Kastamonu road, Bolu prov.: Devrek–Mengen road, Mengen (Devrek–Mengen), Yeniçağa, Karabük prov.: between Eflani–Pınarbaşı, Afyon prov.: Erkmen valley, Artvin prov.: Karagöl (Okurlar district) (Map 16)

DISTRIBUTION: Europe (Spain, France, Italy, Croatia, Bosnia-Herzegovina, Serbia, Macedonia, Greece, Bulgaria, European Turkey, Romania, Hungary, Austria, Czechia, Slovakia, Poland, ?Latvia, Ukraine, Crimea, Moldavia, European Russia, European Kazakhstan), ?North Africa (Algeria, Morocco), Caucasus, Transcaucasia, Near East, Turkey, Iran, Syria, Lebanon
CHOROTYPE: Turano-European or Turano-Europeo-Mediterranean. According to Sama (2002), the records from North Africa are erroneous.

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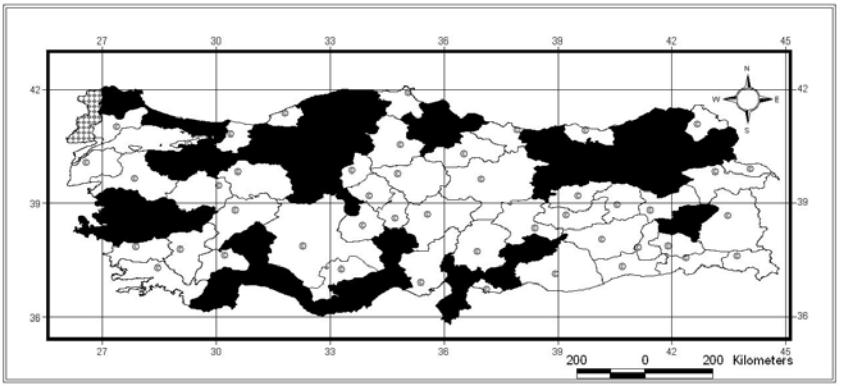
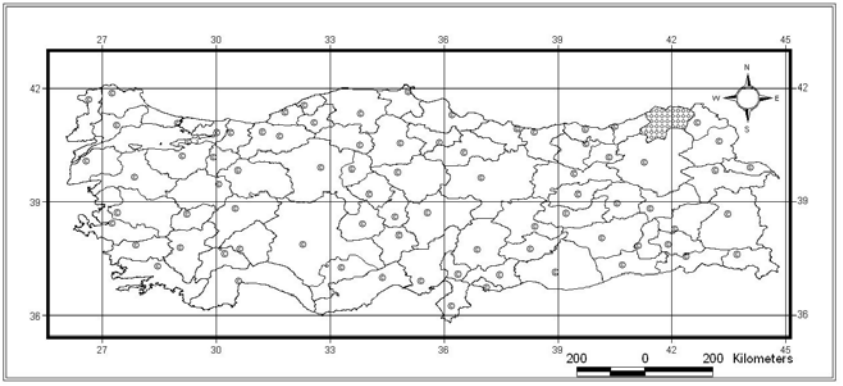
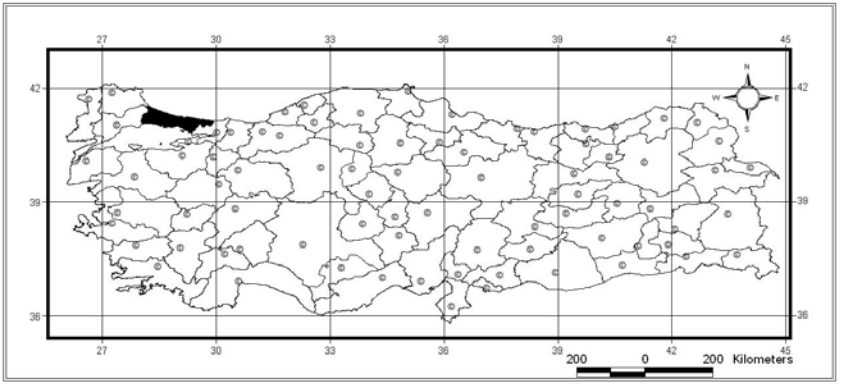


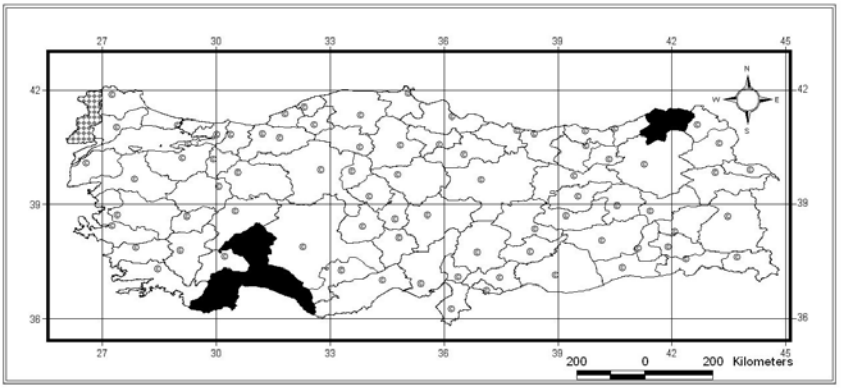
Map 1. *Pseudovadonia livida* (Fabricius, 1776): Distribution patterns in Turkey.



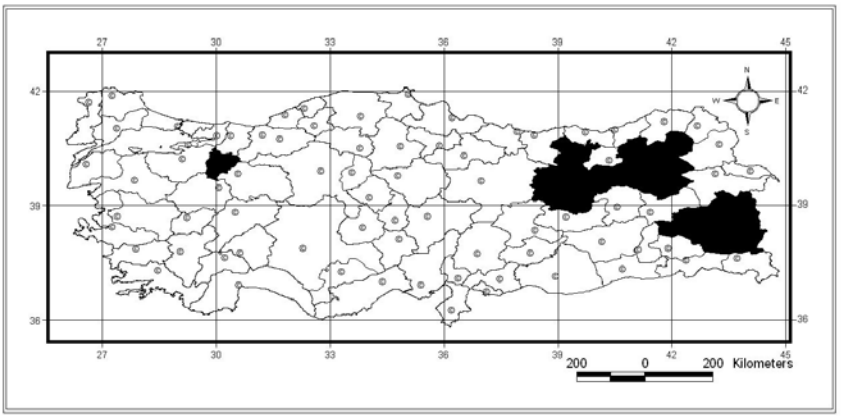
Map 2. *Vadonia bicolor* (Redtenbacher, 1850): Distribution patterns in Turkey.



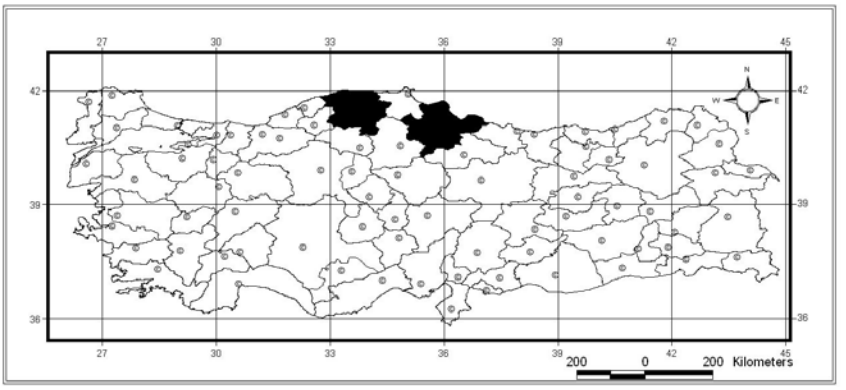
Map 3. *Vadonia bipunctata* (Fabricius, 1781): Distribution patterns in Turkey.



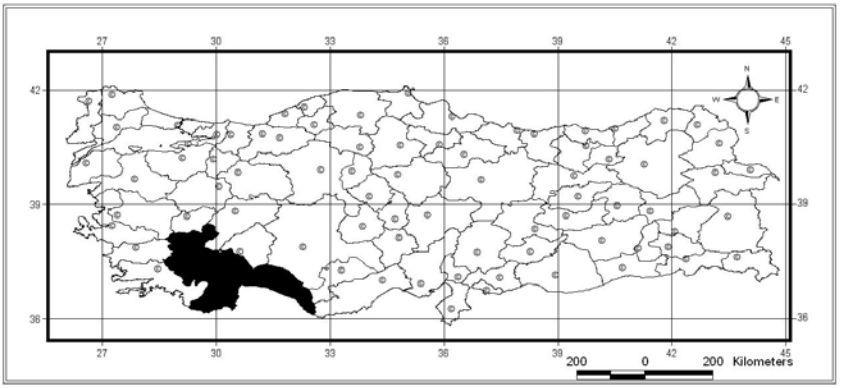
Map 4. *Vadonia bisignata* (Brullé, 1832): Distribution patterns in Turkey.



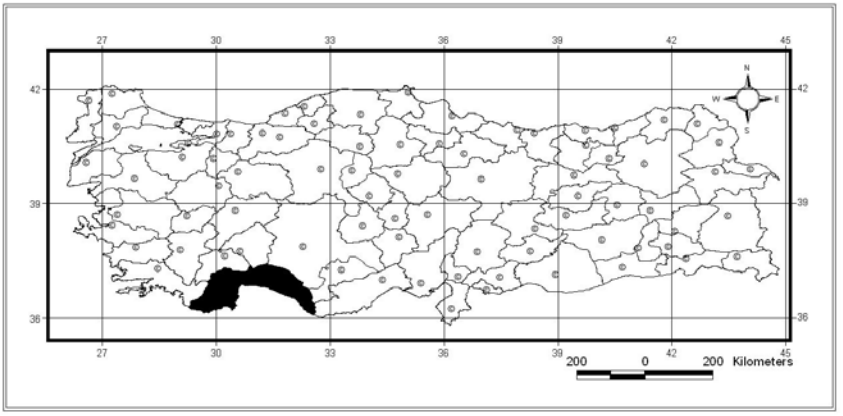
Map 5. *Vadonia bitlisiensis* (Chevrolat, 1882): Distribution patterns in Turkey.



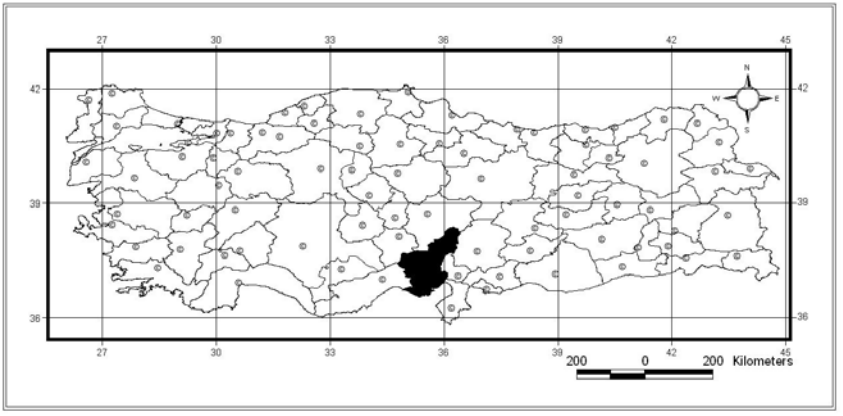
Map 6. *Vadonia bolognai* Sama, 1982: Distribution patterns in Turkey.



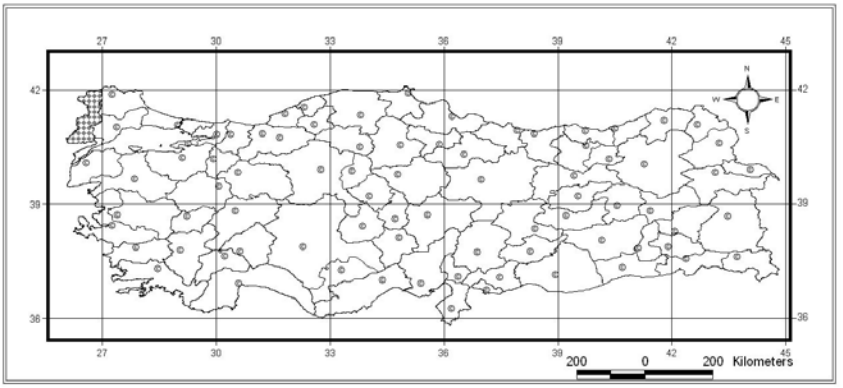
Map 7. *Vadonia ciliciensis* K. Daniel & J. Daniel, 1891: Distribution patterns in Turkey.



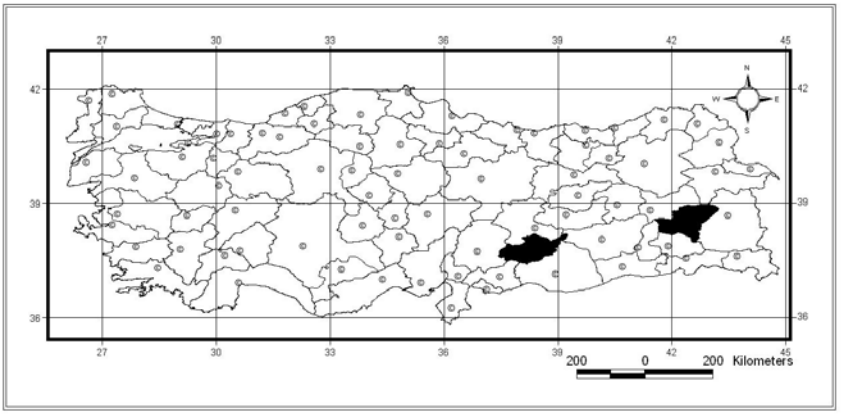
Map 8. *Vadonia danielorum* Holzschuh, 1984: Distribution patterns in Turkey.



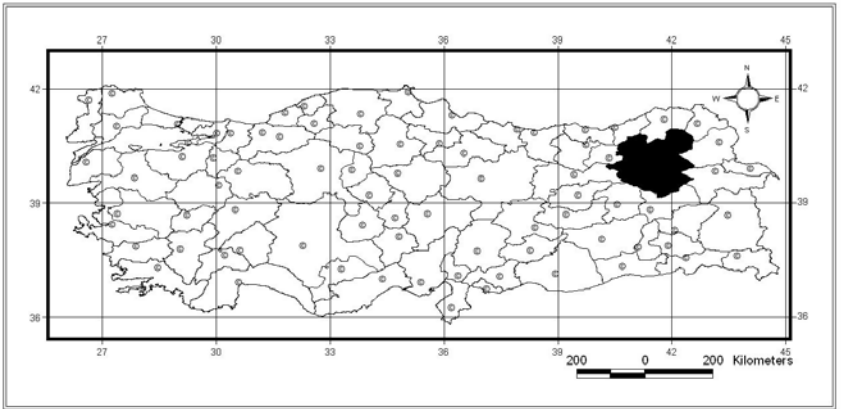
Map 9. *Vadonia frater* Holzschuh, 1981: Distribution patterns in Turkey.



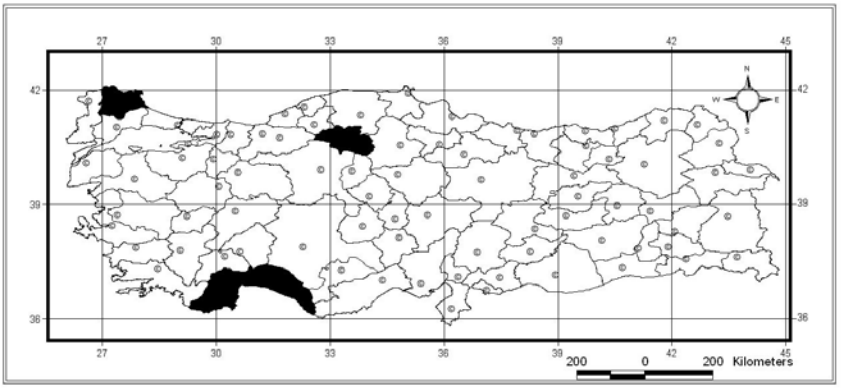
Map 10. *Vadonia imitatrix* K. Daniel & J. Daniel, 1891: Distribution patterns in Turkey.



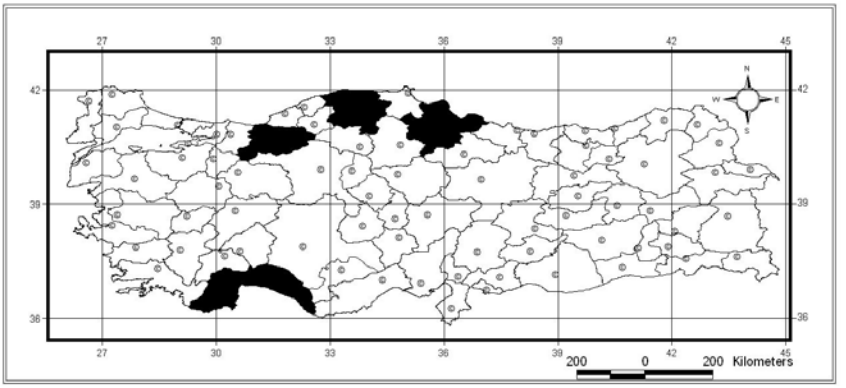
Map 11. *Vadonia instigmata* (Pic, 1889): Distribution patterns in Turkey.



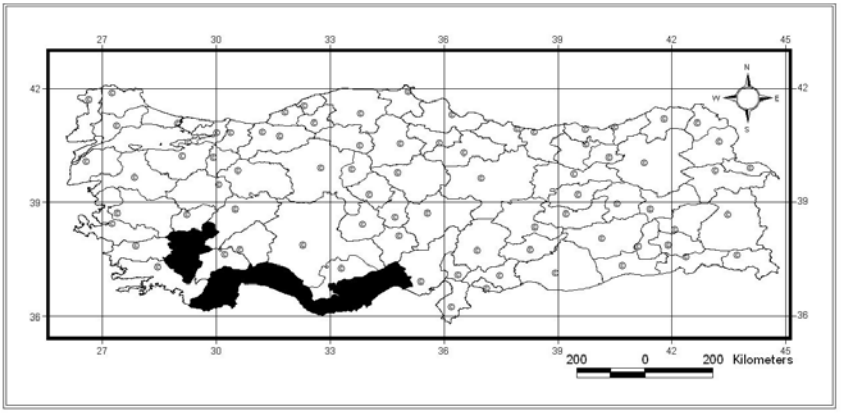
Map 12. *Vadonia ispirensis* Holzschuh, 1993: Distribution patterns in Turkey.



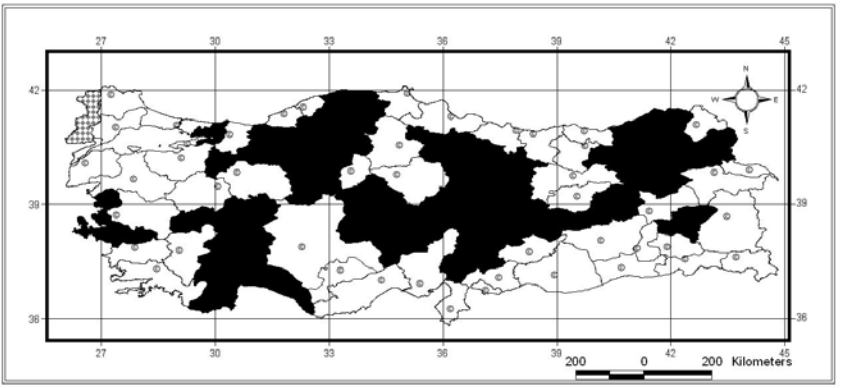
Map 13. *Vadonia moesiaca* K. Daniel & J. Daniel, 1891: Distribution patterns in Turkey.



Map 14. *Vadonia monostigma* Ganglbauer, 1881: Distribution patterns in Turkey.



Map 15. *Vadonia soror* Holzschuh, 1981: Distribution patterns in Turkey.



Map 16. *Vadonia unipunctata* (Fabricius, 1787): Distribution patterns in Turkey.