

**Detailed distribution of *Cassida sanguinosa*  
and *C. leucanthemi* (Coleoptera: Chrysomelidae:  
Cassidinae: Cassidini)**

Lukáš SEKERKA

Department of Zoology, Faculty of Biological Sciences, University of South Bohemia, Branišovská 31,  
České Budějovice, CZ-370 05, Czech Republic; e-mail: sagrinae@seznam.cz

**Abstract.** Precise distributional data of *Cassida sanguinosa* Suffrian, 1844, and its congener *C. leucanthemi* Bordy, 1995, are presented. *Cassida leucanthemi* is reported from Croatia, Germany, Hungary, Romania, Slovenia, Switzerland and the Ukraine for the first time. Status of *C. languida* Cornelius, 1851, and *C. sanguinosa* ab. *viridissima* Reitter, 1912, is clarified. Lectotype of *C. languida* is designated and the following new synonyms are proposed: *C. prasina* Illiger, 1798 = *C. languida* Cornelius, 1851, syn. nov., *C. leucanthemi* Bordy, 1995 = *C. sanguinosa* ab. *viridissima* Reitter, 1912, syn. nov. A new host plant, *Leucanthemum ircutianum* (Asteraceae), is recorded for *C. leucanthemi*.

**Key words.** Coleoptera, Chrysomelidae, Cassidinae, *Cassida*, taxonomy, zoogeography, faunistics, lectotype designation, new synonymy

### Introduction

Palearctic and even European species represent one of the most complicated groups within the subfamily Cassidinae. Nowadays, European fauna consists of 56 species in five genera (BOROWIEC & ŚWIĘTOJAŃSKA 2002). Some species complexes still hide undescribed species. During the last two decades, four new species have been described (BORDY 1995a,b; SEKERKA 2005; SASSI & BOROWIEC 2006). BORDY (1995a,b) described *Cassida bergeali* Bordy, 1995 (sister species to *C. pannonica* Suffrian, 1844 and *C. vibex* Linnaeus, 1767) and *C. leucanthemi* Bordy, 1995 (sister species to *C. sanguinosa* Suffrian, 1844). The distribution of both species is poorly known and their taxonomic status, especially of the latter species, is not fully settled.

This paper focuses primarily on the distribution, bionomics and taxonomy of *C. leucanthemi*, which was described from France and Austria (BORDY 1995a). Since then it was reported from the Czech Republic, Italy, Poland, Slovakia and Spain (BEZDĚK & ZÚBER 2000, BOROWIEC

& ŚWIĘTOJAŃSKA 1997, RECALDE IRURZUN & SAN VICENTE 2005, SASSI 2003). However, its distribution is still poorly known. It is well characterized by its bionomics but identification of dried specimens is possible only by comparison of series of properly identified specimens.

## Material and methods

Following codens are used to indicate the depository of specimens:

ATPC	Antonín Trmal collection, Píbram, Czech Republic;
DBET	Department of Biodiversity and Evolutionary Taxonomy, University of Wrocław, Poland (Lech Borowiec);
HMSH	Herman O. Museum, Sátoraliaújhely, Hungary (via I. & G. Rozner);
HNHM	Hungarian Natural History Museum, Budapest, Hungary (Ottó Merkl);
JPHC	Jan Pelikán collection, Hradec Králové, Czech Republic;
JSPC	Jaromír Strejček collection, Praha, Czech Republic;
LSLC	Lukáš Sekerka collection, Liberec, Czech Republic;
MMUK	Manchester Museum, Manchester, United Kingdom (Dmitri Logunov);
MZKC	Miroslav Zúber collection, Kosmonosy, Czech Republic;
MZPW	Museum and Institute of Zoology, Polish Academy of Sciences, Warszawa, Poland (Wioletta Tomaszewska);
NMPC	National Museum, Praha, Czech Republic (Jiří Hájek);
RSLC	Richard Škoda collection, Liberec, Czech Republic;
ZMHB	Zoologisches Museum, Humboldt Universität, Berlin, Germany (Johannes Frisch).

Exact label data are cited for all type specimens; a double slash (//) divides data on different labels and a single slash (/) divides data in different rows. Type localities are cited in the original spelling. Other comments and remarks are placed in square brackets: [bb] – black border, [h] – cardboard label, [hw] – data are handwritten, [p] – data are printed, [s] – soft label, and [w] – white label.

## Results

### *Cassida prasina* Illiger, 1798

*Cassida prasina* Illiger, 1798: 481.

*Cassida languida* Cornelius, 1851: 88, **syn. nov.**

**Lectotype designation for *C. languida*.** LECTOTYPE (designated here): ‘Elberfeld [w, hw, h] // [blue and soft circle label] // Cassida / languida [w, hw, h] // det. / Spaeth [w, hw, h, underside of preceding label] // MZI / 86637 [w, p, s]’ (MZPW). PARALECTOTYPE: ‘Elberfeld [w, hw, h] // Cassida / languida [w, hw, h] // det. / Spaeth [w, hw, h, underside of preceding label] // MZI / 86636 [w, p, s]’ (MZPW). The specimens are provided with the following additional label: ‘LECTOTYPUS [or PARALECTOTYPUS] / L. Sekerka des. 2007 [red, p, bb, h]’.

**Comments.** CORNELIUS (1851) described *C. languida* based on material reared from larvae. This species was later synonymized with *C. sanguinosa* by DESBROCHERS (1891). Nevertheless, *C. languida* sensu Cornelius is probably a complex of species. Unfortunately, the main part of Cornelius collection was destroyed during bombings in 1943. The only specimens available to me are two syntypes of *C. languida* deposited in MZPW. Because both represent

*C. prasina* Illiger, 1798, a lectotype designation is given above and *C. languida* becomes a synonym of *C. prasina*.

### *Cassida leucanthemi* Bordy, 1995

*Cassida leucanthemi* Bordy, 1995a: 377.

*Cassida sanguinosa* ab. *viridissima* Reitter, 1912: 217, **syn. nov.**

*Cassida* (*Cassida*) *sanguinosa* ab. *viridissima*: SPAETH & REITTER (1926): 47 (as syn. of *C. languida*).

**Material examined.** **AUSTRIA:** BURGENLAND, 'Felsőlövé' [= Oberschützen], 1909, 1 spec., Soós lgt. (HNHM); KÄRNTEN, Koralpe, 1 spec., Spaeth lgt. (MMUK); NIEDERÖSTERREICH, Lunz am See, 1 spec. (NMPC); Rosalien Gebirge Mts., 2 spec., Natter lgt. (MMUK); Polsterlucke, 30.vi.1939, 1 spec., Menthe lgt. (ZMHB); VORARLBERG, Bludesch, 11.v.1988, 1 spec., C. M. Brandstetter lgt. (MMUK); Gaschurn-Montafon, 28.v.1988, 1 spec., C. M. Brandstetter lgt. (MMUK); Raggal-Garul, 1090-1130 m a.s.l., 10.vi.1992, 1 spec., J. Jelínek lgt. (LSLC); WIEN, Wien env., 1 spec. (MMUK). **CROATIA:** KARLOVAC, Jasenak, 1 spec., Mehély lgt. (NMPC); PRIMORJE-GORSKI, Fužine, 1897, 1 spec., Spaeth lgt. (MMUK). **CZECH REPUBLIC:** BOHEMIA, Čelákovice, v.1946-48, 1 spec., Görtler lgt. (MMUK); Český Krumlov, Vyšný, 16.vi.2006, 1 spec., M. Snižek lgt. (DBET); Praha, Bohnice, 27.vii.1999, 1 spec., J. Strejček lgt. (JSPC); MORAVIA, 'Freistadt' [= Fryštát], 1 spec., Th. v. Wanka lgt. (HNHM); Lednice, 3.iv.2006, 1 spec., Šafař lgt. (LSLC). **FRANCE:** ALSACE, 'Elsass' [= Alsace], 1 spec. (MMUK); Macon, 3 spec., M. Delfieu lgt. (DBET); Orvault, 1 spec. (DBET); AQUITAINE, Bordeaux, 1 spec., Marais lgt. (MMUK), v.1885, 1 spec. (MMUK); Gironde, 2 spec., Vaulogé lgt. (MMUK); HAUTE-NORMANDIE, d'Heurteauville, 1 spec., Marais lgt. (NMPC); Le Grand-Quevilly, 2 spec., Petit lgt. (NMPC); Rouen, 1 spec., Vaulogé lgt. (MMUK); JURA, Bellefontaine, 30.vii.1994, 1 spec., B. Bordy lgt. [paratype] (DBET). **GERMANY:** BADEN-WÜRTTEMBERG, Haselbach bei Schwäbisch Gmünd, 27.v.1910, 1 spec., A. Spaney lgt. (ZMHB); Tübingen, 3 spec. (MMUK); Ulm, 1 spec. (MMUK); BAYERN, München, 1 spec., Harold lgt. (MMUK); BRANDENBURG, Wieracher-Teiche bei Kallinchen, 9.ix.1974, 1 spec., Göllner lgt. (ZMHB); NORDRHEIN-WESTFALEN, Aachen, 1 spec. (NMPC); Viersen, Süchteln, 5.viii.1929, 1 spec. (MMUK); RHEINLAND-PFALZ, Thür env., Hohe Sonne, 16.vi.1953, 1 spec. (ZMHB); THÜRINGEN, Ruhla env., 13.vi.1953, 1 spec. (ZMHB); 'Thurorn b. Ratzebg' [locality not found], 4.vi.1900, 1 spec. (LSLC). **HUNGARY:** BARANYA, Nemét-Boly, 1 spec., E. Csiki lgt. (HNHM); FEJÉR, Velencei-tó, Sukoró, 26.v.1951, 1 spec., Kaszab & Székessy lgt. (HNHM), 30.v.1951, 1 spec., Kakassné lgt. (HNHM); SOPRON, 'M.óvár' [= Mosonmagyaróvár], 23.v.1940, 1 spec., D. Révy lgt. (HNHM); Pinnye, 21.v.1915, 1 spec., R. Streda lgt. (HNHM); ZEMPLEN, Pálháza, Kemencevölgy, 6-11.vi.1955, 1 spec., Kaszab & Székessy lgt. (HNHM). **ITALY:** CARNIA, Treppo, terr. Ortégias, 1000 m, 17.vi.1950, 1 spec., G. Fagel lgt. (DBET); TRENINO-ALTO ADIGE, Rovereto, 1 spec., Jureček lgt. (NMPC). **POLAND:** BESKID ZACHODNI, Dziegielów k. Cieszyna, 20.vi.1987, 1 spec. (DBET); BIESZCZADY, Wetlina PGR, 22.vii.1994, 1 spec., L. Borowiec lgt. (DBET); DOLNY ŚLĄSK, Wrocław – Zakrzów, 1.v.1974, 1 spec., L. Borowiec lgt. (DBET); Wrocław – Mokry Dwór, 12.vii.1994, 2 spec., L. Borowiec lgt. (DBET); SUDETY WSCHODNIE, Powiat Nyski, 'Patschkau' [= Paczków], 17.x.1931, 1 spec., Bachmann lgt. (NMPC). **ROMANIA:** ARAD, 'Menyháza' [= Moneasa], 1916, 1 spec., Horváth lgt. (HNHM). BIHOR, Satul de Vacanta Boga, 29.vii.2005, 1 spec., A. Podlussány lgt. (HNHM); BRAȘOV, 'Kronstadt' [= Brașov], 1 spec., Deubel lgt. (HNHM); HARGHITA, Gheorgheni env., 29.v.2004, 1 spec., 13.vi.2005, 2 spec., R. Škoda lgt. (LSLC, RSLC), 13.-14.vi.2005, 6 spec., L. Sekerka lgt. (LSLC); 'Zeteváralja, Szencsed-patak' [= Sub Cetate, pâraul Sâncel], 24.v.1997, 1 spec., I. Rozner lgt. (HNHM); 'Tető', 4.vii.1942, 1 spec., Gebhardt lgt. (HNHM); 'Tusnád' [= Tușnad Sat], 1 spec., Kúthy lgt. (HNHM); HUNEDOARA, 'Lupény' [= Lupeni], 1916, 1 spec., Horváth lgt. (HNHM); NEAMȚ, 4 km SE of Gădinti, pr. Roman, 3.-4.v.2005, 2 spec., J. Pelikán lgt. (JPHC); 'Transylvan.', 1 spec., Reitter lgt. (NMPC). **SLOVAKIA:** KOŠICE reg., Malé Tarkany, 26.vii.1991, 3 spec., M. Zúber lgt. (MZKC); Plešivec, 3 spec., Kouřil lgt. (LSLC, NMPC); NITRA reg., Kamenica nad Hronom, v.2001, 1 spec., T. Kopecký lgt. (LSLC); 'Parkan' [= Štúrovo], 1 spec. (HNHM), 2 spec., Kouřil lgt. (LSLC, NMPC); 6.vi.1973, 1 spec., J. Strejček lgt. (JSPC); TRENČÍN reg., 'Szalonca' [= Slavnica], 1 spec., G. Fekete lgt. (HNHM); 'Slovakia', 3 spec., Langhoffer lgt. (HNHM). **SLOVENIA:** LOWER STYRIA, 'Pettau' [= Ptuj], 1 spec. (NMPC); 'Marburg, Styr.' [= Maribor], 1 spec., Lang lgt. (MMUK); 'Podcortek' [= Podčertek], 1 spec., Jaeger lgt. (MMUK). **SWITZERLAND:** AARGAU, Grindelwald, 14.vi.1955, 2 spec., O. Lundblad lgt. (DBET); LUZERN, Lucerne, Seeburg, 13.-26.vi.1937, 3 spec., W. D. Hincks lgt. (MMUK); TURGAU,

Glarisegg, 6.-10.v.1905, 1 spec. (LSLC); VAUD, Chesières, 7.vi.1903, 1 spec. (LSLC). **UKRAINE:** ZAKARPATSKA obl., Hoverla Mt., vii.1924, 1 spec., Pfeffer lgt. (NMPC); ‘Volové’ [= Mežgorje], vii.1938, 1 spec., Štěrba lgt. (NMPC); Uzhgorod, 1 spec., A. Vávra lgt. (NMPC), 2 spec., V. Zoufal lgt. (NMPC); ZHYTOMYRSKA obl., ‘Zsitomir’ [= Zhytomir], 1 spec. (HNHM).

**Bionomics.** Host plants. Asteraceae: *Leucanthemum vulgare*, *Carduus argemose* ssp. *obtusisquamosus*; Caryophyllaceae: *Silene nutans* (BORDY 1995a, 2000), the latter two host plants being doubtful. I observed larvae and adults on *Leucanthemum ircutianum* (new host plant) in Romania in 2005.

**Distribution.** Austria (BORDY 1995a, 2000); Czech Republic (BEZDĚK & ZÚBER 2000; SEKERKA 2004, 2006b); France (BORDY 1995a); Italy (SASSI 2003); Poland (BOROWIEC & ŚWIĘTOJAŃSKA 1997); Slovakia (BEZDĚK & ZÚBER 2000); Spain (RECALDE IRURZUN & SAN VICENTE 2005). New species to Croatia, Germany, Hungary, Romania, Slovenia, Switzerland and Ukraine.

**Comments.** REITTER (1912) described the aberration *viridissima* of *C. sanguinosa* with black bases of the femora. During my stay in HNHM I found one specimen (labelled ‘Germ[ania].’) and identified by Reitter as *C. sanguinosa* ab. *viridissima*. This specimen, with great probability representing a type of ab. *viridissima*, actually belongs to *C. leucanthemi*. This aberration has never been raised to higher rank and thus is an unavailable name, here synonymized with *C. leucanthemi*.

### Intermediate specimen between *C. leucanthemi* and *C. sanguinosa*

**Material examined. HUNGARY:** ZEMPLÉN, Pálháza, Istvánkút, 6.-11.vi.1955, 1 spec., Kaszab & Székessy lgt. (HNHM).

**Comments.** This specimen has intermediate characters combining both species together (shallowly emarginate labrum, completely yellow legs, body somewhat elongate but not parallel-sided) and badly preserved colouration of dorsum (probably caused by killing substance).

### *Cassida sanguinosa* Suffrian, 1844

*Cassida sanguinosa* Suffrian, 1844: 105.

**Material examined. BELARUS:** VITSEBSK, Krewo, 6.vii.1916, 1 spec., A. Spaney lgt. (ZMHB). **BOSNIA AND HERZEGOVINA:** SARAJEVO, Romanja Planina, 9.vii.1931, 1 spec., J. Frodor lgt. (HNHM). **CZECH REPUBLIC:** BOHEMIA, Chramosty, 22.v.2005, 1 spec., A. Trmal lgt. (ATPC); Sázava nad Sázavou, 21.v.1983, 1 spec., Janata lgt. (MZKC); MORAVIA, Vyškov, vi.1913, 1 spec., R. Kalous lgt. (LSLC). **DENMARK:** E JUTLAND, Ibaek, 5km ESE of Vejle, 1 spec., T. Munk lgt. (HNHM). **FINLAND:** W FINLAND, ‘Abo’ [= Turku], 1 spec. (MMUK). **FRANCE:** ALSACE, Allier, 2 spec. (DBET); La Brousse, Indre, 26.vii.1988, 2 spec., B. Bordy lgt. (DBET); Macon, 1 spec., M. Delfieu lgt. (DBET); Morthemier, 1 spec., L. Mesmin lgt. (DBET); Saint-Clement, 24.v.1987, 1 spec., B. Bordy lgt. (DBET); ÎLE-DE-FRANCE, Maisons-Alfort, 2 spec., Martin lgt. (NMPC); PAYS DE LA LOIRE, Lac de Grand-Lieu, 4 spec., Martin lgt. (NMPC). **GERMANY:** BAYERN, Kammer, 1 spec., Spaeth lgt. (MMUK); BRANDENBURG, Chorin, 3.v.1936, 1 spec. (ZMHB); HAMBURG, Hamburg, 2 spec. (MMUK), 1 spec. (NMPC); ‘Tasperhude’, 28.vi.1903, 1 spec. (LSLC). **GREAT BRITAIN:** DEVON, Roadford Lake, 7.viii.1995, 1 spec., D. J. Mann lgt. (DBET). **HUNGARY:** BÉKÉS, Gyula, 6.v.2004, 3 spec., J. Pelikán lgt. (JPHC, LSLC); SZABOLCS, Olcsvaapáti, Székos-gaz, 20.vi.2003, 3 spec., G. Hegyessy lgt. (HMSH, LSLC); VAS, Farkasfa env., Fekete-tó, 11.vi.2006, 1 spec., J. Pelikán lgt. (JPHC). **NORWAY:** AUST-AGDER, Grimstad, viii.1920, 1 spec., Münster lgt. (MMUK). **POLAND:** DOLNY ŚLĄSK, Wrocław – Wojńów, 1.v.1977, 1 spec., L. Borowiec lgt. (DBET), 2.vi.1981, 1 spec., L. Borowiec lgt. (DBET); Wrocław – Mokry Dwór, 5.vi.1994, 3 spec., L. Borowiec lgt. (DBET); Wrocław – Psie Pole, 23.vi.2002, 2 spec., L. Borowiec

lgt. (DBET); GÓRY ŚWIĘTOKRZYSKIE, Zamczysko Nat. Res., 20.v.1982, 3 spec., L. Borowiec lgt. (DBET); NIZINA WIELKOPOLSKO-KUJAWSKA, Ruda Miłicka, 17-27.vii.1991, 2 spec., L. Borowiec lgt. (DBET); Wielkopolski Nat. Park, 24.vii.1986, 1 spec., P. Stachowiak lgt. (DBET); POJEZIERZE POMORSKIE, 'Gnewau Westpreussen' [= Gniewowo], 21.v.1915, 1 spec., E. Hanau lgt. (LSLC); Tuczno, 16.vii.2002, 1 spec., R. Ruta lgt. (DBET); ROZTOCZE, Biała Góra n. Tomaszów Lub., 27.vii.1987, 3 spec., L. Borowiec lgt. (DBET); Hamernia, 16.viii.1912, 1 spec. (DBET); SUDETY WSCHODNIE, Góry Opawskie, Pokrzywna, 29.v.2004, 1 spec., L. Borowiec lgt. (DBET); SUDETY ZACHODNIE, Karkonosze, Podgórzyn – Podzamcze, 1.-8.viii.1994, 1 spec., L. Borowiec lgt. (DBET); WYŻYNA MAŁOPOLSKA, Łódź, ul. Piotrkowska, 28.v.1983, 1 spec., M. Wanat lgt. (DBET). **ROMANIA:** SUCEAVA, Podișul Dragomirna, 2 km S of Mitocu Dragomirnei, 6.v.2005, 1 spec., J. Pelikán lgt. (JPHC). **RUSSIA:** ALTAI reg., Barnaul, 28.v.1920, 1 spec. (ZMHB), 3.vi.1920, 2 spec., Babiý lgt. (MMUK); IRKUTSK, Baikal, 1 spec. (MMUK); LENINGRAD reg., Saint Petersburg, 1 spec., Faust lgt. (MMUK); PRIMORSKIJ reg., 'Novoçugujevka' [= Novochuguevka], 18.vii.1990, 1 spec., F. Kantner lgt. (LSLC); ROSTOV reg., Rostov na Donu, 4 spec. (LSLC, NMPC); 'Sibiria', 1 spec. (MMUK); WOLOGDA reg., 'Kirillow' [= Kirillov], 29.iv.1925, 1 spec., Iwanow lgt. (ZMHB); 'Kirill-rostscha' [locality not found], 1923, 1 spec., Iwanow lgt. (ZMHB). **SLOVAKIA:** KOŠICE reg., Latorica river, 19.v.1990, 1 spec., I. Kovár lgt. (NMPC); NITRA reg., Chl'aba, 28.iv.2001, 1 spec., L. Sekerka lgt. (LSLC); Nitra env., 1 spec., J. Bechyně lgt. (DBET). **SLOVENIA:** LOWER STYRIA, 'Savin.Alp.' [= Savinjske Alpe], 1907, 1 spec., Rambousek lgt. (NMPC). **UKRAINE:** KIEV reg., Datscha Bernera, 3.v.1925, 2 spec. (LSLC, ZMHB); 'Dnjepir-Auen', [= Dnyepir alluvium], 25 km SW of Kiev, 22.vi.1967, 1 spec., F. Hieke lgt. (ZMHB); 'Kontscha-Saspa' [= actual name not found], v.1921, 3 spec., Sawinskij lgt. (LSLC, ZMHB); ZAKARPATSKA obl., 'Jasiña' [= Jasinya], vi.1932, 1 spec., O. Kavan lgt. (NMPC); Kuzy, 1 spec., (NMPC). I was unable to find the following localities (all only in the original spelling) which are situated either in Southern Russia or in Ukraine: 'Golosewsk', 19.v.1925, 1 spec., S. Iwanow lgt. (ZMHB); 'Lishigorje', 7.v.1923, 1 spec., Schpette lgt. (ZMHB); 'Lukjanow', 29.vii.1924, 1 spec., Kerkis lgt. (LSLC); 'Falzfeinowo a. Dniepr', 12.v.-7.vi.1914, 1 spec., W. Ramme lgt. (LSLC).

**Bionomics.** Host plants. Asteraceae: *Tanacetum vulgare* (SUFFRIAN 1844); *Achillea ptarmica*, *A. millefolium*, *Tanacetum vulgare* (BECHYNĚ 1944); *Tanacetum vulgare*, *Achillea ptarmica* (STEINHAUSEN 1950, BROVDIJ 1983); *Achillea ptarmica* (BORDY 1995a).

**Distribution.** Algeria, Austria, Belarus, Bosnia and Herzegovina, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Hungary, Italy, Latvia, Lithuania, Kazakhstan, Morocco, Netherlands, Norway, Poland, Russia (including Far East), Slovakia, Slovenia, Spain, Sweden, Ukraine (distribution based on data listed above and on BOROWIEC, in prep.).

**Comments.** During my stay in MMUK I found a paralectotype of *C. sanguinosa* actually belonging to *C. denticollis* Suffrian, 1844 (label data: '[small blue label without data] // Typ. Suffr. [w, hw, s] // Cassida / sanguinosa [w, hw, s] // denticollis / Spaeth det. [w, hw and p, h]'). The name *C. sanguinosa* was fixed by a lectotype designation of syntypes preserved in ZMHB (BORDY 1998) and those are different to the specimen cited above.

### Remarks on separation of *C. leucanthemi* and *C. sanguinosa*

*Cassida sanguinosa* Suffrian, 1844, is extremely similar morphologically to *C. leucanthemi* but both have distinctly different bionomics. *Cassida sanguinosa* is rather eastern and lowland species; it is always connected with dry sandy habitats and probably monophagous, at least in the larval stage, on *Tanacetum vulgare* (Asteraceae). On the other hand, *C. leucanthemi* occurs from lowland to mountains; it is always associated with somewhat wet habitats and feeds on species of *Leucanthemum* (Asteraceae). *Cassida sanguinosa* is quite common in eastern and northern Europe but seems to be very rare in central, western and southern Europe, where

it is largely replaced by *C. leucanthemi*. In my opinion, *C. sanguinosa* is not native to most of Europe and has been introduced with the invasive plant species *Tanacetum vulgare* (e.g., PYŠEK et al. 2002) similar to *C. stigmatica* Suffrian, 1844, which has also been spreading with *Tanacetum* plants and is now one of the commonest species in Europe (SEKERKA 2006a). Probably, *C. sanguinosa* remains 'rare' because it has stricter habitat requirements and is less competitive than *C. stigmatica*. Mountain ranges (mainly the Carpathians and the Alps) may also limit the spreading of *C. sanguinosa*.

The most useful morphological differences separating the two species are the shape of labrum, body shape, and the colour of femora and the basal part of elytra. *Cassida sanguinosa* has a deeply emarginate labrum, yellow or indistinctly infuscate femora, almost parallel-sided body, and basal area of elytral disc with hazy red triangle, usually interrupted by the second interstice. *Cassida leucanthemi* has a shallowly emarginate labrum, basal half to basal third of femora black, oval and stout body, and basal area of elytral disc with a complete, deep red triangle. Most of these characters are very variable and only the shape of labrum seems to be more or less constant.

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### References

- BECHYNĚ J. 1944: Cassididae a Hispidae v Čechách a na Moravě. [Cassididae and Hispididae in Bohemia and Moravia]. *Entomologické Listy* (Brno) **7**: 74-86 (in Czech).
- BEZDĚK J. & ZÚBER M. 2000: Coleoptera, Chrysomelidae. Faunistic records from the Czech Republic – 94. *Klapalekiana* **36**: 28.
- BORDY B. 1995a: *Cassida leucanthemi* n. sp., espèce jumelle de *C. sanguinosa* Suffrian, 1844, (Coleoptera, Chrysomelidae). *Bulletin de la Société Entomologique de France* **100**: 377-383.
- BORDY B. 1995b: *Cassida bergeali*, espèce nouvelle du groupe de *Cassida vibex* L. 1767 (Col. Chrysomelidae). *Nouvelle Revue d'Entomologie (N.S.)* **12**: 243-248.
- BORDY B. 1998: Désignation du lectotype et d'un paralectotype de *Cassida sanguinosa* Suffrian 1844 (Coleoptera, Chrysomelidae). *Nouvelle Revue d'Entomologie (N.S.)* **15**: 236.
- BORDY B. 2000: *Coléoptères Chrysomelidae. Volume 3. Hispinae et Cassidinae*. Faune de France. Vol. 85. Fédération Française des Sociétés de Sciences Naturelles, Paris, 250 pp + xxvi pls.
- BOROWIEC L. in prep.: Cassidinae. In: LÖBL I. & SMETANA A. (ed.): *Catalogue of Palaearctic Coleoptera*.
- BOROWIEC L. & ŚWIĘTOJAŃSKA J. 1997: *Cassida leucanthemi* Bordy, 1995 i *C. bergeali* Bordy, 1995 (Coleoptera: Chrysomelidae: Cassidinae), nowe dla fauny Polski. [Cassida leucanthemi Bordy, 1995 and *C. bergeali* Bordy, 1995 (Coleoptera: Chrysomelidae: Cassidinae), new to fauna of Poland]. *Wiadomości Entomologiczne* **15**: 237-240 (in Polish).



- BOROWIEC L. & ŚWIĘTOJAŃSKAJ. 2002. Cassidinae of the world – an interactive manual (Coleoptera: Chrysomelidae). Permanent electronic publication: [www.biol.uni.wroc.pl/cassidae/katalog%20internetowy/index.htm](http://www.biol.uni.wroc.pl/cassidae/katalog%20internetowy/index.htm) (first published in 2002).
- BROVDIJ V. M. 1983: *Zhuki-listoidi, shchitonoski i shiponoski*. [Leaf beetles, Cassidinae and Hispinae]. Fauna Ukraini. Tom 19, Vyp. 20, Kiev, 188 pp (in Ukrainian).
- CORNELIUS C. 1851: Zur Entwicklungs- und Ernährungs-Geschichte einiger Schildkäferarten. *Stettiner Entomologische Zeitung* **12**: 88-94.
- DESBROCHERS DES LOGES J. 1891: Monographie des Cassida de France suivie d'observations sur le classement des espèces de ce genre au Catalogus Coleopterorum Europae, Caucasi et Armeniae rossicae. *Frelon* **1(7)**: 1-48.
- ILLIGER J. K. W. 1798: *Verzeichniss der Käfer Preussens*. Halle, xlii + 510 pp.
- PYŠEK P., SÁDLO J. & MANDÁK B. 2002: Catalogue of alien plants of the Czech Republic. *Preslia* **74**: 97-186.
- RECALDE IRURZUN J. I. & SAN VICENTE I. U. 2005: Los Cassidinae de Navarra y la comunidad autonoma vasca: aproximacion faunistica y corologica (Coleoptera: Chrysomelidae). *Heteropterus Revista de Entomología* **5**: 65-96.
- REITTER E. 1912: *Fauna Germanica. Die Käfer des Deutsches Reiches. Nach der analytischen Methode bearbeitet*. IV. Band. K.G. Lutz Verlag, Stuttgart, 236 pp.
- SASSI D. 2003: Cassida leucanthemi, prima segnalazione per la fauna italiana (Coleoptera Chrysomelidae). *Bollettino della Società Entomologica Italiana* **135**: 177-180.
- SASSI D. & BOROWIEC L. 2006: Cassida inopinata, a new species from Italy and Balkan Region (Coleoptera: Chrysomelidae: Cassidinae). *Genus* **17**: 545-560.
- SEKERKA L. 2004: Species of Cassidinae and Hispinae contained in the Moravian Museum Collection in Brno (Coleoptera, Chrysomelidae). *Acta Musei Moraviae, Scientiae Biologicae* **89**: 117-165.
- SEKERKA L. 2005: Cassida olympica, a new species from Greece (Coleoptera: Chrysomelidae: Cassidinae). *Genus* **16**: 285-289.
- SEKERKA L. 2006a: *Review of Cassidinae (Coleoptera: Chrysomelidae) of the Czech Republic*. Bachelor's thesis, deposited at the Faculty of Biological Sciences, University of South Bohemia, České Budějovice, 94 pp + 61 pls.
- SEKERKA L. 2006b: Cassidinae and Hispinae preserved in the East Bohemian Museum in Hradec Králové (Coleoptera: Chrysomelidae). *Acta Musei Reginaehradecensis, Series A* **31**: 89-102.
- SPAETH F. & REITTER E. 1926: *Bestimmungs-Tabellen der europäischen Coleopteren*. 95 Heft. Cassidinae der palaearktischen Region. Verlag von Edmund Reitter's Nachfolger Emmerich Reitter, Troppau, 68 pp.
- STEINHAUSEN W. 1950: *Vergleichende Morphologie Biologie Ökologie der Entwicklungsstadien der in Niedersachsen heimischen Schildkäfer (Cassidinae Chrysomelidae Coleoptera) und deren Bedeutung für die Landwirtschaft*. Doktor Dissertation, Technische Hochschule zu Braunschweig, 71 pp + 8 pls.
- SUFFRIAN E. 1844: Fragmente zur genaueren Kenntnis deutscher Käfer. 4. Cassida L. *Stettiner Entomologische Zeitung* **5**: 49-67, 89-107, 135-148, 206-224, 241-257.

