

First contribution to the knowledge of the Dermestidae of Sardinia (Coleoptera)*

Jiří HÁVA¹, Gianluca NARDI²

¹Private Entomological Laboratory & Collection, Rýznerova 37, CZ-252 62 Únětice u Prahy, Praha-západ, Czech Republic.

E-mail: jh.dermestidae@volny.cz

²MiPAAF, Corpo Forestale dello Stato, Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale "Bosco Fontana", Strada Mantova 29, I-46045 Marmirolo (MN), Italy. E-mail: l_nardi@hotmail.com

*In: Nardi G., Whitmore D., Bardiani M., Birtele D., Mason F., Spada L. & Cerretti P. (eds), *Biodiversity of Marganai and Montimannu (Sardinia). Research in the framework of the ICP Forests network. Conservazione Habitat Invertebrati*, 5: 407–446.

ABSTRACT

A topographic catalogue of the Dermestidae of Sardinia, based on a critical revision of the literature data and on unpublished materials (about 550 specimens of 21 species), is provided. Fifty-three species are recorded with certainty from Sardinia, while five taxa (*Attagenus* (A.) *quadrimaculatus* Kraatz, 1858, *Anthrenus* (A.) *pimpinellae pimpinellae* (Fabricius, 1775), A. (*Nathrenus*) *signatus* Erichson, 1846, *Trogoderma glabrum* Rosenhauer, 1856 and *T. granarium* Everts, 1898) are hereby excluded from the fauna of the island. *Anthrenus* (A.) *munroi* Hinton, 1943 and *Attagenus* (A.) *lobatus* Rosenhauer, 1856 are firstly recorded from Sardinia, and the occurrence of the second species in mainland Italy (Latium) is confirmed. *Dermestes* (*Dermestinus*) *erichsoni* Ganglbauer, 1904 is firstly recorded from Abruzzi and Latium, while *Trogoderma glabrum* (Herbst, 1783) and *T. versicolor* (Creutzer, 1799) are firstly recorded from Latium. *Dermestes* (*Dermestinus*) *lanarius* ab. *subfulvicollis* Kalík, 1951 from Kazakhstan is an unavailable name; its authorship is attributed, according to the Code of Zoological Nomenclature, to Háva (2003), who first used it for a subspecies. *Dermestes ruficollis* Gené (not *D. ruficollis* Fabricius, 1775) from "Sardinia", cited by Giachino (1982), is here recognized as a nomen nudum. *Attagenus bifasciatus* ab. *hybridus* Ragusa, 1926 from Sicily, previously generally considered as a synonym of A. (A.) *tigrinus* (Fabricius, 1792), is confirmed to be an infrasubspecific and unavailable name. A short discussion and zoogeographical analysis of the Sardinian Dermestidae are finally provided. The zoogeographical analysis revealed the presence of four components: a prevalent group of species widespread in the Mediterranean Basin (39.62%), followed by Cosmopolitan (24.52%), Holarctic (22.64%) and European (13.20%) components.

Key words: Dermestidae, Sardinia, Italy, faunistic, zoogeography, new records.

RIASSUNTO

Primo contributo alla conoscenza dei Dermestidi della Sardegna (Coleoptera)

Gli autori forniscono un catalogo topografico dei Dermestidae della Sardegna, basato sulla revisione critica dei dati di letteratura e su dati inediti (circa 550 esemplari di 21 specie). Cinquantatré specie risultano segnalate con certezza della Sardegna, mentre cinque entità (*Anthrenus* (A.) *pimpinellae pimpinellae* (Fabricius, 1775), A. (*Nathrenus*) *signatus* Erichson, 1846, *Attagenus* (A.) *quadrimaculatus* Kraatz, 1858, *Trogoderma glabrum* Rosenhauer, 1856 e *T. granarium* Everts, 1898) sono qui escluse dalla fauna dell'Isola. *Anthrenus* (A.) *munroi* Hinton, 1943 e *Attagenus* (*Attagenus*) *lobatus* Rosenhauer, 1856 sono segnalate per la prima volta per la Sardegna; inoltre, quest'ultima specie è confermata per l'Italia continentale (Lazio). *Dermestes* (*Dermestinus*) *erichsoni* Ganglbauer, 1904 è segnalata per la prima volta per l'Abruzzo e il Lazio, mentre *Trogoderma glabrum* (Herbst, 1783) e *T. versicolor* (Creutzer, 1799) lo sono per il Lazio. *Dermestes lanarius* ab. *subfulvicollis* Kalík, 1951 (nome non disponibile) è attribuito, secondo il Codice di Nomenclatura Zoologica, ad Háva (2003), che per primo gli ha assegnato un rango sottospecifico. *Dermestes ruficollis* Gené (non *D. ruficollis* Fabricius, 1775) di "Sardinia", citato da Giachino (1982), è qui riconosciuto come un nomen nudum. *Attagenus bifasciatus* ab. *hybridus* Ragusa, 1926 della Sicilia, precedentemente per lo più considerato come un sinonimo di A. (A.) *tigrinus* (Fabricius, 1792), è confermato essere un nome infrasubspecifico e non disponibile. Una breve discussione e un'analisi zoogeografica del popolamento a Dermestidae della Sardegna chiudono il lavoro. L'analisi zoogeografica ha evidenziato la presenza di quattro componenti: una, prevalente, di specie ad ampia distribuzione nel bacino del Mediterraneo (39,62%), seguita dalle componenti delle specie Cosmopolite (24,52%), Olartiche (22,64%) ed Europee (13,20%).

INTRODUCTION

The beetle family Dermestidae includes about 1,450

species and subspecies worldwide (Háva 2003, 2007b), and is represented in Italy by 95 species (cf. Trematerra 1987; Audisio et al. 1995; Háva 2003;

Nicoli Aldini 2003a, 2003b, 2004; Háva 2007a; Háva & Nardi 2007a; Herrmann & Háva 2007; Löbl 2007; Háva 2008; Zhantiev 2011)¹. Most species for which the life habits are known are scavengers, feeding on dry animal or plant materials of high protein content (carcasses, hair, dried insects, etc.); other species feed on pollen and nectar on flowers (cf. Kingsolver 2001; Zhantiev 2009; Háva 2011). Many species (cf. Hinton 1945; Aitken 1975), also in Italy (cf. Dal Monte 1972; Fogliazza & Pagani 1993; Nardi R. et al. 1993; Domenichini & Nicoli Aldini 1994, 1995; Nicoli Aldini 1998a; Pollini 1998; Nicoli Aldini 2003b; Trematerra 2003; Nicoli Aldini 2004; Süß 2004; Ratti 2007), are stored product pests.

Sardinia is a large island of 24,090 km² in the Tyrrhenian Sea (western Mediterranean Sea), and is the second-largest island in the Mediterranean (after Sicily and before Cyprus) (Mori 1975).

Its biogeographical position is quite peculiar as a crossroad of the western and eastern Mediterranean regions and North Africa, and its fauna generally reflects this special position (cf. Baccetti 1964; Grill et al. 2006). Forty-eight species are recorded from Sardinia in recent literature (cf. Audisio et al. 1995; Háva 2003, 2007a, 2007b; Háva & Nardi 2007a; Zhantiev 2011); however, little information is available on this fauna, as also for the rest of Italy, even though species of this family are easy to collect, often abundant on flowers and, in some cases, of economic important. This situation is basically due to the lack of Italian taxonomists working on this family, which has fortunately been well studied in other European countries (e.g. Mroczkowski 1954, 1975; Zhantiev 1976; Lohse 1979; Peacock 1992; Kalík 1992; Háva 2011). In this framework, it was considered useful to summarize all known data on the Sardinian Dermestidae.

MATERIAL AND METHODS

Study area

The study area comprises the whole of Sardinia and

¹ *Dermestes* (*D.*) *vorax* Motschulsky, 1860 is widespread in eastern Palearctic Asia, while *D.* (*Dermestinus*) *sibiricus* Erichson, 1846 is widespread from Armenia to East Siberia (Háva 2007b). Both have been recorded also from Italy. The former was recorded from "Italy" (cf. Denux & Zagatti 2010), whereas the latter was recorded with doubt from "Italia" (Bertolini 1904, as *Dermestes sibiricus* Er.; Luigioni 1929; Porta 1929, in both cases as *D. Frischii* Kug. [= Kugelann, 1792] v. *sibiricus*) and from stored maize in the Emilia-Romagna region (Frilli 1960, as *Dermestes sibiricus* Er. ?); these records were never confirmed (cf. Mroczkowski 1968; Audisio et al. 1995; Háva 2007a, 2007b; Zhantiev 2011).

circumsardinian islands (24,090 km²); Pracchi & Terrosu Asole (1971), Mori (1975) and Pratesi & Tassi (1984) can be consulted for general environmental information on this region.

From an administrative point of view, Sardinia used to be divided into four provinces: Cagliari, Nuoro, Oristano and Sassari. Since 2005, four new provinces (Carbonia-Iglesias, Medio Campidano, Olbia-Tempio and Ogliastra) were instituted by reducing the extension of the previous ones (cf. Bardiani 2011).

Further information (habitat characteristics, vegetation, etc.) on the sampling sites investigated by the Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale "Bosco Fontana" of Verona (CNBFVR) can be found in Mason et al. (2006), Cerretti et al. (2009), Angius et al. (2011) and Bardiani (2011).

Nomenclature and classification

The suprageneric classification of the family here adopted follows Lawrence & Ślipiński (2005), that of the genera and subgenera follows Háva (2004, 2007a, 2007b). The suprageneric nomenclature follows Bouchard et al. (2011). Species are listed alphabetically according to the nomenclature of Háva (2007a, 2007b, 2008), Kadej et al. (2007) and Löbl (2007).

Dermestes ruficollis Gené from "Sardinia" (Giachino 1982: 361) – not *Dermestes ruficollis* Fabricius, 1775: 57, currently *Necrobia ruficollis* (Cleridae) (cf. Háva 2007a; Löbl et al. 2007) – is here recognized as a nomen nudum and is not considered in the list.

The nomenclature of ant hosts of the Thorictinae follows Baroni Urbani (1971) and Agosti & Johnson (2005).

Data collection

This paper is based on literature and unpublished data. The Italian faunistic data from the literature were compiled by G. Nardi during the preparation of the Italian checklist of Dermestidae (Thorictinae excepted) (Audisio et al. 1995) and adjourned until today.

Unpublished data are principally based on material collected during a general entomological survey of south-western Sardinia started in 2003 by CNBFVR (cf. Mason et al. 2006; Cerretti et al. 2009; Bardiani 2011) and, secondarily, on material from some private and public collections. Almost all identifications were made or verified by J. Háva.

Most specimens from the above-mentioned survey were collected by hand or by sweep net, but pitfall, light, window and Malaise traps were also used (cf. Mason et al. 2006; Bardiani 2011).

Faunistic list

The following information is provided below the current name of each species: nomenclatural combinations and possible synonyms (listed chronologically-alphabetically) found in the literature including Sardinian records, literature records on Sardinia, Sardinian material examined and chorotype. When deemed useful for the discussion of some species, material examined from other regions ("Other material examined") is also provided.

As far as possible, the following data are provided for each record: general area and/or commune, locality of collection, altitude, UTM coordinates, date of collection, collector/s, collecting method, number of specimens, and, in parenthesis, literature reference or abbreviation of depository. A semicolon separates different records; if these are from the same site, the name of the site is listed only at the beginning, with the oldest record. Possible interpolations and comments are given in square brackets.

Some information (e.g. on ecology, collecting methods, etc.) from Italian papers (e.g. Costa 1883; Martelli & Arru 1958; Pisano et al. 2003; etc.) or from the Italian labels of examined specimens were translated into English; in these cases the data are reported in inverted commas and followed by "[tfi]".

The Sardinian localities of collection are listed alphabetically according to the current administrative provinces: Cagliari, Carbonia-Iglesias, Medio Campidano, Ogliastra, Olbia-Tempio, Oristano, Nuoro, and Sassari. The provinces are listed alphabetically. The localities of collection are listed according to these provinces also if concerning records prior the year (2005) of their institution (cf. Bardiani 2011).

The generic citations lacking precise localities of collection, e.g. "Sardegna", are cited at the very beginning. Records for "ti" [= Tutta Italia = All of Italy] and "Tutta Italia" [= All of Italy] by Bertolini (1904) and Porta (1929), respectively, are listed since they include also Sardinia and Sicily (cf. Penati 2009); in this framework also the records for "ovunque" [= everywhere] of Leonardi (1927) are listed in the same way, whereas the citations for "Tutta It." [= All of Italy] of Luigioni (1929) were ignored because they include only the mainland regions (Luigioni 1929: 18). Concerning the records by Bargagli (1872, 1873): "The citations of each species are followed by the name of the author [in brackets] who recorded it from Sardinia" [tfi] (Bargagli 1870: 270); new records without such references can be referred to P. Bargagli, A. Targioni Tozzetti and A. Carruccio (Bargagli 1870: 202).

All recorded species are numbered progressively, including those that are here excluded from the Sardinian fauna; these last species are preceded by a question mark.

Zoogeography

Chorotypes, which were also used in the zoogeographical analysis, were assigned according to Vigna Taglianti et al. (1993, 1999) and are based, unless otherwise specified, on the distributions provided by Háva (2003, 2007a, 2007b, 2008) and Löbl (2007). However, the chorotypes of many species show extensions or restrictions compared to the "standard" ones; for the sake of brevity, these differences were mentioned only if significant. For further information on global distributions, references cited in the text may be consulted.

ABBREVIATIONS

COLLECTORS. ACo = A. Costa; AD = A. Doderò; AK = A.H. Krausse; AN = A. Noal; AV = A. Vigna Taglianti; BTC = P. Bargagli, A. Targioni Tozzetti & A. Carruccio; CE = C. Esposito; CH = G.C. Champion; DA = D. Avesani; DB = D. Birtele; DS = D. Sechi; DW = D. Whitmore; EM = E. Minari; FA = F. Angelini; FCa = F. Cassola; FS = F. Solari; GC = G. Chessa; GF = G. Forcina; GG = G. Grandi; GN = G. Nardi; GS = G. Scaglioni; GZ = [?] Gozmány; HP = H. Podskalská; JG = [J.] Gené; LF = L. Fancello; L? = no collector mentioned; MB = M. Bardiani; MR = M. Romano; MT = M. Tisato; MTr = M. Trizzino; MZ = M. Zapparoli; PA = P. Audisio; PB = P. Brignoli; PCe = P. Cerretti; PCo = P. Cornacchia; RI = [?] Ricchello; RP = R. Poggi; RS = R. zur Strassen; SF = S. Ferro; SZ = S. Zerunian; UL = U. Lostia [di S. Sofia]; VS = V. Sbordoni; WA = W. Apfel; WG = W. Grosser.

DEPOSITORIES. CDMR = E. De Maggi c/o Museo Civico di Zoologia (Rome, Italy); CGN = G. Nardi (Cisterna di Latina, Latina, Italy); CNBFVR = Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale "Bosco Fontana" di Verona (Marmirolo, Mantua, Italy); CPC = P. Cornacchia (Porto Mantovano, Mantua, Italy); GPAR = G. Pace (Rome, Italy) (G. Pace, pers. comm., 2011); HNHM = Hungarian Natural History Museum (Budapest, Hungary); JHAC = J. Háva (Prague, Czech Republic); MCZR = Museo Civico di Zoologia (Rome, Italy); MDEP = Dipartimento di Entomologia e Zoologia agraria "Filippo Silvestri", Università degli Studi di Napoli Federico II (Portici, Naples, Italy); MZUR = Museo di Zoologia, Sapienza Università di Roma (Rome, Italy).

COLLECTING METHODS. ba = bait (small pieces of meat mixed with hay placed in an open plastic tube); bz = glass trunk trap (beer and sugar); dc = direct collection; mt = Malaise trap; nt = entomological net; pt = pitfall trap (vinegar and salt); sn = sweep net; wt = window flight trap.

OTHER ABBREVIATIONS AND RECURRENT TERMS USED IN FAUNISTIC LIST. allacciamento strada = crossing with road; altopiano di = plateau of; ca = about; canale = canal; Capo = Cape; Cartiera = paper mill; Casa/e = House/s; coll. = collection; dint. = dintorni = surroundings of; ex = specimen/s; F. = Fiume = River; foce/foce del = mouth/mouth of [river]; fontana = spring; fonte = source; Foresta di = Forest of; Fraz. = Frazione = hamlet; Grotta di = Cave of; Isola = Island; L. = Lago = Lake; lecceta = holm-oak forest; loc. = locality; M. = Monte = Mount; miniera = mine; M.ti = Mounts; Massiccio = Massif; Missione Zoologica = Zoological Mission; oliveto = olive grove; pantano = morass; Passo = Pass; Penisola = Peninsula; pineta = pinewood; Porto = Port; prov. = province; P.ta = Punta = Peak; radura = clearing; rigagnolo = rivulet; Rio = stream; riva/e = bank/s; sdb = same data but; Serbatoio = Reservoir; sito = site; sorg. = sorgente = spring; sponda sinistra = left bank; stagno = pond; Stagno di = Pond of; S.S. = State Road; strada = road; strada per = road to; tfi = translated from Italian; Torrente = Torrent; Valle = Valley; Vecchia Cantoniera = old roadman's house; versante = slope; wdc = without date of collection.

FAUNISTIC LIST

DERMESTINAE Latreille, 1804

Dermestini Latreille, 1804

1. *Dermestes (Dermestes) bicolor bicolor* Fabricius, 1781

Dermestes bicolor F. = *striatus* Kolen. [= Kolenati, 1846]: Bargagli 1872: 102.

Dermestes bicolor Fabr.: Bertolini 1874: 99; Porta 1929: 301; Mroczowski 1962: 6.

Dermestes bicolor F.: Bertolini 1904: 58.

Dermestes (Dermestes) bicolor Fabricius, 1781: Audisio et al. 1995: 12; Zhantiev 2011.

LITERATURE RECORDS. Sardinia "(Ghilian)" (Bargagli 1872). Sardinia (Bertolini 1874, 1904; Porta 1929; Audisio et al. 1995; Zhantiev 2011). **Olbia-Tempio prov.:** Aggius, 29.V.1961, L?, 1 ex (Mroczowski 1962).

MATERIAL EXAMINED. **Cagliari prov.:** Elmas dint., 26.II.1978, CM, 2 ex (GPAR).

CHOROTYPE. Palearctic (Háva 2007a, 2007b).

NOTES. This species was recorded also from Belgium, Bosnia-Herzegovina, Finland, Lithuania, Moldova (Zhantiev 2011) and Kyrgyzstan (Ovtchinnikov 1996, as *D. (s. str.) bicolor*; Kadej 2010); these countries must be added to the distribution summarized by Háva (2007a, 2007b).

2. *Dermestes (Dermestes) hispanicus* Kalík, 1952

Dermestes (Dermestes) hispanicus Kalík, 1952: Háva 1999a: 138; Háva 2003: 23; Háva 2007a: 300; Háva 2007b; Zhantiev 2011.

LITERATURE RECORDS. Sardinia (Háva 1999a, 2003, 2007a, 2007b; Zhantiev 2011).

MATERIAL EXAMINED. **Carbonia-Iglesias prov.:** Musei, 100 m, 16–30.V.1974, GZ, 14 ex (HNHM). **Sassari prov.:** Sassari, 10.V.1964, L?, 2 ex (JHAC).

CHOROTYPE. W-Mediterranean (Spain, Sardinia, Algeria, Morocco, Tunisia) (Háva 2003, 2007a, 2007b).

NOTES. The above-mentioned records for "Sardinia" by Háva (1999a, 2003, 2007a, 2007b) were based on the cited specimens. Háva (1999a) erroneously attributed a record for "Sardinia" to Mroczowski (1968).

3. *Dermestes (Dermestes) lardarius* Linnaeus, 1758

Dermestes lardarius L.: Bargagli 1872: 102; Bertolini 1904: 58; Leonardi 1927: 311; Martelli & Arru 1958: 24, 35; Mroczowski 1962: 6; Luciano & Prota 1981: 143–146; Luciano et al. 1982: 326; Luciano & Prota 1986: 615; Prota et al. 1991: 286; Pisano et al. 2003: 218.

Dermestes lardarius Lin.: Luigioni 1929: 537; Porta 1929: 301.

Dermestes (Dermestes) lardarius Linné, 1758: Audisio et al. 1995: 12.

Dermestes (Dermestes) lardarius Linnaeus, 1758: Zhantiev 2011.

LITERATURE RECORDS. All of Italy (Bertolini 1904; Leonardi 1927; Porta 1929). Sardinia "(Ghilian)" (Bargagli 1872). Sardinia (Luigioni 1929; Luciano et al. 1982; Luciano & Prota 1986; Prota et al. 1991; Audisio et al. 1995; Zhantiev 2011). "Sardegna", 17.VIII.1955, L?, 1 ex (Mroczowski 1962). "quite common in the Sardinian cork forests" [tfi] (Martelli & Arru 1958: 24). "common in all of Sardinia" [tfi] (Pisano et al. 2003). **Cagliari prov.:** Isili (Pisano et al. 2003, fig. 395). **Olbia-Tempio prov.:** Tempio Pausania, loc. Cusseddu, 470 m, 1972–1980, L?; Tempio Pausania, loc. Nuchis, 470 m ca, 1972–1980, L? (Luciano & Prota 1981). **Sassari prov.:** Chiaramonti, 22.VII.1954 (larvae) and 23.VIII.1955 (reared adult), L? (Martelli & Arru 1958: 35).

MATERIAL EXAMINED. **Nuoro prov.:** Desulo, loc. Girgini, 1100 m, 8.V.1967, VS, 1 ex (MZUR).

CHOROTYPE. Cosmopolitan (Háva 2003, 2007a, 2007b; Háva & Herrmann 2008; Zhantiev 2011).

NOTES. In the cork oak forests of Sardinia this spe-

cies is also a predator of egg masses of *Lymantria dispar* (Linnaeus, 1758) (Lepidoptera, Lymantriidae) (Luciano & Prota 1981; Luciano et al. 1982). This behaviour was observed also in oak forests of Morocco (Villemant & Fraval 1992, 1993; Villemant & Ramzi 1995; Villemant 1998; Villemant & Andrei-Ruiz 1999) and in a willow wood in northern Italy (Camerini 2009).

4. *Dermestes (Dermestinus) aurichalceus* Küster, 1846

Dermestes aurichalceus Küst.: Gemminger & Harold 1868: 58; Bertolini 1874: 99; Luigioni, 1929: 537.

Dermestes aurichalceus Kust. = *holosericeus* Tour. [= Tournier, 1860]: Bargagli 1872: 102.

Dermestes aurichalceus Kü.: Bertolini 1904: 58.

Dermestes (Dermestinus) aurichalceus Küster, 1846: Mroczowski 1968: 52; Audisio et al. 1995: 12; Háva 2003: 15; Háva 2007b.

Dermestes (Dermestinus) aurichalceus Kuester, 1846: Zhantiev 2011.

LITERATURE RECORDS. Sardinia "(Marseul, Baudi)" (Bargagli 1872). Sardinia (Gemminger & Harold 1868; Bertolini 1874, 1904; Luigioni 1929; Mroczowski 1968; Audisio et al. 1995; Háva 2003, 2007b; Zhantiev 2011).

CHOROTYPE. Mediterranean (Bulgaria, France, Italy, Portugal, Sardinia, Spain, Switzerland, Morocco, Tunisia) (Háva 2003, 2007a, 2007b).

NOTES. This species is also recorded, on the Italian Tyrrhenian coast, from the environs of Naples (Küster, 1846; Horion 1955).

5. *Dermestes (Dermestinus) erichsoni* Ganglbauer, 1904

Dermestes tessellatus F. [sic!]: Bargagli 1872: 102.

Dermestes tessellatus Fabr. [sic!]: Bertolini 1874: 98.

Dermestes tessellatus F. [sic!]: Bertolini 1904: 58.

Dermestes Erichsoni Ganglb.: Luigioni 1929: 537; Porta 1929: 301.

Dermestes Erichsoni Gglb.: Horion 1955: 193.

Dermestes (Dermestinus) erichsoni Ganglbauer, 1904: Audisio et al. 1995: 12.

LITERATURE RECORDS. Sardinia "(Ghiliani, Baudi)" (Bargagli 1872). Sardinia (Bertolini 1874, 1904; Luigioni 1929; Porta 1929; Horion 1955; Audisio et al. 1995).

MATERIAL EXAMINED. **Carbonia-Iglesias prov.:** Domusnovas, Valle Orida, pineta, 595 m, 32S 466970 4362400, 24.III–24.V.2006, PCe MB DB DW, pt, 3 ex (CNBFVR); Domusnovas, Valle Orida, 643 m, 32S 465399 4362770, 7.VI.2004, GN,

dc, 1 ex (CNBFVR); Iglesias, "Mamenga", 610 m, 32S 462170 4356678, 12.V.2002, LF, 1 ex (CNBFVR); Iglesias, M.ti Marganai, plot CONECOFOR SAR1, 700 m, 32S 462853 4355582, 1–5.IX.2003, DB EM PCe DW MT, pt, 1 ex (JHAC); 15–30.VI.2004, GC, pt, 17 ex (CNBFVR); 29.IV–20.V.2005, GC, pt, 1 ex (CNBFVR); 20.V–16.VI.2005, GC, pt, 21 ex (CNBFVR); 16.VI–14.VII.2005, GC, 5 ex (CNBFVR). **Medio Campidano prov.:** Villacidro, rive Rio Cannisoni, 375 m, 32S 468713 4362692, 25.III.2006, DB DW, dc on the soil, 1 ex (CNBFVR). **Nuoro prov.:** Macomer, Monte S. Antonio, 2.V.1967, AV, 1 ex (MZUR). **Ogliastra prov.:** Gairo, M. Tonneri, dint. nuraghe Ardassai, lecceta, 1020 m, 32S 529111 4415819, 16–20.V.2008, MB GN PA MTr, pt, 1 ex (CNBFVR).

OTHER MATERIAL EXAMINED. **Abruzzi:** L'Aquila prov., Collelungo, Selvapiana, plot CONECOFOR ABR1, 1500 m, 33T 382924 4633805, 8–30.VI.2004, MR, pt, 1 ex (CNBFVR); sdb 29.VI–20.VII.2004, 5 ex (CNBFVR). **Latium:** Latina prov., San Felice Circeo, loc. Peretto, plot CONECOFOR LAZ2, 190 m, 33T 301201 456705, 1–16.VI.2004, GF AN SZ, pt, 6 ex (CNBFVR); Viterbo prov., Canino, oliveto Sugarella, sito A, 7.VIII–7.X.1988, MZ, [pt], 3 ex (CGN; JHAC); sdb 5.V–5.VI.1989, 5 ex (CGN); sdb 7.VI–7.VII.1989, 5 ex (CGN); Viterbo prov., Canino, oliveto Sugarella, sito B, 5.VII–5.VIII.1988, MZ, [pt], 5 ex (CGN); sdb 5.V–5.VI.1989, 1 ex (CGN); sdb 7.VI–7.VII.1989, 2 ex (CGN).

CHOROTYPE. European with extension to Maghreb, Caucasus, West Siberia (Háva 2003, 2007a, 2007b) and Turkey (Háva 2002a, 2011).

NOTES. *Dermestes (Dermestinus) erichsoni* is recorded also from Lithuania (Zhantiev 2011); this country must be added to the distribution summarized by Háva (2007a). In Italy, this species was previously known from the following regions: Piedmont (Ghiliani 1887: 310, as *D. holosericens* Bon. [sic!], *tessellatus*? Oliv. [sic!]; Baudi 1890: 101, as *D. tessellatus* Fabr. [sic!]; Luigioni 1929; Porta 1929; Horion 1955), Lombardy, Venetia (Bertolini 1874), Venezia Giulia (Bertolini 1874; Horion 1955), Romagna (Zangheri 1969, doubtful determination), Tuscany (Luigioni 1929; Horion 1955), Campania (Luigioni 1929; Horion 1955), Sicily (Luigioni 1929; Horion 1955; Audisio et al. 1995; Sapuppo 2002, doubtful determination) and Sardinia. The above record from Venezia Giulia (Horion 1955) is based on two localities ("Triestiner Karst (Opicina [= Opicina]; Mte Argentario"); the former is in that region, but the latter refers almost certainly to a coastal site in Tuscany.

Dermestes tessellatus Erichson, 1846 is a synonym of this species (cf. Háva 2003, 2007a), while *D. tessellatus* Fabricius, 1775 is a synonym of *Xestobium*

(*Xestobium rufovillosum* (DeGeer, 1774) (Ptinidae (= Anobiidae) Ernobiinae) (cf. Háva 2003; Zahradník 2008). Nevertheless, the above-mentioned old Italian records of *D. tessellatus* Fabricius (cf. Bargagli 1872; Ghiliani 1887; Baudi 1890; Bertolini 1904) must be attributed to *D. tessellatus* Erichson since the first name is listed among the Dermestidae; in some of these papers, *tessellatum* Fabricius is listed also among the Anobiidae (Ghiliani 1887: 301, as *Anobium tessellatum* Fabr., *rufovillosum* De Geer; Bargagli 1873: 41, as *A. tessellatum* F.; Baudi 1890: 136, as *Xestobium rufo-villosum* De Geer (*tessellatum* Fabr.)).

The above records of *D. erichsoni* from Sardinia were overlooked by Zhantiev (2011); the species occurs also in Corsica (Schaefer 1964; Zhantiev 2011).

Dermestes (Dermestinus) erichsoni is here firstly recorded from the Abruzzi and Latium regions; the collecting site in the former region is described by Ferretti et al. (2006), those in the latter region by Lasinio & Zapparoli (1993) and Thaler & Zapparoli (1993). Colour variability in this species is very rare. Some of the above-mentioned Sardinian specimens differ slightly from the typical colour pattern. Their pronotum is covered by unicolourous, yellowish pubescence, whereas in the typical specimens the pronotum is covered by yellowish pubescence with one large and several small black spots; other morphological features are identical.

6. *Dermestes (Dermestinus) frischii* Kugelann, 1792

Dermestes Frischii Kug.: Costa 1882a: 18.

Dermestes Frischi Kug.: Costa 1883: 41; Luigioni 1929: 536; Porta 1929: 299.

Dermestes Frischi Kugel.: Bertolini 1904: 58.

Dermestes frischii Kugel.: Krausse 1907a: 239; Krausse 1907b: 288.

Dermestes Frischi Kug. a. *uniformis* Rey[, 1889]: Porta 1934: 171.

Dermestes frischii Kugelann: Strassen 1954: 273.

Dermestes frischii Kug.: Mroczowski 1962: 6.

Dermestes (Dermestinus) frischii frischii Kugelann, 1792: Audisio et al. 1995: 12.

Dermestes (Dermestinus) frischii Kugelann, 1792: Zhantiev 2011.

LITERATURE RECORDS. All of Italy (Bertolini 1904; Porta 1929). "Together with the type [= All of Italy]" [tfi] (Porta 1934). Sardinia (Krausse 1907b; Luigioni 1929; Audisio et al. 1995; Zhantiev 2011). **Cagliari prov.:** Cagliari dint., IX.1881, ACo (Costa 1882a); 15–30.IV.1882, ACo (Costa 1883). **Oristano prov.:** Oristano, 15.XI.1906, AK (Krausse 1907a). **Sassari prov.:** [Ozieri, Fraz.] Chilivani, 10.VII.1960, L?, 1 ex (Mroczowski 1962); Porto Torres, 7–9.IV.1952, RS (Strassen 1954); Sassari, 10.XI.1949, L?, 2 ex; 20.VIII.1959, L?, 1 ex; 1.IX.1959, L?, 1 ex (Mroczowski 1962).

MATERIAL EXAMINED. **Cagliari prov.:** Cagliari, Capo Sant'Elia, 28.VI.2002, LF, 1 ex (CGN); Isola La Vacca, 26.VI.1987, VV, 3 ex (MCZR); Isola Serpentara, 25.VI.1987, VV, 9 ex (CGN; MCZR); Poetto, Stagno di Quartu, 5.IV.1966, FCa, 1 ex (MZUR). **Medio Campidano prov.:** Arbus, Capo Pecora, 5.IV.2004, GS SF, 3 ex (CPC); Villacidro, dint. P.ta piscina Argiolas, Serbatoio, 282 m, 32S 472049 4360081, 13.VII.2006, MB DA DB PCe DW, "on a dead Western Whip Snake (*Hierophis viridiflavus* (Lacépède, 1789))" [tfi], 1 ex (CNBFVR); Villacidro, Rio Cannisoni, 401 m, 32S 468459 4362806, 19–24.V.2006, PCo MB DB DW, "pt baited with defleshed bones" [tfi], 1 ex (CNBFVR). **Nuoro prov.:** Gennargentu, Bruncu Spina, 1200–1500 m, 4.VII.2004, PCo GS, 4 ex (CPC); Orgosolo, Oristillai, 947 m, 32T 529688 4446725, 4.IX.2006, GN, dc, 1 ex (CNBFVR); Posada, stagno vicino al mare [= pond near the sea], 22.III.1965, VS, 1 ex (MZUR); Sarule, Monte Gonare, 10.V.2003, LF, 1 ex (CGN). **Olbia-Tempio prov.:** Baia Arzachena, 12.V.1967, AV, 3 ex (MZUR); Isola Soffi, 3.VII.1987, VV, 1 ex (MCZR). **Oristano prov.:** Arborea, 3.V.2004, LF, 1 ex (CGN); Isola Mal di Ventre, 28.VI.1987, VV, 4 ex (CGN; MCZR).

CHOROTYPE. Cosmopolitan (Háva 2003, 2007a; Háva & Herrmann 2008; Zhantiev 2011).

NOTES. This species is recorded from all of Italy (Luigioni 1929; Porta 1929) and from some minor islands: Montecristo (Fanfani & Groppali 1979, as *D. frischii*; Pavan 1989, as *D. frischii*), Elba (Holdhaus 1923, as *D. Frischii*; Luigioni 1929; Porta 1929), Capri (Luigioni 1923b, as *D. Frischii*; Luigioni 1929; Porta 1929), Caprara in the Tremiti Islands (Gridelli 1950, as *D. frischii*) and Lampedusa (Gridelli 1961, as *D. frischii*; Lo Valvo & Massa 1995, as *D. prope frischii*; Goggi 2004, as *D. (Dermestinus) f. frischii*). It has been recorded also from the island of Rhodes in the Dodecanese (Greece) (Schatzmayer 1941, as *D. Frischii*) and from the Canary Islands (Plata Negrache 1972, as *D. (Dermestinus) frischii*; Oromí et al. 2009, as *D. frischii*; Háva 2007a); these archipelagoes must be added to the distribution summarized by Zhantiev (2011), whereas a record from Kuwait (Al-Houty 2004) must be added to the distribution summarized by Háva (2007a).

7. *Dermestes (Dermestinus) lanarius lanarius* Illiger, 1801

Dermestes lanarius Illig. = *affinis* Gyl. [= Gyllenhal, 1808]: Bargagli 1872: 102.

Dermestes lanarius Er. [sic!]: Bertolini 1874: 98.

Dermestes lanarius Ill.: Bertolini 1904: 58; Krausse 1911b: 101; Luigioni, 1929: 536; Porta, 1929: 300.

Dermestes (Dermestinus) lanarius Illiger, 1801: Audisio et al. 1995: 12.

LITERATURE RECORDS. Sardinia "(Ghiliania)" (Bargagli 1872). Sardinia (Bertolini 1874, 1904; Luigioni 1929; Porta 1929; Audisio et al. 1995). **Oristano prov.:** Asuni (Krausse 1911b).

MATERIAL EXAMINED. **Carbonia-Iglesias prov.:** Iglesias, near Marganai, 800 m, 1–8.IX.2003, DB DW, "dc on bark in a cork-oak plantation" [tfi], 1 ex (CNBFVR).

CHOROTYPE. Palearctic, but the species is absent in some areas (e.g. Russian Far East, Japan, part of Maghreb, etc.) (cf. Háva 2007a, 2008; Zhantiev 2011).

NOTES. *Dermestes laniarius* ab. *subfulvicollis* Kalík, 1951: 155 from Kazakhstan (Ural and Sarepta) is an infrasubspecific and unavailable name (ICZN 1999, art. 45.6.2); it is available from, and should be attributed to, Háva (2003: 18, as *D. laniarius subfulvicollis* Kalík), who first used it for a subspecies (ICZN 1999, art. 45.5.1). This name was also cited by Mroczowski (1968: 56, as *D. laniarius* ab. *subfulvicollis* Kalík), Zhantiev (1976: 65, as *D. laniarius* var. *subfulvicollis* Kalík) and Háva (2007b, 2008, in all cases as *D. laniarius* ssp. *subfulvicollis* Kalík). This subspecies is known from Crimea (Háva 2003), Asiatic Kazakhstan, West and East Siberia (Háva 2003, 2007b, 2008).

Dermestes (Dermestinus) laniarius laniarius is known in Italy also from the mainland (cf. Audisio et al. 1995; Zhantiev 2011, as *D. (Dermestinus) laniarius*) and Sicily (Sapuppo 2002, as *D. laniarius*).

8. *Dermestes (Dermestinus) maculatus* DeGeer, 1774

Dermestes rattulus Mulsant & Rey, 1868: 30.

Dermestes vulpinus Fab. [= Fabricius, 1781]: Costa 1886b: 20.

Dermestes vulpinus F.: Bargagli 1872: 102; Bertolini 1904: 58; Leonardi 1927: 311.

Dermestes vulpinus Fabr.: Luigioni 1929: 536; Porta 1929: 299.

Dermestes maculatus Deg.: Mroczowski 1962: 6.

Dermestes maculatus Deg. ab. *senex* Germ.: Mroczowski 1962: 6.

Dermestes (Dermestinus) maculatus ab. *rattulus* Mulsant & Rey, 1868: Mroczowski 1968: 56.

Dermestes (Dermestinus) maculatus maculatus Degeer, 1774: Audisio et al. 1995: 12.

Dermestes (Dermestinus) maculatus De Geer, 1774: Zhantiev 2011.

LITERATURE RECORDS. All of Italy (Bertolini 1904; Porta 1929). Sardinia (Mulsant & Rey 1868; Leonardi 1927; Luigioni 1929; Mroczowski 1968; Audisio et al. 1995; Zhantiev 2011). Sardinia "(Villa, Ghiliani, Baudi)" (Bargagli 1872). **Cagliari prov.:** Cagliari, V.1869, [BTC] (Bargagli 1872); Villaputzu, 1.IX.1960, L?, 2 ex (Mroczowski 1962). **Carbonia-Iglesias prov.:** Sant'Antioco, 4.IX.1958, L?, 1 ex (Mroczowski 1962). **Nuoro prov.:** Atzara, 3.IV.1959, L?, 1 ex; 9.VII.1959, L?, 2 ex; Oliena, 20.VII.1956, L?, 1 ex (Mroczowski 1962); dint. Sini-

scola, VII.1885, ACo (Costa 1886b). **Olbia-Tempio prov.:** Calangianus, 30.V.1955, L?, 1 ex (Mroczowski 1962, as *D. maculatus*). **Oristano prov.:** Oristano, 4.IX.1958, L?, 1 ex (Mroczowski 1962, as *D. maculatus*). **Sassari prov.:** Sassari, 4.VI.1959, L?, 1 ex; 20.VIII.1959, L?, 4 ex (Mroczowski 1962, as *D. maculatus*); 1.IX.1959, L?, 5 ex (Mroczowski 1962, as *D. maculatus* ab. *senex*); Villanova [Monteleone], 25.VI.1950, L?, 1 ex (Mroczowski 1962, as *D. maculatus*).

CHOROTYPE. Cosmopolitan (Háva 2007a).

NOTES. This species was recorded also from the Dodecanese Islands (Greece) (Schatzmayer 1941, as *D. vulpinus* F.); this archipelago must be added to the distribution summarized by Zhantiev (2011).

9. *Dermestes (Dermestinus) murinus murinus* Linnaeus, 1758

Dermestes murinus L.: Bargagli 1872: 102; Bertolini 1904: 58.

Dermestes murinus Lin.: Bertolini 1874: 98.

Dermestes murinus Linn.: Porta, 1929: 300.

Dermestes (Dermestinus) murinus murinus Linné, 1758: Audisio et al. 1995: 12.

LITERATURE RECORDS. All of Italy (Bertolini 1904; Porta 1929). Sardinia "(Villa)" (Bargagli 1872). Sardinia (Bertolini 1874; Audisio et al. 1995).

CHOROTYPE. Palearctic (Háva 2007a, 2007b; Zhantiev 2011); nevertheless, this species occurs in North Africa only in the Canary Islands, Morocco and Algeria (Háva 2007a).

NOTES. The records from Sardinia were ignored by Luigioni (1929) and Zhantiev (2011), that from the Canary Islands (Plata Negrache 1972, as *D. (Dermestinus) murinus*) was overlooked by Zhantiev (2011). This species was recorded also from Ireland (Anderson et al. 1997: 33, as *D. murinus*) and Azores (Borges 1990, as *D. murinus*); these territories must be added to the distributions summarized by Háva (2007a) and Zhantiev (2011).

10. *Dermestes (Dermestinus) mustelinus* Erichson, 1846

Dermestes mustelinus Er.: Bertolini 1904: 58.

Dermestes mustelinus Erichs.: Porta 1929: 300.

Dermestes (Dermestinus) mustelinus Erichson, 1846: Audisio et al. 1995: 12; Háva 2003: 20; Háva 2007b; Zhantiev 2011.

LITERATURE RECORDS. All of Italy (Bertolini 1904; Porta 1929). Sardinia (Audisio et al. 1995; Háva 2003, 2007b; Zhantiev 2011).

CHOROTYPE. European (France, Germany, Italy, Poland, Portugal, Spain) (Háva 2007a). Old records from Libya (cf. Zavattari 1934) and Croatia (Novak 1952) have since not been confirmed (cf. Mroczowski 1965; Háva 2007b; Zhantiev 2011).

NOTES. This species was often confused with close species in the past (cf. Horion 1955; Mroczowski 1965).

11. *Dermestes (Dermestinus) pardalis* Billberg, 1808

Dermestes thoracicus Gené, 1836: 22.

Dermestes pardalis Sch. [= Schönherr]: Bargagli 1872: 102.

Dermestes pardalis Schh. = *thoracicus* Dej. [= Dejean]: Bertolini 1874: 99.

Dermestes pardalis Billb.: Bertolini 1904: 58; Porta 1929: 300.

Dermestes (Dermestinus) pardalis Billberg, 1808 = *thoracicus* Gené, 1836: Audisio et al. 1995: 12.

Dermestes (Dermestinus) pardalis Billberg in Schönherr, 1808: Háva 2003: 20; Háva 2007b.

Dermestes (Dermestinus) pardalis Billberg, 1808: Zhantiev 2011.

LITERATURE RECORDS. Sardinia (Bertolini 1874, 1904; Porta, 1929; Audisio et al. 1995; Háva 2003, 2007b; Zhantiev 2011).

Carbonia-Iglesias prov.: prope [= near] Iglesias (Gené 1836).

Sassari prov.: Alghero, VI.1869, [BTC] (Bargagli 1872).

CHOROTYPE. W-Mediterranean (Corsica, Sardinia, Spain, Algeria, Morocco, Tunisia) with extension to Portugal, Germany (Háva 2003, 2007a) and Bulgaria? (Háva 2007b).

NOTES. *Dermestes thoracicus* Dejean, 1821 is a nomen nudum (cf. Mroczowski 1968; Háva 2003); Gené (1836) described *D. thoracicus* referring to "Dejean, *Catal.* 2.^{me} édition, pag. 124" [= Dejean 1821: 124] and to "Schönherr, *Synon. Insect.* T. I pars II. pag. 90. num. 25" [= Schönherr 1808: 90]. Gené (1836) described it but at the same time placed it in synonymy with *D. pardalis*.

This synonymy was correctly listed by Mulsant & Rey (1868: 50): *Dermestes thoracicus* Dejean, 1837 = *D. pardalis* Billberg, 1808. Differently, Dalla Torre (1911: 44, 48) listed "? *Dermestes thoracicus* Gené" as a synonym both of *D. hirticollis* Fabricius, 1792 and *D. pardalis*, while Winkler (1926a: 675–676) listed *D. pardalis* a. ? *thoracicus*. Later, *D. thoracicus* Gené was correctly listed only as a synonym of *D. pardalis* (cf. Mroczowski 1968: 57; Háva 2003, 2007a, 2007b).

Dermestes pardalis was not listed among the Italian species by Luigioni (1929), maybe due to the above confused synonymic situation.

From a nomenclatorial point of view, *Dermestes thoracicus* Gené, 1836 is a junior primary homonym of *D. thoracicus* Fourcroy, 1785, which in turn is a no-

men dubium the family placement of which is unknown (Mroczowski 1968: 77; Háva 2003: 34).

Dermestes (Dermestinus) pardalis is closely related to *D. (Dermestinus) bankae* Háva, 1999, which was described from southern France (Háva 1999b) and occurs also in Italy (Háva 2007a); *D. (Dermestinus) pardalis* was confused in the past with *D. (Montandonia) hirticollis* (see further on).

12. *Dermestes (Dermestinus) sardous sardous* Küster, 1846

Dermestes sardous Küster 1846: 49.

Dermestes Sardous Kust. [sic!]: Bargagli 1872: 102.

Dermestes sardous Küst.: Gemminger & Harold 1868: 58; Bertolini 1874: 98; Bertolini 1904: 58; Ganglbauer 1904: 18; Krausse 1913a: 62; Porta 1929: 300; Mroczowski 1962: 6.

Dermestes sardous: Costa 1883: 24.

Dermestes sardous Kust. [sic!]: Costa 1883: 41.

Dermestes sardous Küster, 1846: Dalla Torre 1911: 48; Lepesme 1949: 60.

Dermestes sardous Küst. = [sic!] *diadema* Motsch. [= Motschulsky, 1849]: Luigioni 1929: 536.

Dermestes sardous Küster: Strassen 1954: 273.

Dermestes (Dermestinus) sardous Küster, 1846: Mroczowski 1968: 58; Audisio et al. 1995: 12.

Dermestes (Dermestinus) sardous sardous Küster, 1846: Háva 2003: 21.

Dermestes (Dermestinus) sardous Kuester, 1846: Zhantiev 2011.

LITERATURE RECORDS. Sardinia (Bertolini 1874, 1904; Ganglbauer 1904; Dalla Torre 1911; Luigioni 1929; Porta 1929; Lepesme 1949; Mroczowski 1968; Audisio et al. 1995; Háva 2003; Zhantiev 2011). Sardinia "(Marseul, Baudi)" (Bargagli 1872).

Cagliari prov.: "Bei Cagliari in Sardinien von mir gefunden [= found by me near Cagliari in Sardinia]" [type locality] (Küster 1846); Muravera, Campiomu [= Campuomu], 25.IV.1882, ACo (Costa 1883: 7, 41). **Nuoro prov.:** Bei [= Near] Sorgono (Krausse 1913a). **Olbia-Tempio prov.:** Olbia, 20–22.IV.1952, RS (Strassen 1954); dint. Tempio [Pausania], Monte Limbara, loc. Vuccaccia, 11.VI.1882, ACo, dc on "a dead fox" [tfi] (Costa 1883: 24); dint. Tempio [Pausania], 1–15.VI.1882, ACo (Costa 1883: 41); Tempio [Pausania], [loc.] Mulaglia, 15.V.1960, L?, 2 ex (Mroczowski 1962). **Sassari prov.:** Ardara, 22.VI.1956, L?, 1 ex; Sassari, 10.VII.1956, L?, 1 ex (Mroczowski 1962).

MATERIAL EXAMINED. **Cagliari prov.:** Cagliari, [loc.] M. Uripinu, [19]33, Congiu [leg.], 1 ex (CDMR); Capoterra, 4.X.2006, LF, 1 ex (CGN); Decimomannu, 29.IV.1998, PL, 1 ex (CGN); Serdiana, 1.VI.2001, LF, 1 ex (CGN). **Nuoro prov.:** Dorgali, 15.VIII.1996, WG, 1 ex (JHAC); [Siniscola,] Case Capo Comino, 14–19.VI.2007, "in house" [tfi], PCo, 1 ex (CPC); [Siniscola,] Capo Comino, 27.VI–3.VII.2004, PCo GS, 1 ex (CPC);

[Siniscola,] S.S. 125 km 243, fonte Berchida, 10.VII.2004, PCo GS, 1 ex (CPC). **Ogliastra prov.:** 15 km N of Lanusei, Foresta di Montarbu, 800 m, 18.VI.2006, WA, 1 ex (JHAC); Tortoli, 28–29.IV.2001, PL, 1 ex (CGN); Ussassai, Passo Arqueri, 1000 m, 9.V.1967, AV, 1 ex (MZUR). **Oristano prov.:** Sinis, 3.IV.2005, HP, 1 ex (JHAC). **Sassari prov.:** Stintino, 23.XI.1994, PL, 1 ex (CGN); Villanova Monte Leone, 15.XI.2006, LF, 1 ex (CGN).

CHOROTYPE. Mediterranean (cf. Háva 2007a; Zhantiev 2011). The species includes three subspecies, one of which (*D. (Dermestinus) sardous asiaticus* Háva, 2002) reaches Iran to the east (cf. Háva & Kalík 1999; Háva 2002b, 2007a), while *D. (Dermestinus) s. sardous* reaches Portugal to the west (Háva 2007a). The nominal subspecies is established in California (USA) (Beal 1994, as *D. sardous*; Háva 2007b).

NOTES. This species was recorded also from Gibraltar (Dieck 1888, as *D. sardous*), Bulgaria, Croatia and Greece (Zhantiev 2011); the former territory must be added to the distribution summarized by Zhantiev (2011), the latter countries to that summarized by Háva (2007a). The morphological features of all subspecies were illustrated by Háva (1999b, 2002b). Some authors (Mulsant & Rey 1868; Reitter 1883a, 1891a, 1906b; Luigioni 1929; Lepesme 1949) have listed among the synonyms of this species also *Dermestes diadema* Motschulsky, 1849, which is currently a synonym of *D. (Dermestinus) mustelinus* Erichson, 1846 (cf. Háva 2003, 2007a). Moreover, *D. (Dermestinus) diadema* was considered, in the past, identical to *D. (Dermestinus) normandi* Kalík, 1951 (Mrocowski 1968: 53), which is in reality a valid species known only from Algeria and Tunisia (Háva 2003, 2007a).

13. *Dermestes (Dermestinus) undulatus* Brahm, 1790

Dermestes undulatus Brahm: Bargagli 1872: 102; Costa 1883: 41; Bertolini 1904: 58; Luigioni, 1929: 536; Porta, 1929: 300; Fiori 1956: 279.

Dermestes (Dermestinus) undulatus Brahm, 1790: Audisio et al. 1995: 12; Zhantiev 2011.

LITERATURE RECORDS. All of Italy (Bertolini 1904; Porta 1929; Fiori 1956). Sardinia "(Ghiliani)" (Bargagli 1872). Sardinia (Luigioni 1929; Audisio et al. 1995; Zhantiev 2011). **Cagliari prov.:** dint. Pula, 15–30.IV.1882, ACo (Costa 1883).

MATERIAL EXAMINED. **Cagliari prov.:** [Sinnai,] San Gregorio, loc. S'Incantu, 250 m, N39°18'01" E9°22'55", 15.VII.2007, DS, 1 ex (CGN). **Carbonia-Iglesias prov.:** Domusnovas, Valle Oridda, pineta, 595 m, 32S 466970 4362400, 24.III–24.V.2006, MB PCo DB DW, pt, 1 ex (CNBFVR). **Medio Campidano prov.:**

Villacidro, dint. P.ta piscina Argiolas, Serbatoio, 282 m, 32S 472049 4360081, 13.VII.2006, MB DA DB PCe DW, "dc on a dead Western Whip Snake (*Hierophis viridiflavus* (Lacépède, 1789))" [tfi], 3 ex (CNBFVR); Villacidro, Rio Cannisoni, radura sponda sinistra, 401 m, 32S 468459 4362806, 19–24.V.2006, PCo MB DB DW, pt, 1 ex (CNBFVR). **Nuoro prov.:** Aritzo, 11.V.1967, VS, 6 ex (MZUR).

CHOROTYPE. Holarctic (Háva 2007a, 2007b; Háva et al. 2007b). The generic record from the Oriental region (Zhantiev 2011) refers to Palearctic Asia.

NOTES. This species was recorded also from: Azores (Méquignon 1942; Borges 1990), Balearic Islands (Horion 1955), Rhodes Island in the Dodecanese (Greece) (Schatzmayer 1941), Canary Islands (Plata Negrache 1972; Háva 2007a; Oromí et al. 2009), Malta (Háva & Mifsud 2006; Zhantiev 2011), Moldova and Ukraine (Zhantiev 2011). These records must be added to the distributions summarized by Háva (2007a) and/or Zhantiev (2011).

14. *Dermestes (Montandonia) hirticollis* Fabricius, 1792

Dermestes Hirticollis Fabr = *Thoracicus* Génè [sic!]: Gaubil 1849: 74.

Dermestes hirticollis F. = *thoracicus* Génè: Bargagli 1872: 102.

Dermestes hirticollis Fabr. = *thoracicus* Génè [sic!]: Bertolini 1874: 99.

Dermestes hirticollis Fab. = *thoracicus* Gen.: Costa 1883: 41.

Dermestes hirticollis F.: Bertolini 1904: 58.

Dermestes hirticollis Fabr. = *thoracicus* Génè: Luigioni 1929: 536.

Dermestes hirticollis Fabr.: Porta 1929: 300; Mrocowski 1962: 6.

Dermestes hirticollis Fabricius: Strassen 1954: 273.

Dermestes (Dermestes) hirticollis Fabricius, 1792: Mrocowski 1968: 60; Audisio et al. 1995: 12.

Dermestes (Montandonia) hirticollis Fabricius, 1792: Háva 2003: 25; Háva 2007a: 302; Háva 2007b; Zhantiev 2011.

LITERATURE RECORDS. Sardinia (Gaubil 1849; Bertolini 1874, 1904; Luigioni 1929; Porta 1929; Mrocowski 1968; Audisio et al. 1995; Háva 2003, 2007a, 2007b; Zhantiev 2011). Sardinia, "Under the bark of olive trees, December (Génè, Ghiliani)" [tfi] (Bargagli 1872). **Cagliari prov.:** Cabras, 20.IV.1959, L?, 1 ex (Mrocowski 1962); dint. Cagliari, 1–15.IV.1882, ACo, 1 ex (Costa 1883). **Nuoro prov.:** Oniferi, 12.VI.1960, L?, 1 ex (Mrocowski 1962). **Olbia-Tempio prov.:** Tempio [Pausania], 550 m, 19.IV.1952, RS (Strassen 1954).

MATERIAL EXAMINED. **Cagliari prov.:** Assemmini, 25.V.1995, PL, 1 ex (CGN). **Carbonia-Iglesias prov.:** Domusnovas, L. Siuru, 322 m, 32S 467069 4357916, 20–23.V.2006, PCo MB DB DW, ba, 2 ex (CNBFVR; JHAC); Domusnovas, Valle Oridda,

pineta, 595 m, 32S 466970 4362400, 24.III–24.V.2006, MB PCo DB DW, pt, 1 ex (CNBFVR); Domusnovas, Valle Oridda, 643 m, 32S 465399 4362770, 10.VI.2004, GN, dc, 1 ex (JHAC); 12.VI.2004, GN, dc, 1 ex (CNBFVR); Iglesias, Case Marganai, 725 m, 32S 463890 4355925, 10.IV.2005, LF, 1 ex (CNBFVR). **Medio Campidano prov.:** [Sanluri, Fraz.] Sanluri St. [= Stato], dint. [railway station] F.S., 26.IX.1976, CM, 1 ex (GPAR); Villacidro, Rio Cannisoni, radura sponda sinistra, 401 m, 32S 468459 4362806, 19.V.2006, PCo MB DB DW, sn, 1 ex (CNBFVR); 19–24.V.2006, MB PCo DB DW, 1 ex (CNBFVR). **Nuoro prov.:** [Siniscola,] Monte Albo, 600–800 m, 30.VI.2004, PCo GS, 1 ex (CPC).

CHOROTYPE. W-Mediterranean (France, Sardinia, Spain, Algeria, Morocco and Tunisia) with extension to Portugal and Egypt (Háva 2007a).

NOTES. See comments under *D. (Dermestinus) pardalis*. Some of the above examined specimens have the pronotum covered by unicolorous, orange or yellow pubescence.

15. *Dermestes (Montandonia) olivieri* Lepesme, 1939

Dermestes ater Ol. [= A.G. Olivier, 1790]: Bargagli 1872: 102; Bertolini 1904: 58.

Dermestes ater Oliv.: Porta 1929: 301; Horion 1955: 198.

LITERATURE RECORDS. All of Italy (Bertolini 1904). "It is recorded by Bertolini for all of Italy, I believe this indication is too wide" [tfi] (Porta 1929). Sardinia "(Ghilian)" (Bargagli 1872). Sardinia (Horion 1955).

CHOROTYPE. Turano-European (cf. Háva 2007a).

NOTES. This species was recorded also from Moldova, Ukraine and Yugoslavia (Zhantiev 2011); these countries must be added to the distribution summarized by Háva (2007a). The above records from Sardinia and those from Corsica (cf. Sainte-Claire Deville 1914, as *D. ater*; Porta 1929; Horion 1955) were recently overlooked (cf. Audisio et al. 1995, as *D. (D.) olivieri*; Zhantiev 2011).

THORICTINAE Agassiz, 1846²

Thorictini Agassiz, 1846

² *Thorictodes heydeni* Reitter, 1875 (Thaumaphrastini Anderson, 1949) is a cosmopolitan species (Löbl 2007; Háva 2011; Zhantiev 2011); it was recorded generically from the western Mediterranean (Winkler 1926b) but is known in Italy only from some mainland regions (cf. Dal Monte 1958, as *T. Heideni* [sic!]; Audisio et al. 1995; Zhantiev 2011).

16. *Thorictus grandicollis grandicollis* Germar, 1842

Thorictus Gallicus [sic!] Peyr. [= Peyron, 1857]: Bargagli 1872: 102.

Thorictus grandicollis Germ.: Bargagli 1872: 102; Bertolini 1874: 96; Lostia di S. Sofia 1887: 341; Krausse 1911a: 704; Krausse 1911b: 102; Luigioni 1929: 465; Porta 1929: 204; John 1963: 203.

Thorictus grandicollis Germ. v. *gallicus* Peyr.: Bertolini 1874: 96.

Thorictus grandicollis Gr. [sic!]: Bertolini 1904: 54.

Thorictus laticollis Motsch. v. *loricatus* Peyr. [= Peyron, 1857]: Bertolini 1904: 54; Sainte-Claire Deville 1914: 539; Luigioni 1929: 465; Porta 1929: 204.

Thorictus grandicollis: Krausse 1912b: 169; Porta 1929: 444.

Thorictus laticollis Motsch. [= Motschulsky, 1839]: Porta 1929: 204.

Thorictus grandicollis Germar, 1817 [sic!]: Audisio et al. 1995: 12.

Thorictus grandicollis Germar, 1842: Zhantiev 2011.

LITERATURE RECORDS. Sardinia "(Baudi, Ghiliani)" (Bargagli 1872, as *Th. grandicollis*). Sardinia "(Schaufuss)" (Bargagli 1872, as *Th. Gallicus*). Sardinia (Bertolini 1874, 1904; Luigioni 1929; Porta 1929; John 1963; Zhantiev 2011). Sardinia? (Audisio et al. 1995). **Cagliari prov.:** "Common, in the stumps of olive trees near Cagliari. In April and May." [tfi]; "Among the ivy near Quartu [Sant'Elena] in October" [tfi] (Lostia di S. Sofia 1887). **Oristano prov.:** bei [= near] Asuni, 27.V.1911, AK (Krausse 1911a); bei [= near] Asuni (Krausse 1911b, 1912b); Asuni (Sainte-Claire Deville 1914).

MATERIAL EXAMINED. **Cagliari prov.:** Cagliari, wdc, UL, 2 ex (MCZR coll. F. Rasetti); Cagliari, loc. Monte Urpinu, I.1988, PL, 5 ex (CGN). **Olbia-Tempio prov.:** Golfo Aranci, 2.V.1995, FA, 1 ex (JHAC). **Oristano prov.:** Penisola del Sinis, Stagno di Mistras, 2–3 m, 26.XII.1978, CM, 2 ex (GPAR).

CHOROTYPE. Mediterranean (*Th. grandicollis grandicollis*), with extension to Armenia, Ukraine, Hungary?, Slovakia? (*Th. grandicollis hungaricus* J. Weise, 1875), Madeira and Porto Santo islands (*Th. grandicollis westwoodi* Wollaston, 1854) (cf. Háva 2003, 2007b; Löbl 2007; Boieiro et al. 2008; Háva et al. 2010; Háva 2011).

NOTES. This myrmecophilous species lives in ants' nests of different genera (cf. Cammaerts & Cammaerts 1994; Háva 2003); its host ants in Italy are *Aphaenogaster* sp. (Krausse 1911b), *Aphaenogaster*? sp. (Luigioni & Tirelli 1913, as *Th. grandicollis*), *A. testaceopilosa* (Lucas, 1849) (Porta 1929, as *Th. grandicollis*), *Cataglyphis cursor* (Fonscolombe, 1846) (Porta 1929, as *Myrmecocystus cursor* and *Th. laticollis*), *Lasius niger* (Foester, 1850) (Porta 1929, as *Formicina nigra aliena* and *Th. grandicollis*), *Messor* sp. (Krausse 1911b), *M.*

capitatus (Latreille, 1898) (Krausse 1911a, as *M. barbarus niger* André [= André, 1833]), *M. minor minor* (André, 1881) (Krausse 1911a, 1911b, both as *M. barbarus minor* André [sic!]), *M. structor structor* (Latreille, 1798) (Krausse 1911a, as *M. barbarus structor tyrrhenus* Emery[, 1898]; Porta 1929: 444, as *M. barbarus structor* and *Th. grandicollis*), *Pheidole pallidula pallidula* (Nylander, 1849) (Krausse 1911a; Porta 1929, in both cases as *P. pallidula* and *Th. grandicollis*), *P. pallidula obscura* (Santschi, 1936) (Krausse 1912b, as *P. pallidula emeryi* Krausse, 1912), *Tetramorium caespitum* (Linnaeus, 1758) (Porta 1929, as *Th. grandicollis*), *Tè. semilaeve* André, 1881 (Cerruti 1954, as *Tè. semilaeve* Er. [sic!] and *Th. grandicollis*). However, *Aphaenogaster testaceopilosa* and *Cataglyphis cursor* are absent in Italy (M. Mei, pers. comm., 2011), so the above records are probably based either on misidentifications or on non Italian records. This beetle is recorded also from Elba Island (Holdhaus 1923, as *Th. grandicollis*; Luigioni 1929; Porta 1929) and from some minor Italian islands (Cerruti 1954; Liebmann 1962, as *Th. ? grandicollis*; Focarile 1972, as *Th. grandicollis*; Angelini 1999, as *Th. grandicollis* Germar, 1817 [sic!]; Goggi 2004, as *Th. grandicollis*; Lo Cascio et al. 2006, as *Th. grandicollis* Germar, 1817 [sic!]). It occurs also in Corsica, the Balearic Islands (John 1971: 151, as *Th. grandicollis*; Zhantiev 2011) and Gibraltar (Hetschko & Wasmann 1925; Hetschko 1926a, in both cases as *Th. grandicollis* var. *gallicus*).

17. *Thorictus mauritanicus* P.H. Lucas, 1846

Thorictus Mauritanicus Luc.: Bargagli 1872: 102.

Thorictus mauritanicus Luc.: Bertolini 1874: 96; Reitter 1883b: 91; Reitter 1891b: 344; Reitter 1906a: 341; Sainte-Claire Deville 1914: 539; Luigioni 1929: 465; Porta 1929: 204.

Thorictus mauritanicus Lu.: Bertolini 1904: 54.

Thorictus mauritanicus Luc., 1849 [sic!]: Hetschko & Wasmann 1925: 187; Hetschko 1926a: 8.

Thorictus mauritanicus Luc. [18]49 [sic!]: Winkler 1926b: 735.

Thorictus mauritanicus Luc. (= *nivalis* Wasm. [= Wasmann, 1895]): John 1963: 198.

Thorictus mauritanicus Lucas, 1849 [sic!]: Audisio et al. 1995: 12; Zhantiev 2011.

LITERATURE RECORDS. Sardinia "(Baudi)" (Bargagli 1872). Sardinia (Bertolini 1874; Reitter 1883b, 1891b; Bertolini 1904; Reitter 1906a; Hetschko & Wasmann 1925; Hetschko 1926a; Winkler 1926b; Porta 1929; John 1963; Audisio et al. 1995; Zhantiev 2011). Southern Sardinia (Luigioni 1929).

MATERIAL EXAMINED. **Cagliari prov.:** Cagliari, loc. Monte Uripinu,

I.1988, PL, 6 ex (CGN; JHAC); Quartu Sant'Elena, loc. Capitanà, 0–10 m, 10.II.1980, CM, 2 ex (GPAR). **Nuoro prov.:** dint. Ottana, 160 m ca, 21.V.1995, FA, 3 ex (JHAC).

CHOROTYPE. Mediterranean: Cyclades Islands, Italy, Portugal, Spain, Sardinia, Sicily, Morocco, Algeria, Tunisia and Syria (cf. Audisio et al. 1995; Háva 2007b; Löbl 2007; Háva & Herrmann 2008; Zhantiev 2011).

NOTES. No data is available on the Sardinian ant hosts of this myrmecophilous species.

18. *Thorictus stricticollis stricticollis* Kraatz, 1859

Thorictus stricticollis Kraatz, 1859: Hetschko 1926b: 6; Hetschko 1930: 123.

LITERATURE RECORDS. Sardinia "kommt auch in Sardinien vor (Wasm. i. l. [= Wasmann, in litteris])" (Hetschko 1926b). Sardinia (Hetschko 1930).

CHOROTYPE. Mediterranean. The nominal subspecies, described from Oran (Algeria) (Kraatz 1859), is recorded from Croatia, Greece, Italy, Algeria, Morocco and "Syria", while *Th. stricticollis minutalis* Normand, 1950 is known only from Le Kef in Tunisia (cf. Háva 2003, 2007b; Löbl 2007).

NOTES. The above Sardinian records were overlooked by Audisio et al. (1995) and Zhantiev (2011); Hetschko (1930) listed this species only from Sardinia even though it was described from Oran (Algeria). *Thorictus longipennis* Coye, 1869 from Lebanon is currently a valid species (John 1963; Löbl 2007), while in the past it was treated as a synonym (Hetschko 1926a) or as an aberration (Winkler 1926b) of *Th. stricticollis*.

ORPHILINAE LeConte, 1861

19. *Orphilus niger* (P. Rossi, 1790)

Orphilus glabratus F. [= (Fabricius, 1801)]: Bargagli 1872: 103.

Orphilus glabratus Fabr.: Bertolini 1874: 100.

Orphilus glabratus Fab.: Costa 1884: 27.

Orphilus niger Rossi: Bertolini 1904: 59; Krausse 1913a: 62; Luigioni 1929: 542; Porta 1929: 309.

Orphilus niger (Rossi, 1790): Audisio et al. 1995: 14; Zhantiev 2011.

LITERATURE RECORDS. All of Italy (Bertolini 1904; Porta 1929). Sardinia "(Ghilianì)" (Bargagli 1872). Sardinia (Bertolini 1874; Luigioni 1929; Audisio et al. 1995; Zhantiev 2011). **Nuoro**

prov.: "mountains of Desulo" [tfl], 1883, ACo (Costa 1884); "[Fonni,] valley of Correboi" [tfl], 1883, ACo (Costa 1884); Bei [= Near] Sorgono, AK (Krausse 1913a).

MATERIAL EXAMINED. **Medio Campidano prov.:** Villacidro, Rio Leni, 300 m, 28.V.2000, PL, 2 ex (CGN).

CHOROTYPE. Centralasiatic-European-Mediterranean (cf. Háva 2007a). *Orphilus niger* is recorded also from Georgia (Iablokoff-Khinzorian 1980: 291, fig. 2), South European Russia (Zhantiev 2011) and Kyrgyzstan (Ovtchinnikov 1996; Háva 2011); these countries must be added to the distribution summarized by Háva (2007a, 2007b). The records from Asiatic Turkey and Cyprus (cf. Baudi 1870, as *O. glabratus* Fab.; Reitter 1881, 1887, both as *O. glabratus* Fbr.; Bodemeyer 1900, as *O. glabratus* F.; Palm 1962: 140) need to be confirmed since the close *O. beali* Zhantiev, 2001 occurs in these countries (cf. Háva 2007a).

NOTES. *Orphilus niger* is recorded from all regions of Italy (cf. Háva & Nardi 2007b); adults feed on pollen and nectar on flowers (e.g. *Crataegus*), while the larvae have been found to develop in rotting wood (the so-called brown rot) of *Quercus* spp. and *Pinus halepensis*, feeding on dry fungal hyphae (cf. Háva & Nardi 2007b; Zhantiev 2009). The occurrence of the close *O. beali* in Sardinia is possible since it is known also from some facing European countries (cf. Hermann & Baena 2004; Háva 2007a, 2010a).

TRINODINAE T.L. Casey, 1900

Trinodini T.L. Casey, 1900

20. *Trinodes hirtus* (Fabricius, 1781)

Trinodes hirtus F.: Bargagli 1872: 103; Bertolini 1904: 59.
Trinodes hirtus Fabr.: Bertolini 1874: 100; Luigioni 1929: 542; Porta 1929: 308.
Trinodes hirtus (Fabricius, 1781): Audisio et al. 1995: 14.

LITERATURE RECORDS. All of Italy (Bertolini 1904; Porta 1929). Sardinia "(Ghiliania)" (Bargagli 1872). Sardinia (Bertolini 1874; Luigioni 1929; Audisio et al. 1995).

CHOROTYPE. Turano-European, with extension to Algeria, Tunisia (cf. Háva 2007a) and southern Nigeria? (Háva 2007b). *Trinodes hirtus* is recorded also from Belgium, Great Britain and Slovenia (Zhantiev 2011), and these countries must be added to the distribution summarized by Háva (2007a).

NOTES. This species is known in Italy from all re-

gions (Luigioni 1929; Porta 1929), as well as from the Tremiti Islands (Cecconi 1909a, 1909b; Luigioni 1929) offshore of the Apulia region.

ATTAGENINAE Laporte, 1840

Attagenini Laporte, 1840

21. *Attagenus (Attagenus) bifasciatus* (A.G. Olivier, 1790)

Attagenus pulcher Fald. [= Faldermann, 1835]: Bargagli 1872: 102; Bertolini 1874: 99.

Attagenus tigrinus F. [= (Fabricius, 1792)] var. *pulcher* Falder.: Bertolini 1904: 58.

Attagenus (Lanorus) bifasciatus Oliv.: Luigioni 1929: 538; Porta 1929: 302.

Attagenus (Lanorus) bifasciatus (A.G. Olivier, 1790): Audisio et al. 1995: 13.

Attagenus (Attagenus) bifasciatus (Olivier, 1790): Háva & Nardi 2007a: 123.

Attagenus bifasciatus (Olivier, 1790): Zhantiev 2011.

LITERATURE RECORDS. Sardinia "(Ghiliania)" (Bargagli 1872). Sardinia (Bertolini 1874, 1904; Luigioni 1929; Porta 1929; Audisio et al. 1995; Háva & Nardi 2007a; Zhantiev 2011).

CHOROTYPE. Turano-European-Mediterranean; to the east the species reaches Afghanistan and, with doubt, Kashmir (cf. Háva 2007b).

NOTES. This species was described as *Dermestes bifasciatus* A.G. Olivier, 1790: 13, which is a junior primary homonym of *D. bifasciatus* Goeze, 1777: 146 and of *D. bifasciatus* Thunberg, 1781: 6. *Dermestes bifasciatus* Goeze is a nomen dubium and its family placement is unknown (Mroczowski 1968: 63; Háva 2003, 2007b), while *D. bifasciatus* Thunberg is a nomen oblitum referred to *Attagenus ottentottus* (Guérin-Ménéville, 1838) (Háva & Kalík 2009).

The neotype of *Dermestes bifasciatus* A.G. Olivier was designated and illustrated by Háva et al. (2007a).

Attagenus (Attagenus) rossii Ganglbauer, 1904, *A. (A.) tigrinus* (Fabricius, 1792) and *A. (A.) simonis* (Reitter, 1881) were considered as varieties or synonyms of *A. (A.) bifasciatus* in the past, while currently they are valid species (cf. Mroczowski 1968; Audisio et al. 1995; Háva 2003, 2007b). The first two taxa and *A. bifasciatus* ab. *hybridus* Ragusa, 1926 are discussed further on, while *A. (A.) simonis*, in spite of some old records from mainland Italy and Sicily (cf. Bertolini 1904, as *A. tigrinus* F. v. *Simoni* [sic!] Reit.; Luigioni 1923b, as *A. bifasciatus* v. *Simoni* [sic!] Reitt.; Lui-

gioni 1929, as *A. (Lanorus) bifasciatus* a. *Simoni* [sic!] Reitt.; Porta 1929, as *A. bifasciatus* Oliv. v. *Simoni* [sic!] Reitt.; Sapuppo 2002, as *A. bifasciatus* var. *simoni* [sic!] Reitter, 1881), is currently unrecorded from this country and is known only from the East-Mediterranean area (cf. Háva 2007a, 2007b).

22. *Attagenus (Attagenus) brunneus* Faldermann, 1835

Attagenus piceus Oliv. [= (A.G. Olivier, 1790)] v. *dalmatinus* Küst. [= Küster, 1847] = [sic!] *stygialis* Muls. [= Mulsant & Rey, 1868]: Reitter 1883a: 89.

Attagenus marginicollis Küst. [= Handschuch in Küster, 1847]: Gemminger & Harold 1868: 916.

Attagenus (Megatoma) piceus Oliv. v. *dalmatinus* Küst. = [sic!] *stygialis* Muls.: Reitter 1891a: 337.

Attagenus marginicollis Küst.: Bertolini 1904: 58.

Attagenus piceus Oliv. v. *dalmatinus* Küst.: Bertolini 1904: 58.

Attagenus piceus Oliv. v. *sordidus* Hr. [= Heer, 1841]: Bertolini 1904: 58.

Attagenus (Attagenus) piceus Oliv. v. *dalmatinus* Küst.: Luigioni 1929: 537.

Attagenus (Attagenus) piceus Oliv. a. *sordidus* Heer: Porta 1929: 302.

Attagenus (Attagenus) piceus Oliv. a. *dalmatinus* Küst.: Porta 1929: 302.

Attagenus (Attagenus) brunneus Faldermann, 1835: Audisio et al. 1995: 12; Háva & Nardi 2007a: 123.

Attagenus brunneus Faldermann 1835: Zhantiev 2011.

LITERATURE RECORDS. All of Italy (Bertolini 1904, as *A. marginicollis*). "Together with the type [= All of Italy]" [tfi] (Porta 1929, as *A. piceus* a. *sordidus* and *A. p.* a. *dalmatinus*). Sardinia (Gemminger & Harold 1868; Reitter 1883a, 1891a; Bertolini 1904, as *A. piceus* v. *dalmatinus* and *A. p.* v. *sordidus*; Luigioni 1929; Audisio et al. 1995; Háva & Nardi 2007a; Zhantiev 2011).

OTHER MATERIAL EXAMINED. **Lombardy:** Mantua prov., Mantua, in town, Vicolo Barche, 21 m, 32T 641249 5001789, 18.VI.2005, GN, "dc in a house" [tfi], 1 ♀ (CGN).

CHOROTYPE. Holarctic (Halstead 1981; Háva 2007a, 2007b; Zhantiev 2011). Armenia (Iablokoff-Khnzorian 1980: 291, fig. 4), Georgia (Halstead 1981), Malta (cf. Háva & Mifsud 2006; Zhantiev 2011), Croatia (Depoli 1928, as *A. sordidus* Ol. [sic! = *A. sordidus* Heer, 1841]; Zhantiev 2011), Great Britain (Peacock 1992; Zhantiev 2011), Kyrgyzstan (Ovtchinnikov 1996; Háva 2006; Kadej 2010), Libya (Zavattari 1934, as *A. piceus dalmatinus* Kirst. [sic!]) and Ukraine (Halstead 1981; Zhantiev 2011) must be added to the Palearctic distribution of this species (cf. Háva 2007a).

NOTES. The above records of Reitter (1883a, 1891a) are uncertain since *A. stygialis*, described from Provence and Corse (Mulsant & Rey 1868: 74), is currently a synonym of *A. (A.) unicolor unicolor* (Brahm, 1790) (cf. Reitter 1906b, as *A. (Megatoma) piceus* Oliv. v. *megatoma* F.; Háva 2007b). *Attagenus (A.) brunneus* is a well-known pest species (cf. Hinton 1945; Nicoli Aldini 2003a; Trematerra & Sciarretta 2003). It was cited generically from "All of Italy" (Bertolini 1904; Luigioni 1929; Porta 1929), but apparently the sole precise record from Lombardy is from a brewery in the Varese province (Donadini et al. 2000a, 2000b); thus, the above specimen from that region is recorded here.

23. *Attagenus (Attagenus) fallax* Gené, 1839

Attagenus fallax Gené, 1839: 19.

Attagenus sexguttatus St. [= Sturm (nomen nudum)]: Sturm 1843: 94.

Attagenus Sexguttatus Stm. Cat. [= Sturm 1843]: Gaubil 1849: 74.

Attagenus Fallax Génè [sic!]: Gaubil 1849: 74.

Attagenus fallax Gené: Bargagli 1872: 102; Bertolini 1904: 58; Krausse 1912a: 144; Grandi 1957: 159; Mroczowski 1962: 6; Giachino 1982: 362.

Attagenus fallax Genè [sic!]: Bertolini 1874: 99.

Attagenus fallax: Costa 1883: 10; Champion 1911: 220.

Attagenus fallax Gen.: Costa 1883: 41.

Attagenus (Lanorus) fallax Gené: Luigioni 1929: 538; Porta 1929: 302.

Attagenus fallax Génè [sic!]: Strassen 1954: 273.

Attagenus (Lanorus) fallax Gené, 1839: Audisio et al. 1995: 13.

Attagenus (Attagenus) fallax Gené, 1839: Háva 2003: 61; Háva 2007b; Háva & Nardi 2007a: 123.

Attagenus fallax Gene [sic!], 1839: Zhantiev 2011.

LITERATURE RECORDS. "[Sardinia] Sub arborum cortice hyeme, in floribus primovere et aestate frequens [= under the bark of trees in winter, frequent during spring and summer on flowers]" (Gené 1839). Sardinia (Sturm 1843; Gaubil 1849; Bertolini 1874, 1904; Luigioni 1929; Porta 1929; Audisio et al. 1995; Zhantiev 2004; Háva 2007b; Háva & Nardi 2007a; Zhantiev 2011). Sardinia "on flowers of thistles and together with *A. poecilus* [Germar, 1839]. Under bark in winter. On flowers in spring and summer." [tfi] "(Gené, Schaufuss, Baudi, Ghiliani)" (Bargagli 1872); "Widespread and abundant in almost all the island, from the first days of May [1882]" [tfi] (Costa 1883: 41). Sardinia, wdc, JG, 2 ex (Giachino 1982). **Carbonia-Iglesias prov.:** Domusnovas, Grotta di S. Giovanni, 3.V.1882, ACo, "very abundant" [tfi] (Costa 1883: 10). **Nuoro prov.:** dint. Aritzu [= Aritzo], about 762 m, 31.V–10.VI.1910, AD FS CH, "On the Umbelliferae and other flowers hereabouts" (Champion 1911); Desulo, 900 m,

14–16.IV.1952, RS (Strassen 1954); Sorgono (Krausse 1912a). **Olbia-Tempio prov.:** Oschiri, 1869, [BTC], (Bargagli 1872). **Sassari prov.:** Ploaghe, altipiano di Ploaghe, 400 m ca, V.1956, [GG and collaborators] (Grandi 1957); Oschiri, 1869, [BTC]; Sassari, 1869, [BTC] (Bargagli 1872); Sassari, 225–300 m, 3–18. IV.1952, RS (Strassen 1954); Sassari, Bunnari, 7.IV.1960, L?, 2 ex; sdb 10.IV.1960, 1 ex (Mroczowski 1962).

MATERIAL EXAMINED. **Cagliari prov.:** Gairo, dint. M. Perda Li-ana, 1060 m, 32S 535438 4418611, 16.V.2008, GN PA MB MTr, sn, 1 ex (CNBFVR); Nurri, dint. Nuraghe Tacquara, fontana, 533 m, 32S 515371 4395479, 18.V.2008, GN PA MB MTr, "dc on Compositae" [tfl], 3 ex (CNBFVR); Villaputzu, V.1936, RI, 2 ex (MCZR coll. P. Luigioni). **Carbonia-Iglesias prov.:** Domusnovas, dint. sa Duchessa, strada per Perda Niedda, 350 m, 32S 466233 4359025, 8.VI.2004, GN, "dc along a small stream in a holm oak forest" [tfl], 1 ex (CNBFVR); Domusnovas, Gutturu Seu, 174 m, 32S 471577 4355716, 19.V.2008, PA MB GN MTr, "dc on flowers" [tfl], 1 ex (CNBFVR); Iglesias, Vecchia Cantoniera (= Cartiera) Marganai, 491 m, 32S 462272 4354677, 9.VI.2004, GN, sn, 1 ex (CNBFVR); 23.V.2006, PCo MB DB DW, nt, 1 ex (CNBFVR); Villaperúccio, 6.IV.2004, GS SF, 2 ex (CPC). **Medio Campidano prov.:** Arbus, 3.VI.2000, LF, 2 ex (CGN); Gonnosfanàdiga, Monte Idda, strada per Monte Linas, 474 m, 32S 466946 4368997, 22.V.2006, PCo MB DB DW, sn, 11 ex (CNBFVR); Gonnosfanàdiga, Monte Linas, Pizzu Cane, 339 m, 32S 468966 4370601, 12.IX.2006, GN, "under the bark of a cork-oak (*Quercus suber*) with *Crematogaster* sp. [(Hymenoptera, Formicidae)]" [tfl], 1 ex (CNBFVR); Villacidro, 25–31.V.1999, PL, 3 ex (CGN); Villacidro, Canale Monincu, 450 m, 32S 468040 4363436, 21.V.2006, PCo MB DB DW, sn, 9 ex (CNBFVR; JHAC); Villacidro, Rio Cannisoni, 401 m, 32S 468459 4362806, 19.V.2006, PCo MB DB DW, sn, 2 ex (CNBFVR); 19–24.V.2006, MB PCo DB DW, mt, 1 ex (CNBFVR); 19–24.V.2006, MB, bz "on a *Quercus suber*" [tfl], 7 ex (CNBFVR; JHAC); Villacidro, Rio Leni, 300 m, 28.V.2000, PL, 1 ex (CGN); 31.V.2000, PL, 1 ex (CGN); 24.V.2006, PL, 3 ex (CGN). Villacidro, dint. P.ta piscina Argiolas, Serbatoio, 282 m, 32S 472049 4360081, 19.V.2006, DW, "dc on *Ferula communis*" [tfl] 1 ex (CNBFVR). **Nuoro prov.:** strada Laconi–Aritzo, 600 m, 10.V.1995, FA, 1 ex (JHAC); Nuoro, V.1936, RI, 3 ex (MCZR coll. P. Luigioni). **Ogliastra prov.:** Gairo, Taquisara, 14.VI.2003, LF, 1 ex (CGN). **Olbia-Tempio prov.:** Tempio [Pausania], VI.[19]04, Silv. [= F. Silvestri leg.], 5 ex (MCZR coll. P. Luigioni); VI.1905, L?, 1 ex (MDEP). **Oristano prov.:** Arborea, Sant'Anna, 10.VI.2004, LF, 1 ex (CGN); Bosa, Fiume Temo, 2.VI.1967, FCa, 1 ex (MZUR); Fordongianus, 7.V.1966, PB, 1 ex (MZUR); Laconi, Meana, 24.IV.1952, Missione Zoologica Lehmsick, Bonn I., 7 ex (MZUR); Oristano, Fiume Tirso, 2.VI.1967, FCa, 1 ex (MZUR). **Sassari prov.:** Alghero, 28.IV.1952, Missione Zoologica Lehmsick, Bonn I., 8 ex (MZUR); dint. Bono, 750 m, 24.VI.2007, PCo GS, sn, 3 ex (CPC); dint. Bultei, 650 m, 24.VI.2007, PCo GS, sn, 1 ex

(CPC); Porto Torres, 29.IV.1967, PB, 2 ex (MZUR); Sassari, L. Baratz, 23.V.1995, FA, 1 ex (JHAC).

CHOROTYPE. Mediterranean. This species is known from: Croatia (Dalmatia), France, Greece, Italy, Portugal, Spain, Algeria, Egypt, Libya, Morocco and Tunisia (Háva 2007b). A record from Israel (Háva 2007a) was later referred to *A. (A.) addendus* J. Sahlberg, 1903 (Háva et al. 2007b), which is known also from Algeria, Morocco and Tunisia (Háva 2007b). NOTES. *Attagenus (A.) fallax* is widespread and common in Sardinia.

24. *Attagenus (Attagenus) lobatus* Rosenhauer, 1856

MATERIAL EXAMINED. **Cagliari prov.:** Cagliari, città [= town], dc "in a house" [tfl], VII.2006, PL, 1 ex (CGN).

OTHER MATERIAL EXAMINED. **Latium:** Rome prov., Rome, Università "La Sapienza", Istituto di Chimica, 16.VII.1993, S. Restia leg., "attracted in large numbers by the product of an organic chemical reaction" [tfl], 2 ex (CGN).

CHOROTYPE. Centralasiatic-Mediterranean: from Spain and Morocco, eastward as far as Kyrghyzstan, Tajikistan, Mongolia and China (Northwest Territory and Northern Territory) (cf. Ovtchinnikov 1996; Háva 2007a; Růžicka & Háva 2008; Háva 2011; Zhantiev 2011). *Attagenus (A.) lobatus* was introduced to the USA (cf. Zhantiev 1973, 2011; Háva 2011) and Czech Republic (Růžicka & Háva 2008); it was recorded also from Libya (cf. Zavattari 1934, as *A. sericeus* Reitt. [= Reitter, 1881]) and this country must be added to its general distribution (cf. Háva 2007a; Růžicka & Háva 2008).

NOTES. First record for Sardinia. This species was previously known in Italy only from the following regions: Latium, Campania, Apulia, Calabria and Sicily (cf. Ragusa 1892; Bertolini 1904; Luigioni 1929; Porta 1929; Angelini 1987; Audisio et al. 1995; Zhantiev 2011). Italian records were overlooked by Mroczowski (1968: 87) and Zhantiev (1973). The above specimens from Rome, previously recorded as *A. (A.) prope brunneus* (Nardi 1997: 178), were collected in a university laboratory; unfortunately it was not possible to establish the attractive substance.

25. *Attagenus (Attagenus) maritimus* Gené, 1839

Attagenus maritimus Gené, 1839: 20.

Attagenus [(*Telopes*)] *maritimus* Gené [sic!]: Peyron 1857: 720.

Telopes maritimus Gené [sic!]: Gemminger & Harold 1868: 917.

Attagenus (Telopes) maritimus Gené: Bargagli 1872: 102; Reitter

1881: 79; Reitter 1883a: 89; Reitter 1891a: 338; Reitter 1906b: 378; Luigioni, 1929: 538; Porta, 1929: 303.

Attagenus maritimus Gené [sic!]: Bertolini 1874: 99.

Telopes maritimus Gené: Reitter 1887: 51.

Attagenus maritimus Gené: Bertolini 1904: 58.

Attagenus (Telopes) maritimus Gené, 1839: 18 [sic!]: Dalla Torre 1911: 54.

Attagenus (Telopes) maritimus Gené [18]39: Winkler 1926a: 677.

Attagenus (Telopes) maritimus Gené: Luigioni 1929: 538.

Attagenus maritimus Gené, 1839: Mroczowski 1968: 87.

Attagenus (Telopes) maritimus Gené, 1839: Audisio et al. 1995: 13.

Attagenus (Attagenus) maritimus (Gené, 1839) [sic!]: Háva 2007b.

Attagenus (Attagenus) maritimus Gené, 1839: Háva & Nardi 2007a: 123.

Attagenus maritimus Gene [sic!], 1839: Zhantiev 2011.

LITERATURE RECORDS. Sardinia (Peyron 1857; Gemminger & Harold 1868; Bertolini 1874; Reitter 1881, 1883a, 1887, 1891a; Bertolini 1904; Reitter 1906b; Dalla Torre 1911; Winkler 1926a; Luigioni 1929; Porta 1929; Mroczowski 1968; Audisio et al. 1995; Háva 2007b; Háva & Nardi 2007a; Zhantiev 2011). **Cagliari prov.**: "alla Scaffa prope Karales" [= at Scaffa near Cagliari] (Gené 1839); "On grasses at Scaffa near Cagliari (Gené, Baudi, Ghiliani)" [tñ] (Bargagli 1872).

CHOROTYPE. W-Mediterranean (Sardinia, Sicily, Spain, Algeria and Tunisia) (cf. Háva 2007a; Háva & Nardi 2007a; Zhantiev 2011).

NOTES. Ragusa (1892: 205 footnote, as *Telopes maritimus* Gené) wrongly supposed that this species was a possible synonym of *A. lobatus*. The original combination of this species was erroneously listed as *Telopes maritimus* by Háva (2003, 2007a, 2007b). The generic record for Italy (Háva 2007a) refers to Sardinia and Sicily (Háva & Nardi 2007a).

26. *Attagenus (Attagenus) obtusus* (Gyllenhal, 1808)

Attagenus obtusus Gyll.: Bargagli 1872: 102; Bertolini 1904: 58.

Attagenus obtusus Schh.: Bertolini 1874: 99.

Attagenus (Telopes) obtusus Gyllh.: Luigioni 1929: 538; Porta 1929: 303.

Attagenus (Telopes) obtusus (Gyllenhal, 1808): Audisio et al. 1995: 13; Háva & Nardi 2007a: 123.

Attagenus obtusus (Gyllenhal, 1808): Zhantiev 2011.

LITERATURE RECORDS. Sardinia "(Villa)" (Bargagli 1872). Sardinia (Bertolini 1874, 1904; Luigioni 1929; Porta 1929; Audisio et al. 1995; Háva & Nardi 2007a; Zhantiev 2011).

CHOROTYPE. Turano-Europeo-Mediterranean; however, it reaches only "Caucasus", Israel, Saudi Arabia,

Iraq and Iran to the east (Háva 2007a, 2007b); an old record from Asiatic Turkey (Bodemeyer 1900, as *Telopes obtusus* Gyllh.) has not been recently confirmed. NOTES. In Italy, this species is recorded only from Sardinia (cf. Háva & Nardi 2007a; Zhantiev 2011).

27. *Attagenus (Attagenus) pellio* (Linnaeus, 1758)

Attagenus pellio L.: Bargagli 1872: 102; Bertolini 1904: 58; Leonardi 1927: 312.

Attagenus (Attagenus) pellio Lin.: Luigioni 1929: 537; Porta 1929: 302.

Attagenus (Attagenus) pellio (Linné, 1758): Audisio et al. 1995: 13.

Attagenus (Attagenus) pellio (Linnaeus, 1758): Háva & Nardi 2007a: 123.

Attagenus pellio (Linnaeus, 1758): Zhantiev 2011.

LITERATURE RECORDS. All of Italy (Bertolini 1904; Leonardi 1927; Porta 1929). Sardinia "(Ghiliani)" (Bargagli 1874). Sardinia (Luigioni 1929; Audisio et al. 1995; Háva & Nardi 2007a; Zhantiev 2011).

CHOROTYPE. Cosmopolitan (Háva 2007a).

NOTES. This stored-product pest is widespread in Italy (cf. Háva & Nardi 2007a).

28. ? *Attagenus (Attagenus) quadrimaculatus* Kraatz, 1858

Attagenus quadrimaculatus Kr.: Krausse 1911b: 101.

LITERATURE RECORDS. **Oristano prov.**: Asuni (Krausse 1911b).

CHOROTYPE. E-Mediterranean (Albania, Bosnia-Herzegovina, Bulgaria, Croatia, France, Greece, Macedonia, Montenegro, Serbia, Slovenia, Switzerland, Turkey, Caucasus and Jordan) (Háva 2007b). A record from Israel (Háva 2007a) was later ignored (Háva 2007b; Háva et al. 2007b) since it is erroneous (Háva, unpublished data).

NOTES. *Attagenus (A.) quadrimaculatus* is not recorded with certainty from Italy (cf. Audisio et al. 1995; Háva & Nardi 2007a; Zhantiev 2011). The paper including the above Sardinian record (Krausse 1911b) was listed by Luigioni (1929: 1090) in his bibliography, but the same author (Luigioni 1929: 1024) listed this species only from "Italia" among the species of "doubtful origin or of doubtful determination" [tñ]. All subsequent authors ignored the Sardinian record, so it was recently considered as erroneous (cf. Háva & Nardi 2007a). *Attagenus (A.) quadrimaculatus* was recorded also from Rhodes Island (Greece) in the Dodecanese (Schatzmayr 1941,

as *A. quadrimaculatus* Kr.); this archipelago must be added to the distribution summarized by Zhantiev (2011, as *A. quadrimaculatus*).

29. *Attagenus (Attagenus) rossii* Ganglbauer, 1904

Attagenus bifasciatus Ros. [= (P. Rossi, 1794)]: Bargagli 1872: 102. *Attagenus bifasciatus* Rossi: Bertolini 1874: 99; Bertolini 1904: 58.

Attagenus bifasciatus Ross.: Costa 1886a: 8.

Attagenus (Lanorus) bifasciatus Oliv. [= (A.G. Olivier, 1790)] a. *Rossii* Ganglb.: Luigioni 1929: 538.

Attagenus (Lanorus) bifasciatus Oliv. v. *Rossii* Ganglb.: Porta 1929: 302.

Attagenus (Attagenus) rossii Ganglbauer, 1904: Háva & Nardi 2007a: 123.

Attagenus rossii Ganglbauer, 1904: Zhantiev 2011.

LITERATURE RECORDS. Sardinia (Bargagli 1872; Bertolini 1874, 1904; Luigioni 1929; Porta 1929; Háva & Nardi 2007a; Zhantiev 2011). **Sassari prov.:** "near the stop of Caniga in the environs of Sassari" [tfl] (Costa 1886a).

CHOROTYPE. Mediterranean (Bulgaria, Greece, Italy, Spain, Algeria, Tunisia) (cf. Háva & Mifsud 2006; Háva 2007a). An old record from Libya (cf. Zavatari 1934, as *A. bifasciatus* a. *rossii*) was later not confirmed (Mroczowski 1968, as *A. bifasciatus* var. *rossii* [sic!]; Háva 2007a, 2007b).

NOTES. *Attagenus bifasciatus* var. *rossii* Ganglbauer, 1904: 26 was proposed as a new replacement name for *Dermestes bifasciatus* Rossi, 1794: 79 from Tuscany (central Italy), which is a junior primary homonym of *Dermestes bifasciatus* A.G. Olivier, 1790: 13 (currently *Attagenus (A.) bifasciatus*). This variety was recorded also from Sicily (Sapuppo 2002, as *A. bifasciatus* var. *rossii*) and later recognized as a valid species by Háva (2003). The record for Malta (Háva 2007a, 2007b; Zhantiev 2011) refers to *A. (Attagenus) tigrinus* (Fabricius, 1792) (Háva & Mifsud 2006), so the one from the nearby island of Lampedusa (Gridelli 1961: 388, as *A. bifasciatus* var. *rossii*) needs to be verified.

30. *Attagenus (Attagenus) schaefferi schaefferi* (Herbst, 1792)

Attagenus Schaefferi Herbst: Bertolini 1904: 58.

Attagenus (Attagenus) Schaefferi Herbst: Porta 1929: 301.

Attagenus Schaefferi Hbst.: Horion 1955: 199.

Attagenus (Attagenus) schaefferi schaefferi (Herbst, 1792): Audisio et al. 1995: 13; Háva & Nardi 2007a: 123.

Attagenus schaefferi (Herbst, 1792): Zhantiev 2011.

LITERATURE RECORDS. All of Italy (Bertolini 1904; Porta 1929). Sardinia (Horion 1955; Audisio et al. 1995; Háva & Nardi 2007a; Zhantiev 2011).

CHOROTYPE. Holarctic (Halstead 1981; Háva 2007a, 2007b).

NOTES *Attagenus (A.) schaefferi schaefferi* was recorded also from Serbia (Kosanin 1904, as *A. Schaefferi* [sic!]; Zhantiev 2011), Belarus (Alexandrovitch et al. 1996, as *A. schaefferi* [sic!]; Zhantiev 2011) and the Balearic Islands (Horion 1955); the former countries must be added to the distribution summarized by Háva (2007a), while the latter archipelago to that by Zhantiev (2011). In North Africa, this species occurs only in the Canary Islands (Horion 1955; Háva 2007a; Oromí et al. 2009, as *A. schaefferi*) where it was introduced (Háva 2011), while a record from Madeira (Lundblad 1958, as *A. schaefferi*) was later not confirmed (Háva 2007a; Boieiro et al. 2008; Zhantiev 2011).

31. *Attagenus (Attagenus) simplex* Reitter, 1881

Attagenus bifasciatus Rossi [= (P. Rossi, 1794)] var. *rufipennis* Mls. [= Mulsant & Rey, 1868]: Bertolini 1904: 58.

Attagenus (Lanorus) simplex Reitt.: Luigioni 1929: 538.

Attagenus (Lanorus) simplex Reitter, 1881: Audisio et al. 1995: 13.

Attagenus (Attagenus) simplex Reitter, 1881: Háva & Nardi 2007a: 123.

Attagenus simplex Reitter, 1881: Zhantiev 2011.

LITERATURE RECORDS. Sardinia (Bertolini 1904; Luigioni 1929; Audisio et al. 1995; Háva & Nardi 2007a; Zhantiev 2011).

CHOROTYPE. Mediterranean. This species is known from: peninsular Italy, Sardinia, Sicily, Algeria, Libya, Morocco, Tunisia, Israel and Turkey (Audisio et al. 1995; Háva 2007a, 2007b; Zhantiev 2011). It was introduced to Sweden (Háva 2007b).

NOTES. Sardinian records were overlooked by Porta (1929: 303) and Háva (2007b).

32. *Attagenus (Attagenus) tigrinus* (Fabricius, 1792)

Attagenus poecilus Germar[, 1839]: Mulsant & Rey 1868: 91.

Attagenus poecilus Germ.: Baudi 1870: 63; Bertolini 1874: 99.

Attagenus poecilus Germ. = [sic!] *bifasciatus* Ol.: Bargagli 1872: 102.

Attagenus tigrinus F.: Bertolini 1904: 58.

Attagenus (Lanorus) bifasciatus Oliv. a. *tigrinus* Fabr.: Luigioni 1929: 538.

Attagenus (Lanorus) bifasciatus Oliv. var. *tigrinus* Fabr.: Porta 1929: 302.

Attagenus bifasciatus var. *tigrinus* Fabr.: Mroczowski 1962: 6.
Attagenus tigrinus (Fabricius, 1792): Háva & Mifsud 2006: 57; Zhantiev 2011.
Attagenus (Attagenus) tigrinus (Fabricius, 1792): Háva 2007b; Háva & Nardi 2007a: 123.

LITERATURE RECORDS. Sardinia (Mulsant & Rey 1868; Baudi 1870; Bertolini 1874, 1904; Luigioni 1929; Porta 1929; Háva & Mifsud 2006; Háva 2007b; Háva & Nardi 2007a; Zhantiev 2011). **Sassari prov.:** Olmedo, 14.IV.1959, L?, 1 ex (Mroczowski 1962); "On a thistle flower. Around the roads. At the beginning of spring. Sassari (Baudi, Raymond, Schauffus)" [tfi] (Bargagli 1872); Sassari, 11.V.1949, L?, 1 ex; 23.V.1949, L?, 1 ex (Mroczowski 1962).

CHOROTYPE. Mediterranean (Italy, Malta, Sicily, Sardinia, Algeria, Egypt, Morocco, Tunisia) (cf. Háva & Mifsud 2006; Háva 2007b; Zhantiev 2011). Records from Libya (cf. Zavattari 1934, as *A. bifasciatus tigrinus*) and western Palearctic Asia (cf. Bodemeyer 1900, as *A. tigrinus*; Háva 2007a, as *A. (A.) bifasciatus tigrinus*) were not confirmed recently (cf. Háva & Mifsud 2006; Háva 2007b; Háva et al. 2007b; Zhantiev 2011).

NOTES. Fabricius (1792: 229) described this species, as *Dermestes tigrinus*, from "Italia" (without further details). It was later considered as a variety of *A. bifasciatus* (cf. Mroczowski 1968; Háva 2003) and recently (Háva & Mifsud 2006) resurrected as a valid species. In Italy it is recorded also from the following regions: Piedmont, Campania, Apulia, Calabria and Sicily (cf. Bertolini 1904; Luigioni 1929; Porta 1929). Its morphological features were illustrated by Háva & Mifsud (2006: 57, figs 1–6). Háva (2007a) listed it as a subspecies of *A. (A.) bifasciatus* by mistake, and later (Háva 2008) overlooked it. *Attagenus melitenis* Pic, 1899 from Malta (Háva 2007a) was synonymized with *A. (A.) tigrinus* (Háva & Mifsud 2006), but this synonymy was recently overlooked (Háva 2008). *Attagenus bifasciatus* ab. *hybridus* Rugga, 1926:74 from Palermo environs (Sicily) was considered as a synonym of this species (cf. Audisio et al. 1995; Háva 2003, 2007b), but recently (Háva 2007a, 2008) it was ignored since according to the ICZN (1999, art. 45.5 and 45.6.2) it is an infrasub-specific and unavailable name.

33. *Attagenus (Attagenus) unicolor unicolor* (Brahm, 1790)

Attagenus piceus Oliv. [= (A.G. Olivier, 1790)]: Costa 1883: 41; Costa 1884: 27.

Attagenus piceus Oliv. = *megatoma* F. [= (Fabricius, 1798)]: Bertolini 1904: 58.

Attagenus piceus Oliv. v. *megatoma* F. = [sic!] *stygialis* Muls. [= Mulsant & Rey, 1868]: Reitter 1906b: 378.

Attagenus piceus Ol.: Krausse 1912a: 144.

Attagenus (Attagenus) piceus Oliv. v. *megatoma* Fabr.: Luigioni 1929: 537.

Attagenus (Attagenus) piceus Oliv.: Porta 1929: 302.

Attagenus (Attagenus) piceus Oliv. a. *megatoma* Fabr.: Porta 1929: 302.

Attagenus megatoma Fabr.: Mroczowski 1962: 6.

Attagenus megatoma dalmatinus Küst. [= Küster, 1847]: Mroczowski 1962: 6.

Attagenus (Attagenus) unicolor unicolor (Brahm, 1791 [sic!]): Audisio et al. 1995: 13; Háva & Nardi 2007a: 123.

Attagenus unicolor (Brahm, 1791 [sic!]): Zhantiev 2011.

LITERATURE RECORDS. All of Italy (Bertolini 1904; Porta 1929). Sardinia (Reitter 1906b; Luigioni 1929; Audisio et al. 1995; Háva & Nardi 2007a; Zhantiev 2011). **Cagliari prov.:** dint. Cagliari, 15–30.VI.1882, ACo (Costa 1883). **Medio Campidano prov.:** Sanluri, 30.V.1953, L?, 1 ex (Mroczowski 1962, as *A. megatoma dalmatinus*). **Nuoro prov.:** Sorgono (Krausse 1912a). **Oristano prov.:** "collected abundantly in the environs of Laconi, July [1883]" [tfi] (Costa 1884). **Sassari prov.:** Sassari, 21.VI.1949, L?, 1 ex; 12.VI.1960, L?, 1 ex (Mroczowski 1962, as *A. megatoma*).

OTHER MATERIAL EXAMINED. **Latium:** Rome prov., Rome, Museo Civico di Zoologia, 33T 291725 4643855, 31.VI.1989, GN, "dc in a building" [tfi], 1 ex (CGN). **Lombardy:** Mantua prov., Marmirolo, Bosco della Fontana, Palazzina Gonzaga, 25 m, 32T 637110 5006722, 17.VI.2007, GN, "dc in a building" [tfi], 2 ex (CGN).

CHOROTYPE. Cosmopolitan (Halstead 1981; Háva 2007a). This species was recorded also from the Canary Islands (Háva 2007a; Oromí et al. 2009), which must be added to the distribution summarized by Zhantiev (2011).

NOTES. The above records from Rome and Bosco della Fontana Nature Reserve are here reported for a better faunistic knowledge of these localities, where this species had previously not been recorded (Nardi 1997; Háva & Nardi 2004).

MEGATOMINAE Leach, 1815

Anthrenini Gistel, 1848

34. *Anthrenus (Anthrenus) delicatus* Kiesenwetter, 1851

Anthrenus pimpinellae F. v. *delicatus* K.: Bertolini 1904: 59.

Anthrenus (Anthrenus) pimpinellae Fabr. a. *delicatus* Kiesw. = *Isabellinae* Muls. & Rey [= Mulsant & Rey, 1868]: Luigioni 1929: 540.

Anthrenus (Anthrenus) pimpinellae Fabr. v. *delicatus* Kiesw.: Porta 1929: 306.

Anthrenus (Anthrenus) delicatus Kiesenwetter, 1851: Audisio et al. 1995: 14; Zhantiev, 2011.

LITERATURE RECORDS. Sardinia (Bertolini 1904; Luigioni 1929; Porta 1929; Audisio et al. 1995; Zhantiev 2011).

MATERIAL EXAMINED. **Cagliari prov.:** Serdiana, 1.VI.2001, LF, 1 ex (CGN); dint. Seulo, 743 m, 32S 521714 4414340, 17.V.2008, GN PA MB MTi, sn, 2 ex (CNBFVR); Vallermosa, dint. Cant. de s'Acquacotta, 83 m, 32S 483910 4361992, 19.V.2008, GN PA MB MTi, sn, 1 ex (CNBFVR). **Carbonia-Iglesias prov.:** Domusnovas, Valle Oridda, 592 m, 32S 466973 4362228, 12.VI.2004, GN, dc, 1 ex (CNBFVR); Iglesias, M.ti Marganai, Tintillonis, 480 m, 32S 463010 4355249, 7.VI.2004, GN, dc, 1 ex (CNBFVR); Iglesias, Vecchia Cantoniera (= Cartiera) Marganai, 491 m, 32S 462272 4354677, 23.V.2006, PCo MB DB DW, nt, 3 ex (CNBFVR). **Nuoro prov.:** dint. Lula, allacciamento strada N. 131 d.c.n., 153 m, 32T 540976 4473409, 15.V.2008, GN, "sn on *Ferula* sp." [tfi], 2 ex (CNBFVR). **Ogliastra prov.:** Gairo, M. Tonneri, dint. nuraghe Ardassai, lecceta, 1020 m, 32S 529111 4415819, 16.V.2008, MB GN PA MTi, "oe on *Crataegus* sp." [tfi], 1 ex (CNBFVR).

CHOROTYPE. Mediterranean, reaching as far as Iran eastward (cf. Háva 2007a, 2007b, both as *A. (A.) delicatus delicatus*; Háva & Mifsud 2006; Kadej et al. 2007).

NOTES. See also notes under *A. (A.) pimpinellae pimpinellae* (Fabricius, 1775) and *A. (Nathrenus) molitor* Aubé, 1850. The records of *A. (A.) delicatus* Kiesenwetter, 1851 from Corsica (Bickhardt 1908, as *A. pimpinellae* F. v. *delicatus* Kiesw.; Bertolini 1904, as *A. pimpinellae* F. v. *delicatus* K.; Sainte-Claire Deville 1914, as *A. pimpinellae* F. v. *delicatus* [sic!] Kiesw.; Luigioni 1929, as *A. (A.) pimpinellae* a. *delicatus*; Sainte-Claire Deville 1935, as *A. pimpinellae* F. v. *delicatus* Kiesw.) were recently ignored by Zhantiev (2011).

35. *Anthrenus (Anthrenus) festivus* Erichson, 1846

Anthrenus festivus Er. = *muscorum* [sic!] Ol. [= *museorum* (A.G. Olivier, 1790) not (Linnaeus, 1761)]: Bargagli 1872: 103.

Anthrenus festivus Rosh. [= Rosenhauer] [sic!]: Bertolini 1904: 59.

Anthrenus (Anthrenus) festivus Rosh. [sic!]: Luigioni 1929: 1024; Porta 1929: 307.

Anthrenus festivus Rosh. [sic!]: Horion 1955: 214.

Anthrenus (Anthrenus) festivus Erichson, 1846: Audisio et al.

1995: 14; Háva 2007a: 312; Háva 2007b; Zhantiev 2011.

LITERATURE RECORDS. Sardinia "(Baudi)" (Bargagli 1872). Sardinia (Bertolini 1904; Porta 1929; Horion 1955; Audisio et al. 1995; Háva 2007a, 2007b; Zhantiev 2011). Sardinia? (Luigioni 1929).

CHOROTYPE. Mediterranean: France, Sardinia, Sicily, Portugal, Morocco, Tunisia, Cyprus, Israel (Háva 2007a), Corsica (Bertolini 1904; Schaefer 1964, as *A. festivus* Rosenh.), Balearic Islands (Mroczowski 1968; Zhantiev 2011) and Cyprus? (Mroczowski 1968). The species was recently recorded from Germany (Zhantiev 2011), while the records from southern Switzerland (cf. Horion 1955, as *A. festivus* Rosh.) were later not confirmed (cf. Mroczowski 1968; Háva 2007a; Zhantiev 2011).

NOTES. As reported above, the authorship of this species was often attributed to Rosenhauer, 1856 in the past (see also Dalla Torre 1911: 79; Winkler 1926a: 680), but *A. festivus* was first used by Erichson (1846: 456).

36. *Anthrenus (Anthrenus) flavipes flavipes* LeConte, 1854

Anthrenus fasciatus Herbst[, 1797] = [sic!] *isabellinus* Küst. [= Küster, 1848]: Bertolini 1904: 59.

Anthrenus (Anthrenus) fasciatus Herbst = [sic!] *isabellinus* Küst.: Luigioni 1929: 540.

Anthrenus (Anthrenus) fasciatus Herbst: Porta 1929: 306.

Anthrenus (Anthrenus) flavipes flavipes J.L. Leconte, 1854: Audisio et al. 1995: 14.

Anthrenus (Anthrenus) flavipes LeConte, 1854: Denux & Zagatti 2010: 354.

LITERATURE RECORDS. Sardinia (Bertolini 1904; Luigioni 1929; Porta 1929; Audisio et al. 1995; Denux & Zagatti 2010).

CHOROTYPE. Cosmopolitan (Beal 1998, as *A. flavipes*; Háva 2003; Háva & Mifsud 2006; Háva 2007a, 2007b). This species was recorded also from Greece (Mroczowski 1975: 115; Zhantiev 2011, in both cases as *A. (Anthrenus) flavipes*), Bulgaria, Poland, Switzerland (cf. Denux & Zagatti 2010, as *A. flavipes*), Cyprus (cf. Aitken 1975, as *A. flavipes*), Kuwait (Al-Houty 2004, as *A. flavipes*) and the United Arab Emirates (cf. van Harten 2005, as *A. flavipes*); these countries must be added to the distribution summarized by Háva (2007a).

NOTES. The taxonomic status of the above-mentioned *Anthrenus fasciatus* Herbst, 1797 and *A. isabellinus* Küster, 1848 is in need of a clarification. *Anthrenus fasciatus* Herbst, 1797 is a synonym of *A.*

(*A. oceanicus* Fauvel, 1903 (cf. Mroczowski 1964: 180), while *A. fasciatus* Herbst, 1797 sensu Reitter (1881: 87) is identical to *A. (A.) flavipes* LeConte, 1854 (Mroczowski 1968: 142). In this framework the above old Sardinian records of *Anthrenus fasciatus* have been referred to *A. (A.) flavipes*; this interpretation is confirmed also by the fact that the identification key of Dermestidae provided by Porta (1929) is, in practice, a translation of that of Reitter (1881, 1887). The generic record for Sardinia of Audisio et al. (1995) is based only on the above old records, while that of Denux & Zagatti (2010) refers to Ratti (2007), which was based on Audisio et al. (1995). *Anthrenus (A.) flavipes* was recorded generically also from southern Italy (Mroczowski 1975: 115, as *A. (A.) flavipes*) but this record was overlooked by Audisio et al. (1995). *Anthrenus isabellinus* Küster, 1848 is currently a subspecies of *A. (A.) pimpinellae* (Fabricius, 1775) (cf. Beal 1998; Kadej et al. 2007), while in the past it was considered as a synonym of *A. (A.) fasciatus* Herbst (cf. Reitter 1881, 1887; Dalla Torre 1911; Winkler 1926a) or a variety of *A. (A.) pimpinellae* (Hinton 1945: 335; Mroczowski 1968: 142).

37. *Anthrenus (Anthrenus) goliath* Saulcy, 1868

Anthrenus pimpinellae F. [= (Fabricius, 1775)] v. *Goliath* Mls.: Bertolini 1904: 59.

Anthrenus (Anthrenus) pimpinellae Fabr. a. *Goliath* Muls. & Rey: Luigioni 1929: 540.

Anthrenus (Anthrenus) pimpinellae Fabr. [var.] *Goliath* Muls.: Porta 1929: 306.

Anthrenus pimpinellae goliath Mulsant: Strassen 1954: 273.

Anthrenus (Anthrenus) goliath Mulsant & Rey, 1868: Audisio et al. 1995: 14.

LITERATURE RECORDS. Sardinia (Bertolini 1904; Luigioni 1929; Porta 1929; Audisio et al. 1995). **Sassari prov.:** Sassari, L. Bunnari, 3–18.IV.1952, RS, on Umbelliferae (Strassen 1954).

MATERIAL EXAMINED. **Sassari prov.:** L. Baratz, 23.V.1995, FA, 2 ex (JHAC).

CHOROTYPE. Mediterranean with extension to Austria, Belgium, Bosnia-Herzegovina, Hungary, Portugal, Romania, Serbia, Ukraine (cf. Háva 2007b; Kadej et al. 2007; Zhantiev 2011) and Asiatic Turkey (Bodemeyer 1900, as *A. pimpinellae* F. var. [sic!] *Goliath* Muls.); moreover, the species reaches the Moroccan Sahara southward (Peyerimhoff 1946: 94; Kocher 1969, in both cases as *A. pimpinellae* F. v. *Goliath* Muls.). It was recorded also from southern Switzerland (Luigioni 1929; Fontana 1947, as *A. pimpinellae* F. var. *Goliath*

Muls.) and North-West China (Pic 1933, as *A. pimpinellae* F. v. *Goliath* Muls.), but these records were later not confirmed (cf. Mroczowski 1968, as *A. (A.) goliath* Mulsant & Rey, 1868; Háva 2003, 2007a, 2007b; Kadej et al. 2007; Herrmann et al. 2011). Its occurrence in Switzerland is possible, while the Chinese record was almost certainly based on a misidentification. According to Háva (2011), its occurrence in the Czech Republic and/or Slovakia is possible.

NOTES. This species is recorded in Italy also from the following regions: Liguria, Romagna, Latium and Sicily (cf. Ragusa 1892, as *A. pimpinellae* var. *Goliath*: Muls.; Bertolini 1904; Luigioni 1923a, as *A. pimpinellae* ab. *Goliath* Muls.; Luigioni 1929; Porta 1929; Zangheri 1969, as *A. pimpinellae* ab. *goliath*; Audisio et al. 1995; Háva & Nardi 2004).

The species was described by Saulcy in Mulsant & Rey (1868), and for this reason its authorship was erroneously attributed to the second two authors in the past (see above).

38. *Anthrenus (Anthrenus) munroi* Hinton, 1943

MATERIAL EXAMINED. **Carbonia-Iglesias prov.:** Domusnovas, Bega d'Aleni, 621 m, 32S 467855 4361336, 24.V.2006, PCo MB DB DW, sn, 1 ex (CNBFVR); Iglesias, Case Marganai, 725 m, 32S 463890 4355925, 13.VI.2004, GN, sn, 1 ex (CNBFVR); Iglesias, dint. colonia Beneck, 636 m, 32S 462391 4355441, 2–16.V.2006, GC, mt, 1 ex (CNBFVR). **Medio Campidano prov.:** Villacidro, Canale Monincu, 450 m, 32S 468040 4363436, 21.V.2006, PCo MB DB DW, sn, 1 ex (CNBFVR). **Nuoro prov.:** dint. Lula, 530 m, 32T 542525 4480254, 15.V.2008, GN PA MB MTr, sn, 1 ex (CNBFVR); Oliena, dint. San Giovanni, 150 m, 6.V.1995, FA, 2 ex (JHAC); [Siniscola,] Monte Albo, 600–800 m, 30.VI.2004, PCo GS, 2 ex (CPC). **Olbia-Tempio prov.:** [Tempio Pausania,] Passo Limbara, 650 m, 7.VII.2004, PCo GS, 1 ex (CPC). **Sassari prov.:** Valledoria, foce Fiume Coghinas, 26.V.1995, FA, 1 ex (JHAC).

CHOROTYPE. Mediterranean (eastwards as far as Lebanon, Syria, and Jordan), with extension to Hungary and Portugal (Háva 2006, 2007a; Kadej et al. 2007; Merkl & Háva 2007; Háva 2010b; Zhantiev 2011).

NOTES. Species described from Corsica (Hinton 1943), new to Sardinia. In Italy it was already known from some southern mainland regions: Apulia, Basilicata and Calabria (Angelini 1986; Angelini & Montemurro 1986; Angelini 1987).

39a. *Anthrenus (Anthrenus) pimpinellae isabellinus* Küster, 1848

Anthrenus pimpinellae F. v. *niveus* Rtt. [= Reitter, 1881]: Bertolini

1904: 59.

Anthrenus (Anthrenus) pimpinellae Fabr. a. *niveus* Reitt.: Luigioni 1929: 540.

Anthrenus (Anthrenus) pimpinellae Fabr. v. *niveus* Reitt.: Porta 1929: 306.

LITERATURE RECORDS. Sardinia (Bertolini 1904; Luigioni 1929; Porta 1929).

CHOROTYPE. The species is cosmopolitan (Kadej et al. 2007); *A. (A.) pimpinellae isabellinus* is a W-Mediterranean subspecies (France, Italy, Spain, Maghreb), introduced to the USA (cf. Beal 1998; Háva 2007a, 2007b; Kadej et al. 2007).

NOTES. *Anthrenus (A.) pimpinellae isabellinus* is not listed by Zhantiev (2011); in mainland Italy, it lives also in syntopy with the nominate subspecies (cf. Háva & Nardi 2004), so its taxonomic status needs to be clarified (see also Beal 1998). *Anthrenus (A.) pimpinellae mroczkowskii* Kalík, 1954 from Mount Olympos in Greece (Kalík 1954, as *A. pimpinellae* v. *mroczkowskii*) was recently raised to species level (Kadej et al. 2007) and is recorded also from mainland Italy (Audisio et al. 1995, as *A. (A.) p. mroczkowskii*; Háva 2003, 2007a) and Corsica (Háva 2003, as *A. (A.) p. mroczkowskii*). See also notes under *A. (A.) oceanicus* Fauvel.

39b. ? *Anthrenus (Anthrenus) pimpinellae pimpinellae* (Fabricius, 1775)

Anthrenus pimpinellae F.: Bargagli 1872: 103; Bertolini 1904: 59.

Anthrenus pimpinellae: Costa 1883: 6.

Anthrenus pimpinellae Fabr.: Costa 1883: 41; Costa 1884: 27.

Anthrenus (Anthrenus) pimpinellae Fabr.: Luigioni 1929: 540; Porta 1929: 306.

Anthrenus pimpinellae Fabr.: Mroczowski 1962: 7.

Anthrenus (Anthrenus) pimpinellae pimpinellae (Fabricius, 1775): Audisio et al. 1995: 14.

Anthrenus (Anthrenus) pimpinellae (Fabricius, 1775): Zhantiev 2011.

LITERATURE RECORDS. All of Italy (Bertolini 1904; Porta 1929). Sardinia, "Common on almost all flowers. (Raymond, Baudi, Ghiliani)" [tfl] (Bargagli 1872). Sardinia (Luigioni 1929; Zhantiev 2011). **Cagliari prov.:** dint. Pula, 15–30.IV.1882, ACo (Costa 1883: 41); Pula, pantano Fosci, 22.IV.1882, ACo, "in the grasslands" [tfl] (Costa 1883: 6). **Nuoro prov.:** Dorgali, San Pantaleo, 22.IV.1960, L?, 1 ex (Mroczowski 1962). **Olbia-Tempio prov.:** Oschiri, VI.1869, [BTC], "on grasses" [tfl] (Bargagli 1872); dint. Oschiri, 1–15.VI.1882, ACo (Costa 1883). **Sassari prov.:** "it reaches the highest peaks, such as those of Desulo: July" [tfl] (Costa 1884); Porto Torres, 12.V.1958, L?, 1 ex

(Mroczowski 1962); Sassari, VI.1869, [BTC], "on grasses" [tfl] (Bargagli 1872).

CHOROTYPE. Cosmopolitan (Háva 2007a; Háva et al. 2007b; Kadej et al. 2007).

NOTES. This taxon is probably not present in Sardinia, as none of the Sardinian specimens recently studied belong to this subspecies. The Sardinian specimens mentioned by Mroczowski (1962), in our opinion, belong to *A. (A.) delicatus*.

Anthrenus (A.) pimpinellae pimpinellae was recorded also from Portugal (Seabra 1939, as *A. pinpinellae* [sic!]; Seabra 1943, as *A. (A.) pimpinellae*; Zhantiev 2011) and Libya (Zavattari 1934, as *A. pimpinellae*), which must be added to the distribution summarized by Háva (2007a).

40. *Anthrenus (Anthrenus) scrophulariae scrophulariae* (Linnaeus, 1758)

Anthrenus scrophulariae L.: Bargagli 1872: 103; Bertolini 1904: 59; Leonardi 1927: 312.

Anthrenus scrophulariae Lin.: Bertolini 1874: 99.

Anthrenus (Anthrenus) scrophulariae Lin.: Porta 1929: 307.

Anthrenus (Anthrenus) scrophulariae scrophulariae (Linné, 1758): Audisio et al. 1995: 14.

Anthrenus (Anthrenus) scrophulariae (Linnaeus, 1758): Zhantiev 2011.

LITERATURE RECORDS. All of Italy (Bertolini 1904; Leonardi 1927; Porta 1929). Sardinia "(Villa, Ghiliani, Baudi)" (Bargagli 1872). Sardinia (Bertolini 1874; Audisio et al. 1995; Zhantiev 2011).

CHOROTYPE. Cosmopolitan (Háva 2007a, 2007b).

NOTES. This taxon was recorded also from Portugal (Aguiar & Serrano 1995, as *A. scrophulariae*; Zhantiev 2011, as *A. (A.) scrophulariae*); this country must be added to the distribution summarized by Háva (2007a). *Anthrenus scrophulariae* var. *suecicus* Palm, 1940 was described from Sweden (Palm 1940) and later recorded from various European countries (cf. Mroczowski 1952: 26, as *A. scrophulariae* v. *suecicus*; Mroczowski 1960: 251, as *A. scrophulariae* var. *suecicus*; Mroczowski 1968: 130, as *A. (A.) scrophulariae* var. *suecicus*); it is currently a synonym of *A. (A.) scrophulariae scrophulariae* (cf. Háva 2003, 2007a). Audisio et al. (1995) wrongly treated it as a subspecies, following Angelini & Montemurro (1986: 573, as *A. scrophulariae suecicus*) and Angelini (1991: 206, as *A. scrophulariae suecicus*), who informally listed it as a subspecies.

41. *Anthrenus (Florilinus) museorum* (Linnaeus, 1761)

Anthrenus muscorum [sic!] L.: Bargagli 1872: 103.
Anthrenus verbasci Fab. [= Fabricius, 1775]: Costa 1883: 41.
Anthrenus museorum L.: Bertolini 1904: 59; Leonardi 1927: 312; Pisano et al. 2003: 219.
Anthrenus (Florilinus) museorum Lin.: Porta 1929: 308.
Anthrenus museorum (L.): Mroczowski 1962: 7.
Anthrenus (Florilinus) museorum (Linné, 1761): Audisio et al. 1995: 14.
Anthrenus (Florilinus) museorum (Linnaeus, 1761): Zhantiev 2011.

LITERATURE RECORDS. All of Italy (Bertolini 1904; Leonardi 1927; Porta 1929). Sardinia "(Ghiliania)" (Bargagli 1872). "Common in the grasslands of almost all the island, from the first half of April [1882]" [tfi] (Costa 1883). Sardinia (Audisio et al. 1995; Zhantiev 2011). "common in all of Sardinia" [tfi] (Pisano et al. 2003). **Olbia-Tempio prov.:** Oschiri, VI.1869, [BTC] (Bargagli 1872). **Sassari prov.:** Sassari, VI.1869, [BTC] (Bargagli 1872); 7.VI.1959, L?, 1 ex (Mroczowski 1962).

CHOROTYPE. Cosmopolitan (Háva 2007a).

NOTES. A record from Corsica (Schaefer 1964, as *A. museorum* L.) was later ignored (Zhantiev 2011).

42. *Anthrenus (Helocerus) fuscus* A.G. Olivier, 1790

Anthrenus claviger Er. [= Erichson, 1846]: Bargagli 1872: 103.
Anthrenus claviger Er. = *fuscus* Latr. [= Latreille, 1807 (cf. Erichson 1846: 248; Reitter 1881: 53; Mroczowski 1968: 149)]: Bertolini 1874: 100.
Anthrenus fuscus Latr. [sic!] = *claviger* Er.: Bertolini 1904: 59.
Anthrenus (Helocerus) fuscus Oliv.: Porta 1929: 308.
Anthrenus (Helocerus) fuscus A.G. Olivier, 1789 [sic!]: Audisio et al. 1995: 14.

LITERATURE RECORDS. All of Italy (Bertolini 1904; Porta 1929). Sardinia "(Baudi)" (Bargagli 1872). Sardinia (Bertolini 1874; Audisio et al. 1995).

CHOROTYPE. Subcosmopolitan: Palearctic (most of Europe, Tenerife, Morocco, Bonin Island in Japan), Nearctic (Canada, USA), Oriental (cf. Beal 1998, as *A. Olivier*, 1789 [sic!]; Háva 2007a, 2007b; Oromí et al. 2009, as *A. fuscus* (Olivier, 1789) [sic!]) and Neotropical Regions (Zhantiev 2011, as *A. (Florilinus) fuscus* Olivier, 1789 [sic!]). Moreover, this species was introduced to Saint Helena Island (South Atlantic Ocean) (Mroczowski 1972, as *A. fuscus*; Háva 2007b). It is recorded also from Ireland (Anderson et al. 1997: 33, as *A. fuscus*; Zhantiev 2011), and this country must be added to the distribution summarized by Háva (2007a).

NOTES. A record from Corsica (Schaefer 1964, as *A.*

fuscus Ol.) was later ignored (Zhantiev 2011).

43. *Anthrenus (Helocerus) minutus* Erichson, 1846

Anthrenus minutus Erichson, 1846: 459.
Anthrenus minutus (Parr. [= Parr. in litteris (cf. Erichson 1846)]) Erich.: Gaubil 1849: 75.
Anthrenus (Helocerus) minutus Er.: Reitter 1881: 53, footnote; Reitter 1891a: 340; Reitter 1906b: 380; Luigioni 1929: 541; Porta 1929: 308.
Anthrenus minutus Er.: Bertolini 1904: 59.
Anthrenus (Helocerus) minutus Erichson, 1846: Dalla Torre 1911: 80; Mroczowski 1962: 544–546; Mroczowski 1968: 149; Audisio et al. 1995: 14.
Anthrenus (Florilinus) minutus Erichson, 1846: Zhantiev 2011.

LITERATURE RECORDS. Sardinia (Gaubil 1849; Reitter 1881, 1891a; Bertolini 1904; Reitter 1906b; Dalla Torre 1911; Luigioni 1929; Porta 1929; Mroczowski 1968; Audisio et al. 1995; Háva 2007b; Zhantiev 2011). "Sardinien (Gené)" (Erichson 1846, as *A. minutus*). "Sardin. Gené", 1 ♂ lectotype, 1 ♀ [syntype] (Mroczowski 1962). **Oristano prov.:** Assuni [= Asuni], wdc, AK, 10 ex (Mroczowski 1962). **Sassari prov.:** Sassari, 25.VI.1959, L?, 1 ex; 15.V.1960, L?, 1 ex (Mroczowski 1962). **Prov. not traced:** "Sardegna, Setti Adriano, A. Fiori [legit]", 2 ex (Mroczowski 1962).

MATERIAL EXAMINED. **Cagliari prov.:** [Villasimius,] Isola Serpentara, 9.VI.1989, RP, 1 ex (JHAC). **Carbonia-Iglesias prov.:** Domusnovas, sa Duchessa, 371 m, 32S 464990 4358384, 30.V–13.VI.2006, GC, mt, 1 ex (CNBFVR); 13–27.VII.2006, GC, mt, 1 ex (CNBFVR); Iglesias, dint. colonia Beneck, 636 m, 32S 462391 4355441, 11–25.VII.2006, GC, mt, 2 ex (CNBFVR); Iglesias, Vecchia Cantoniera (= Cartiera) Marganai, 491 m, 32S 462272 4354677, 23.V.2006, PCo MB DB DW, nt, 7 ex (CNBFVR; JHAC). **Medio Campidano prov.:** Arbus, 14.VI.2004, LF, 1 ex (CGN); Isola di San Pietro, Guardia dei Mori, 27.VI.1987, VV, 9 ex (CGN; MCZR); Villacidro, Canale Monincu, 450 m, 32S 468040 4363436, 21.V.2006, PCo MB DB DW, sn, 2 ex (CNBFVR); Villacidro, Rio Leni, 300 m, 24.V.2006, PL, 13 ex (CGN; JHAC). **Nuoro prov.:** Gennargentu, Bruncu Spina, 1200–1500 m, 4.VII.2004, PCo GS, 1 ex (CPC); Oliena, Sorgente Su Cologone, 2.VII.2004, PCo, 1 ex (CPC). **Olbia-Tempio prov.:** dint. Oschiri, 180 m, 28.V.1995, FA, 3 ex (JHAC); Isola Razzoli, 30.VI.1987, VV, 1 ex (MCZR); Isola Soffi, 3.VII.1987, VV, 2 ex (MCZR). **Sassari prov.:** Alghero, 23.VI.1965, L?, 10 ex (JHAC); Isola Piana di Alghero, 29.VI.1987, VV, 5 ex (CGN; MCZR).

CHOROTYPE. Mediterranean with a slight extension to the Afrotropical Region (Háva 2007a).

NOTES. This species is distributed chiefly in the western Mediterranean, since it is recorded from Corsica, Giglio Island (Tuscany, Italy), Portugal, Sardinia, Sic-

ily, Spain and Sudan (cf. Audisio et al. 1995; Háva 2003, 2007a). The generic records from Sicily (Luigioni 1929; Audisio et al. 1995) originate from a record by Ragusa (1923), but this island was recently omitted in the geonomy of the species (Háva 2007b; Zhantiev 2011).

44. *Anthrenus (Nathrenus) molitor* Aubé, 1850

Anthrenus molitor Aubé [sic!] = [sic!] *delicatus* Kiesw.: Bargagli 1872: 100; Bertolini 1874: 100.

Anthrenus molitor Aub.: Bertolini 1904: 59.

Anthrenus (Nathrenus) molitor Aubé: Luigioni 1929: 541; Porta 1929: 307.

Anthrenus (Nathrenus) molitor Aubé, 1850: Audisio et al. 1995: 14.

LITERATURE RECORDS. Sardinia "(Baudi)" (Bargagli 1872). Sardinia (Bertolini 1874, 1904; Luigioni 1929; Porta 1929; Audisio et al. 1995).

CHOROTYPE. Mediterranean (Háva 2007a); this species is recorded also from Portugal (Seabra 1943; Zhantiev 2011, as *A. (Florilinus) molitor*) and occurs in Asia only in Israel (Háva 2007a).

NOTES. *Anthrenus (Nathrenus) molitor* and *A. (A.) delicatus* are two distinct species (cf. Háva 2007a), so the specific attribution of the above-mentioned records by Bargagli (1872) and Bertolini (1874) is unclear, even though the last author had later (Bertolini 1904) recorded both species from Sardinia. The records from this island were ignored by Zhantiev (2011).

45. ? *Anthrenus (Nathrenus) signatus* Erichson, 1846

Anthrenus scrophulariae L. v. *Signatus* Er.: Bertolini 1904: 59.

Anthrenus (Nathrenus) signatus Er.: Luigioni 1929: 541.

Anthrenus (Nathrenus) signatus Erichson, 1846: Audisio et al. 1995: 14.

LITERATURE RECORDS. Sardinia (Bertolini 1904; Luigioni 1929; Audisio et al. 1995).

CHOROTYPE. European, but this species is recorded only from Austria, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Grecia, Hungary, Italy, Poland, Serbia, Montenegro, Slovenia and European Turkey (cf. Háva 2007a, 2011; Zhantiev 2011).

NOTES. In Italy, this species is recorded from eastern regions (South Tyrol, Venetia, Venezia Giulia, Apulia, Basilicata) (cf. Bertolini 1874; Holdhaus 1911; Luigioni 1929, as *A. (N.) signatus* and as *A. (N.) si. a. incanus* Friv. [= Frivaldszky, 1882]; Peez & Kahlen 1977; Angelini 1986; Gatti 1991; Audisio et

al. 1995; Kahlen & Hellrig 1996) and Sicily (Steck 1887, as *A. scrophulariae* v. *signatus*; Ragusa 1892, as *A. sc. var. signatus*; Bertolini, 1904, as *A. sc. v. signatus*; Luigioni 1929; Audisio et al. 1995); an old record from Rome (Bertolini 1874) was never confirmed (cf. Nardi 1997). The records from Sardinia are the westernmost known, so they need to be confirmed; the species is absent in Corsica (Sainte-Claire Deville 1935; Háva 2007a, 2007b; Zhantiev 2011). The Sardinian and Sicilian records were ignored by Zhantiev (2011, as *A. (Florilinus) signatus*).

46. *Anthrenus (Nathrenus) verbasci* (Linnaeus, 1767)

Anthrenus varius F. [= (Fabricius, 1775)]: Bargagli 1872: 103.

Anthrenus varius F. Var. *tricolor* Herbst[, 1797]: Bargagli 1872: 103.

Anthrenus verbasci L.: Bertolini 1904: 59; Krausse 1913a: 62.

Anthrenus verbasci L. V. *Confusus* Rtrt. [= Reitter, 1887]: Bertolini 1904: 59.

Anthrenus verbasci L. v. *nitidulus* Küs. [= Küster, 1847]: Bertolini 1904: 59.

Anthrenus (Nathrenus) verbasci Lin.: Luigioni 1929: 541; Porta 1929: 307.

Anthrenus (Nathrenus) verbasci Lin. a. *confusus* Reitt.: Luigioni 1929: 541; Porta 1929: 307.

Anthrenus (Nathrenus) verbasci Lin. a. *nitidulus* Küst.: Luigioni 1929: 541; Porta 1929: 307.

Anthrenus verbasci L.: Fiori 1956: 279.

Anthrenus verbasci (L.): Mroczowski 1962: 7.

Anthrenus (Nathrenus) verbasci (Linné, 1767): Audisio et al. 1995: 14.

Anthrenus (Florilinus) verbasci (Linnaeus, 1767): Zhantiev 2011.

LITERATURE RECORDS. All of Italy (Bertolini 1904, as *A. verbasci*; Fiori 1956). Sardinia "(Ghilian)" (Bargagli 1872, as *A. varius* var. *tricolor*). Sardinia (Bertolini 1904, as *A. verbasci* v. *nitidulus* and as *A. v. v. confusus*; Luigioni 1929; Porta 1929; Audisio et al. 1995; Zhantiev 2011). **Nuoro prov.:** Bei [= Near] Sorgono (Krausse 1913a). **Oristano prov.:** Oristano, 15.VII.1967, L?, 1 ex (Mroczowski 1962). **Sassari prov.:** "On the flowers on the seashore, Alghero (Raymond, Villa, Baudi, Ghiliani)" [tffi] (Bargagli 1872, as *A. varius*); Alghero, 10.V.1955, L?, 1 ex; 25.V.1959, L?, 1 ex; 10.VII.1960, L?, 1 ex (Mroczowski 1962); Bonorva, 5.VI.1959, L?, 7 ex (Mroczowski 1962); Sassari, 15.V.1955, L?, 1 ex; 15.VI.1957, L?, 1 ex; 9.VI.1958, L?, 1 ex; 26.V.1959, L?, 1 ex (Mroczowski 1962).

MATERIAL EXAMINED. **Cagliari prov.:** Sarroch, 14–15.V.1999, PL, 6 ex (CGN). **Carbonia-Iglesias prov.:** Domusnovas, sa Duchessa, 371 m, 32S 464990 4358384, 13–27.VII.2006, GC, mt, 5 ex (CNBFVR). **Medio-Campidano prov.:** Villacidro, 25–31.V.1999, PL, 1 ex (CGN); Villacidro, dint. Pta piscina

Argiolas, Serbatoio, 282 m, 32S 472049 4360081, 19.V.2006, DW, "dc on *Ferula communis*" [tfl], 1 ex (CNBFVR); Villacidro, Rio Leni, 300 m, 24.V.2006, PL, 4 ex (CGN). **Nuoro prov.:** dint. Lula, allacciamento strada N. 131 d.c.n., 153 m, 32T 540976 4473409, 15.V.2008, GN, "sn on *Ferula* sp." [tfl], 1 ex (CNBFVR). **Sassari prov.:** dint. Bultei, 650 m, 24.VI.2007, sn, PCo GS, 3 ex (CPC).

CHOROTYPE. Cosmopolitan.

NOTES. This species is recorded from all of Italy, including some minor islands (cf. Luigioni 1929; Porta 1929).

47. *Anthrenus (Nathrenus) versicolor* Reitter, 1887

Anthrenus (Nathrenus) versicolor Reitt.: Luigioni 1929: 1024.

Anthrenus (Nathrenus) versicolor Reitter, 1887: Audisio et al. 1995: 14; Háva 2007b; Háva 2008: 25.

Anthrenus (Nathrenus) versicolor Reitter, 1886 [sic!]: Háva 2003: 89.

LITERATURE RECORDS. Sardinia? (Luigioni, 1929; Audisio et al. 1995). Sardinia (Háva 2003, 2007b, 2008).

CHOROTYPE. Mediterranean, but this species is recorded only from France, Greece, Sardinia and Sicily (Háva 2007b, 2008).

NOTES. Luigioni (1929) listed this species among those of "doubtful origin or of doubtful determination" [tfl]. The species was overlooked by Zhantiev (2011). Háva (2007a), due to a misprint, listed it as a synonym of *A. (Nathrenus) verbasci* (Linnaeus, 1767) (cf. Háva 2007b, 2008).

Megatomini Leach, 1815

48. *Ctesias (Ctesias) serra* (Fabricius, 1792)

Tiresias serra Fab.: Costa 1882b: 194.

LITERATURE RECORDS. Sardinia, April–June 1882 (Costa 1882b).

CHOROTYPE. European, with extension to "Caucasus" (Háva 2007a). A generic record for Algeria (Háva 2006) was later not confirmed (Háva 2007a, 2007b, 2011).

NOTES. The above record from Sardinia was ignored (or overlooked?) by all subsequent authors. Costa (1882b) listed this species among those new for Sardinia but did not list its locality of collection, and those explored are located in various parts of the island (Costa 1882b: 189–190). In Italy, *Ctesias* (*C.*

serra is known with certainty from mainland regions south to Calabria, and Sicily (cf. Luigioni 1929; Porta 1929; Gulli 1961; Angelini 1986, 1991; Audisio et al. 1995; Sapuppo 2002, in all cases as *C. serra*). However, considering the general distribution and ecology of the species (cf. Mroczkowski 1989; Háva 2011), its occurrence in the few relict fragments of the ancient forests of Sardinia is possible. It was recorded also from Corsica (Marshall 1871, as *T. serra*), but also this record was later ignored (or overlooked?) (cf. Bertolini 1904; Sainte-Claire Deville 1914, 1936; Zhantiev 2011). In Great Britain it is considered an Ancient Woodland Indicator (cfr. Whitehead 1996).

49. *Globicornis (Globicornis) bifasciata* (Perris, 1866)

Globicornis bifasciata Perr.: Krausse 1913b: 184.

LITERATURE RECORDS. **Nuoro prov.:** bei [= near] Sorgono, 1913, AK (Krausse 1913b).

CHOROTYPE. W-Mediterranean (France, Mallorca, Sicily, Spain, Algeria, Tunisia) (cf. Háva 2003, 2007a; Zhantiev 2011).

NOTES. Luigioni (1929: 1090), in the references, listed the paper by Krausse (1913b), but he, as well as all subsequent authors, ignored (or overlooked?) the above record. Considering the general distribution of the species, its occurrence in Sardinia is possible.

50. *Globicornis (Globicornis) fasciata* (Fairmaire & Brisout, 1859)

Hadrotoma fasciata Fairm.: Bertolini 1904: 59.

Globicornis (Globicornis) fasciata Frm. [18]59: Winkler 1926a: 679.

Globicornis (Globicornis) fasciata Fairm.: Luigioni 1929: 539; Porta 1929: 304.

Globicornis fasciatus [sic!] Fairm.: Horion 1955: 208.

Globicornis (Globicornis) fasciata (Fairmaire, 1859): Mroczkowski 1968: 114; Audisio et al. 1995: 12; Zhantiev 2011.

Globicornis (Globicornis) fasciata (Fairmaire & Brisout, 1859): Háva 2003: 109; Háva 2007b.

LITERATURE RECORDS. Sardinia (Bertolini 1904; Winkler 1926a; Luigioni 1929; Porta 1929; Horion 1955; Mroczkowski 1968; Audisio et al. 1995; Háva 2003, 2007b; Zhantiev 2011).

CHOROTYPE. Centraleuropean. The species is recorded from: Belgium, Denmark, France, Germany, Italy, Spain, Switzerland (Háva 2007a) and Sweden (Zhantiev 2011).

NOTES. In the literature (see also above), the authorship

of this species was often attributed only to Fairmaire. This species is absent in Sicily (cf. Audisio et al. 1995; Háva 2007b; Zhantiev 2011); an old record from this island (De Stefani Perez & Riggio 1882, as *Hadrotoma fasciata* Fairm.) was later referred to *G. (G.) picta* (Küster, 1851) (Ragusa 1892: 205, as *G. (H.) picta*).

51. *Globicornis (Globicornis) picta* (Küster, 1851)

Hadrotoma picta Küst.: Bertolini 1904: 59.

Globicornis (Globicornis) picta Küst. [18]50 [sic!]: Winkler 1926a: 679.

Globicornis (Globicornis) picta Küst.: Porta 1929: 305.

Globicornis picta Küst.: Schatzmayr 1941: 356.

Globicornis (Globicornis) picta (Küster, 1851): Audisio et al. 1995: 13; Háva 2003: 109; Háva 2007b.

Globicornis (Globicornis) picta (Kuester, 1851): Zhantiev 2011.

LITERATURE RECORDS. Sardinia (Bertolini 1904; Winkler 1926a; Porta 1929; Schatzmayr 1941; Audisio et al. 1995; Háva 2003, 2007b; Zhantiev 2011).

CHOROTYPE. European (cf. Háva 2007a; Zhantiev 2011), with extension to Armenia, Egypt, Israel, Jordan (Háva 2007b) and Cyprus (Háva 2007b; Zhantiev 2011). Records from Anatolia (Bodemeyer 1900, as *Hadrotoma picta* Küst.), Asia Minor and the Caucasus (Mroczowski 1968) have not been confirmed recently (Háva 2007a, 2007b).

NOTES. Bertolini (1874: 99, as *H. picta* Küst.) listed this species from "It." [= Italy, without a precise locality of collection], but he listed "*testaceicornis* Perris" [= *Trogoderma testaceicorne* Perris, 1862] as its synonym, whereas it is a synonym of *T. versicolor* (Creutzer, 1799) (cf. Luigioni 1929: 540, as *T. versicolor* a. *meridionale* Kr. = *testaceicorne*, Háva 2007a: 320). Luigioni (1929: 539) recorded *G. (G.) picta* only from two southern mainland Italian regions (Apulia and Basilicata) and from Sicily. Mroczowski (1968) and Zhantiev (2011) recorded it from mainland Italy and Sicily, but not from Sardinia. This species was recorded also from the Island of Rhodes in the Dodecanese (Greece) (Schatzmayr 1941); this archipelago must be added to the distribution summarized by Zhantiev (2011).

52. *Globicornis (Globicornis) variegata* (Küster, 1851)

Hadrotoma variegata Küster: Mulsant & Rey 1868: 114; Reitter 1887: 59.

Hadrotoma variegata Kust. [sic!]: Bargagli 1872: 103; Costa 1883: 41.

Hadrotoma variegata Küst.: Bertolini 1874: 99.

Hadrotoma (Globicornis) variegata Küster: Reitter 1881: 84.

Globicornis (Hadrotoma) variegata Küst. = *sicula* Allard [sic!]: Reitter 1891a: 338.

Hadrotoma variegata Kü.: Bertolini 1904: 59.

Globicornis (Globicornis) variegata Küst.: Reitter 1906b: 379; Luigioni 1929: 539; Porta 1929: 305; Mroczowski 1962: 7.

Hadrotoma variegata: Champion 1911: 220.

Globicornis variegata Küst.: Krausse 1912a: 144.

Globicornis variegata Kuster [sic!]: Strassen 1954: 273.

Globicornis (Globicornis) variegata (Küster, 1851): Mroczowski 1968: 114; Audisio et al. 1995: 12; Háva 2003: 110; Háva 2007b.

Globicornis (Globicornis) variegata (Kuester, 1851): Zhantiev 2011.

LITERATURE RECORDS. Sardinia "(Baudi)" (Bargagli 1872). Sardinia (Mulsant & Rey 1868; Bertolini 1874; Reitter 1891a; Bertolini 1904; Reitter 1906b; Luigioni 1929; Porta 1929; Mroczowski 1968; Audisio et al. 1995; Háva 2003, 2007b; Zhantiev 2011). "Auf den Mittelmeer-Inseln" [= On the Mediterranean Islands] (Reitter 1881, 1887). **Carbonia-Iglesias prov.:** dint. Domusnovas, 1–7.V.1882, ACo (Costa 1883). **Nuoro prov.:** dint. Aritzu [= Aritzo], about 762 m, 31.V–10.VI.1910, AD FS CH, "On the Umbelliferae and other flowers hereabouts" (Champion 1911); Sorgono (Krausse 1912a). **Olbia-Tempio prov.:** Maddalena Island, 21.IV.1952, RS, on *Cistus monspeliensis* (Strassen 1954). **Sassari prov.:** Sassari, 225–300 m, 3–18.IV.1952, RS (Strassen 1954); Sassari, Bunnari, 9.V.1958, L?, 1 ex; sdb 18.V.1960, 7 ex; sdb 25.V.1960, 1 ex (Mroczowski 1962).

MATERIAL EXAMINED. **Cagliari prov.:** Cagliari, Stagno di Santa Gilla, 24.VI.2001, LF, 1 ex (CGN); Muravera, 21.VI.2003, LF, 1 ex (CGN); dint. Seulo, 743 m, 32S 521714 4414340, 17.V.2008, GN PA MB MTr, sn, 5 ex (CNBFVR). **Carbonia-Iglesias prov.:** Domusnovas, Bega d'Aleni, 621 m, 32S 467855 4361336, 24.V.2006, PCo MB DB DW, sn, 5 ex (CNBFVR); Domusnovas, L. Siuru, 322 m, 32S 467069 4357916, 20–23.V.2006, PCo MB DB DW, mt, 1 ex (CNBFVR); Domusnovas, dint. Planargia - Scoveri, 32S 465523 4362921, 625 m, 8.VI.2004, MT, dc, 1 ex (CNBFVR); 20.V.2006, PCo MB DB DW, sn, 18 ex (CNBFVR); 20–24.V.2006, PCo MB DB DW, mt, 10 ex (CNBFVR); Domusnovas, sa Duchessa, 371 m, 32S 464990 4358384, 21.III–4.IV.2006, GC, mt, 1 ex (CNBFVR); 2–16.V.2006, GC, mt, 2 ex (CNBFVR); 13–27.VII.2006, GC, mt, 1 ex (CNBFVR); Domusnovas, Valle Oridda, 592 m, 32S 466973 4362228, 24.V.2006, PCo MB DB DW, sn, 3 ex (CNBFVR); 12.VI.2004, GN, dc, 6 ex (CNBFVR); Domusnovas, Valle Oridda, pineta, 595 m, 32S 466970 4362400, 24.III–24.V.2006, PCo MB DB DW, wt, 1 ex (CNBFVR); Domusnovas, Valle Oridda, 643 m, 32S 465399 4362770, 7.VI.2004, GN, dc, 20 ex (CNBFVR); 10.VI.2004, GN, dc, 4 ex (CNBFVR); 12.VI.2004, GN, dc, 1 ex (CNBFVR); Iglesias, Case Marganai, 725 m, 32S 463890 4355925, 7.VI.2004, GN, dc, 2 ex (CNBFVR); Iglesias, Marganai, plot CONECOFOR

SAR1, 700 m, 32S 462853 4355582, 20.V–16.VI.2005, GC, wt, 2 ex (CNBFVR); Iglesias, Vecchia Cantoniera (= Cartiera) Marganai, 491 m, 32S 462272 4354677, 9.VI.2004, GN, sn, 5 ex (CNBFVR). **Medio Campidano prov.:** Arbus, Fraz. Sant'Antonio di Santadi, 17.V.1995, FA, 10 ex (JHAC); Gonosfanàdiga, Monte Idda, strada per Monte Linas, 474 m, 32S 466946 4368997, 22.V.2006, PCo MB DB DW, sn, 6 ex (CNBFVR); Villacidro, 25–31.V.1999, PL, 2 ex (CGN); Villacidro, dint. P.ta Pranu Ilixis, 563 m, 32S 471221 4359310, 20.V.2006, PCo MB DB DW, sn, 1 ex (CNBFVR); Villacidro, Rio Cannisoni, 401 m, 32S 468459 4362806, 19.V.2006, PCo MB DB DW, sn, 11 ex (CNBFVR); Villacidro, Rio Leni, 300 m, 28.V.2000, PL, 1 ex (CGN); 24.V.2006, PL, 3 ex (CGN). **Nuoro prov.:** Desulo, Rio Aratu, 958 m, 32T 521882 4431913, 16.V.2008, GN PA MB MTr, "oe on *Crataegus* sp." [tfi], 7 ex (CNBFVR); Gadoni, F. Flumendosa, riva, 402 m, 32S 516364 4416019, 17.V.2008, GN, sn, 5 ex (CNBFVR); Lodé, S. Anna, strada per Siniscola, 490 m, 32T 554459 4491980, 15.V.2008, GN PA MB MTr, sn, 1 ex (CNBFVR); dint. Lula, 530 m, 32T 542525 4480254, 15.V.2008, GN PA MB MTr, sn, 4 ex (CNBFVR); Massiccio del Gennargentu, Monte d'Iscludu, 1400 m, 30.V.1999, RP, 1 ex (JHAC); Sarule, Monte Gonare, 10.V.2003, LF, 2 ex (CGN). **Ogliastra prov.:** Gairo, dint. M. Perda Liana, 1060 m, 32S 535438 4418611, 16.V.2008, GN PA MB MTr, sn, 1 ex (CNBFVR); Gairo, M. Tonneri, dint. nuraghe Ardassai, lecceta, 1020 m, 32S 529111 4415819, 16.V.2008, MB GN PA MTr, "oe on *Crataegus* sp." [tfi], 1 ex (CNBFVR); Seui, Monte Tonneri, 22.III.2004, LF, 1 ex (CGN); Seui, dint. M. Tonneri, sorg. Nuletta, 892 m, 32S 531716 4412341, 17.V.2008, GN PA MB MTr, oe, 1 ex (CNBFVR). **Olbia-Tempio prov.:** [Maddalena Island,] La Maddalena, 12.XII.2001, LF, 3 ex (CGN). **Sassari prov.:** Gocèano, strada Anela-Bulteri, 500 m, 24.VI.2007, PCo GS, sn, 2 ex (CPC).

CHOROTYPE. S-European; this species is recorded from Croatia (Depoli 1928), France (mainland and Corsica), Greece (mainland and Crete), Italy (southern mainland regions, Sardinia, Sicily), Spain and European Turkey (cf. Audisio et al. 1995; Háva 2003, 2007a, 2007b; Zhantiev 2011).

NOTES. Based on the above records, this species is active in Sardinia from March to July, although a record is known also from December. The species, besides from Maddalena Island (Strassen 1954), is known also from other small Italian islands (Luigioni 1929; Porta 1929; Horion 1955; Lo Cascio et al. 2006).

53. *Globicornis (Hadrotoma) emarginata* (Gyllenhal, 1808)

Hadrotoma marginata Payk. [= (Paykull, 1798)]: Bargagli 1872: 102; Bertolini 1874: 99; Bertolini 1904: 59.

Globicornis (Hadrotoma) marginata Payk.: Porta 1929: 304.

Globicornis (Hadrotoma) emarginata (Gyllenhal, 1808): Audisio et al. 1995: 13.

LITERATURE RECORDS. All of Italy (Bertolini 1904; Porta 1929). Sardinia "(Ghilianii)" (Bargagli 1872). Sardinia (Bertolini 1874; Audisio et al. 1995).

CHOROTYPE. European with extension to the Caucasus and West Siberia (cf. Alexandrovitch et al. 1996, as *G. emarginata*; Háva 2007a, 2008, 2011; Zhantiev 2011).

NOTES. *Globicornis (Hadrotoma) marginata* (Paykull, 1798: 280) was described as *Dermestes marginatus*, which is a junior primary homonym of *D. marginatus* Thunberg, 1781, which in turn is a junior synonym of *D. (Dermestinus) maculatus* DeGeer, 1774 (cf. Mroczowski 1968: 70; Mroczowski 1975: 36; Háva 2007a). This homonym was removed by Biström (1977), who replaced Paykull's name with that of its synonym *Dermestes emarginatus* Gyllenhal, 1808. This opinion was rightly followed by some authors (e.g. Silfverberg 1979; Audisio et al. 1995; Háva 2003; Zhantiev 2011), while it was overlooked by others (e.g. Kalík 1993). Moreover, *D. marginatus* Paykull, 1798: 280 is a homonym of *D. marginatus* Paykull, 1798: 300 that is currently a synonym of *Latridius porcatus* Herbst, 1793 (Latridiidae) (cf. Háva 2007a; Johnson 2007).

The occurrence of *G. (H.) emarginata* in Sicily and Sardinia (cf. Audisio et al. 1995) was excluded by Zhantiev (2011).

54. ? *Trogoderma glabrum* (Herbst, 1783)

Trogoderma elongatula F. [= (Fabricius, 1801)]: Bargagli 1872: 103. *Trogoderma elongatulum* Fabr. = *glabrum* Herbst [= (Herbst, 1797)] = *ruficornis* Latr. [= (Latreille, 1807)] = *versicolor* Ill. [= (Illiger, 1802)]: Bertolini 1874: 99.

LITERATURE RECORDS. Sardinia (Bertolini 1874). **Sassari prov.:** "On several flowers at the beginning of spring. Sassari (Raymond)" [tfi] (Bargagli 1872).

OTHER MATERIAL EXAMINED. **Latium:** Latina province, M.ti Lepini, Norma, M. Arrestino, versante SW, 700 m, [32T 328059 4609079] 10.VII–15.VIII.2002, GN CE, "aerial trap (baited with vinegar and salt) on a *Quercus pubescens* tree at 2.5 m from the ground, near a little dump along a panoramic road" [tfi], 1 ex (CGN).

CHOROTYPE. Cosmopolitan (Háva & Mifsud 2006; Háva 2011). The following countries must be added to the distribution summarized by Háva (2007a):

Belarus (Barševskis 2001; Zhantiev 2011), Georgia (cf. Hinton 1945), Malta (Háva & Mifsud 2006; Zhantiev 2011), Albania (Zhantiev 2011), Bulgaria (Denux & Zagatti 2010; Zhantiev 2011), Bosnia-Herzegovina (Zhantiev 2011), Croatia (Depoli 1928, as *T. nigrum* Hrbst. [= (Herbst, 1797)]; Zhantiev 2011), Lithuania, Macedonia, Moldova, European Russia (Central, East, Kaliningrad region, North, South) and Ukraine (Zhantiev 2011).

NOTES. The above Sardinian records were ignored by all subsequent authors, also by Bertolini (1904, as *T. glabrum* Herb.) himself, so this species is here excluded from the fauna of Sardinia. In Italy it is known only from the northern regions, Tuscany (cf. Bertolini 1899, 1904; Della Beffa & Gagliardi 1912, as *T. glabrum* = *nigrum* Herbs. [= (Herbst, 1797)]; Luigioni 1929; Porta 1929, both as *T. nigrum* Herbst; Audisio et al. 1995, as *T. glabrum glabrum* = *nigrum*; Nicoli Aldini 2003a; Háva & Nardi 2004; Kahlen 2010) and Latium (see above). This last record is the southernmost in Italy, since an old record from Sicily (Ghiliani 1842: 33, as *T. elongatum* Fabr.) was never confirmed (cf. Bertolini 1874, 1904; Luigioni 1929; Porta 1929; Audisio et al. 1995; Zhantiev 2011). This species is a stored-product pest (cf. Hinton 1945); its larvae also develop in the nests of Apoidea and Vespidae (Hymenoptera) (cf. Eves et al. 1980; Mroczkowski 1989; Krunic' et al. 2005).

55. ? *Trogoderma granarium* Everts, 1898

Trogoderma granarium Everts, 1898: Audisio et al. 1995: 13; Denux & Zagatti 2010: 358.

LITERATURE RECORDS. Sardinia? (Audisio et al. 1995). Sardinia (Denux & Zagatti 2010).

CHOROTYPE. Cosmopolitan (cf. Anderson et al. 1997; Háva 2003, 2007a, 2007b, 2008; Denux & Zagatti 2010; Zhantiev 2011). This species probably originated from Asia (cf. Panagiotakopulu 2003; Denux & Zagatti 2010).

NOTES. According to Gelosi & Süß (1991) this species is accidental in Italy; it is recorded from some mainland regions and Sicily, where it was collected chiefly on stored flours and cereals (cf. Nannizzi 1941; Dal Monte 1954; Melis 1954; Dal Monte 1957a, 1957b; Norato 1957; Dal Monte 1958; Genduso 1963; Dal Monte 1972, 1976; Rossi & Niccoli 1977; Angelini 1987; Gelosi & Giunchi 1979; Gelosi & Süß 1991; Contessi & Mucciolini 1993; Audisio et al. 1995; Nicoli Aldini 1997; Contessi & Mucciolini 1998;

Pollini 1998; Gentile & Trematerra 2003; Nicoli Aldini 2003b, 2004; Trematerra & Gentile 2006, 2008; Denux & Zagatti 2010). The above generic doubtful record from Sardinia (Audisio et al. 1995) was based on specimens from Cagliari of doubtful determination, that it was not possible to check later. The above record from Sardinia by Denux & Zagatti (2010) refers (P. Zagatti, pers. comm., 2011) to Dal Monte (1954), who however recorded it only from Sicily and Apulia, so this species is here excluded from the Sardinian fauna. *Trogoderma granarium* is not listed from Italy by Háva (2007a) and Zhantiev (2011), being an accidental species.

56. *Trogoderma inclusum* LeConte, 1854

Trogoderma versicolor Creut. v. *meridionale* K. [= Kraatz, 1858]: Bertolini 1904: 59.

Trogoderma versicolor Creutz. a. *meridionale* Kr.: Luigioni 1929: 540.

Trogoderma versicolor Creutz. v. *meridionale* Kr.: Porta 1929: 305.

Trogoderma versicolor meridionale Kr.: Mroczkowski 1962: 7.

Trogoderma versicolor (Creutzer, 1799) = [sic!] *meridionale* Kraatz, 1858: Audisio et al. 1995: 13.

LITERATURE RECORDS. Sardinia (Bertolini 1904; Luigioni 1929; Porta 1929; Audisio et al. 1995). "Together with the type [= Sicily, Sardinia, Corsica]" [tft] (Porta 1929). **Sassari prov.:** Sassari, 24.VI.1959, L?, 1 ex; sdb 25.VI.1959, 1 ex (Mroczowski 1962).

MATERIAL EXAMINED. **Olbia-Tempio prov.:** Olbia, Porto, 20.V.2008, GN, dc, 1 ex (CNBFVR).

OTHER MATERIAL EXAMINED. **Lombardy:** Mantua prov., Marmirolo, Bosco della Fontana, 25 m, 32T 637078 5006754, 9.IX.2005, DB, "dc in a laboratory" [tft], 1 ex (CNBFVR).

CHOROTYPE. Cosmopolitan (cf. Háva 2007b).

NOTES. In the past, this species was synonymized with *Trogoderma versicolor* (Creutzer, 1799) and later resurrected as a valid species (cf. Beal 1956; Dal Monte 1958; Mroczkowski 1975; Aitken 1975). Moreover, *T. meridionalis* Kraatz, 1858 is currently a synonym of *T. inclusum* (Háva 2007a), while in the past it was attributed to *T. versicolor* (Creutzer, 1799) as a variety (cf. Bertolini 1904; Porta 1929, in both cases as *T. v. v. meridionale* [sic!]), an aberration (Luigioni 1929, as *T. v. a. meridionale* [sic!]), a subspecies (Mroczkowski 1962, 1968, as *T. v. meridionale* [sic!]), a form (Mroczkowski 1975: 99, as *T. v. f. meridionale* [sic!]), or a synonym (cf. Audisio et al.

1995). In this framework, the above-mentioned old Italian literature records, including those from Sicily (cf. Mulsant & Rey 1868 as *T. meridionalis*; Ragusa 1892; Bertolini 1904; Porta 1929, in all cases as *T. v. var. meridionale* [sic!]; Mroczowski 1968, as *T. v. meridionale* [sic!]), must be considered with caution. *Trogoderma inclusum*, on the basis of specimens determined with doubt by V. Kalík, was recorded also from Corsica (Schaefer 1964), but this record has not been confirmed (Zhantiev 2011). This species was recorded also from the Canary Islands (Oromí et al. 2009; Zhantiev 2011), Cyprus, Lebanon (cf. Aitken 1975), Albania and Poland (Denux & Zagatti 2010), and these countries must be added to the distribution summarized by Háva (2007b).

This species is a stored product pest (cf. Aitken 1975; Nicoli Aldini 1997, 2003b, 2004), but develops also in nests of Aculeate Hymenoptera (Hinton 1945); in mainland Italy it has been found also in beehives (Nicoli Aldini 1998b, 1999). In Morocco it is an egg predator of *Lymantria dispar* (Lepidoptera, Lymantriidae) (Villemant & Fraval 1992, 1993; Villemant & Ramzi 1995; Villemant 1998; Villemant & Andrei-Ruiz 1999, in all cases as *T. granarium meridionalis* Kraatz).

The above specimen from Lombardy comes from a Nature Reserve and is here recorded for a better faunistic knowledge of this protected area, from where *T. glabrum* is also known (Háva & Nardi 2004).

57. *Trogoderma versicolor* (Creutzer, 1799)

Trogoderma versicolor Creut.: Bertolini 1904: 59.

Trogoderma versicolor Creutz.: Luigioni, 1929: 540; Porta 1929: 305.

Trogoderma versicolor (Creutzer, 1799) = [sic!] *meridionale* Kraatz, 1858: Audisio et al. 1995: 13.

Trogoderma versicolor (Creutzer, 1799): Zhantiev 2011.

LITERATURE RECORDS. Sardinia (Bertolini 1904; Luigioni 1929; Porta 1929; Audisio et al. 1995; Zhantiev 2011).

MATERIAL EXAMINED. **Cagliari prov.:** Muravera, 21.VI.2003, LF, 2 ex (CGN).

OTHER MATERIAL EXAMINED. **Latium:** Latina prov., Cisterna di Latina, 33T 319835 4606540, 20.VI.2003, GN, dc "dead in a house" [tifi], 1 ex (CGN).

CHOROTYPE. Cosmopolitan (Háva 2007a; Zhantiev 2011). This species was recorded also from Slovenia (cf. Holzer 1996: 84; Zhantiev 2011), Belarus (Barševskis 2001) and Corsica (Sainte-Claire Deville

1935, as *Tragoderma* [sic!] *versicolor*); these areas must be added to the distributions summarized by Háva (2007a) and Zhantiev (2011).

NOTES. In Italy, this species and the previous one have often been confused (see notes above). In this country, *Trogoderma versicolor* is recorded also from the following regions: South Tyrol (cf. Peez & Kahlen 1977; Kahlen & Hellrig 1996), Lombardy (Bertolini 1874; Giachino 1982), Campania (Mulsant & Rey 1868; Luigioni 1929) and Sicily (Ragusa 1892; Bertolini 1904; Vitale 1904; Porta 1929). *Trogoderma versicolor* is here firstly record from Latium; a few kilometres from the above-mentioned site was collected also *T. inclusum* (Nardi R. et al. 1993).

DISCUSSION

Faunistics

This family has been little studied in Italy, as witnessed also in the previous pages by the relatively few circumstantial Sardinian literature records.

On a total of 95 species currently recorded from Italy, 53 are known with certainty from Sardinia. Some of these species (e.g. *Ctesias* (*C.*) *serra*, *Globicornis* (*G.*) *bifasciata*) are known only on the basis of old literature data, but their occurrence on the island is very likely.

Zoogeography

Tab. 1 summarizes the chorotypes of the 53 Dermestidae species recorded with certainty from Sardinia. Four groups of chorotypes are represented: species widespread in the Holarctic Region (12 species, 22.64%), species more or less widespread in Europe (7 species, 13.20%), species more or less widespread in the Mediterranean countries (21 species, 39.62%), and Cosmopolitan and Subcosmopolitan species (13 species, 24.52%).

As expected, the relatively more frequent group of chorotypes is the Mediterranean one (39.62%), with a relevant presence (24.52%) also of Cosmopolitan and Subcosmopolitan species. These high percentages are probably related to the central position of Sardinia in the Mediterranean and to its climate, particularly propitious for most of the alien species, which are usually thermophilous and associated with stored products (cf. Fogliazza & Pagani 1993; Denux & Zagatti 2010).

Sardinia is amongst the European hotspots of biodiversity and endemism (cf. Médail & Quézal 1999; Grill et al. 2006; Underwood et al. 2009), so the absence of Dermestidae endemic to Sardinia or to the

Tab. 1. Updated checklist of the Sardinian Dermestidae, including chorotypes and Italian distribution.

Chorotypes. CEM: Centralasiatic-European-Mediterranean; CEU = Centraleuropean; COS: Cosmopolitan; EUR = European; MED = Mediterranean; OLA: Holarctic; PAL = Palearctic; SCO = Subcosmopolitan; SEU = S-European; TEM = Turano-European-Mediterranean; TUE = Turano-European; WME = W-Mediterranean.

Group of chorotypes. C = Cosmopolitan and subcosmopolitan species; E = Species widespread in Europe; M = Species widespread in the Mediterranean Basin; O = Species widespread in the Holarctic region;

Italian distribution. N = Northern Italy; S = Peninsular Italy; Si = Sicily and small circumsicilian islands; Sa = Sardinia and small circumsardinian islands (cf. Audisio et al. 1995; Háva & Nardi, this paper).

Species	Italian distribution			Chorotype	Group of chorotypes	
<i>Attagenus (Attagenus) bifasciatus</i> (A.G. Olivier, 1790)		S	Si	Sa	TEM	O
<i>Attagenus (Attagenus) brunneus</i> Faldermann, 1835	N	S	Si	Sa	OLA	O
<i>Attagenus (Attagenus) lobatus</i> Rosenhauer, 1856		S	Si	Sa	CEM	O
<i>Attagenus (Attagenus) obtusus</i> (Gyllenhal, 1808)				Sa	TEM	O
<i>Attagenus (Attagenus) schaefferi schaefferi</i> (Herbst, 1792)	N	S	Si	Sa	OLA	O
<i>Dermestes (Dermestes) bicolor bicolor</i> Fabricius, 1781	N	S		Sa	PAL	O
<i>Dermestes (Dermestinus) lanarius lanarius</i> Illiger, 1801	N	S		Sa	PAL	O
<i>Dermestes (Dermestinus) murinus murinus</i> Linnaeus, 1758	N	S	Si	Sa	PAL	O
<i>Dermestes (Dermestinus) undulatus</i> Brahm, 1790	N	S	Si	Sa	OLA	O
<i>Dermestes (Montandonia) olivieri</i> Lepesme, 1939	N	S	Si	Sa	TEM	O
<i>Orphilus niger</i> (P. Rossi, 1790)	N	S	Si	Sa	CEM	O
<i>Trinodes hirtus</i> (Fabricius, 1781)	N	S	Si	Sa	TUE	O
<i>Anthrenus (Anthrenus) delicatus</i> Kiesenwetter, 1851	N	S	Si	Sa	MED	M
<i>Anthrenus (Anthrenus) festivus</i> Erichson, 1848		S?	Si	Sa	MED	M
<i>Anthrenus (Anthrenus) goliath</i> Saulcy, 1868	N	S	Si	Sa	MED	M
<i>Anthrenus (Anthrenus) munroi</i> Hinton, 1943		S		Sa	MED	M
<i>Anthrenus (Helocerus) minutus</i> Erichson, 1848		S	Si	Sa	MED	M
<i>Anthrenus (Nathrenus) molitor</i> Aubé, 1850	N			Sa	MED	M
<i>Anthrenus (Nathrenus) versicolor</i> Reitter, 1887			Si	Sa	MED	M
<i>Attagenus (Attagenus) fallax</i> Gené, 1839		S	Si	Sa	MED	M
<i>Attagenus (Attagenus) maritimus</i> (Gené, 1839)			Si	Sa	WME	M
<i>Attagenus (Attagenus) rossii</i> Ganglbauer, 1904		S	Si	Sa	MED	M
<i>Attagenus (Attagenus) simplex</i> Reitter, 1881		S	Si	Sa	MED	M
<i>Attagenus (Attagenus) tigrinus</i> (Fabricius, 1792)	N	S	Si	Sa	MED	M
<i>Dermestes (Dermestes) hispanicus</i> Kálík, 1952				Sa	MED	M
<i>Dermestes (Dermestinus) aurichalceus</i> Küster, 1846	N	S?		Sa	MED	M
<i>Dermestes (Dermestinus) pardalis</i> Billberg, 1808				Sa	WME	M
<i>Dermestes (Dermestinus) sardous sardous</i> Küster, 1846	N	S		Sa	MED	M
<i>Dermestes (Montandonia) hirticollis</i> Fabricius, 1792				Sa	WME	M
<i>Globicornis (Globicornis) bifasciata</i> (Perris, 1866)			Si	Sa	WME	M
<i>Thorictus grandicollis grandicollis</i> Germar, 1842		S	Si	Sa	MED	M
<i>Thorictus mauritanicus</i> P.H. Lucas, 1846			Si	Sa	MED	M
<i>Thorictus stricticollis stricticollis</i> Kraatz, 1859				Sa	MED	M
<i>Ctesias (Ctesias) serra</i> (Fabricius, 1792)	N	S	Si	Sa	EUR	E
<i>Dermestes (Dermestinus) erichsoni</i> Ganglbauer, 1904	N	S	Si	Sa	EUR	E
<i>Dermestes (Dermestinus) mustelinus</i> Erichson, 1848	N	S	Si	Sa	EUR	E
<i>Globicornis (Globicornis) fasciata</i> (Fairmaire & Brisout, 1859)	N	S		Sa	CEU	E
<i>Globicornis (Globicornis) picta</i> (Küster, 1851)		S	Si	Sa	EUR	E
<i>Globicornis (Globicornis) variegata</i> (Küster, 1851)	N	S	Si	Sa	SEU	E

<i>Globicornis (Hadrotoma) emarginata</i> (Gyllenhal, 1808)	N	S	Si	Sa	EUR	E
<i>Anthrenus (Anthrenus) flavipes flavipes</i> LeConte, 185		S		Sa	COS	C
<i>Anthrenus (Anthrenus) pimpinellae isabellinus</i> Küster, 1848		S	Si	Sa	COS	C
<i>Anthrenus (Anthrenus) scrophulariae scrophulariae</i> (Linnaeus, 1758)	N	S	Si	Sa	COS	C
<i>Anthrenus (Florilinus) museorum</i> (Linnaeus, 1761)	N	S	Si	Sa	COS	C
<i>Anthrenus (Helocerus) fuscus</i> A.G. Olivier, 1790	N	S	Si	Sa	SCO	C
<i>Anthrenus (Nathrenus) verbasci</i> (Linnaeus, 1767)	N	S	Si	Sa	COS	C
<i>Attagenus (Attagenus) pello</i> (Linnaeus, 1758)	N	S	Si	Sa	COS	C
<i>Attagenus (Attagenus) unicolor unicolor</i> (Brahm, 1790)	N	S	Si	Sa	COS	C
<i>Dermestes (Dermestes) lardarius</i> Linnaeus, 1758	N	S	Si	Sa	COS	C
<i>Dermestes (Dermestinus) frischii</i> Kugelann, 1792	N	S	Si	Sa	COS	C
<i>Dermestes (Dermestinus) maculatus</i> DeGeer, 1774	N	S	Si	Sa	COS	C
<i>Trogoderma inclusum</i> LeConte, 1854	N	S	Si	Sa	COS	C
<i>Trogoderma versicolor</i> (Creutzer, 1799)	N	S	Si	Sa	COS	C

Corso-Sardinian system is noteworthy. In this framework, it should not to be excluded that, among the Thorictini, a tribe rich of endemics in other neighbouring Mediterranean territories and in the Macaronesian islands (cf. Löbl 2007; Oromí et al. 2009), one or more rare and so far undescribed endemic species, associated with the rich Sardinian myrmecofauna (cf. Rigato & Toni 2011), may be found in the future. Nevertheless, also in nearby Corsica, which has a similar biogeographical history (cf. De Jong 1998) but is smaller in size (8,681 km²), endemic dermestid species are lacking altogether (cf. Háva 2007a, 2007b; Löbl 2007).

Acknowledgements

This paper was prepared in the context of the ICP Forests monitoring programme.

Thanks are due to Daniele Avesani (Museo Civico di Storia Naturale di Verona), Alessia Gibertoni (Porto Mantovano, Mantua), Marco Bardiani, Daniele

Birtele, Pierfilippo Cerretti, Emma Minari, Franco Mason, Mara Tisato, Ilaria Toni, Laura Spada and Daniel Whitmore (CNBFVR) for help in the field and in the lab, to Paolo Cornacchia (Porto Mantovano, Mantua) for help sorting trap samples and for allowing us to study his private collection, to Luca Fancello, Piero Leo, Gianpaolo Ruzzante, Daniele Sechi (Cagliari) and Marzio Zapparoli (Department for Innovation in Biological, Agro-food and Forest systems, Università degli Studi della Tuscia, Viterbo) for the gift of Sardinian specimens, Leonardo Latella and Roberta Salmaso (Museo Civico di Storia Naturale, Verona), Maurizio Mei, Emanuele Piattella and Augusto Vigna Taglianti (MZUR), Giuseppe Pace (Rome), and Alberto Zilli (MCZR), for enabling us to study the collections in their care, to Daniel Whitmore (CNBFVR) for the linguistic revision of the manuscript and to two anonymous reviewers for their constructive comments on a first version of this paper.

REFERENCES

- Agosti D. & Johnson N.F. (eds), 2005. Antbase. World Wide Web electronic publication. antbase.org, version (05/2005), available at <http://antbase.org>. [accessed 19.II.2011].
- Aguar C.A.S. & Serrano A.R.M., 1995. Estudo faunístico e ecológico dos Coleópteros (Insecta, Coleoptera) do Concelho de Cascais (Portugal). Boletim da Sociedade portuguesa de Entomologia, 155: 41–66.
- Aitken A.D., 1975. Insect Travellers Volume I. Coleoptera. Ministry of Agriculture, Fisheries (U.K.), London, Technical Bulletin 31, I–XVI + 191 pp.
- Alexandrovitch O.R., Lopatin I.K., Pisanenko A.D., Tsinkevitch V.A. & Snitko S.M., 1996. A Catalogue of Coleoptera (Insecta) of Belarus [in Russian]. Fund of Fundamental Investigations of the Republic of Belarus, 104 pp.
- Al-Houty W., 2004. A faunistic account of the beetles (Coleoptera) of the state of Kuwait. Kuwait Journal of Science & Engineering, 31 (1): 59–76.

- Anderson R., Nash R. & O'Conor J.P., 1997. Irish Coleoptera. A revised and annotated list. Special Entomological Supplement to The Irish Naturalists' Journal, 81 pp.
- Angelini F., 1986. Coleotterofauna del Massiccio del Pollino (Basilicata–Calabria) (Coleoptera). *Entomologica*, 21: 37–125.
- Angelini F., 1987. Coleotterofauna del Promontorio del Gargano (Coleoptera). *Atti del Museo civico di Storia naturale di Grosseto*, 11–12: 5–84.
- Angelini F., 1991. Coleotterofauna dell'Altipiano della Sila (Calabria, Italia) (Coleoptera). *Memorie della Società entomologica italiana*, 70 (1): 171–254.
- Angelini F., 1999. Coleotterofauna della Riserva Naturale Integrale "Isola di Capo Passero" (Portopalo, Siracusa). *Atti e Memorie dell'Ente Fauna Siciliana*, 5 (1997–1998): 85–100.
- Angelini F. & Montemurro F., 1986. Coleotterofauna del Bosco di Policoro (Matera). *Biogeographia, Lavori della Società italiana di Biogeografia*, 10 (1984): 545–604.
- Angius R., Bacchetta G. & Pontecorvo C., 2011. Floristic and vegetational features of Monte Marganai (SW Sardinia), pp. 57–132 + 1 map. In: Nardi G., Whitmore D., Bardiani M., Birtele D., Mason F., Spada L. & Cerretti P. (eds), Biodiversity of Marganai and Montimannu (Sardinia). Research in the framework of the ICP Forests network. *Conservazione Habitat Invertebrati*, 5. Cierre Edizioni, Sommacampagna, Verona.
- Audisio P., Liberti G., Nardi G. & Poggi R., 1995. Coleoptera Polyphaga VIII (Cantharoidea, Dermestoidea), pp. 1–17. In: Minelli A., Ruffo S., La Posta S. (eds), Checklist delle specie della fauna Italiana, 53. Edizioni Calderini Bologna.
- Baccetti B., 1964. Considerazioni sulla costituzione e l'origine della fauna di Sardegna. *Archivio botanico e biogeografico italiano*, 40, 4a serie, 9, 217–283.
- Bardiani M., 2011. Introduction, pp. 15–56. In: Nardi G., Whitmore D., Bardiani M., Birtele D., Mason F., Spada L. & Cerretti P. (eds), Biodiversity of Marganai and Montimannu (Sardinia). Research in the framework of the ICP Forests network. *Conservazione Habitat Invertebrati*, 5. Cierre Edizioni, Sommacampagna, Verona.
- Bargagli P., 1870. Materiali per la fauna entomologica dell'isola di Sardegna. *Coleotteri. Bullettino della Società entomologica italiana*, 2: 262–270.
- Bargagli P., 1872. Materiali per la fauna entomologica dell'isola di Sardegna. *Coleotteri. Bullettino della Società entomologica italiana*, 4: 97–104.
- Bargagli P., 1873. Materiali per la fauna entomologica dell'isola di Sardegna. *Coleotteri. Bullettino della Società entomologica italiana*, 5: 34–49.
- Baroni Urbani C., 1971. Catalogo delle specie di Formicidae d'Italia (Studi sulla mirmecofauna d'Italia – X). *Memorie della Società entomologica italiana*, 50: 5–287.
- Barševskis A., 2001. New and rare species of beetles (Insecta: Coleoptera) in the Baltic states and Belarus. *Baltic Journal of Coleopterology*, 1: 3–18.
- Baudi F., 1870. Coleopterorum messis in insula Cypro et Asia minore ab Eugenio Truqui congregatae recensio: de Europaeis notis quibusdam additis. Pars tertia. *Berliner entomologische Zeitschrift*, 14: 48–90.
- Baudi F., 1890. Catalogo dei Coleotteri del Piemonte. *Annali della reale Accademia d'Agricoltura di Torino*, 32 (1889): 1–274.
- Beal R.S. Jr., 1956. Synopsis of the economic species of *Trogoderma* occurring in the United States with description of a new species (Coleoptera: Dermestidae). *Annals entomological Society of America*, 49: 559–566.
- Beal R.S. Jr., 1998. Taxonomy and Biology of Nearctic Species of *Anthrenus* (Coleoptera: Dermestidae). *Transactions of the American entomological Society*, 124: 271–332.
- Beal R.S. Jr., 1994. *Dermestes rattus* (Coleoptera: Dermestidae): taxonomic status and comparison with five closely related species in the Western United States. *Entomological News*, 105: 27–32.
- Bertolini S., 1874. Catalogo sinonimico e topografico dei Coleotteri d'Italia, pp. 93–108. *Supplemento del Bullettino della Società entomologica italiana*, 6 (1).
- Bertolini S., 1899. Contribuzione alla fauna trentina dei Coleotteri. *Supplemento. Bullettino della Società entomologica italiana*, 30 (1898): 85–120.
- Bertolini S., 1904. Catalogo dei Coleotteri d'Italia. Ed. *Rivista italiana di Scienze naturali*, Siena (1899–1904), 144 pp.
- Bickhardt H., 1908. Coleopterologische Ergebnisse einer Reise nach Korsica. *Entomologische Zeitschrift*, 20 (17): 122–123.
- Biström O., 1977. Nomenclatoric notes on Coleoptera. *Notulae entomologicae*, 57: 17–18.
- Bodemeyer E. von, 1900. Quer durch Klein-Asien in der Bulghar-Dagh. Eine naturwissenschaftliche Studien-Reise. Emmendingen: Die Druck- und Verlags-Aktien-Gesellschaft Vormals Dölter, I–V + 169 pp.
- Boieiro M., Serrano A.R.M., & Aguiar A.M.F., 2008. Coleoptera – Other [Caraboidea, Curculionoidea and Tenebrionidae excepted], pp. 308–327. In: Borges P.A.V., Abreu C., Aguiar A.M.F., Carvalho P., Jardim R., Melo I., Oliveira P., Sérgio C., Serrano A.R.M. & Vieira P. (eds), A list of the terrestrial fungi, flora and fauna of Madeira and Selvagens archipelagos. *Direcção Regional do Ambiente*

- da Madeira and Universidade dos Açores, Funchal and Angra do Heroísmo.
- Borges P.A.V., 1990. A checklist of the Coleoptera from the Azores with some systematic and biogeographic comments. *Boletim do Museu Municipal do Funchal*, 42 (220): 87–136.
- Bouchard P., Bousquet Y., Davies A.E., Alonso-Zarazaga M.A., Lawrence J.F., Lyal C.H.C., Newton A.F., Reid C.A.M., Schmitt M., Ślipiński S.A. & Smith A.B.T., 2011. Family-group names in Coleoptera (Insecta). *ZooKeys*, 88: 1–972.
- Camerini G., 2009. Factors affecting *Lymantria dispar* mortality in a willow wood in northern Italy. *Bulletin of Insectology*, 62 (1): 21–25.
- Cammaerts R.C. & Cammaerts M.C., 1994. Suprageneric taxonomy, appeasement behavior, sex ratio and other aspects of the biology of the myrmecophilous beetle *Thorictus grandicollis* (Dermestidae, Thorictinae). *Bulletin et Annales de la Société Royale Belge de Entomologie*, 130: 203–230.
- Cecconi G., 1909a. Fauna Coleopterologica delle Isole Tremiti. *Rivista coleopterologica italiana*, 7 (2–3): 36–52.
- Cecconi G., 1909b. Fauna Coleopterologica delle Isole Tremiti. *Rivista coleopterologica italiana*, 7 (4): 71–80.
- Cerretti P., Mason F., Minelli A., Nardi G. & Whitmore D., 2009. Foreword, pp. 5–7. In: Cerretti P., Mason F., Minelli A., Nardi G. & Whitmore D. (eds), *Research on the Terrestrial Arthropods of Sardinia (Italy)*. *Zootaxa*, 2318.
- Cerruti M., 1954. Coleoptera, pp. 108–116. In: Zavattari E. (ed.), *Biogeografia dell'isola di Zannone (Arcipelago Pontino)*. *Rendiconti dell'Accademia nazionale dei XL*, 4 (4–5) (76–77) (1953–1954).
- Champion G.C., 1911. A trip to Sardinia in 1910. *Entomologist's monthly Magazine*, 22 (261–262): 219–223.
- Contessi A. & Mucciolini G., 1993. Considerazioni sugli insetti infestanti le derrate in importazione attraverso il porto di Ravenna nel periodo 1987–1991, pp. 163–173. In: Domenichini G. (ed.), *Atti del 5° Simposio "La difesa antiparassitaria nelle industrie alimentari e la protezione degli alimenti"*, Piacenza, 23–25 settembre 1992. Chiriotti Editori, Pinerolo.
- Contessi A. & Mucciolini G., 1997. Considerazioni sugli Insetti infestanti le derrate in importazione attraverso il porto di Ravenna nel quinquennio 1992–1996, pp. 75–95. In: Cravedi P. (ed.), *Atti del 6° Simposio "La difesa antiparassitaria nelle industrie alimentari e la protezione degli alimenti"*, Piacenza, 24–26 settembre 1997. Chiriotti Editori, Pinerolo.
- Costa A., 1882a. Notizie ed osservazioni sulla Geo-Fauna sarda Memoria Prima Risultamento di ricerche fatte in Sardegna nel Settembre 1881. *Atti della reale Accademia delle scienze fisiche e matematiche di Napoli* [1882], 9 [(11)]: 1–41.
- Costa A., 1882b. Rapporto preliminare e sommario sulle ricerche zoologiche fatte in Sardegna durante la primavera del 1882. *Rendiconto dell'Accademia delle Scienze fisiche e matematiche (Sezione della Società reale di Napoli)*, 21 (10): 189–201.
- Costa A., 1883. Notizie ed Osservazioni sulla Geo-Fauna Sarda. Memoria seconda. Risultamento delle ricerche fatte in Sardegna nella primavera del 1882. *Atti della reale Accademia delle Scienze fisiche e matematiche di Napoli, Serie 2ª* [1888], 1 (2): 1–109 + [1].
- Costa A., 1884. Notizie ed osservazioni sulla Geo-fauna sarda. Memoria terza. Risultamento delle ricerche fatte in Sardegna nella estate del 1883. *Atti della reale Accademia delle Scienze fisiche e matematiche di Napoli, Serie 2ª*, [1888] 1 (9): 1–64.
- Costa A., 1886a. Notizie ed osservazioni sulla Geo-Fauna Sarda. Memoria Quinta. Risultamento di ricerche fatte in Sardegna in maggio 1885. *Atti della reale Accademia delle Scienze fisiche e matematiche di Napoli, 2, Serie 2ª* [1888], 2 [fasc. 7]: 1–24.
- Costa A., 1886b. Notizie ed osservazioni sulla Geo-fauna Sarda. Memoria Sesta. Risultamento delle ricerche fatte in Sardegna nella state del 1885. *Atti della reale Accademia delle Scienze fisiche e matematiche, Serie 2ª* [1888], 2 [fasc. 8]: 1–40.
- Dal Monte G., 1954. Un nuovo nemico nei nostri magazzini ?. *Molini d'Italia*, 5: 198–201.
- Dal Monte G., 1957a. I nemici dei cereali in granella. Insetti: i guasti provocati, le principali specie dannose. *Informatore fitopatologico*, 1956–1957: 24 pp.
- Dal Monte G., 1957b. I danni causati dai nemici delle granaglie in conservazione. *Informatore fitopatologico*, 7 (15–16): 245–249.
- Dal Monte G., 1958. Gli insetti nemici dei cereali in agricoltura. *Informatore fitopatologico*, 8 (1): 6–11.
- Dal Monte G., 1972. Generalità sui principi scientifici e tecnici per una razionale conservazione dei cereali nei magazzini, pp. 91–107. In: Domenichini G. (ed.), *Atti del 1° Simposio "La difesa antiparassitaria nelle industrie alimentari e la protezione degli alimenti"*, Piacenza, 18–20 ottobre 1972. Tip. Edit. Piacentina, Piacenza.
- Dal Monte G., 1976. *Insetti nemici delle derrate alimentari – 2 ed.* Ministero dell'Agricoltura e Foreste, Tipolitografia Atena, Roma, 15 pp.
- Dalla Torre K.W. von, 1911. Pars 33. Nosodendridae, Byrrhidae, Dermestidae, pp. 1–96. In: Junk W. & Schenkling S. (ed.), *Coleopterorum Catalogus*. Vol. 14. W. Junk, Berlin.
- De Jong H., 1998. In search of historical biogeographic patterns in the western Mediterranean terrestrial fauna. *Biological Journal of the Linnean Society*, 65 (2): 99–164.
- De Stefani Perez T. & Riggio G., 1882. *Catalogo dei Coleotteri siciliani raccolti ed ordinati da Teodisio De Stefani Perez e Giuseppe Riggio, esistenti nella collezione entomologica del Museo Zoologico-Zootomico della R. Università di Palermo*. Tipografia del Giornale di Sicilia, Palermo, 27 pp.
- Dejean P.F., 1821. *Catalogue de la collection de Coléoptères de M. le Baron Dejean*. Crevot, Paris, I–VIII + 136 pp.
- Della Beffa G. & Gagliardi A., 1912. Coleotteri della Toscana omissi nel Catalogo del Dottor Bertolini. Nota III. *Rivista coleopterologica italiana*, 10 (3–4): 37–47.

- Denux O. & Zagatti P., 2010. Coleoptera families other than Cerambycidae, Curculionidae sensu lato, Chrysomelidae sensu lato and Coccinellidae. Chapter 8.5, pp. 315–406. In: Roques A., Kenis M., Lees D., Lopez-Vaamonde C., Rabitsch W., Rasplus J.-Y. & Roy D.B. (eds), Alien terrestrial arthropods of Europe. *BioRisk*, 4 (1).
- Depoli G., 1928. I coleotteri della Liburnia. Parte III. Diversicornia. Fiume, *Rivista di Studi fiumani*, 6: 208–243.
- Dieck G., 1888. An entomological winter campaign in Spain and North Africa. *The Entomologist*, 21: 65–78.
- Domenichini G. & Nicoli Aldini R., 1994. I Coleotteri Dermestidi nelle industrie alimentari. Consiglio Nazionale delle Ricerche, R.A.I.S.A. Ricerche Avanzate per Innovazioni nel sistema Agricolo. Sottoprogetto 4 Agrobiotecnologie nei processi di valorizzazione dei prodotti e sottoprodotti agricoli. *Spineto di Sarteano (Siena)*, 2: 9 pp. [unnumbered].
- Domenichini G. & Nicoli Aldini R., 1995. Use of Dermestid pheromones for survey and control purposes. *Notiziario sulla Protezione delle Piante*, n.s., 4: 46–52.
- Donadini G., Pagani M., Nicoli Aldini R. & Cravedi P., 2000a. Indagini sul rischio entomologico in un'industria birraria, pp. 84–93. In: Porretta S. (ed.), *Ricerche e Innovazioni nell'Industria Alimentare, Volume IV, Atti del 4° Congresso Italiano di Scienza e Tecnologia degli Alimenti (4° CISETA)*. Villa Erba, Cernobbio (CO), 16–17 settembre 1999. Chiriotti Editori, Pinerolo.
- Donadini G., Pagani M., Nicoli Aldini R. & Cravedi P., 2000b. Indagini sul rischio entomologico in un'industria birraria. *Industria delle Bevande*, 29 (170): 623–629.
- Erichson W.F., 1846. [Dritte Lieferung, pp. 321–480]. In: *Naturgeschichte der Insecten Deutschlands. Erste Abtheilung. Coleoptera. Dritter Band*. Nicolaischen Buchhandlung, Berlin.
- Eves D.J., Mayer F.D. & Johansen A.C., 1980. Parasites, predators, and nest destroyers of the alfalfa leafcutting bee, *Megachile rotundata*. A Western Regional Extension Publication, Washington State, 15 pp.
- Fabricius J.C., 1775. *Systema entomologie, sistens insectorum classes, ordines, genera, species, adiectis synonymis, locis, descriptionibus, observationibus*. Officina Libraria Kortii, Flensburgi et Lipsiae, I–XXXII + 832 pp.
- Fabricius J.C., 1792. *Entomologia Systematica emendata et aucta. Secundum classes, ordines, genera, species adiectis synonymis, locis, observationibus, descriptionibus*. Tom. I. Christ. Gotti. Proft., Hafniae, I–XX + 330 pp.
- Fanfani A. & Groppali R. 1979. La fauna di Montecristo – Arcipelago Toscano. (Studi sulla Riserva Naturale dell'Isola di Montecristo – XXIII.). Pubblicazioni dell'Istituto di Entomologia dell'Università di Pavia, 1979 (9): 1–52.
- Ferretti, M., Petriccione, B., Bussotti, F. & Fabbio, G. (eds), 2006. Aspects of biodiversity in selected forest ecosystems in Italy: status and changes over the period 1996–2003. Third report of the Task Force on Integrated and Combined (I&C) evaluation of the CONE-COFOR programme. *Annali dell'Istituto sperimentale per la Selvicoltura*, 30, Supplemento 2: 1–112.
- Fiori G., 1956. Ricerche zoologiche sui Monti Sibillini (Appennino umbro-marchigiano) XIV. Coleoptera: 5 - Dermestidae e Byrrhidae. *Memorie del Museo civico di Storia naturale di Verona*, 5: 279–281.
- Focarile A., 1972. Ricerche entomologiche nell'Arcipelago delle Eolie e nell'Isola di Ustica (Sicilia). II – La coleotterofauna dello stagno salmastro a Punta Lingua nell'Isola di Salina. *Memorie della Società entomologica italiana*, 51, 19–37.
- Fogliazza D. & Pagani M., 1993. Insect pests in stored foodstuffs in Italy. Part 1: Coleoptera. *Tecnica Molitoria*, 44 (11): 937–951.
- Fontana P., 1947. Contribuzione alla Fauna coleotterologica ticinese. Seconda edizione ampliata e aggiornata. *Bollettino della Società ticinese di Scienze naturali*, 42: 16–94.
- Frilli F., 1960. Note sugli insetti che si riscontrano più comunemente dei magazzini del Piacentino. *Annali della Facoltà di Agraria – Università Cattolica del Sacro Cuore*, 8 (2): 69–117.
- Ganglbauer L., 1904. Die Käfer von Mitteleuropa. Die Käfer der österreichisch-ungarischen Monarchie, Deutschlands, der Schweiz, sowie des französischen und italienischen Alpengebietes. Vierter Band, erste Hälfte. Dermestidae, Byrrhidae, Nosodendridae, Georyssidae, Dryopidae, Heteroceridae, Hydrophilidae. Karl Gerold's Sohn, Wien, 286 pp.
- Gatti E., 1991. Ricerche sull'entomofauna della Riserva Naturale Vincheto di Celarda - (BL). Ministero dell'Agricoltura e delle Foreste, Corpo Forestale dello Stato. *Collana Verde*, 86: 1–200.
- Gaubil J., 1849. *Catalogue synonymique des Coléoptères d'Europe et d'Algérie*. Maison, Paris, I–II + 297 pp.
- Gelosi A. & Giunchi P., 1979. Considerazioni sulla importanza della vigilanza sanitaria sui vegetali e prodotti vegetali importati attraverso il porto di Ravenna. *Parassitologia*, 21 (1–3): 73–77.
- Gelosi A. & Süß L., 1991. Insetti e Acari dei cereali in magazzino. Edagricole, Bologna, I–VIII + 108 pp.
- Gemminger M. & Harold E. von, 1868. *Catalogus Coleopterorum hucusque descriptorum synonymicus et systematicus*. Tom III. Histeridae, Phalacridae, Nitidulidae, Trogositidae, Colydidae, Rhysodidae, Cucujidae, Cryptophagidae, Derodontidae, Latrididae, Othnidae, Mycetophagidae, Thorictidae, Dermestidae, Byrrhidae, Georyssidae, Parnidae, Heteroceridae, Lucanidae. E. H. Gummi, Monachii, pp. 753–978 + 5 pp.
- Genduso P., 1963. Terzo decennio di osservazioni entomologiche sui principali insetti nocivi della Sicilia. *Bollettino dell'Istituto di Entomologia agraria e dell'Osservatorio di Fitopatologia di Palermo*, 4 (1960–1962): 159–202.
- Gené J. [C.G.], 1836. *De quibusdam Insectis Sardiniae novis aut minus cognitis*. Fasciculus I. *Memorie della reale Accademia delle*

- Scienze di Torino, 39: 161–199 + 1 pl. [separate 39 pp.+ 1 pl.]
- Gené J. [C.G.], 1839. De quibusdam Insectis Sardiniae novis aut minus cognitis. Fasciculus II. Memorie della reale Accademia delle Scienze di Torino, (2) 1: 43–84 + 2 pls. [separate 44 pp. + 2 pls]
- Gentile P. & Trematerra P., 2003. Insetti infestanti il Farro ed ecologia di *Sitotroga cerealella* (Olivier), pp. 177–185. In: Cravedi P. (ed.), Atti del 7° Simposio "La difesa antiparassitaria nelle industrie alimentari e la protezione degli alimenti", Piacenza, 18–20 settembre 2002. Chiriotti Editori, Pinerolo.
- Ghiliani V., 1842. Insetti di Sicilia determinati dal Sig. F. Ghiliani nel suo viaggio in quest'isola nell'anno 1839. Atti dell'Accademia Gioenia di Scienze naturali di Catania, 19: 19–48.
- Ghiliani V., 1887. Elenco delle specie di Coleotteri trovate in Piemonte. Opera postuma pubblicata per cura del membro ordinario Dott. Lorenzo Camerano. Annali della reale Accademia d'Agricoltura di Torino, 29 (1886): 1–381.
- Giachino P.M., 1982. Collezione coleotterologica di Massimiliano Spinola. Cataloghi – Museo regionale di Scienze naturali (Torino), 3: 1–616.
- Goeze J.A.E., 1777. Entomologische Beiträge zu des Ritter Linné zwölften Ausgabe des Natursystems. Erster Theil. Weidmann, Liepzig, I–XVI + 736 pp.
- Goggi G., 2004. Indagine faunistica sui Coleotteri delle Isole Pelagie (Sicilia). Giornale italiano di Entomologia, 11: 127–143.
- Grandi G., 1957. Campagna di ricerche dell'Istituto di Entomologia dell'Università di Bologna nella Sardegna settentrionale. Annali dell'Accademia italiana di Scienze forestali, 6: 151–164.
- Gridelli E., 1950. Il problema delle specie a diffusione transadriatica, con particolare riguardo ai coleotteri. Memorie di Biogeografia adriatica, 1: 1–299.
- Gridelli E., 1961. Coleoptera, pp. 369–407. In: Zavattari E. (ed.), Biogeografia delle Isole Pelagie. Accademia nazionale dei XL, Rendiconti, ser. IV, 11 (1960).
- Grill A., Casula P., Lecis R. & Menken S., 2006. Chapter X. Endemism in Sardinia, pp. 273–296. In: Weiss S. & Ferrand N. (eds), Phylogeography of Southern European Refugia. Springer Netherlands.
- Gulli G., 1961. Contributo alla conoscenza dei Coleotteri etnei. Bollettino dell'Associazione romana di Entomologia, 16 (1): 1–6.
- Halstead D.G.H., 1981. Taxonomic notes on some *Attagenus* spp. associated with stored products, including a new black species from Africa (Coleoptera: Dermestidae). Journal of stored Products Research, 17: 91–99.
- Háva J., 1999a. Contribution to the knowledge of the Old World Dermestidae (Coleoptera) Part. 1: Genus *Dermestes*. Folia Heyrovskiana, 7 (2): 133–140.
- Háva J., 1999b. Contribution to the knowledge of the Old World Dermestidae (Coleoptera) Part. 2: Genus *Dermestes*. Folia Heyrovskiana, 7 (3–4): 141–150.
- Háva J., 2002a. Contribution to the knowledge of the Old World Dermestidae (Coleoptera) Part. 3: Genus *Dermestes* (Insecta: Coleoptera). Reichenbachia, 34 (37): 303–307.
- Háva J., 2002b. Descriptions of two new dermestid beetles (Coleoptera: Dermestidae) from Syria and Israel. Revue Suisse de Zoologie, 109 (3): 539–542.
- Háva J., 2003. World Catalogue of the Dermestidae (Coleoptera). Studie a Zprávy Oblastního Muzea Praha-východ v Brandýse nad Labem a Staré Boleslavi, Supplementum, 1: 1–196.
- Háva J., 2004. World keys to the genera and subgenera of Dermestidae (Coleoptera), with descriptions, nomenclature and distributional records. Acta Musei nationalis Pragae, Series B, natural History, 60: 149–164.
- Háva J., 2006. Contribution to the knowledge of world Dermestidae (Coleoptera). Studies and Reports of District Museum Prague-East, taxonomical Series 2: 35–50.
- Háva J., 2007a. Dermestidae (Thorictinae excepted), pp. 57, 299–302, 306–320. In: Löbl I. & Smetana A. (eds), Catalogue of Palaearctic Coleoptera. Volume 4. Elateroidea - Derodontoidea - Bostrichoidea - Lymexyloidea - Cleroidea - Cucujoidea. Apollo Books, Stenstrup.
- Háva J., 2007b. World Catalogue of the Dermestidae (Coleoptera). In: Dermestidae World (Coleoptera). Available at: <http://www.dermestidae.wz.cz> (accessed 7 February 2007). [Last version: 18.1.2010].
- Háva J., 2008. Errata for volume 4 [Dermestidae], p. 25. In: Löbl I. & Smetana A. (eds), Catalogue of Palaearctic Coleoptera. Volume 5. Tenebrionoidea. Apollo Books, Stenstrup.
- Háva J., 2010a. Nuevos datos sobre *Orphilus beali* Zhantiev para la Península Ibérica (Coleoptera: Dermestidae). Arquivos Entomológicos, 3: 99–100.
- Háva J., 2010b. *Anthrenus (Anthrenus) munroi* Hinton, 1943 (Coleoptera: Dermestidae), new species for Portugal. Arquivos Entomológicos, 4: 35–36.
- Háva J., 2011. Brouci čeledi kožojedovití (Dermestidae) České a Slovenské republiky / Beetles of the family Dermestidae of the Czech and Slovak Republics. Entomologické klíče / Entomological keys. Academia Praha, 104 pp.

- Háva J. & Herrmann A., 2008. New faunistic records of Dermestidae (Coleoptera). Calodema Supplementary Paper No. 75: 1–3.
- Háva J., Herrmann A. & Kadej M., 2010. New faunistic records of Dermestidae (Coleoptera) - Part 5. Latvijas Entomologs, 49: 28–31.
- Háva J., Kadej M. & Kalík V., 2007a. Neotype designation of *Dermestes bifasciatus* Olivier, 1790 (Coleoptera: Dermestidae: Attageninae). Genus, 18 (3): 361–366.
- Háva J. & Kalík V., 1999. The dermestid beetles (Coleoptera: Dermestidae) of Iran. Part 1: genus *Dermestes*. Acta Societatis Zoologicae Bohemicae, 63: 443–450.
- Háva J. & Kalík V., 2009. Systematic position of *Dermestes bifasciatus* Thunberg, 1781 (Coleoptera: Dermestidae: Attageninae). Baltic Journal of Coleopterology, 9 (1): 35–36.
- Háva J. & Mifsud D., 2006. The dermestid beetles (Coleoptera: Dermestidae) of the Maltese archipelago (Central Mediterranean). Studies and Reports of District Museum Prague-East, taxonomical Series, 2: 51–63.
- Háva J. & Nardi G., 2004. Preliminary data on the Nosodendridae and Dermestidae (Coleoptera), pp. 117–123. In: Cerretti P., Hardersen S., Mason F., Nardi G., Tisato M. & Zapparoli M. (eds), Invertebrati di una foresta della Pianura Padana, Bosco della Fontana, Secondo contributo. Conservazione Habitat Invertebrati, 3. Cierre Grafica Editore, Verona.
- Háva J. & Nardi G., 2007a. Notes on some *Attagenus* from Italy (Insecta, Coleoptera: Dermestidae). Aldrovandia, 3: 121–124.
- Háva J. & Nardi G., 2007b. Short notes 10. Coleoptera, Dermestidae, pp. 399–400. In: Nardi G. & Vomero V. (eds), Artropodi del Parco Nazionale del Vesuvio: ricerche preliminari. Conservazione Habitat Invertebrati, 4. Cierre edizioni, Verona.
- Háva J., Pavlíček T. & Chikatunov V., 2007b. Corrigenda and addenda of Dermestidae in the "Catalogue of the Beetles (Coleoptera) of Israel and Adjacent Areas". Mitteilungen des Internationalen Entomologischen Vereins, 32: 117–131.
- Herrmann A. & Baena M., 2004. New records of Dermestidae (Coleoptera) for Spain and Europe. Boletín de la Societat entomologica aragonesa, 34: 211–213.
- Herrmann A. & Háva J. 2007. The first record of the Australian immigrant *Anthrenocerus australis* (Hope, 1843) (Coleoptera: Dermestidae) from Italy. Gredleriana, 7: 5–6.
- Herrmann A., Háva J. & Kadej M., 2011. A new species of *Globicornis* Latreille in Cuvier (Coleoptera: Dermestidae: Megatominae) from Switzerland. Studies and Reports of District Museum Prague-East, taxonomical Series, 7 (1–2): 141–145.
- Hetschko A., 1926a. Pars 83 – Thorictidae, Catopochrotidae, Monoedidae, Synteliidae, Cossyphodidae, pp. 1–15. In: Junk W. & Schenkling S. (eds), Coleopterorum Catalogus. Vol. 15. W. Junk, Berlin.
- Hetschko A., 1926b. Nachtrag zur Übersicht Thorictidae. Wiener entomologische Zeitung, 43: 6.
- Hetschko A., 1930. Pars 109 – Cucujidae, Thorictidae (Suppl.), Cossyphodidae (Suppl.), pp. 1–122 + 2 pp. unnumbered. In: Junk W. & Schenkling S. (eds), Coleopterorum Catalogus. Vol. 15. W. Junk, Berlin.
- Hetschko A. & Wasmann E., 1925. Übersicht der Thorictidae mit Angabe der Wirte. Wiener Entomologische Zeitung, 42: 183–189.
- Hinton H.E., 1943. Description and figure of a new *Anthrenus* (Col., Dermestidae). The Entomologist's monthly Magazine, 79: 14–16.
- Hinton H.E., 1945. A Monograph of the Beetles Associated with Stored Products. Volume 1. Order of the Trustees of the British Museum, London, I–VIII + 443 pp.
- Holdhaus K., 1911. Über die Coleopteren- und Molluskenfauna des Monte Gargano (Unter besonderer berücksichtigung der Adriafrage). Denkschriften der Mathematisch-Naturwissenschaftlichen Klasse der Kaiserlichen Akademie der Wissenschaften, 87: 431–465.
- Holdhaus K., 1923. Elenco dei Coleotteri dell'Isola d'Elba con studii sul problema della Tirrenide. Memorie della Società entomologica italiana, 2: 77–175.
- Holzer E., 1996. Erstnachweise und Wiederfunde für die Käferfauna der Steiermark (II) (Coleoptera). Mitteilungen Landesmuseum Joanneum. Zoologie, 50: 83–90.
- Horion A.D., 1955. Faunistik der Mitteleuropäischen Käfer. Band IV: Sternoxia (Buprestidae), Fossipedes, Macroductylia, Brachymera. Entomologische Arbater Museum Frey München. Tutzing, Sonderband, I–XXI + 249 pp.
- Iablokoff-Khznorian S.M., 1980. Le segment génital male des Coléoptères et son importance phylogénique. Deutsche entomologische Zeitschrift, 27 (4–5): 251–295.
- ICZN (INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE), 1999. International Code of Zoological Nomenclature. Fourth edition adopted by the International Union of Biological Sciences. International Trust for Zoological Nomenclature, London, I–XXIX + 306 pp.
- John H., 1963. Revision der Gattung *Thorictus* Germar (Thorictidae, Clavicornia Col.). Eine Bestandaufnahme, Kritik und Neubeschreibungen. Entomologische Abhandlungen und Berichte aus dem Staatlichen Museum für Tierkunde in Dresden, 28 (5): 177–255.
- John H., 1971. Discolomidae und Thorictidae. Entomologische Blätter, 66 (3): 137–152.
- Johnson C., 2007. Latridiidae, pp. 74–80, 635–648. In: Löbl I. & Smetana A. (eds), Catalogue of Palaearctic Coleoptera. Volume 4. Elateroidea - Derontoidea - Bostrichoidea - Lymexyloidea - Cleroidea - Cucujoidea. Apollo Books, Stenstrup.
- Kadej M., 2010. Contribution to the Dermestidae from Kyrgyzstan. Part 2 (Coleoptera: Bostrichoidea). Genus, 21 (2): 219–228.

- Kadej M., Háva J. & Kalík V., 2007. Review of the *Anthrenus pimpinellae* species group from Palaearctic region (Coleoptera: Dermestidae: Anthrenini). *Genus*, 18 (4): 721–750.
- Kahlen M., 2010. Die Käfer der Ufer und Auen des Tagliamento (II Beitrag: ergänzende eigene Sammelergebnisse, Fremddaten, Literatur). *Gortania (Botanica, Zoologia)*, 31 (2009): 65–136.
- Kahlen M. & Hellrigl K., 1996. Coleoptera - Käfer (Deck- oder Hartflügler), pp. 393–511. In: Hellrigl K.V. (ed.), *Die Tierwelt Südtirols. Veröffentlichungen des Naturmuseums Südtirol, Bozen*, 1.
- Kalík V., 1951. Neue Dermestiden aus der Palaearktischen Fauna. (4. Beitrag). *Annales Historico-Naturales Musei Nationalis Hungarici*, 1: 152–156.
- Kalík V., 1954. New and interesting Dermestidae (Coleoptera). *The Annals and Magazine of natural History*, (12) 7: 367–370.
- Kalík V., 1992. 45. Familie: Dermestidae, pp. 83–86. In: Lohse G.A. & Lucht W.H. (eds), *Die Käfer Mitteleuropas. 2. Supplementband mit Katalogteil*. Goecke & Evers, Krefeld.
- Kalík V., 1993. Dermestidae, pp. 84–85. In: Jelínek J. (ed.), *Check-list of Czechoslovak insects 4 (Coleoptera)*. Seznam československých brouků. [in English and Czech]. *Folia Heyrovskyana, Supplementum*, 1.
- Kingsolver J.M., 2001. 68. Dermestidae Gyllenhal, 1808, pp. 227–232. In: Arnett R.H. Jr. (†), Thomas M.C., Skelley P.E. & Frank J.H. (eds), *American beetles. Volume 2. Polyphaga: Scarabaeoidea through Curculionoidea*. CRC Press, Boca Raton, London, New York, Washington.
- Kocher L., 1969. Catalogue commenté des Coléoptères du Maroc. Fascicule X bis. Nouveaux addenda et corrigenda. *Travaux de l'Institut scientifique Chérifien et de la Faculte des Sciences*, 34 (1968): 1–132.
- Kosanin N., 1904. Index Coleopterorum in Museo Historico-Naturali Serbico [in Serbian, Latin title]. *Musei Srpske Zemlje, Beograd*, 26 pp.
- Kraatz G., 1859. Ueber die Gattungen *Micropeplus*, *Thorictus*, *Antidipnis*, *Cnemeplatia* und *Foucardia*. *Berliner entomologische Zeitschrift*, 3: 65–78.
- Krausse A.H., 1907a. Insektenleben im November auf Sardinien. *Entomologische Zeitschrift*, 20 (1906–1907) (33): 238–239.
- Krausse A.H., 1907b. Notizen über Coleopteren auf Sardinien. *Entomologische Zeitschrift*, 20 (1906–1907) (39): 287–288.
- Krausse A.H., 1911a. Anregungen und Antworten. *Thorictus grandicollis* Germ. *Naturwissenschaftliche Wochenschrift, N.F.*, 10 (44): 704.
- Krausse A.[H.], 1911b. Zur Kenntnis der Insektenfauna Sardiniens. *Entomologische Rundschau*, 28: 100–102.
- Krausse A.H., 1912a. In Gennargentugebirge auf Sardinien gesammelte Coleopteren. *Archiv für Naturgeschichte, Abt. A*, 78 (2): 142–145.
- Krausse A.H., 1912b. Eine neue Aimesenform von Sardinien (*Pheidole pallidula* v. n. *Emeryi* m.). *Internationale entomologische Zeitschrift (Guben)*, 6: 169.
- Krausse A.[H.], 1913a. Bei Sorgono in Gennargentugebirge auf Sardinien gesammelte Coleopteren. *Archiv für Naturgeschichte, Abt. A*, 79 (1): 59–64.
- Krausse A.[H.], 1913b. Sardische Coleopteren. *Archiv für Naturgeschichte, Abt. A*, 79: 184–185.
- Krunić M., Stanisavljević L., Pinzauti M. & Felicioli A., 2005. The accompanying fauna of *Osmia cornuta* and *Osmia rufa* and effective measures of protection. *Bulletin of Insectology*, 58 (2): 141–152.
- Küster H.C., 1846. Die Käfer Europa's. Nach der Natur beschrieben. VI Heft. Bauer & Raspe, Nürnberg, 100 sheets + 2 pls.
- Lasinio P.J. & Zapparoli M., 1993. First data on the soil arthropod community in an olive grove in central Italy, pp. 113–121. In: Paoletti M.G., Foissner W. & Coleman D. (eds), *Soil Biota, Nutrient Cycling, and Farming Systems*. Lewis Publishers, Boca Raton, FL.
- Lawrence F.F. & Ślipiński A., 2005. Three new genera of Indo-Australian Dermestidae (Coleoptera) and their phylogenetic significance. *Invertebrate Systematics*, 19: 231–261.
- Leonardi G. (†), 1927. Elenco delle specie di Insetti dannosi e loro parassiti ricordati in Italia fino all'anno 1911. Parte II. Opera postuma pubblicata a cura del Prof. F. Silvestri. *Tipografia Bodoniana, Portici*, 592 pp.
- Lepesme P., 1949. Révision des *Dermestes* (Col., Dermestidae). *Annales de la Société entomologique de France*, 115: 37–68.
- Liebmann W., 1962. Ein Beitrag zur Käferfauna von Pantelleria. *Stuttgarter Beiträge zur Naturkunde, S.A.*, 87: 1–6.
- Lo Cascio P., Cecchi B., Abbazzi P., Arnone M., 2006. A contribution in the knowledge of the Coleoptera of the Aeolian Islands (Insecta Coleoptera). *Il Naturalista siciliano*, 30 (2): 315–341.
- Löbl I., 2007. Dermestidae Thorictinae, pp. 302–306. In: Löbl I. & Smetana A. (eds), *Catalogue of Palaearctic Coleoptera. Volume 4. Elateroidea - Derodontoidea - Bostrichoidea - Lymexyloidea - Cleroidea - Cucujoidea*. Apollo Books, Stenstrup.
- Löbl I., Rolčik J., Kolibáč J. & Gerstmeier R., 2007. Cleridae, pp. 367–384. In: Löbl I. & Smetana A. (eds), *Catalogue of Palaearctic Coleoptera. Volume 4. Elateroidea - Derodontoidea - Bostrichoidea - Lymexyloidea - Cleroidea - Cucujoidea*. Apollo Books, Stenstrup.
- Lohse G.A., 1979. Dermestidae, pp. 304–327. In: Freude H., Harde K.W. & Lohse G.A. (eds), *Die Käfer Mitteleuropas. Bd. 6., Diversicornia*. Goecke & Evers, Krefeld.

- Lostia di S. Sofia U., 1887. Dell'ubicazione di alcune specie di Coleotteri nell'Isola di Sardegna. *Bullettino della Società entomologica italiana*, 19 (1886): 335–343.
- Lo Valvo F. & Massa B., 1995. Indice e check-list degli Artropodi terrestri di Lampedusa, Lampione, Linosa e Pantelleria, con riferimenti bibliografici, pp. 871–896. In: Massa B. (ed.), *Arthropoda di Lampedusa, Linosa e Pantelleria (Canale di Sicilia, Mar Mediterraneo). Il Naturalista siciliano*, (n.s.) 19 (Supplemento).
- Luciano L., Delrio G. & Prota R., 1982. I defogliatori delle foreste a *Quercus suber* L. *Studi sassaresi. Sezione III: Annali della Facoltà di Agraria dell'Università di Sassari*, 29: 321–365.
- Luciano P. & Prota R., 1981. La dinamica di una popolazione di *Lymantria dispar* L. in Sardegna. I. Indicatori della gradazione ricavati dalle ovideposizioni. *Studi sassaresi. Sezione III: Annali della Facoltà di Agraria dell'Università di Sassari*, 27 (1979): 137–160.
- Luciano P. & Prota R., 1986. La dinamica di popolazione di *Lymantria dispar* L. in Sardegna. III. Indicatori biologici della gradazione. *Frustula entomologica*, 7–8 (20–21) (1984–1985): 613–630.
- Luigioni P., 1923a. Contributo allo studio della fauna entomologica Italiana. Coleotteri nuovi o poco noti per il Lazio. VI Elenco. *Atti della Pontificia Accademia romana dei Nuovi Lincei*, 76 (1922–1923): 132–145.
- Luigioni P., 1923b. Contributo allo studio della fauna entomologica italiana. Coleotteri dell'isola di Capri. *Annuario del Museo zoologico della R. Università di Napoli*, (n.s.) 5 (6): 1–8.
- Luigioni P., 1929. I Coleotteri d'Italia. Catalogo sinonimico–topografico–bibliografico. *Memorie della Pontificia Accademia delle Scienze, I Nuovi Lincei* (2), 13: [4] + 1–1159 [+ 1].
- Luigioni P. & Tirelli A., 1913. Una settimana in Sicilia. Escursione entomologica nei dintorni di Palermo e nei boschi di Ficuzza. *Bullettino della Società entomologica italiana*, 43 (1912): 148–167.
- Lundblad O., 1958. Die Arthropodenfauna von Madeira nach den Ergebnissen der Reise von Prof. Dr. O. Lundblad Juli-August 1935. XXXV. Die Käferfauna der Insel Madeira. *Arkiv för Zoologi*, 11 (30): 461–524.
- Marshall M.A., 1871. Notes on some Corsican Insects. *Entomologist's monthly Magazine*, 7 (1870–1871): 225–254.
- Martelli M. & Arru G.M., 1958. Ricerche preliminari sull'entomofauna della Quercia da sughero (*Quercus suber* L.) in Sardegna. *Bullettino di Zoologia agraria e Bachicoltura*, serie II, 1 (1957–58): 5–49.
- Mason F., Cerretti P., Nardi G., Whitmore D., Birtele D., Hardersen S. & Gatti E., 2006. Aspects of biological diversity in the CONE-COFOR plots. IV. The InvertebrateBiodiv pilot project. In: Ferretti, M., Petriccione, B., Bussotti, F. & Fabbio, G. (eds), *Aspects of biodiversity in selected forest ecosystems in Italy: status and changes over the period 1996–2003. Third report of the Task Force on Integrated and Combined (I&C) evaluation of the CONE-COFOR programme. Annali dell'Istituto sperimentale per la Selvicoltura*, 30, Supplemento 2: 51–70.
- Médail F. & Quézal P., 1999. Biodiversity hotspots in the Mediterranean Basin: setting global conservation priorities. *Conservation Biology*, 13: 1510–1513.
- Melis A., 1954. Elenco delle principali specie animali che hanno prodotto infestazioni degne di nota in Italia durante l'anno 1953. *Redia*, 39 (Appendice): III–X.
- Méquignon A., 1942. Voyage de MM. L. Chopard et A. Méquignon aux Açores (Aout-Septembre 1930). XIV Catalogue des Coléoptères Açoréens. *Annales de la Société entomologique de France*, 111: 1–66.
- Merkl O. & Háva J., 2007. Checklist of Dermestidae of Hungary (Coleoptera). *Folia entomologica Hungarica*, 68: 1–7.
- Mori A., 1975. Le Regioni d'Italia. 18. Sardegna. UTET, Torino, 695 pp.
- Mroczkowski M., 1952. Contribution to the knowledge of the Dermestidae with description of a new species and a new subspecies (Coleoptera). *Annales Musei Zoologici Polonici*, 15: 25–32 + pl. IV.
- Mroczkowski M., 1954. Skorniki – Dermestidae. *Klucze do oznaczania owadów Polski*, XIX, 52. *Polski związek Entomologicz*, Warszawa, 47 pp.
- Mroczkowski M., 1960. Data on the distribution of Dermestidae (Coleoptera) with special reference to the Hungarian fauna. *Annales Historico-Naturales Musei Nationalis Hungarici*, 52: 247–253.
- Mroczkowski M., 1962. *Anthrenus minutus* Er. and Faunistic Notes on other Sardinian Dermestidae (Coleoptera). *Studi sassaresi. Sezione III: Annali della Facoltà di Agraria dell'Università di Sassari*, 9 (2) (1961): 544–549 + 1 map.
- Mroczkowski M., 1964. Systematic and Synonymic Notes Upon Certain Species of Dermestidae (Coleoptera). *Annales Zoologici*, 22 (8): 179–187.
- Mroczkowski M., 1968. Distribution of the Dermestidae (Coleoptera) of the world with a catalogue of all known species. *Annales Zoologici*, 26: 15–191.
- Mroczkowski M., 1972. La faune terrestre de l'île de Sainte Helene. 2. insectes 9. Coleoptera 10. Fam. Dermestidae. *Annales – Musée royal de l'Afrique centrale. Sciences zoologiques*, 192: 136–139.
- Mroczkowski M., 1975. Fauna Polski. Tom 4. Dermestidae, Skórnikowate (Insecta: Coleoptera). *Polska Akademia Nauk, Instytut Zoologii Warszawa*, 162 pp.

- Mroczkowski M., 1989. Dermestidae, pp. 124-132. In: Koch K. (ed.), Die Käfer Mitteleuropas, Ökologie, Band 2. Goecke & Evers, Krefeld.
- Mulsant E. & Rey C., 1868. Histoire Naturelle des Coléoptères de France. Tribu des Scuticolles. F. Savy, Paris, 186 pp. + 3 pls. [reprint from Annales de la Société Linnéenne de Lyon (N.S.), 15: 1-188 + 3 pls.]
- Nannizzi A., 1941. I parassiti delle piante officinali. Repertorio dei parassiti vegetali ed animali che danneggiano piante officinali, aromatiche e da profumo, spontanee e coltivate, e le droghe officinali immagazzinate. Ministero dell'Agricoltura e Foreste, Istituto Poligrafico dello Stato, Roma, I-XXVII + 544 pp.
- Nardi G., 1997. Coleoptera Dermestidae, Lyctidae, Bostrichidae, Ptinidae, pp. 177-179. In: Zapparoli M. (ed.), Gli Insetti di Roma. Comune di Roma, Dipartimento X Area Risorsa Suolo e Tutela Ambientale, Quaderni dell'Ambiente, 6.
- Nardi R., Villani V., Infantino S. & Meio S., 1993. Risultati di difesa integrata in una industria alimentare, pp. 617-627. In: Domenichini G. (ed.), Atti del 5° Simposio "La difesa antiparassitaria nelle industrie alimentari e la protezione degli alimenti", Piacenza, 23-25 settembre 1992. Chiriotti Editori, Pinerolo.
- Nicoli Aldini R., 1997. Coleotteri Dermestidi, pp. 148-161. In: Domenichini G. (ed.), Atlante delle impurità solide negli alimenti. Manuale per il riconoscimento dei materiali estranei. Chiriotti Editori, Pinerolo.
- Nicoli Aldini R., 1998a. Osservazioni morfologiche e biologiche su *Trogoderma variabile* Ballion (Coleoptera Dermestidae), nuovo infestante di derrate alimentari in Italia, pp. 115-126. In: Cravedi P. (ed.), Atti del 6° Simposio "La difesa antiparassitaria nelle industrie alimentari e la protezione degli alimenti", Piacenza, 24-26 settembre 1997. Chiriotti editor, Pinerolo.
- Nicoli Aldini R., 1998b. Dermestids (Coleoptera, Dermestidae) associated with aculeate Hymenoptera nests: a survey, pp. 171-175. In: Le Moli F., Mori A., Grasso D.A. & Maccagnani B. (eds), Proceedings of the Seventh Conference of the Italian Section of the International Union for the Study of Social Insects (I.U.S.S.I). Insect Social Life, 2.
- Nicoli Aldini R., 1999. Un Coleottero Dermestide inquilino dell'alveare, *Trogoderma inclusum* Le Conte. L'APE, Nostra Amica 21: 6-13.
- Nicoli Aldini R., 2003a. Catture con trappole luminose in un'industria di spezie e primo ritrovamento in Italia di *Attagenus fasciatus* (Thunberg) e *Reesa vespulae* (Milliron) (Coleoptera Dermestidae). Bollettino di Zoologia agraria e Bachicoltura, Ser. II, 35 (2): 153-162.
- Nicoli Aldini R., 2003b. Insetti delle derrate e dell'ambiente antropico di recente introduzione in Italia, pp. 118-143. In: Cravedi P. (ed.), Atti del 7° Simposio "La difesa antiparassitaria nelle industrie alimentari e la protezione degli alimenti", Piacenza, 18-20 settembre 2002. Chiriotti Editori, Pinerolo.
- Nicoli Aldini R., 2004. Insetti delle derrate e dell'ambiente antropico di recente introduzione in Italia. Tecnica Molitoria, 55 (10): 977-999.
- Norato G., 1957. Notizie su due parassiti del grano di recente introduzione in Sicilia. Bollettino dell'Istituto di Entomologia agraria e dell'Osservatorio di Fitopatologia di Palermo, 2 (1956-1957): 245-249.
- Novak P., 1952. Kornjaši jadranskog primorja. (Coleoptera). Jugoslavenska Akademija Znanosti i Umjetnosti, Split, 524 pp.
- Olivier A.G., 1790. Entomologie, ou histoire naturelle des Insectes, avec leurs caracteres génériques et spécifiques, leur description, leur synonymie, et leur figure enluminée. Coleoptères. Tome Second. De l'Imprimerie de Baudoin, Paris, 720 pp.
- Oromí P., de la Cruz S. & Báez M., 2009. Coleoptera, pp. 254-301. In: Arechavaleta M., Rodríguez S., Zurita N. & García A. (eds), Lista de especies silvestres de Canarias. Hongos, plantas y animales terrestres. Gobierno de Canarias, Litografía Gráficas Sabater, Tenerife.
- Ovtchinnikov S.V., 1996. Dermestidae, pp. 136-137. In: Tarbinsky Yu.S. (ed.), Genetical Fund Cadastre of Kyrghyzstan. Volume III. Superclass Hexapoda (Entognatha and Insecta). Bishkek.
- Palm T., 1940. Systematische Bemerkungen zu den schwedischen *Anthrenus*-Arten (Col. Dermestidae). Entomologisk Tidskrift, 61 (1-2): 1-3.
- Palm T., 1962. Några intryck från en entomologisk vinterfärd till Cypern, Entomologisk Tidskrift, 83 (3-4): 135-145.
- Panagiotakopulu E., 2003. Insect Remains from the Collections in the Egyptian Museum of Turin. Archaeometry, 45 (2): 355-362.
- Paykull G. von, 1798. Fauna Suecica. Insecta. Tomus I. Edman, Upsaliae, 10 + 358 + 2 pp.
- Pavan M., 1989. Isola di Montecristo, Riserva Naturale. Ministero dell'Agricoltura e delle Foreste, Corpo Forestale dello Stato, Collana Verde, 77: 1-126 + 2 maps.
- Peacock E.R., 1992. Adults and Larvae of Hide, Larder and Carpet Beetles and their Relatives (Coleoptera: Dermestidae) and of Derodontid Beetles (Coleoptera: Derodontidae). Handbooks for the Identifications of British Insects, 5 (3): 144 pp.
- Peez A. von & Kahlen M., 1977. Die Käfer von Südtirol. Faunistisches Verzeichnis der aus der Provinz Bozen bisher bekannt gewordenen Koleopteren. Veröffentlichungen des Museum Ferdinandeum, Innsbruck, 57 (2): 1-525.
- Penati F., 2009. An updated catalogue of the Histeridae (Coleoptera) of Sardinia, with faunistic, zoogeographical, ecological and conservation remarks, pp. 197-280. In: Cerretti P., Mason F., Minelli A., Nardi G. & Whitmore D. (eds), Research on the Terrestrial Arthropods of Sardinia (Italy). Zootaxa, 2318.
- Peyerimhoff P.M. (de), 1946. Coléoptères du Sahara marocain et du Sahara occidental. Bulletin de la Société d'Histoire naturelle du

- Maroc, 24 (1944): 90–110.
- Peyron E., 1857. Description de quelques Coléoptères nouveaux et observations diverses. *Annales de la Société entomologique de France*, 5: 715–723.
- Pic M., 1933. Schwedisch-chinesische wissenschaftliche expedition nach den nordwestlichen provinzen Chinas. Unter leitung von Dr. Sven Hedin und Prof. Sü Ping-Chang. *Insecten. Gesammelt vom Schwedischen arzt der Expedition Dr. David Hummel 1927–1930*. 16 Coleoptera: 2. Helmiidae, Dermestidae, Anobiidae, Cleridae, Malacodermata, Dascillidae, Heteromera (ex. p.), Bruchidae, Cerambycidae, Phytophaga (ex. p.). *Arkiv för Zoologi*, 27 A (2): 1–14.
- Pisano P., Viarengo M. & Puddu F., 2003. *Animali di Sardegna. Gli Insetti*. Carlo Delfino Editore, Sassari, 368 pp.
- Plata Negrache P., 1972. Las especies de la subfamilia Dermestinae Latr. (Col. Dermestidae), en el Archipiélago Canario. *Vieraea*, 2: 147–163
- Pollini A., 1998. *Manuale di entomologia applicata*. Edagricole, Bologna, 1462 pp.
- Porta A., 1929. *Fauna Coleopterorum Italica*. III. Diversicornia. Stabilimento Tipografico Piacentino, Piacenza, 465 pp.
- Porta A., 1934. *Fauna Coleopterorum Italica*. Supplementum. Stabilimento Tipografico Piacentino, Piacenza, 208 pp.
- Pracchi R. & Terrosu Asole A. (eds), 1971. *Atlante della Sardegna*. Fascicolo I. La Zattera Editrice, Cagliari, I–VIII + 80 pp., 34 tavv.
- Pratesi F. & Tassi F., 1984. *Guida alla natura della Sardegna*. A. Mondadori, Milano, 320 pp.
- Prota A., Floris I., Lentini A. & Luciano P., 1991. Aspetti entomologici della Quercia da Sughero e prospettive di protezione in Sardegna. *Atti Convegno "Problematiche fitopatologiche del genere Quercus in Italia, Firenze 19–20 novembre 1990"*: 284–304.
- Ragusa E., 1892. Catalogo ragionato dei Coleotteri di Sicilia. *Il Naturalista siciliano*, 11 (9–11): 185–209.
- Ragusa E., 1923. Coleotteri nuovi o poco conosciuti nella Sicilia. *Atti della Reale Accademia di Scienze, Lettere e Belle Arti di Palermo*, terza serie (1920–1923), 12: 1–18 [reprint].
- Ragusa E. (†), 1926. Coleotteri nuovi o poco conosciuti della Sicilia. *Il Naturalista siciliano*, 24 (3–12) (1923–25): 69–83.
- Ratti E., 2007. Coleotteri alieni in Italia/Alien Coleoptera in Italy. Vers. 2007-05-25, available at <http://www.msn.ve.it>. [accessed 6 April 2011].
- Reitter E., 1881. Bestimmungs-Tabellen der europäischen Coleopteren. III Heft. I. Auflage. Enthaltend die Familien: Scaphidiidae, Lathridiidae und Dermestidae. *Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien*, 30: 41–94.
- Reitter E., 1883a. Dermestidae, pp. [columns] 89–90. In: Heyden L. von, Reitter E. & Weise J. (eds), *Catalogus Coleopterorum Europae et Caucasi*. Editio Tertia. Libreria Nicolai, Bertolini, Londini, Parisiis.
- Reitter E., 1883b. Thorictidae, p. 91. In: Heyden L. von, Reitter E. & Weise J. (eds), *Catalogus Coleopterorum Europae et Caucasi*. Editio Tertia. Libreria Nicolai, Bertolini, Londini, Parisiis.
- Reitter E., 1887. Bestimmungs-Tabellen der europäischen Coleopteren. III Heft. II. Auflage. Enthaltend die Familien: Scaphidiidae, Lathridiidae und Dermestidae. Verlag von Edmund Reitter (1886), Mödling, 75 pp.
- Reitter E., 1891a. Dermestidae, pp. 336–340. In: Heyden L. von, Reitter E. & Weise J. (eds), *Catalogus Coleopterorum Europeae, Caucasi et Armeniae Rossicae*. Friedländer & Sohn, Berlin.
- Reitter E., 1891b. Thorictidae, p. 344. In: Heyden L. von, Reitter E. & Weise J. (eds), *Catalogus Coleopterorum Europeae, Caucasi et Armeniae Rossicae*. Friedländer & Sohn, Berlin.
- Reitter E., 1906a. Thorictidae, pp. [columns] 341–342. In: Heyden L. von, Reitter E. & Weise J. (eds), *Catalogus Coleopterorum Europae, Caucasi et Armeniae Rossicae*. Editio secunda. R. Friedländer & Sohn, Berlin; E. Reitter, Paskau; *Revue d'Entomologie*, Caen.
- Reitter E., 1906b. Dermestidae, pp. [columns] 377–382. In: Heyden L. von, Reitter E. & Weise J. (eds), *Catalogus Coleopterorum Europae, Caucasi et Armeniae Rossicae*. Editio secunda. R. Friedländer & Sohn, Berlin; E. Reitter, Paskau; *Revue d'Entomologie*, Caen.
- Rigato F. & Toni L., 2011. Short notes 21. Hymenoptera, Formicidae, pp. 873–882. In: Nardi G., Whitmore D., Bardiani M., Birtele D., Mason F., Spada L. & Cerretti P. (eds), *Biodiversity of Marganai and Montimannu (Sardinia)*. Research in the framework of the ICP Forests network. *Conservazione Habitat Invertebrati*, 5. Cierre Edizioni, Sommacampagna, Verona.
- Rossi P., 1794. *Mantissa Insectorum exhibens species nuper in Etruria, adiectis faunae Etruscae illustrationibus, ac emendationibus*. Tom II. Typographia Prosperi, Pisis, 154 pp. + 8 pls.
- Rossi R. & Niccoli A., 1977. Feromoni degli Insetti. Sintesi e attività biologica di componenti insaturi, otticamente attivi, del feromone del *Trogoderma granarium* Everts e di un loro analogo strutturale. *Redia*, 60: 525–538.
- Růžička J. & Háva J., 2008. Faunistic records from the Czech Republic - 300. Coleoptera: Dermestidae. *Klapalekiana*, 46: 227.
- Sainte-Claire Deville J., 1914. *Catalogue critique des Coléoptères de la Corse*. Poisson et C., Caen, 573 pp.
- Sainte-Claire Deville J., 1935. *Catalogue raisonné des Coléoptères de France*. (Complete et publié par Mequignon A.). *L'Abeille*, 36 (2): 161–264.
- Sapuppo G., 2002. Contributo alla conoscenza dei Coleotteri della zona etnea. Collezione Gulli - Sapuppo. *Atti e Memorie dell'Ente Fauna siciliana*, 8: 35–280.
- Saulcy F.H.C. de, 1868. [new taxa], p. 140. In: Mulsant E. & Rey C., *Histoire Naturelle des Coléoptères de France*. Tribu des Scuticolles.

- F. Savy, Paris.
- Schaefer L., 1964. Dix voyages entomologiques en Corse. Annales de la Société d'Horticulture et d'Histoire naturelle de l'Hérault, 104 (4): 269–286.
- Schatzmayr A., 1941. Nuovi contributi alla conoscenza della fauna delle isole italiane dell'Egeo. XIV. Cacce coleotterologiche nel Dodecaneso. Bollettino del Laboratorio di Zoologia generale e agraria in Portici, 31: 342–368.
- Schönherr C.J., 1808. Synonymia Insectorum, oder: Versuch einer Synonymie Aller bisher bekannten Insecten; nach Fabricii Systema Eleutheratorum & c. geordnet. Mit Berichtigungen und Anmerkungen, wie auch Beschreibungen neuer Arten und illuminirten Kupfern. Erster Band. Eleutherata oder Käfer. Zweiter Theil. F. C. Marquard, Stockholm, I–IX + 423 pp. + pl. IV.
- Seabra (de) A.F., 1939. Contribuição para a História da Entomologia em Portugal. Catálogo das Coleções Entomológicas do Laboratório de Biologia Florestal em 1937. Publicações da Direção Geral dos Serviços Florestais e Aquícolas, 6 (2): 1–304.
- Seabra (de) A.F., 1943. Contribuições para o Inventário da Fauna Lusitânica. Insecta Coleoptera. Memórias e Estudos do Museu Zoológico da Universidade de Coimbra, Sér. I, 142: I–XX + 152 pp.
- Silfverberg H., 1979. Enumeratio Coleopterorum Fennoscandiae et. Daniae. Hyönteisvaihtoyhdistys. Helsingfors Entomologiska Bytesförening, I–VI + 79 pp.
- Steck T., 1887. Entomologie Ergebnisse einer Excursion nach Sizilien. (Vergetragen in der Sitzung vom 6. Juni 1886). Mittheilungen der Naturforschenden Gessellschaft in Bern, 1143–1168 (1886): 178–188.
- Strassen R. zur, 1954. Eine Käfer-Ausbeute aus Sardinien. Mit zwei Neubeschreibungen (*Malthodes sassariensis* n. sp., *Amphimallon montanum* n. sp.) und vielen Neunachweisen. Senckenbergiana, 34 (4–6): 259–289.
- Sturm J., 1843. Catalog der Käfer-Sammlung / von Jacob Sturm; mit 6 ausgemalten Kupfertafeln. J. Sturm, Nürnberg, I–XII + 386 pp., 6 pls.
- Süss L., 2004. Gli intrusi. Manuale di entomologia urbana. Edizioni L'Informatore agrario, Verona, 180 pp.
- Thaler K. & Zapparoli M., 1993. Epigeic spiders in an olive-grove in Central Italy (Araneae). Redia, 76: 307–316.
- Thunberg C.P., 1781. Dissertatio entomologica novae Insectorum species, sistens. Pars Prima. Upsaliae, 28 pp.
- Trematerra P., 1987. Annotazioni biologiche e morfologiche su *Attagenus alferii* Pic (Coleoptera Dermestidae) nuovo per la fauna italiana. Disinfestazione, 4 (6): 16–18.
- Trematerra P., 2003. I feromoni nell'Integrated Pest Management delle industrie alimentari, pp. 250–258. In: Cravedi P. (ed.), Atti del 7° Simposio "La difesa antiparassitaria nelle industrie alimentari e la protezione degli alimenti", Piacenza, 18–20 settembre 2002. Chiriotti Editori, Pinerolo.
- Trematerra P. & Gentile P., 2006. Monitoring of beetle pests and precision targeting for Integrated Pest Management in a semolina mill. Tecnica Molitoria International, 57 (5/A): 95–103.
- Trematerra P. & Gentile P., 2008. Gestione integrata dei Coleotteri infestanti un semolificio attraverso lo studio della distribuzione spazio-temporale degli adulti, pp. 342–355. In: Cravedi P. (ed.), Atti del 8° Simposio "La difesa antiparassitaria nelle industrie alimentari e la protezione degli alimenti", Piacenza, 26–28 settembre 2007. Chiriotti Editori, Pinerolo.
- Trematerra P. & Sciarretta A., 2003. L'analisi spazio-temporale nell'integrated pest management di Coleotteri infestanti l'industria mangimistica, pp. 259–266. In: Cravedi P. (ed.), Atti del 7° Simposio "La difesa antiparassitaria nelle industrie alimentari e la protezione degli alimenti", Piacenza, 18–20 settembre 2002. Chiriotti Editori, Pinerolo.
- Underwood E.C., Viers J.H., Klausmeyer K.R., Cox R.L. & Shaw M.R., 2009. Threats and biodiversity in the mediterranean biome. Diversity and Distributions, 15: 188–197.
- van Harten A., 2005. Insects of the United Arab Emirates: A Checklist of Published Records. Dar Al Ummah, Abu Dhabi, UEA, 4 + 86 pp.
- Vigna Taglianti A., Audisio P.A., Belfiore C., Biondi M., Bologna M.A., Carpaneto G.M., De Biase A., De Felici S., Piattella E., Racheli T., Zapparoli M. & Zoia S., 1993. Riflessioni di gruppo sui corotipi fondamentali della fauna W-paleartica ed in particolare italiana. Biogeographia, Lavori della Società italiana di Biogeografia, 16 (1992): 159–179.
- Vigna Taglianti A., Audisio P.A., Biondi M., Bologna M.A., Carpaneto G.M., De Biase A., Fattorini S., Piattella E., Sindaco R., Venchi A. & Zapparoli M., 1999. A proposal for a chorotype classification of the Near East fauna, in the framework of the Western Palearctic region. Biogeographia, Lavori della Società italiana di Biogeografia, (n.s.), 20: 31–59.
- Villemant C., 1998. Les prédateurs-démanteleurs des pontes de *Lymantria dispar* en subéraie de la Mamora (Maroc). Bulletin de la Société zoologique de France, 123 (1): 75–81.
- Villemant C. & Andrei-Ruiz M.C., 1999. Life-cycles and biological features of eggs predators of *Lymantria dispar* (Lepidoptera: Lymantriidae) in the Mamora cork oak forest, Morocco. European Journal of Entomology, 96: 29–36.
- Villemant C. & Fraval A., 1992. Les ennemis des oeufs de *Porthetria (Lymantria) dispar* (L.) (Lép. Lymantriidae) au Maroc: inventaire et problèmes relatifs à l'évaluation de leur impact. Bulletin de l'Institut scientifique, Rabat, 16: 160–172.
- Villemant C. & Fraval A., 1993. La faune entomologique du chêne-liège en forêt de la Mamora (Maroc). Ecologia Mediterranea, 29

- (3–4): 89–98.
- Villemant C. & Ramzi H., 1995. Predators of gypsy moth (Lepidoptera : Lymantriidae) egg masses: spatio-temporal variation of their impact during the 1988–89 pest generation in the Mamora cork oak forest (Morocco). *Entomophaga*, 40 (3–4): 1–15.
- Vitale F., 1904. I coleotteri messinesi. *Bollettino del Naturalista*, 24 (4–5): 54–56.
- Whitehead P.F., 1996. The Invertebrate Fauna of the Kemerton Estate, Worcestershire. Part II: Arboreal Habitats and Beggarboys wetland. *Journal of the Royal agricultural Society of England*, 157: 170–190.
- Winkler A., 1926a. Dermestidae, pp. 675–682. In: Winkler A. (ed.), *Catalogus Coleopterorum regionis palaearticae*. Pars 6. Albert Winkler, Wien.
- Winkler A., 1926b. Thorictidae, pp. 734–736. In: Winkler A. (ed.), *Catalogus Coleopterorum regionis palaearticae*. Pars 6. Albert Winkler, Wien.
- Zahradník J., 2008. Ptinidae (Gibbiinae and Ptininae excepted), pp. 328–362. In: Löbl I. & Smetana A. (eds), *Catalogue of Palaearctic Coleoptera*. Volume 4. Elateroidea - Derodontoidea - Bostrichoidea - Lymexyloidea - Cleroidea - Cucujoidea. Apollo Books, Stenstrup.
- Zangheri P., 1969. Repertorio sistematico e topografico della flora e fauna vivente e fossile della Romagna. Tomo III. Museo civico di Storia naturale di Verona. *Memorie fuori serie*, 1: 855–1414.
- Zavattari E., 1934. *Prodromo della fauna della Libia*. Tipografia già Cooperativa, Pavia, I–VIII + 1234 pp.
- Zhantiev R.D., 1973. Ergebnisse der zoologischen Forschungen von Dr. Z. Kaszab in der Mongolei. Nr. 321. Dermestidae (Coleoptera). *Annales Historico-Naturales Musei Nationalis Hungarici* 65: 187–194.
- Zhantiev R.D., 1976. Zhuki kozheedy fauny SSSR. [in Russian; The skin eaters family Dermestidae of fauna of the USSR]. Izdatelstvo Moskovskogo Universiteta, Moskva, 180 pp.
- Zhantiev R.D., 2009. Ecology and classification of dermestid beetles (Coleoptera, Dermestidae) of the Palaearctic fauna. *Entomological Review*, 89 (2): 157–174.
- Zhantiev R.D., 2011. Dermestidae. In: Audisio P. (ed.), *Fauna Europaea: Coleoptera 2*. Fauna Europaea version 2.4, available at <http://www.faunaeur.org> [accessed 1 August 2011 as version 2.4 of 27 January 2011].