

The new Checklist of the Italian Fauna: Heteroptera

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SUMMARY

An updated version of the ‘Checklist of the Italian Fauna’ for the suborder Heteroptera (Insecta: Hemiptera) is presented here. The list reflects the state of art of chorological knowledge of both aquatic and terrestrial Italian Heteroptera in November 2020. The checklist records 1395 species-group taxa belonging to 6 infraorders and 48 families. The total number of species-group taxa includes 44 taxa currently considered endemic to Italy, 12 subendemic, 13 introduced and 10 cryptogenic. The distribution of Italian Heteroptera in the new checklist is based on the subdivision of Italy in two macro-regions, Continental Italy and Peninsular Italy, and two major islands, Sicily and Sardinia. Compared to the previous Checklist by Faraci & Rizzotti Vlach, published in 1995, the new one contains nomenclatural changes, additions and exclusions of species based on the perusal of 220 literature sources. The main changes concern the families Miridae (21 synonymies, 26 exclusions and 34 additions), Rhyparochromidae (15 exclusions and 14 additions) and Pentatomidae (13 exclusions and 5 additions). Explanatory notes are provided for all the updates of the new checklist. The full data set is attached to this paper as supplementary files, while a simplified version is freely accessible from the LifeWatch Italy Data Portal (<https://dataportal.lifewatchitaly.eu/data>) where it is expected to be regularly updated.

INTRODUCTION

Nearly 30 years ago Italy was the first country to achieve a complete checklist of its fauna in 110 issues (Minelli et al. 1993–1995) with some subsequent updates (Stoch et al. 2004). About ten years later another very relevant project was launched, the “Checklist and distribution of the Italian fauna” (“CKmap” project), which updated and mapped distribution data for about 10,000 terrestrial and inland water species (Ruffo & Stoch 2005; 2007). A new update of the Checklist of the Italian Fauna started in 2020 and it is still in progress (Bologna et al. 2022).

Heteroptera is a suborder of the large order Hemiptera, including more than 45,000 described species in the world (Henry 2017). This group has had the most successful radiation within non-holometabolous insects and occupied a wide range of habitats (terrestrial, freshwater, marine, and transition zones) with as many different adaptations: phytophagous, mycetophagous, zoophytophagous, predaceous, or hematophagous (see Schuh & Slater 1995; Weirauch & Schuh 2011; Schuh & Weirauch 2020).

Traditionally the Heteroptera have always been treated as a separate suborder within the order Hemiptera and were treated as a separate order for a time as well. However, the monophyly of both the Hemiptera and the Heteroptera is now well established, as well as the status of Heteroptera as suborder of Hemiptera (Li et al. 2017; Carapezza et al. 2023b).

The first Italian checklist of Heteroptera was compiled by Garbiglietti (1869, 1870) who listed 737 species. A subsequent catalogue, including also the suborder Auchenorrhyncha, was published almost a century later by Servadei (1967). This latter contribution considerably increased the number of Heteroptera known for Italy, listing 1376 species. More recently, in the context of the project “Checklist of the Italian Fauna”, Faraci & Rizzotti Vlach (1995) raised the number of the Heteroptera, including taxa whose validity had to be confirmed, to 1405

species and 108 subspecies. Some updates were published within the “CKmap” project (see above), but they were limited only to aquatic and some terrestrial Heteroptera (Bacchi & Rizzotti Vlach 2005, 2007; Carapezza & Faraci 2005, 2007).

The aim of this contribution is to provide information and details on the updated checklists concerning the Heteroptera (Carapezza 2021; Cianferoni 2021a-d; Faraci 2021a,b), referring to the state of the art of the updated dataset as it was available in November 2021 on the LifeWatch website.

MATERIALS AND METHODS

Study area

The new checklist of the Italian Fauna (Bologna et al. 2022) follows the subdivision of Italy in macro-regions (Fig. 1) used in the previous version of the checklist (Minelli et al. 1993–1995). This first version of the new checklist of the Heteroptera provides the occurrence for three macro-regions: continental, peninsular, and insular Italy. Continental Italy (as in 1995’s checklist indicated as ‘N’ - North) is the sum of eight administrative regions of Northern Italy (listed from north to south and from west to east: Aosta Valley, Piedmont, Lombardy, Trentino-Alto Adige, Veneto, Friuli-Venezia Giulia, Liguria, Emilia-Romagna); Peninsular Italy (indicated as ‘S’ - South) includes the remaining ten peninsular regions of Central and Southern Italy (Tuscany, Umbria, Marche, Lazio, Abruzzo, Molise, Campania, Basilicata, Apulia, Calabria). Insular Italy groups the administrative regions of Sardinia and Sicily. The occurrences for Sardinia (‘Sa’) and Sicily (‘Si’) are, however, provided separately. All macro-regions include the administratively belonging minor islands.

Literature data

This update is exclusively based on data published until November 2020. Distribution records or nomenclatural changes were verified

directly by examining and evaluating the information within each paper.

Data set organization

The data set is available as a simplified version in the on-line version from the LifeWatch website. A full version is provided in the Supplementary files 1–7.

The checklist contains 22 out of the 62 columns that are available for all animal groups. The first columns are dedicated to the systematic classification of each species, from phylum rank to family/subfamily, genus/sub-genus, species and subspecies, including the authorship of the last two. They are followed by two columns describing its status as either endemic (e), subendemic (s), introduced (a) or cryptogenic (?). Finally, two columns contain references for the nomenclatural or distribution changes compared to the checklist by Faraci & Rizzotti Vlach (1995) or to the partial updates by Bacchi & Rizzotti Vlach (2005, 2007) and Carapezza & Faraci (2005, 2007).



Figure 1. Study area: Italy is divided into four macro-regions following Faraci & Rizzotti Vlach (1995) and the general framework of the project for a new Checklist of the Italian Fauna.

The Supplementary files contain also lists of taxa included in the previous edition of the Checklist of the Italian Fauna (Faraci & Rizzotti Vlach 1995, and the updates listed above) but that were excluded from the updated checklist owing to nomenclatural changes/synonymies occurred or because, after careful examination, their presence in Italy was found to be unsupported by reliable records. Furthermore, two species of Pentatomidae erroneously cited for Italy in the "Catalogue of the Heteroptera of the Palaearctic Region" (Aukema & Rieger 2006) were excluded.

Data set information

Object name: Checklist of the Italian Fauna: Heteroptera.

Characters encoding: Unicode (UTF-8).

Data sets citations: Cianferoni F., 2021. Insecta Hemiptera Heteroptera Dipsocoromorpha. In: Bologna M.A., Zapparoli M., Oliverio M., Minelli A., Bonato L., Cianferoni F., Stoch F. (eds.), Checklist of the Italian fauna. Version 1.0. Last update: 2021-03-31.

Cianferoni F., 2021. Insecta Hemiptera Heteroptera Gerromorpha. In: Bologna M.A., Zapparoli M., Oliverio M., Minelli A., Bonato L., Cianferoni F., Stoch F. (eds.), Checklist of the Italian fauna. Version 1.0. Last update: 2021-03-31.

Cianferoni F., 2021. Insecta Hemiptera Heteroptera Nepomorpha. In: Bologna M.A., Zapparoli M., Oliverio M., Minelli A., Bonato L., Cianferoni F., Stoch F. (eds.), Checklist of the Italian fauna. Version 1.0. Last update: 2021-03-31.

Cianferoni F., 2021. Insecta Hemiptera Heteroptera Leptopodomorpha. In: Bologna M.A., Zapparoli M., Oliverio M., Minelli A., Bonato L., Cianferoni F., Stoch F. (eds.), Checklist of the Italian fauna. Version 1.0. Last update: 2021-03-31.

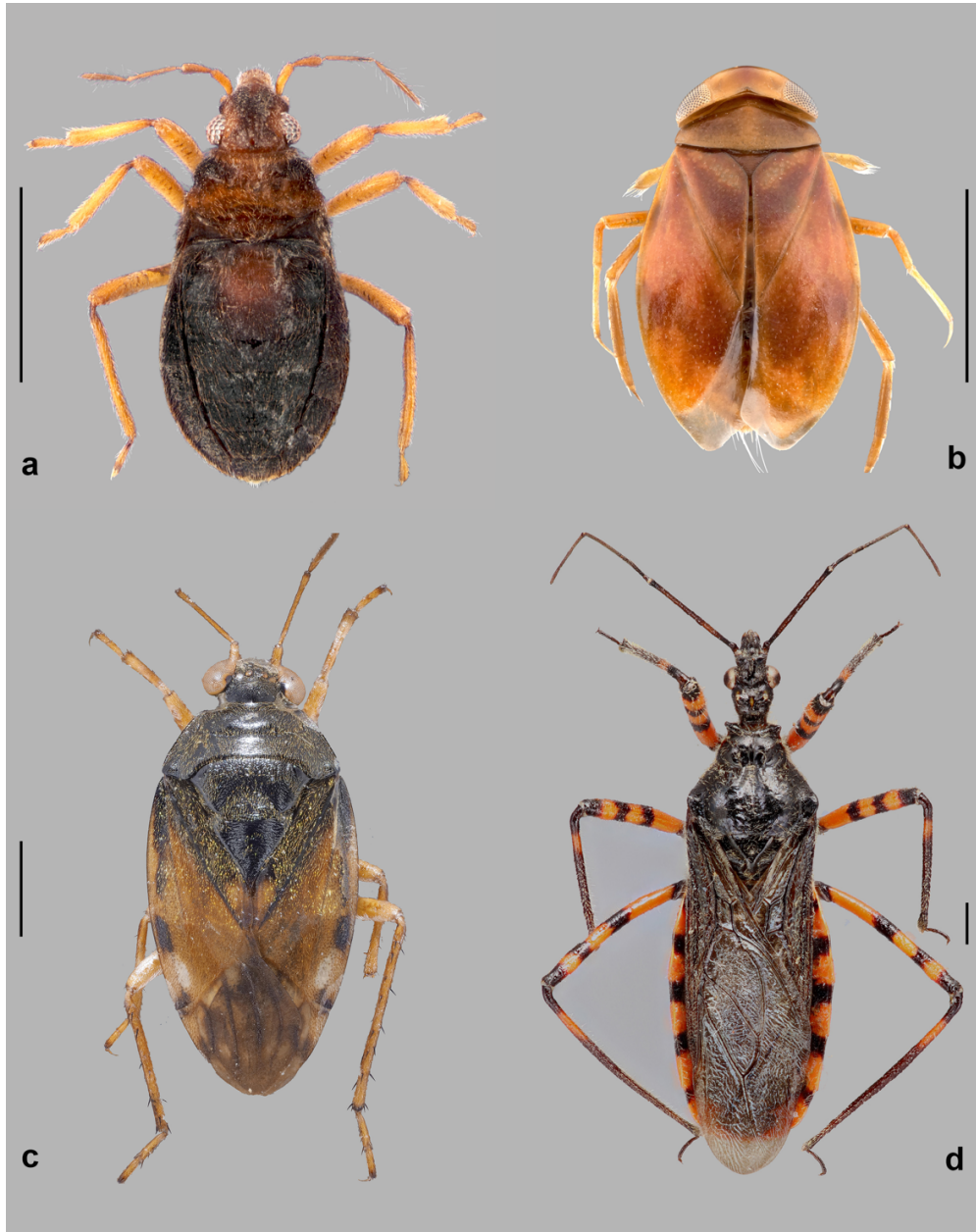


Figure 2. Examples of Italian Heteroptera: a) apterous female of *Hebrus franzi* (Wagner, 1957) (Gerromorpha, Hebridae), endemic of Apennines and living along running water bodies; b) brachypterous female of *Micronecta leucocephala* (Spinola, 1837) (Nepomorpha, Micronectidae), endemic of Sardinia, Corsica, and Balearic Islands; c) macropterous male of *Saldula sardoa* Filippi, 1957 (Leptopodomorpha, Saldidae), halophilous, endemic of the coastal saltmarshes of Sardinia; d) female of *Sphedanolestes cingulatus* (Fieber, 1864) (Cimicomorpha, Reduviidae), endemic of peninsular Italy and Sicily, living on various species of *Quercus*. Scale bars: 1.0 mm. Photos: (a) Harald Bruckner (© NHMW Hemiptera Image Collection), modified from Cianferoni et al. (2016, Zootaxa 4132: 127–134); (b–d) A. Carapezza.

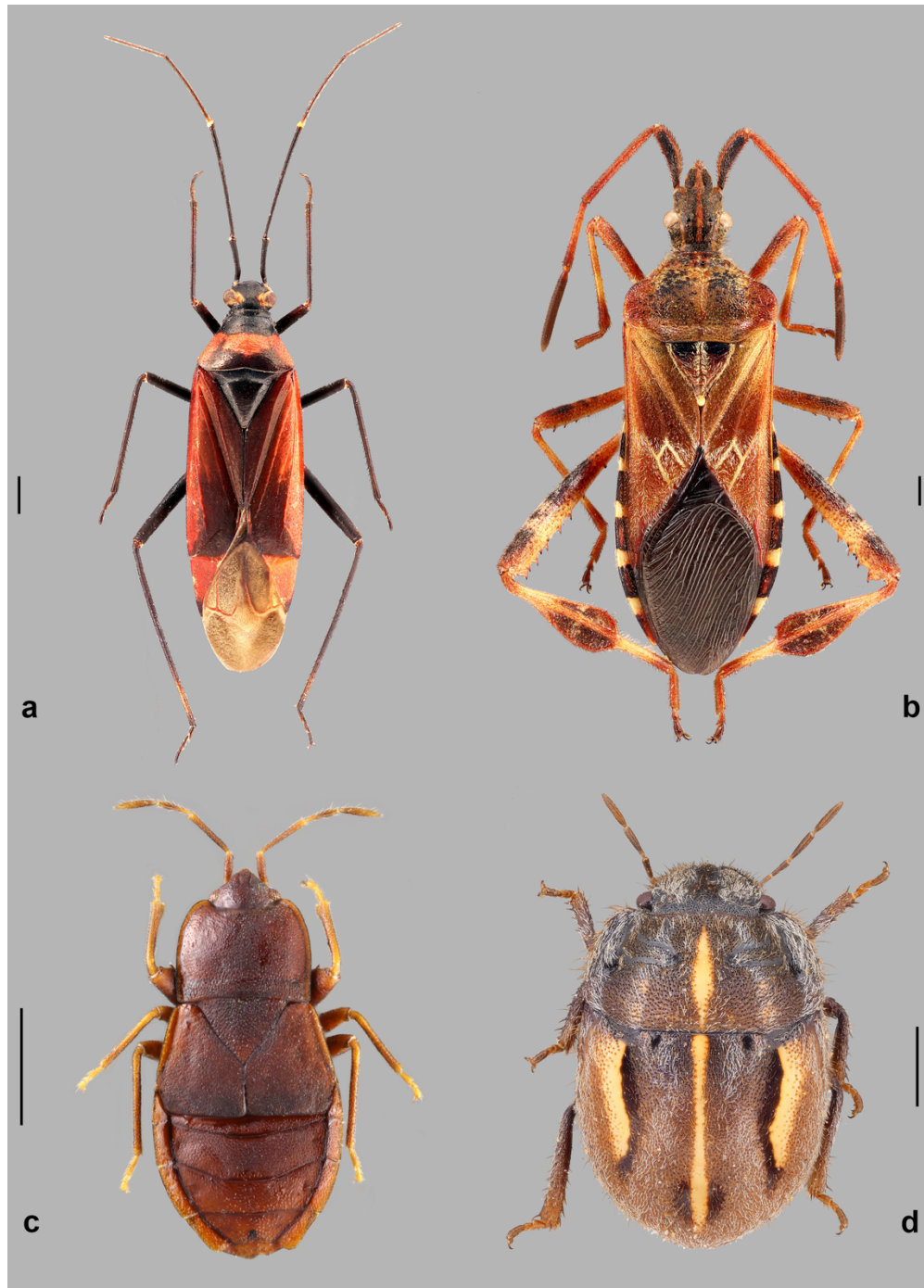


Figure 3. Examples of Italian Heteroptera: a) male of *Miris nebrodensis* Carapezza, 1991 (Cimicomorpha, Miridae), endemic of Sicily, found on the mountains of the northern range at an altitude of 1.200-1.600 m a.s.l., living on hawthorn (*Crataegus monogyna* Jacq.) and preying on small arthropods; b) female of *Leptoglossus occidentalis* Heidemann, 1910 (Pentatomomorpha, Coreidae), a highly successful invasive species of Nearctic origin, discovered in Europe for the first time near Vicenza in northern Italy in 1999, which - after a very rapid spread - became one of the commonest Coreidae all over the country; c) female of *Plinthisus heteroclitus* Matocq & Pluot-Sigwalt, 2013 (Pentatomomorpha, Rhyparochromidae), a recently described species of which only five specimens are known, endemic of a restricted area of Ligurian Alps on both sides of the border between Italy and France, isolated among the Palearctic species of the genus for its unique morphological features (it could not be placed in any of the existing subgenera of *Plinthisus*); d) male of *Odontoscelis signata* Fieber, 1861 (Pentatomomorpha, Scutelleridae), endemic of Sicily and surrounding islands (including Malta). Scale bars: 1.0 mm. All photos by A. Carapezza.

Carapezza A., 2021. Insecta Hemiptera Heteroptera Cimicomorpha Microphysidae, Miridae. In: Bologna M.A., Zapparoli M., Oliverio M., Minelli A., Bonato L., Cianferoni F., Stoch F. (eds.), Checklist of the Italian fauna. Version 1.0. Last update: 2021-05-31.

Faraci F., 2021. Insecta Hemiptera Heteroptera Cimicomorpha (excl. Microphysidae, Miridae). In: Bologna M.A., Zapparoli M., Oliverio M., Minelli A., Bonato L., Cianferoni F., Stoch F. (eds.), Checklist of the Italian fauna. Version 1.0. Last update: 2021-03-31.

Faraci F., 2021. Insecta Hemiptera Heteroptera Pentatomomorpha. In: Bologna M.A., Zapparoli M., Oliverio M., Minelli A., Bonato L., Cianferoni F., Stoch F. (eds.), Checklist of the Italian fauna. Version 1.0. Last update: 2021-03-31.

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Management details

Project title: The new Checklist of the Italian Fauna: Heteroptera.

Database managers: Attilio Carapezza, Fabio Cianferoni, Franco Faraci; Marco Bologna, Lucio Bonato, Alessandro Minelli, Marco

Oliverio, Fabio Stoch, Marzio Zapparoli & LifeWatch Italy.

Temporal coverage: Anything published until November 2020.

Record basis: Published records in the scientific literature.

Funding grants: No funding was specifically available for the project on Heteroptera.

Geographic information

General description: The dataset includes records from Italy in its internationally recognized political borders.

Geographic units: The geographical units within Italy refer to two macro-regions and two major islands, as indicated in Material and methods.

Bounding box: All areas falling under Italian administration from 35° 25' to 47° 06' N and from 6° 35' to 19° 20' E (WGS84 reference system) were included.

Sampling design: We did not perform any additional sampling to collect new records, but we used only published data.

Biogeographic region: Within the Palaearctic realm, according to the definitions of the European Environmental Agency (2017), the dataset covers three European biogeographical regions: Alpine, Continental, and Mediterranean.

Countries: Italy.

Quality control for geographic data: We checked that the published localities matched the geographical units used for the checklist at the level of administrative regions.

Literature records

General description: Only published records are included.

Literature list: The 220 papers that provided nomenclatural changes or distribution novelties or exclusions to the previous checklists or mentioned in the notes are: Abenaim et al. (2020), Alma et al. (2009), Andersen & Weir

(2003), Aukema & Constant (2016), Aukema et al. (2013), Bacchi & Rizzotti Vlach (2000, 2007), Balvín et al. (2015), Bazzato et al. (2013), Belousova (2007), Bernardinelli & Zandigiacomo (2000), Buzzetti (2000), Carapezza (1981, 1988, 1995, 1997, 1999, 2001, 2014a, 2014b), Carapezza & Cusimano (2014), Carapezza & Faraci (2005, 2007), Carapezza & Kerzhner (1996, 2005), Carapezza & Lo Verde (2017), Carapezza et al. (1999, 2020), Carvalho (1952, 1959), Castiglione et al. (2020), Chérot (1997), Chérot & Malipatil (2016), Cianferoni (2011, 2013), Cianferoni & Cianfanelli (2015), Cianferoni & Mazza (2012), Cianferoni & Nardi (2013), Cianferoni & Pinna (2012), Cianferoni & Terzani (2013), Cianferoni et al. (2009, 2011, 2015, 2016, 2017), Colombo & Limonta (2001), Cornara et al. (2016), Costa (1881), Covassi & Poggesi (1986), Deckert (1995), Del Bene & Pluot-Sigwalt (2005), Derjanschi & Péricart (2005), Dioli (1995, 2012, 2013, 2014), Dioli & Grazioli (2012), Dioli & Lai (2018), Dioli & Zanetti (2019), Dioli et al. (2015, 2016, 2019, 2020, 2021), Dolling (2006a, 2006b, 2006c), Dolling & Moulet (1996), Drapolyuk (1993), Dusoulier & Lupoli (2016), Elov & Kerzhner (1977), Fancello et al. (2019), Faraci (2019), Faraci & Rizzotti Vlach (1992, 1994, 1995), Ferrari (1888), Fieber (1860), Gadalla (2003), Gapon (2018), Garbiglietti (1869), Göllner-Scheiding (2006a, 2006b), Goula & Ribes (1995), Günther & Schuster (1990), Heiss (1998, 2001, 2003, 2004, 2008, 2015), Heiss & Péricart (1997, 2007), Heiss & Scudder (2019), Ingegno et al. (2008), Isakov (2000, 2005), Jansson (1986), Josifov (1986, 1989, 1990, 1993), Kerzhner (1964, 1969, 1973, 1981, 1993, 1996), Kerzhner & Jaczevski (1964), Kerzhner & Josifov (1999), Kerzhner & Matocq (1994), Kment & Banar (2010), Kment et al. (2020), Kückler & Strauss (2010), Labina (2003), Laterza & Dioli (2021), Laudonia & Sasso (2012), Linnavuori (1984), Lis (2006), Lo Parrino (2019), Luciano & Pantaleoni (1997), Luthi & Dioli (2020), Maistrello & Dioli (2014), Maltese et al. (2009), Mancini (1958), Masini et al. (2019), Matocq (1993, 2004a, 2004b), Matocq & Pluot-Sigwalt (2005, 2012), Mazza et

al. (2012, 2020), Melber (1991, 1993), Menke (1963), Moulet (1995, 2005), Neimorovets (2020), Norbiato et al. (2019), Olivieri (2004, 2011), Opinion 1325 (1985), Pagola-Carte & Rieger (2017), Pedata et al. (2013), Perez Goodwyn (2006), Péricart (1972, 1990, 1996a, 1996b, 1996c, 1997, 1999a, 1999b, 1999c, 2001a, 2001b, 2002, 2004, 2010), Péricart & Golub (1996), Pluot-Sigwalt & Péricart (2003), Pluot-Sigwalt et al. (2009, 2014), Popov (2004), Puton (1880), Putshkov & Moulet (2010), Putshkov & Putshkov (1996), Rabitsch (2008, 2010), Ragusa (1887, 1907), Rattu & Casalini (2018), Rattu & Dioli (2018, 2020), Rattu et al. (2014), Reuter (1883, 1890, 1895, 1896, 1907), Ribes & Gapon (2006), Ribes & Pagola-Carte (2013), Ribes & Ribes (1997), Ribes et al. (2006, 2007, 2008), Rider (2006), Rieger (2011), Rieger & Rabitsch (2006), Rizzotti Vlach (1995, 1998a, 1998b, 2000), Rizzotti Vlach & Zerbini (1989), Rizzotti Vlach et al. (1996), Roca-Cusachs & Jung (2019), Rosenzweig (1997), Russo et al. (2004), Salvetti & Dioli (2014), Samy (1969), Sasso et al. (2014), Schuh (2001), Schuh et al. (1995), Seidenstücker (1962), Servadei (1967), Signoret (1860), Stichel (1957), Swanson (2017), Tamanini (1955, 1961, 1964, 1979, 1981, 1982), Taylor et al. (2001), Vicidomini & Pignataro (2007), Wagner (1955, 1959), Yasunaga et al. (2002).

Quality control for literature data: Only original references were considered, excluding papers reporting previously published data.

Taxonomic information

General description: Only records reporting species or subspecies were included, disregarding records identified only at higher levels like genus, family, etc.

Taxonomic coverage: class Insecta, order Hemiptera, suborder Heteroptera (Figs. 2, 3).

Taxonomic rank: Only species and subspecies are reported; the dataset reports higher taxa for each species, including Phylum, Class, Order, Family and Subfamily, Genus and Subgenus.

Taxon specialists: Attilio Carapezza, Fabio Cianferoni, Franco Faraci.

Nomenclature: The nomenclature followed the Catalogue of the Heteroptera of the Palaearctic Region (Aukema & Rieger, 1995–2006; Aukema et al. 2013) except for Lygaeidae *s.l.* which are divided into families as proposed by Henry (1997).

Taxonomic remarks: Explanations are given for all taxonomic changes that occurred since the publication of the previous checklists (Faraci &

Rizzotti Vlach 1995; Bacchi & Rizzotti Vlach 2005, 2007; Carapezza & Faraci 2005, 2007). Species that were included in the previous checklists and are now considered not present in Italy, are excluded from the dataset. A list of these species can be found in the “Excluded taxa” section of the complete Checklist.

Quality control for taxonomic data: Taxonomic data were checked and updated to include revision of names, synonyms, delimitation of genera and higher taxa.

Table 1. Number of species-group taxa recorded for Italy, grouped by family (CL 2021). As a comparison, values from the 1995 Checklist are given too (CL 1995). The numbers, part of the totals, of the taxa whose presence in Italy still needs confirmation are indicated in brackets. In the last four columns, the taxa included in the new checklist are grouped by the 4 macro-areas (N, S, Si, Sa).

Family/Infraorder	CL 1995 tot.	CL 2021 tot.	CL 2021 N	CL 2021 S	CL 2021 Si	CL 2021 Sa
Ceratocombidae	1	1	1	1	1	
Dipsocoridae	4	4	4	2		
Dipsocoromorpha	5	5	5	3	1	
Gerridae	14	13	12	11	8 (1)	7
Veliidae	11	11	9	7	5 (1)	3
Hebridae	4	4	3	4	2	1
Hydrometridae	2	2	2	2	1	1
Mesoveliidae	2	2	2	1	1	1
Gerromorpha	33	32	28	25	17 (2)	13
Corixidae	35 (6)	32 (1)	24 (1)	19	13	13
Micronectidae	5	5	4	4	1	2
Aphelocheiridae	1	1	1	1		
Naucoridae	3	3	2	3 (1)	2 (1)	2
Belostomatidae		1		1		
Nepidae	3	3	2	2	2	2
Notonectidae	9	7	6	5	6	5
Ochteridae	1	1	1	1	1	
Pleidae	1	1	1	1	1	1
Nepomorpha	58 (6)	54 (1)	41 (1)	37 (1)	26 (1)	25
Leptopodidae	4	4	4	4	4	2
Saldidae	27	28	24	20 (1)	11 (1)	12
Leptopodomorpha	31	32	28	24 (1)	15 (1)	14
Anthocoridae	51 (3)	51 (1)	47 (3)	35	30 (1)	16 (5)
Cimicidae	4 (1)	5 (2)	4 (1)	3 (1)	1	1
Nabidae	23	23	16	15	14	12
Microphysidae	11 (1)	11 (1)	7	8 (1)	2	2 (1)
Miridae	509 (45)	496 (21)	356 (19)	265 (11)	228 (4)	134 (11)
Reduviidae	51 (5)	55 (3)	38 (4)	42 (2)	37 (1)	26 (2)
Thaumastocoridae		1		1	1	1
Tingidae	81 (4)	88 (4)	73 (5)	57	32 (1)	29 (4)
Cimicomorpha	730 (59)	730 (32)	541 (32)	426 (15)	345 (7)	221 (23)
Aradidae	26	31	24	20 (1)	5	8 (1)

Alydidae	7	7	5	4	5	2
Coreidae	37	37	31	32	30	24
Rhopalidae	21 (1)	21	18 (1)	21	16	15
Stenocephalidae	5	5	5	5	4	4
Artheneidae	4	4	3	2	3	2
Berytidae	22	22	18	21 (1)	14	11 (1)
Blissidae	8 (1)	8 (1)	6 (1)	4 (1)	5 (1)	2
Cymidae	5	5	5 (1)	4	3	3
Geocoridae	12	14	10	10	9 (1)	5 (1)
Heterogastridae	6	6	6	6	5	2
Lygaeidae	37 (2)	36	28	32	27 (3)	22 (1)
Oxycarenidae	22 (1)	22	14 (2)	17	16	13 (1)
Piesmatidae	7	7	5	4	3	3
Rhyparochromidae	145 (3)	144 (1)	110 (3)	112 (2)	94	80 (1)
Acanthosomatidae	7	7	7	7 (1)	2	
Cydnidae	31	35 (1)	26	29 (2)	26 (2)	20 (1)
Pentatomidae	107 (6)	99 (8)	85 (7)	76 (3)	65 (3)	54 (5)
Plataspidae	2 (1)	1	1	1	1	
Scutelleridae	24	25 (1)	16 (1)	18	17	12 (3)
Thyreocoridae	2	2	2	2		
Pyrrhocoridae	4 (1)	4	3	3	3	2
Pentatomomorpha	541 (16)	542 (12)	428 (16)	430 (11)	353 (10)	284 (15)
Grand totals	1398 (81)	1395 (45)	1071 (49)	945 (28)	757 (21)	557 (38)

Table 2. Number of (sub-) endemic species-group taxa recorded for Italy. For each family, the total number of endemic and subendemic species-group taxa is indicated in the first two columns. The following columns group both categories according to the four macro-areas while the last four columns illustrate how many species-group taxa are found in more than one macro-area.

Family/Infraorder	total endem.	total subend.	total N	total S	total Si	total Sa	N+S+Si+Sa	N+S+Si	N+S	S+Si
Veliidae		4	3	3	1	1		1	2	
Hebridae	1		1	1					1	
Gerromorpha	1	4	4	4	1	1		1	3	
Corixidae	2	2	2	2		2			2	
Micronectidae		1				1				
Nepidae		1				1				
Nepomorpha	2	4	2	2		4			2	
Saldidae	1	1			1	1				
Leptopodomorpha	1	1			1	1				
Anthocoridae	2		2	1	1			1		
Miridae	34	2	6	10	7	7	1	2	1	2
Tingidae	1				1					
Cimicomorpha	37	2	8	11	9	7	1	3	1	2
Aradidae	1			1						
Rhyparochromidae	2		1?	1	2					1
Cydnidae		1				1				
Pentatomomorpha	3	1	1?	2	2	1				1
Grand totals	44	12	14	19	13	14	1	4	6	3

Table 3. Number of allochthonous species recorded for Italy. For each family, the total number of alien and cryptogenic species is indicated in the first two columns. The following columns group both categories according to the four macro-areas while the last six columns illustrate how many species are found in more than one macro-area.

Family/Infraorder	total alien	total crypto.	total N	total S	total Si	total Sa	N+S+ Si+Sa	N+S+ Si	N+S	S+Si	S+Sa	S+Si+ Sa
Belostomatidae		1		1								
Nepomorpha		1		1								
Saldidae		1				1						
Leptopodomorpha		1				1						
Anthocoridae		1	1	1					1			
Cimicidae	1?			1?								
Reduviidae	1	3	1	4	1	1			1	1	1	
Thaumastocoridae	1			1	1	1						1
Tingidae	5	1	6	4	2	2	2		2			
Cimicomorpha	7	5	8	10	4	4	2		4	1	1	1
Alydidae	1				1							
Coreidae	1		1	1	1	1	1					
Geocoridae	1			1								
Lygaeidae	1	2	2	1	2			1				
Rhyparochromidae	1					1						
Pentatomidae	1		1	1	1	1	1					
Scutelleridae		1			1							
Pentatomomorpha	6	3	4	4	6	3	2	1				
Grand totals	13	10	12	15	10	8	4	1	4	1	1	1

RESULTS

Summary statistics

The checklist records 1395 species group taxa belonging to 6 infraorders and 48 families. The distribution is summarized in Table 1, in which the data are compared with those of the previous checklist (Faraci & Rizzotti 1995; see also Faraci et al. 2022). The total number of these taxa in each of the four macro-regions is the following: N: 1071; S: 945; Si: 757; Sa: 557.

A total of 44 taxa is currently considered endemic to the Italian territory, while 12 are considered subendemic. Distribution of the endemic taxa is detailed in Table 2. The overwhelming majority of endemic taxa belong to the Miridae family where 6.7% of the mirids represent 77.3% of all Italian endemic heteropterans.

In Italy 13 species were introduced, while 10 are reported as cryptogenic since their origin is still dubious. The distribution of the introduced and cryptogenic taxa is presented in Table 3.

No threat assessment lists (e.g., the global IUCN red list) exist for the Heteroptera.

DISCUSSION

The main changes compared to the previous checklists (Faraci & Rizzotti Vlach, 1995; Bacchi & Rizzotti Vlach 2005, 2007; Carapezza & Faraci 2005, 2007) concern the families Miridae (with 21 synonymies, 26 exclusions and 34 additions), Rhyparochromidae (15 exclusions and 14 additions) and Pentatomidae (13 exclusions and 5 additions).

After the version of the checklist presented here, some new country records (e.g., Dioli et al. 2021, 2022; Cianferoni 2023; Cianferoni & Pintar 2024), other distribution novelties (e.g., Bella 2020; Dioli & Salvetti 2021; Bracalini et al. 2023; Cianferoni & Mazza 2023), nomenclatural changes (e.g. Aukema et al. 2021; Cianferoni 2024), and new species descriptions were published or are expected to be published (see e.g., Carapezza et al. 2023a). And, as often happens despite all the attention paid, some relevant publications were overlooked (e.g., Fancello et al. 2016).

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