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A review of geographical distribution of the stag beetles in Mediterranean countries (Coleoptera: Lucanidae)

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Abstract
A list of recent records of stag beetles (Coleoptera Lucanidae) species occurring in Mediterranean countries is given to improve the current knowledge on their geographic distribution. The saproxylic larvae of the stag beetles are very important for forest ecosystems, and some lucanid species are included in the IUCN Red List and in several national protection lists. However, the knowledge on their distribution is rather heterogeneous for several countries and taxa because the distribution records are scattered in poorly known papers or hidden in Museum or private collections. This paper is an attempt to better understanding the distribution of the stag beetle species across the Mediterranean region, to facilitate research and conservation efforts.

Key words: Mediterranean Region, biogeography, biodiversity conservation, saproxylic beetles, forest ecosystems.

Introduction

The most important and speciose groups of insects related to dead or decaying wood are included in the order Coleoptera. The role and importance of saproxylic beetles have been largely discussed (e.g. Carpaneto et al. 2015b) and we refer to that article for further reading on this subject. The Mediterranean species of saproxylic beetles are now the focus of a dedicated IUCN Red List (in preparation). During a recent workshop on Saproxylic beetle assessment (Alicante, Spain, November 30th - December 3rd 2015) the participants became aware of the great difficulty in preparing updated distribution maps for either species or countries where the available data are scarce or absent, and even more difficult was to provide population estimations and trends.

Lucanidae are one of the most specialized families of saproxylic beetles, because they are mostly saproxylophagous at larval stage and thus extremely important for forest ecosystems. For this reason some of them (5 genera, 20 species) are included in the IUCN European Red List and other species figure in several national protection lists. Despite their usually large size, data on the geographical distribution of many species and countries are poor. Moreover, problems in taxonomic delimitation of many species need a careful verification of their distribution range at the light of modern accepted systematics. This is, for instance, one of the problems of large world databases (e.g. GBIF). In some cases, specimens with location data exist but are hidden in natural history museums or private collections, and not accessible to researchers, if not digitized (which is rarely the case, unfortunately). This paper gives a contribution to improve the distribution of stag beetles across the Mediterranean region and includes both recent bibliographic quotations and new additional records.

Materials and methods

We provide a list of the stag beetles species till now recorded for every nation facing the Mediterranean Sea, and shortly discuss the current knowledge on their distribution within the country. For the countries where the situation is rather well known, we only quote the most recent literature data, whilst we give unpublished additional records for the countries where the available data are scarce.

Countries are listed from West to East, starting from Spain to Turkey, for the northern coast of the Mediterranean, and from East to West, from Syria to Morocco, for the southern coast. Only the nations reaching the sea with a part of their territory have been included.

Nomenclature follows the most recent published Cat-

alogue of Palaearctic Coleoptera (Bartolozzi et al. 2016). Refer to Table 1 for current scientific names and taxonomic status of each treated species and subspecies, as well as for author's names and year of publication.

The additional records are listed alphabetically by locality names; when possible, the original label data have been translated in English. The locality names of the additional records have been georeferenced and listed in Table 2. Geographic coordinates are in decimal degrees (DD) with datum WGS84; number of decimal places vary according to the accuracy of labels.

We examined material from various museums and private collections, indicated by the abbreviations below:

CAB Collection Alberto Ballerio, Brescia, Italy
CEO Collection Eylon Orbach, Qiryat Tivon, Israel
CFA Collection Fernando Angelini, Francavilla Fontana (Brindisi), Italy
CJK Collection Jacek Hilszcanski, Forest Research Institute, Raszyn, Poland
CKDS Collection Klaus-Dirk Schenk, Wehretal, Germany
CLB Collection Luca Bartolozzi, Florence, Italy
CPL Collection Piero Leo, Cagliari, Italy
IRSNB Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium
MCCI Museo Civico di Carmagnola (Turin), Italy
MRSN Museo Regionale di Scienze Naturali, Turin, Italy
MSNG Museo Civico di Storia Naturale, Genua, Italy
MSNM Museo Civico di Storia Naturale, Milan, Italy
MUZR Museo di Zoologia, University of Rome, Italy
MZUF Museo di Storia Naturale, University of Florence, Italy

Table 1 – Current scientific names and taxonomic status of each treated Mediterranean species and subspecies, with author's names and year of publication.

Aesalus scarabaeoides meridionalis Bartolozzi, 1989
Aesalus scarabaeoides scarabaeoides (Panzer, 1793)
Aesalus scarabaeoides siculus Baviera, 2008
Ceruchus chrysomelinus (Hochenwarth, 1785)
Dorcus alexisi Muret & Drumont, 1999
Dorcus musimon Gené, 1836
Dorcus parallelipipedus (Linnaeus, 1758)
Lucanus barbarossa (Fabricius, 1801)
Lucanus busignyi Planet, 1909
Lucanus cervus akbesianus Planet, 1896
Lucanus cervus cervus (Linnaeus, 1758)
Lucanus cervus judaicus Planet, 1902
Lucanus ibericus ibericus Motschulsky, 1845
Lucanus ibericus subvelutinus Motschulsky, 1870
Lucanus laticornis Deyrolle, 1864
Lucanus macrophyllus Kraatz, 1860
Lucanus orientalis Kraatz, 1860
Lucanus pontbrianti (Mulsant, 1839)
Lucanus tetraodon provincialis Colas, 1949
Lucanus tetraodon serraticornis Fairmaire, 1859
Lucanus tetraodon sicilianus Planet, 1899
Lucanus tetraodon tetraodon Thunberg, 1806
Platycerus caprea (De Geer, 1774)
Platycerus caraboides (Linnaeus, 1758)
Platycerus caucasicus Pary, 1864
Platycerus delagrangei Fairmaire, 1892
Platycerus primigenius E. Weise, 1860
Platycerus pseudocaprea Paulus, 1970
Platycerus spinifer Schaufuss, 1862
Sinodendron cylindricum (Linnaeus, 1758)

Results

Spain

The knowledge on the stag beetles distribution in Spain can be considered good for most of the stag beetle species, and there is a Working Group especially devoted to the study of this family: the "Grupo de Trabajo sobre Lucanidae Ibéricos".

In the last years, after the publication of the volume of Fauna Iberica (López Cólon 2000), the stag beetle fauna of Spain has been intensively investigated (e.g. Navarro García 2000; Baena et al. 2001; Pérez-Bote et al. 2001; Grupo de Trabajo sobre Lucanidae Ibéricos 2003, 2006; Recalde et al. 2006; Méndez Iglesias 2007; Muñoz-Batet et al. 2007; San Martín Moreno & Recalde Irurzun 2008; Torrella Allegue 2009; Agoiz-Bustamante & Blázquez Caselles 2011; Barreda 2011; López-Pérez 2011; Gómez de Dios et al. 2014; López-Septiem et al. 2014; Viñolas et al. 2014).

The species quoted in the Volume 14th of Fauna Iberica (López Cólon 2000) were nine: *Aesalus scarabaeoides scarabaeoides*, *Ceruchus chrysomelinus*, *Sinodendron cylindricum*, *Dorcus parallelipipedus*, *Lucanus cervus cervus*, *L. barbarossa*, *Platycerus caprea*, *P. caraboides*, and *P. spinifer*. More recently, this number was increased to eleven, thanks to new records for Spain of *Lucanus pontbrianti* (Fernández de Gamboa & Garzón 2009) and *L. tetraodon* (Beltrán & Beltrán 2009). The eleven species are also quoted by Bartolozzi et al. (2016).

France

The knowledge on the stag beetle distribution in France is rather good, thanks to the recent volume of the "Catalogue des Coléoptères de France" (Boucher 2014, in: Tronquet 2014), where 12 species (with two endemic subspecies) are listed (*Aesalus scarabaeoides scarabaeoides*,

Table 2 – Gazeteer and coordinates of the additional records.

Country	Original label	Toponym	Long. N	Lat. E
Albania	Central Tiranë prov., Mal i Dajtit	Mount Dajt	41.36	19.92
Algeria	Bou Berak, Kabilye	Djebel Bou Berak (mount), Sidi Dawed, Boumerdès	36.8	3.8
Algeria	El Kseur, Akfadou forest, 1250-1360 m	Akfadou Forest (1250-1360 m), Idjeur, Tizi Ouzou	36.6	4.5
Algeria	Grande Kabilye	"Grande Kabylie", Tizi Ouzou	36	4
Algeria	Grand Kabyle, Yakouren, 700-850 m	Yakouren (700-850 m)	36.7	4.4
Algeria	Grand Kabyle, Yakouren, Tala N' Rbia, 850 m	Yakouren, Tala-n-Rbia (850 m)	36.71	4.42
Algeria	Grand Kabyle, Akfadou forest, Tala Kitan, 1100 m	Akfadou forest, Tala Kitane (1100 m)	36.68	3.56
Algeria	Grand Kabyle, Yakouren, Tagma hill, 950 m	Yakouren, Tagma hill (950 m)	36.72	4.48
Algeria	Jijel, Guerrouch forest, 900 m	Guerrouch Forest (900 m), Selma Ben Ziada, Jijel	36.6	5.6
Algeria	Kabilye, Dayren	Kabylia	36	4
Algeria	Laverdure	Laverdure, Mechroha	36.35	7.83
Algeria	Tamanart	Tamanart, Skikda	37.0	6.5
Algeria	Tizi-Ouzou, Akfadou, 1000 m	Akfadou (1000 m), Tizi Ouzou	36.6	4.5
Bosnia and Herzegovina	Metaljica Pass	Metaljica	43.6	17.9
Croatia	Starigrad Nat. Park Paklemia	Paklenica National Park, Starigrad	44.3	15.4
Croatia	Velebit, Gospic	Velebit, Gospić	44.5	15.2
Croatia	Velebit Mts	Velebit (mountains)	44.5	15.2
Croatia	Velebit Mts, Plitvica	Velebit (mountains), Plitvička	44.8	15.6
Cyprus	1 km S of village Kidasi	Kidasi (1 km S)	34.79	32.71
Greece	Achaia, Kalevryta surr.	Kalavryta (sourroundings), Achaea	38.03	22.10
Greece	Aetolia, Akarnania, Lessini	Lesini, Etolia-Akarnania	38.45	21.23
Greece	E Macedonia, Drama, Volakas Sky Center, 1500 m	Volakas (1500 m), Drama	41.3	24.0
Greece	E Macedonia, Evros, Mega Derio, 300 m	Mega Derio (300 m), Evros	41.23	26.02
Greece	E Macedonia, Evros, Soufli, banks river Evros	Maritsa (or Evros) River, Soufli, Evros	41.18	26.32
Greece	Epirus, Ioannina, Kidonia, 700m	Kleidonia (700 m), Ioannina	39.98	20.66
Greece	Epirus, Ioannina, W Pigon lake, 1500 m	Mountains W of Ioannina Lake (1500 m), Ioannina	39.5	20.7
Greece	Fthiotida, Oxià, road Gardiki-Grammeni Oxià, *fagetum*, 1600 m, northern slope	Mount Grammeni Oxia (1600 m)	38.7	22.0
Greece	Igoumenitza, Parapotamos	Parapotamos, Igoumenitsa	39.54	20.32
Greece	Ioannina, Amphitea, NE shore Ioannina lake	Lake Ioannina, Amfithea	39.68	20.86
Greece	Ioannina, Katára, 1500 m	Katara (1500 m), Ioannina	39.7	21.1
Greece	Ioannina, Neraida	Neraida, Trikala	39.4	21.2
Greece	Ioannina, Zagoria, Aoos, 700 m	Aoos National Park, Zagoria	39.9	20.7
Greece	Kalampaka	Kalabaka	39.70	21.72
Greece	Kavala, Pangeo Mts, 1300 m, near Akrouvounion	Pangaion Hills (1300 m)	40.9	24.1
Greece	Kilkis, Paiko, road to Livadia, 1100 m	Mount Paiko (1100 m), road to Livadia, Kilkis	40.96	22.34

continued

Country	Original label	Toponym	Long. N	Lat. E
Greece	Larissa, Ossa Mt. E slope, 1200 m	Mount Ossa (1200 m), East slope	39.80	22.72
Greece	Macedonia, Thassos island, Maries	Thasos Island, Maries	40.6	24.6
Greece	Meteora	Meteora, Kalabaka, Thessalia	39.72	21.63
Greece	Olympos Mt., 600 m	Mount Olympus (600 m)	40.0	22.3
Greece	Ossa Mt.	Mount Ossa	39.7	22.6
Greece	Ossa Mts, W Stomio, 500-800 m	Ossa Mountains (500-800 m), W of Stomio	39.84	22.70
Greece	Peloponnese, Mani, Stoupa	Stoupa, Peloponnese	36.84	22.25
Greece	Peloponnese, Sparti, Taigetos Mt., 1400-2200 m	Mount Taygetus (1400-2200 m)	36.9	22.3
Greece	Thesprotia, Koritiani	Koritiani, Thesprotia	39.50	20.37
Greece	Thessalia, Kranea, 1000 m	Krania (1000 m), Thessalia	39.61	21.34
Greece	Thessalia, Larissa Regional Unit, Ossa Mt., 800 m	Mount Ossa (800 m)	39.7	22.6
Greece	Thessalia, Olympos Mt. (Litòkoro), 900 m	Mount Olympus (900 m), W of Litochoro	40.09	22.42
Greece	Thessalia, Trikala, Meteora	Meteora, Kalabaka, Thessalia	39.72	21.63
Greece	Volos, Pilion, 1200 m	Mount Pelion (1200 m), Volos	39.4	23.0
Israel	Golan Heights, Odem forest	Golan Heights, Odem forest	33.19	35.74
Lebanon	A'akkar, Beit-Ayoub, 1200 m	Beit Ayoub (1200 m), A'akkar	34.47	36.16
Lebanon	Lebanon Gov., Beskinta, caza Metn, 1300 m	Baskinta (Beskinta) (1300 m), Matn (Metn)	33.94	35.78
Lebanon	Lebanon Gov., Qartaba, caza Jbail, 1200 m	Qartaba (1200 m), Jbail (Jbeil)	34.09	35.85
Morocco	Kenitra, Mamora forest	Mamora Forest (Ghabat al Ma'mora), Kenitra	34.0	-6.3
Morocco	Meknes Region, Ifrane Province, 10 km S Ifrane	Ifrane (10 km S), Fès-Meknès	33.4	-5.1
Morocco	Middle Atlas, Azrou	Azrou, Ifrane, Fès-Meknès	33.4	-5.2
Morocco	Middle Atlas, Ifrane	Ifrane, Fès-Meknès	33.5	-5.1
Morocco	Middle Atlas, Ifrane, 1500 m	Ifran (Ifrane) (1500 m), Fès-Meknès	33.5	-5.1
Morocco	Talassemtane, Rif, 1800 m	Talassemtane National Park (1800 m)	35.1	-5.1
Morocco	Tanger	Tangier	35.7	-5.8
Slovenia	Kocevje	Kocevje	45.6	14.8
Slovenia	Trnovo forest	Trnovo forest	45.9	13.8
Syria	Massah Kanli	Massah Kanli	36.7	36.6
Syria	near Akbes (Ikbis)	Maydān Akbis (sourroudings)	36.8	36.6
Tunisia	Ain Draham	Aïn Draham (Ayn Darahim)	36.77	8.68
Tunisia	Ain Draham, 800 m	Aïn Draham (Ayn Darahim) (800 m)	36.7	8.6
Tunisia	Ain-Draham, Djebel Bir, eastern side	Aïn Draham (Ayn Darahim)	36.7	8.6
Tunisia	Camp des Chenes (25 km S Tabarka)	Tabarka (25 km S)	36.7	8.7
Tunisia	Sfax	Sfax	34.7	10.7
Tunisia	Tabarka, Ain Sebaa	Aïn Sebaa, Tabarka	36.95	8.92
Turkey	Adana	Adana	36.9	35.3
Turkey	Adana, Nur Daglan, Yarpuz, 400-600 m	Yarpuz (400-600 m), Adana	37.09	36.49
Turkey	Akcali Daglari, 20 km N of Aydincik, 1250 m	Akçalı mountains, 20 km N of Aydıncık (1250 m)	36.3	33.3
Turkey	[formerly] Syria, Amanus	Amanus Mountains [Nur Mountains]	36.7	36.3
Turkey	Anatolia, Elmali	Elmalı, Antalya	36.73	29.91
Turkey	C Anatolia, W Nevshehir, Göreme	Göreme, Nevşehir	38.6	34.8
Turkey	N Anatolia, Akpinar forest, Sansun, 800 m	Akpınar (800 m), Samsun	41.3	35.2
Turkey	N Anatolia, Almus	Almus, Tokat	40.37	36.90
Turkey	N Anatolia, Konacik (Giresun)	Konacık, Giresun	40.9	38.3

continued

Country	Original label	Toponym	Long. N	Lat. E
Turkey	N Anatolia, Köse, 1850 m	Köse (1850 m), Gümüşhane	40.2	39.6
Turkey	N Anatolia, Kulak (Ordu)	Ordu	40.9	37.9
Turkey	N Anatolia, Mengen	Mengen	40.93	32.07
Turkey	N Anatolia, Puskedagi, Erzincam, 2100 m	Mount Puske (2100 m)	40.0	39.9
Turkey	N Anatolia, Sapanca	Sapanca	40.68	30.26
Turkey	N Anatolia, Unye, 300 m	Ünye, Ordu (300 m)	41.07	37.25
Turkey	N of Karaduk, Nemrud Dag	Mount Nemrut, N of Karadut	37.9	38.7
Turkey	NE Anatolia, Ispir (Erturum), 1000 m	İspir (1000 m), Erzurum	40.4	41.0
Turkey	S Anatolia, Çamliyayla (Mersin), 1100 m	Çamlıyayla (1110 m), Mersin	37.16	34.59
Turkey	S Anatolia, hill S of Aglasun (Burdur), 1090 m	S of Ağlasun (1090 m), Burdur	37.6	30.5
Turkey	S Anatolia, Ovacik Dag (Konya), 1300 m	Ovacık mount, Konya	37.8	32.3
Turkey	S Anatolia, pass 30 km N of Kahramanmaras	30 km N of Kahramanmaraş	37.8	36.9
Turkey	S Anatolia, S of Beyschir (Konya), 1200 m	S of Beyşehir (1200 m), Konya	37.6	31.7
Turkey	S Anatolia, S of Seydisheir (Konya), 1500 m	S of Seydişehir (1500 m), Konya	37.3	31.8
Turkey	SW Anatolia, hill 30 km NE of Mugla, 800 m	30 km NE of Muğla (hill, 800 m)	37.4	28.2
Turkey	SW Anatolia, Karabel (Mugla), 1300 m	Karabel (1300 m), Muğla	36.79	29.50
Turkey	W Anatolia, Gölcuk (Mugla), 750 m	Gölcük (750 m), Muğla	37.13	28.54
Turkey	W Anatolia, Yenişarbademli	Yenişarbademli, Isparta	37.70	31.38
Turkey	Aslanli, 15 km NW Erdemli	Arslanlı, Erdemli	36.68	34.14
Turkey	Egirdir	Eğirdir	37.87	30.85
Turkey	Fethyie, Yaniklar	Yanıklar, Fethiye	36.70	29.05
Turkey	Hatay Prov., Dortyol, Topaktaş vill., 1200 m	Topaktaş (1200 m), Dörtyol, Hatay	36.8	36.3
Turkey	Mudurnu	Mudurnu, Bolu	40.46	31.21
Turkey	Mugla (Fethiye)	Fethiye, Muğla	36.6	29.1
Turkey	Sivas Province, Koyulhisar, 10 km N road for Mesudiye	Koyulhisar (10 km N road for Mesudiye)	40.3	37.8
Turkey	South Taurus, 30 km NW Alanya, 1150 m	30 km NW Alanya (1150 m)	36.8	31.8
Turkey	surr. Bahce	Bahçe (sourroundings)	37.1	36.5
Turkey	surr. Belen	Belen (sourroundigs), Hatay	36.48	36.19
Turkey	surr. Incekum	İncekum (sourroundings)	36.6	31.7
Turkey	surr. Kozan	Kozan (sourroundings)	37.4	35.8
Turkey	surr. Silifke	Silifke, Mersin	36.37	33.92
Turkey	surroundings of Ciftehan, S of Alihoca village, Bolkar Daglari, 950 m	surroundings of Ciftehan, S of Alihoca	37.51	34.78
Turkey	Tunceli Prov., 20 km N Tunceli	20 km N of Tunceli	39.2	39.5
Turkey	Turkey, Mardin, Hop Geçidi, 1100 m	Hop Geçidi (pass), Mardin	37.36	40.84
Turkey	Artvin Province, surr. Borçka, 200 m	Borçka (sourroundings) (200 m), Artvin	41.36	41.67
Turkey	Bolu Province, between Konuralp and Akçakoca	between Konuralp and Akçakoca, Bolu	41.0	31.1
Turkey	Istanbul Province, surr. Resadiye (Alemdag)	Reşadiye, Alemdağ	41.07	29.25
Turkey	Izmit Province, Masukiye, Kelpete, 1150 m	Keltepe (1150 m), Maşukiye, Kartepe	40.6	30.1
Turkey	Kastamonu Province, Yaraligöz Mts, pass, 1300 m	NE Devrekani, Yaraligöz Mts, pass (1300 m)	41.77	34.06
Turkey	Ordu Province, Akkus forest, 1400 m	Akkuş forest (1400 m), Ordu	40.7	37.0
Turkey	Tokat Province, Dumanli Orman, 1200 m	Dumanlı forest (1200 m), Tokat	40.3	36.8
Turkey	Tokat Province, Mamo Orman, 1100 m	Mamo forest (1100 m), Tokat	40.3	36.8

Ceruchus chrysomelinus, *Sinodendron cylindricum*, *Dorcus parallelipipedus*. *Lucanus barbarossa*, *L. cervus cervus*, *L. pontbrianti*, *L. tetraodon provincialis* (Fig. 2 c), *L. tetraodon serraticornis*, *Platycerus caprea*, *P. caraboides*, *P. pseudocaprea*, and *P. spinifer*) and their distribution discussed. The most important quotation is the presence of a third species of *Lucanus* in France: *Lucanus pontbrianti* (Fig. 1), which was previously confused with *L. cervus* and placed among its synonyms (see below in Taxonomic remarks).

Italy

Some papers have been recently devoted to the Italian distribution of Lucanidae (Carpaneto & Piattella 1995, Bartolozzi & Maggini 2007; Harvey et al. 2011; Cortellessa et al. 2014). The known species are nine (*Aesalus scarabaeoides*, *Ceruchus chrysomelinus*, *Sinodendron cylindricum*, *Dorcus musimon*, *D. parallelipipedus*, *Lucanus cervus cervus*, *L. tetraodon*, *Platycerus caprea*, and *P. caraboides*): some are quite common and widely distributed (e.g. *D. parallelipipedus*), others are rarer and localised (*A. scarabaeoides*, *C. chrysomelinus*).

Concerning *A. scarabaeoides*, the species is present in Italy with three subspecies (*A. scarabaeoides scarabaeoides*, *A. s. meridionalis* and *A. s. siculus*). The nominal subspecies is known from a few scattered localities: Bobbio Pellice and Castellar in Piedmont Region (Bartolozzi 1986a; Dutto 2005), Trentino-Alto Adige region (Franciscolo 1997), Ciaurlec Mount and Tarnova Forest in Friuli-Venezia Giulia region (Bartolozzi 1994; Franciscolo 1997), Castel Porziano in Latium region (Maltzeff 1998; Carpaneto et al. 1998, 2001), National Park of Foreste Casentinesi, Monte Falterona and Campigna in Emilia-Romagna region (Contarini & Mingazzini 2013), whilst the subspecies *A. s. meridionalis* is only known from Policoro wood in Basilicata region (Bartolozzi 1989; Bartolozzi & Maggini 2007), and the subspecies *A. s. siculus* is endemic to the Peloritani Mountains in Sicily region (Baviera 2008). In the Red List of Italian Saproxylic Beetles, Carpaneto et al. (2015a) included the nominal subspecies in the EN (Endangered) category, whilst the two subspecies are listed as CR (Critically Endangered).

Fig. 1 – *Lucanus pontbrianti.* Male specimen from France, Var department, La Cadière, 24 Jun 2006, R. Minetti lgt (CLB); body size 42 mm. Photo by Saulo Bambi.

Concerning *Lucanus cervus* and *L. tetraodon* (Fig. 2 a), the first one is distributed in northern and central Italy, whilst the second one is mostly a southern species (with its subspecies *L. t. sicilianus* endemic to Sicily) (Fig. 2 b). One of the most surprising recent findings has been the discovery of a stable population of *Lucanus tetraodon* in northern Italy, in the River Ticino area (Zilioli & Pittino 2004). See below under Taxonomic remarks for a short discussion about the taxonomic problems involving this couple of species in central Italy.

Not less surprising was the discovery - after 150 years from the first and unique quotation for central Italy (Bartolozzi 1986b; Franciscolo 1997) - of specimens of *Ceruchus chrysomelinus* (Fig. 3) in the National Park of Foreste Casentinesi, Monte Falterona and Campigna (Bartolozzi et al. 2008; Cianferoni et al. 2009; Contarini & Mingazzini 2013; Ceccolini & Norbiato 2015) in the Apennine Mountains between Tuscany and Emilia-Romagna regions. *C. chrysomelinus* is a so-called "Urwald relict species" (Müller et al. 2005) and it is known in Italy only for other few localities in Piedmont, Trentino-Alto Adige and Friuli-Venezia Giulia regions (Franciscolo 1997; Gatti & Nardi 2005; Bartolozzi & Maggini 2007). The species is included in several European red lists (e.g. Kahlen et al. 1994; Brechtel & Kostenbader 2002; Telnov 2005); in the Red List of Italian Saproxylic Beetles it has been included in the EN (Endangered) category (Carpaneto et al. 2014, 2015a).

Slovenia

Brelih et al. (2010) quoted seven stag beetle species for the country, listing all their known localities: *Aesalus scarabaeoides scarabaeoides*, *Ceruchus chrysomelinus*, *Sinodendron cylindricum*, *Dorcus parallelipipedus*, *Lucanus cervus cervus*, *Platycerus caprea*, *P. caraboides*. They also erased *Dorcus peyronis*, from the list of Slovenian Lucanidae. The same seven species are quoted by Bartolozzi et al. (2016).

Concerning *Aesalus s. scarabaeoides* Brelih et al. (2010) wrote that "in Slovenia, this smallest stag bee-

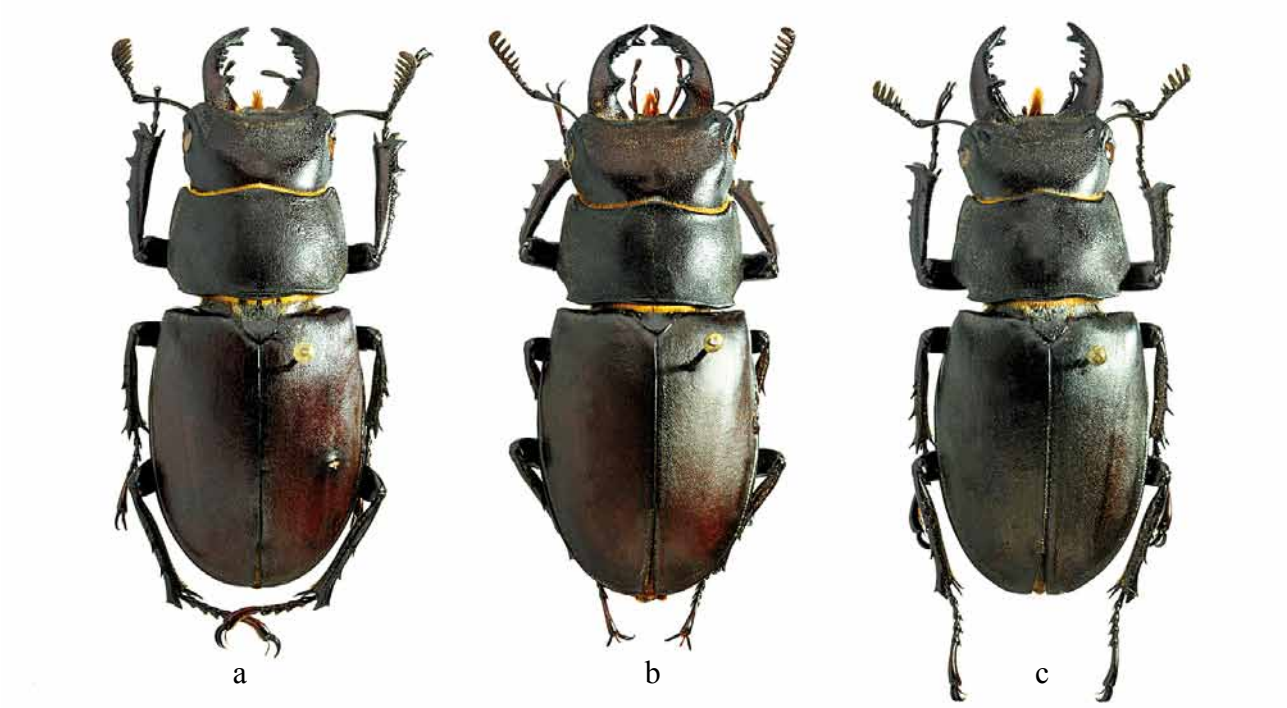

Fig. 2 – *Lucanus tetraodon* ssp. - **a**) *L. tetraodon tetraodon.* Male specimen from Italy, Calabria, Capistrano (Cosenza province), 800-1000 m, beech forest, Aug 1990, I. Bonato lgt (CLB); body size 38 mm. **b**) *L. tetraodon sicilianus.* Male specimen from Italy, Sicily, Nebrodi Mts, Portella Femmina Morta (Messina province), 850 m, Jun 1967, S. Bruno lgt (CLB); body size 43 mm. **c**) *L. tetraodon provincialis.* Male specimen from France, Var department, Janas forest, 6 Jul 2010, R. Minetti lgt (CLB); body size 40 mm. Photos by Saulo Bambi.

Fig. 3 – *Ceruchus chrysomelinus* is rare in Mediterranean countries, although less infrequent in mature forest habitats of Central Europe. Male specimen from Czech Republic, Bohemia bor., Děčín, Růžová env., Růžovský vrch mt., 8 Jun 2010; body size ca. 15 mm. Photo by Pavel Krásenský.

tle is nowadays extremely rare" and that "the last specimens known to us [...] from Slovenia were caught in 1995 in a pheromonic trap for bark beetles in Trnovski gozd". The populations of *Sinodendron cylindricum*, *Ceruchus chrysomelinus*, *Platycerus caprea*, *P. caraboides* and *Dorcus parallelipipedus* have stable abundances and densities; whilst "in spite of the numerous gathered data from the latest period, it has become clear that the density of its [*Lucanus cervus*] population is in decline". Vrezec et al. (2011) also discussed the distribution and conservation status of *L. cervus* in Slovenia.

Additional records
Ceruchus chrysomelinus - Kocevje, 29 Jun 1994, Egger, lgt, 1 ♂ (CAB).
Lucanus cervus cervus - Trnovo forest, Jul 1976, Zargani lgt, 1 ♂ (MCCI).
Platycerus caraboides - Trnovo forest, Mar 1971, Zargani lgt, 1 ♂ (MCCI).

Croatia
Baraud (1993) and Bartolozzi et al. (2016) quoted seven species of stag beetles for this country: *Aesalus scarabaeoides scarabaeoides*, *Ceruchus chrysomelinus*, *Sinodendron cylindricum*, *Dorcus parallelipipedus*, *Lucanus cervus cervus*, *Platycerus caprea*, *P. caraboides*. Several records can be found in Franciscolo (1997). Koren et al. (2010) quoted *Dorcus parallelipipedus* for the island of Žut; Koren & Trkov (2015) quoted *D. parallelipipedus* and *Lucanus cervus cervus* for the island of Cres.

Additional records
Dorcus parallelipipedus - Velebit, Gospic, Aug 1975, Zargani lgt, 1 ♂ (MCCI); Velebit Mts, 21 Jun 1982, M. Berra lgt, 1 ♂ (CLB); Starigrad Nat. Park Paklemia, 13 Aug 1977, Erber lgt, 1 ♂ (CLB).
Lucanus cervus cervus - Velebit Mts, Plitvica, Aug 1955, J.M. Vrijdagh lgt, 1 ♀ (IRSNB).

Bosnia and Herzegovina
Mikšic dedicated several papers to the Lamellicornia of ex-Yugoslavia (Mikšic 1955, 1959, 1970, 1984), with seven species quoted for Bosnia and Herzegovina: *Aesalus scarabaeoides scarabaeoides*, *Ceruchus chrysomelinus*, *Sinodendron cylindricum*, *Dorcus parallelipipedus, Lucanus cervus cervus*, *Platycerus caprea*, *P. caraboides* (Baraud 1993; Bartolozzi et al. 2016). Lelo & Kašić-Lelo (2009) gave distributional maps for the stag beetle species in the country but where unable to find any precise location for *Platycerus caprea* and *Ceruchus chrysomelinus*; Lelo et al. (2010) gave morphological remarks and locality records for *Lucanus cervus*.

Additional records
Ceruchus chrysomelinus - Metaljica Pass, 5 Nov 1971, P. Cavazzuti lgt, 1 ♂ (MCCI).

Montenegro
Král (2015) quoted *Dorcus parallelipipedus* (Mojkovac, Bjelasica Mts, Biogradsko Lake, 15 Jun 2006) and *Platycerus caraboides* (Mojkovac, Bjelasica Mts, Biogradsko Lake, 15 Jun 2006, and Trešnjevik, Komovi Mts, forested area below Vasoljevički Kom, 1500-1750 m, 11-12 Jun 2006) as first records of these species for Montenegro. Bartolozzi et al. (2016) listed five species for the country: *Sinodendron cylindricum, Dorcus parallelipipedus, Lucanus cervus cervus, Platycerus caprea, P. caraboides*.

Albania
Král (2015) quotes *Dorcus parallelipipedus* (Kukës County, Valbonë Mts, Kikaj Maskollata env., 42°27'N 19°56'E, ca 700-800 m, 29 Jun 2011) and *Platycerus caraboides* (Kukës County, Valbonë Mts, Kikaj Maskollata env., 42°27'N 19°56'E, ca 700-800 m, 27-29 Jun 2011 and Albanian Alps, Valbona, Kukaj Valley, ca 1700 m, 7 Jul 2012) as first records of these species for the country. Bartolozzi *et al*. (2016) listed a total of six species of Lucanidae for this nation: *Sinodendron cylindricum*, *Dorcus parallelipipedus*, *Lucanus cervus cervus*, *L. tetraodon tetraodon*, *L. ibericus ibericus*, *Platycerus caraboides*. However, the correct identification of the specimens quoted under the names of *L. tetraodon* and *L. ibericus* (e.g. by Baraud 1993) should be carefully verified. We had not the opportunity to examine specimens of these species collected from Albania.

Additional records
Lucanus cervus cervus - Central Tiranë prov., Mal i Dajtit, wine traps, 16-24 Jun 2007, P. Rapuzzi & G. Sama lgt, ex coll. P. Rapuzzi, 1 ♂ (CLB).

Greece
Bartolozzi et al. (2016) listed only six stag beetle species for the country: *Dorcus parallelipipedus*, *D. peyronis*, *Lucanus cervus cervus*, *L. tetraodon tetraodon*, *L. ibericus ibericus*, *Platycerus caraboides*. Concerning *Lucanus tetraodon* and *L. ibericus*, see the remarks given for the same species records in Albania. Moreover, *Sinodendron cylindricum* was quoted of Greece by Franciscolo (1997), who misinterpreted a sentence of Horion (1958) "auf der ganzen Balkanhalbinsel ausser Bulgarien und Griechenland bekannt, nach Miksic 1955;" (*ausser* = except), and therefore was not considered from Greece by Bartolozzi et al. (2016). Nevertheless, the additional records hereafter reported, all from mountain areas, seem to be the first records for *S. cylindricum* in Greece.

Additional records
Sinodendron cylindricum - Epirus, Ioannina, W Pigon lake, 1500 m, 21 May-14 Jun 2007, vinegar trap, F. Angelini lgt, 1 ♂ (CFA); Ioannina, Katára, 1500 m, 25-28 Jun 1981, E. Colonnelli lgt, 2 ♂♂, 3 ♀♀ (MUZR, CLB); Ioannina, Zagoria, Aoos, 700 m, Aug 1982, S. Bruno lgt, 1 ♀

(MUZR); Kavala, Pangeo Mts, 1300 m, near Akrouvounion, 4 May 1982, A. Vigna lgt, 2 ♂♂, 2 ♀♀ (MUZR, CLB); same locality and date, G. Boffa, A. Casale, P. Cavazzuti, P.M. Giachino, P.L. Scaramozzino leg, 1 ♂ (CLB); Kilkis, Paiko, road to Livadia, 1100 m, 16 Jun 1993, P.M. Giachino & D. Vailati lgt, 1 ♂ (MSNG); Thessalia, Olympos Mt. (Litòkoro), 900 m, 12 Jul 1983, A. Console lgt, 1 ♀ (CLB); Volos, Pilion, 1200 m, Sep 1992, G. Sama lgt, 3 ♀♀ (CLB).

Dorcus parallelipipedus - Achaia, Kalevryta surr., 17-21 Jun 1998, A. Angelini lgt, 2 ♀♀ (MZUF coll. n° 18046); Aetolia, Akarnania, Lessini, 30 Apr 1999, A. Angelini lgt, 5 ♂♂ (MZUF coll. n° 18045); same locality, 1 Jun 1999, A. Angelini lgt, 1 ♀ (MZUF, coll. n° 18049); Epirus, Ioannina, Kidonia, 700 m, vinegar trap, 20 May-14 Jun 2007, A. Angelini lgt, 5 ♂♂, 4 ♀♀ (MZUF, coll. n° 18041); Ioannina, Katára, 1500 m, 25-28 Jun 1981, E. Colonnelli lgt, 2 ♂♂ (MUZR); Ioannina, Neraida, 8 Nov 1981, A. Vigna lgt, 4 ♂♂ (MUZR, CLB); Ioannina, Amphitea, NE shore Ioannina lake, 8 Nov 1981, A. Vigna & S. Bruschi lgt, 6 ♂♂ (MUZR, CLB); Fthiotida, Oxià, road Gardiki-Grammeni Oxià, *fagetum*, 1600 m, northern slope, 10 Jun 1995, P.M. Giachino, D. Vailati, M. Daccordi lgt, 1 ♂ (MSNG); Kavala, Pangeo Mts, 1300 m, near Akrovounion, 4 May 1982, M. Zapparoli lgt, 2 ♂♂, (MUZR, CLB); Macedonia, Thassos island, Maries, 13 Aug 2008, L. Fancello lgt, 1 ♂ (MSNG); E Macedonia, Evros, Soufli, banks river Evros, 27 May 2007, F. Angelini lgt, 3 ♂♂, 3 ♀♀ (MZUF, coll. n° 18042); E Macedonia, Evros, Mega Derio, 300 m, 29 May 2007, F. Angelini lgt, 1 ♂ (MZUF, coll. n° 18043); E Macedonia, Drama, Volakas Sky Center, 1500 m, 3 Jun 2007, A. Angelini lgt, 1 ♂, 1 ♀ (MZUF, coll. n° 18050); Peloponnese, Sparti, Taigetos Mt., 1400-2200 m, 6-9 Aug 1980, P. Audisio & M.C. Angelici lgt, 3 ♂♂ (MUZR); Peloponnese, Mani, Stoupa, 10 Jun 1996, M. Egger lgt, 1 ♀ (CAB); Thessalia, Larissa Regional Unit, Ossa Mt., 800 m, 1-9 Jul 2016, S. Dementiev lgt, 1 ♂ (CLB); Ossa Mt., 19 May 1977, G. Curletti lgt, 1 ♂ (MCCI); Larissa, Ossa Mt., E slope, 1200 m, 5 Jul-4 Aug 1976, A. Vigna lgt, 16 ♂♂, 22 ♀♀ (MUZ, CLB); Ossa Mts, W Stomio, 500-800 m, on *Quercus*, 2 Jul 2002, K.D. Schenk lgt, 1 ♂, 2 ♀♀ (CKDS); same locality, 18-25 Jun 2003, K.D. Schenk lgt, 1 ♂ (CKDS); Thessalia, Trikala, Meteora, vinegar trap, 23 May-15 Jun 2007, A. Angelini lgt, 1 ♂, 2 ♀♀ (MZUF coll. n° 18044).

Lucanus cervus cervus - Epirus, Iaonnina, Klidonia, 700 m, 20 May 2007, F. Angelini lgt, 1 ♂ (CFA); Igoumenitza, Parapotamos, Jun 2011, C. Sola lgt, 1 ♂ (CLB); Kalampaka, Jun 2011, C. Sola lgt, 1 ♂ (CLB); Thessalia, Trikala, Vlahava, 800 m, 22 May 2007, F. Angelini lgt, 1 ♂ (CFA); Thessalia (Larissa Regional Unit), Ossa Mt., 800 m, 1-9 Jul 2016, S. Dementiev lgt, 1 ♂ (CLB); Meteora, 18 May 1977, G. Curletti lgt, 1 ♂ (MCCI); Olympos Mt., 600 m, 18 Jul 1976, A. Casale lgt, 1 ♂ (MRSN); Thesprotia, Koritiani, 17 Jun 1997, A. Liberto leg, 1 ♂, 1 ♀ (CPL).

Platycerus caraboides - Epirus, Ioannina, W Pigon lake, 1500 m, 21 May-14 Jun 2007, vinegar trap, F. Angelini lgt, 1 ♀ (MZUF, coll. n° 18047); Thessalia, Kranea, 1000 m, 23 May-15 Jun 2007, vinegar trap, F. Angelini lgt, 1 ♂ (MZUF, coll. n° 18048).

Malta

We have no records of Lucanidae from this country. According to the Maltese entomologist David Mifsud (personal communication, 2012) no stag beetles are recorded on the island, even if there is an old and very doubtful quotation for *Lucanus cervus* (Gulia 1858).

Cyprus

A new species of *Dorcus* was described from this island, *Dorcus alexisi* Muret & Drumont, 1999, the only stag beetle known for Cyprus at present (previously confused with the widespread *D. parallelipipedus* in the collections). See also under Taxonomic remarks below. A picture, an identification key, and a list of localities are given in the original description paper (Muret & Drumont 1999).

Additional records

Dorcus alexisi - 1 km S of village Kidasi, in alder forest, 1 May 2013, J. Hilszcanski lgt, 2 ♂♂ (CJK).

Turkey

Bartolozzi et al. (2016) list 13 species and three subspecies for the country: *Dorcus parallelipipedus*, *D. peyronis*, *Lucanus busignyi*, *L. orientalis, L. cervus cervus, L. cervus akbesianus, L. cervus judaicus, L. ibericus ibericus, L. ibericus subvelutinus, L. laticornis, L. macrophyllus, Platycerus caprea, P. caraboides, P. caucasicus, P. delagrangei*, *P. primigenius*. As *Sinodendron cylindricum* was quoted for "Asia Minor" (e.g. Baraud 1993; Franciscolo 1997) and its presence in Anatolia was confirmed by the additional records of the present paper, the species must be added to the Turkish list of Lucanidae, thus reaching 14 species.

Taxonomy and distribution of the species of the genus *Lucanus* in Turkey were recently examined by Schenk & Fiedler (2011) and Avgın & Thomaes (2014). See also below under Taxonomic remarks.

Platycerus delagrangei was described from Syria, Akbes (now in Turkey, vilhayet [= Province] Hatay); it has been recently collected in Akteppe in the Nur Mts (Hatay Province) near the border with Syria (Kairouz et al. 2011). Aslan & Karaca (2012) quoted *Lucanus cervus* and *Cerucchus chrisomelinus* (sic!) in the Kovada Lake National Park basin (Isparta). As *C. chrysomelinus* was not known in Turkey, and as they wrote that even 29 specimens of this very rare species were found, we asked the Authors to send us a photo of a specimen. Thanks to their kind collaboration we have been able to verify that the species was misidentified, actually being the common *Dorcus parallelipipedus*.

Avgın et al. (2014) published a review of Turkish sap-

roxylic beetles from the European Red List and quoted the following stag beetle species (in brackets the IUCN category): *Dorcus parallelipipedus* (LC), *D. peyroni* (sic!) (i.e. *D. peyronis*) (DD), *L. cervus cervus* (NT), *L. ibericus* (DD), *L. laticornis* (EN). However, at least *L. busignyi* and *L. macrophyllus* must be included in the list, due to their restricted distribution and/or rarity. Tezcan & Pehlivan (2001) quote *D. parallelipipedus* in Muradiye (Manisa Province) and Ören (Izmir Province).

Additional records

Sinodendron cylindricum - Kastamonu Province, Yaraligöz Mts, pass, 1300 m, 20 Oct 1982, P. Cavazzuti & M. Zapparoli lgt, 1 ♂, 1 ♀ (MUZR, CLB); Izmit Province, Masukiye, Kelpete, 1150 m, 24 Nov 1981, S. Bruschi lgt, 1 ♂ (MUZR); Ordu Province, Akkus forest, 1400 m, 19 Oct 1982, A. Vigna lgt, 1 ♂, 1 ♀ (MUZR); Tokat province, Dumanli Orman, 1500-1700 m, 12 Jul 1976, S. Bruschi lgt 2 ♂♂ (MUZR, CLB); Tokat Province, Mamo Orman, 1100 m, 13-31 Jul 1976, A. Vigna lgt, 1 ♀ (MUZR).

Dorcus parallelipipedus - Amanus [formerly in Syria], 1891, 1 ♂ (IRSNB); S Anatolia, hill S of Aglasun (Burdur), 1090 m, 18 Jul 1992, P. Mazzi lgt, 1 ♂, 1♀ (CLB); N Anatolia, Akpinar forest, Sansun, 800 m, 17 Jul 1977, P. Cavazzuti lgt, 1 ♀, 1 ♂ (CLB); SW Anatolia, Karabel (Mugla), 1300 m, 23 Jul 1991, P. Mazzi lgt, 1 ♀ (CLB); Adana, Nur Daglan, Yarpuz, 400-600 m, 8 May 2000, E. Colonnelli lgt, 2 ♂♂, 1 ♀ (MZUF, coll. n° 18040); Aslanli, 15 km NW Erdemli, 22-25 Jun 2008, W. Grosser lgt 17 ♂♂, 10 ♀♀ (CKDS); Artvin Province, surr. Borçka, 200 m, 13 Oct 1982, S. Bruschi lgt, 1 ♂, 2 ♀♀ (MUZR, CLB); surr. Belen, 20 Jun 2008, W. Grosser lgt, 1 ♀ (CKDS); Bolu Province, between Konuralp and Akçakoca, 300 m, 8 Jul-2 Aug 1976, A. Vigna lgt, 4 ♂♂, 9 ♀♀ (MUZR, CLB); Fethyie, Yaniklar, 15-27 Jun 1992, M. Egger lgt, 2 ♀ (CAB); Mardin, Hop Hop Geçidi, 1100 m, 9 May 2014, P. Rapuzzi lgt, 1 ♂ (CLB); Hatay Prov., Dortyol, Topaktaş vill., 1200 m, 14-24 Jun 2012, P. Rapuzzi lgt, 3 ♂♂, 1 ♀ (CLB); Istanbul province, surr. Resadiye (Alemdag), 7 Jul-3 Aug 1976, A. Vigna lgt, 9 ♂♂, 11 ♀♀ (MUZR, CLB).

Dorcus peyronis - Adana, without collecting date, ex collection Madon, 1 ♂ (IRSNB); C Anatolia, W Nevshehir, Göreme, 20 Aug 1993, K.D. Schenk lgt, 1 ♀ (CKDS); South Taurus, 30 km NW Alanya, 1150 m, 20 Jul 2001, M. Hiermeierr lgt, 1 ♂ (CAB); Akcali Daglari, 20 km N of Aydincik, 1250 m, 2-28 Jul 1999, K.D. Schenk lgt, 3 ♂♂ (CKDS); surroundings of Ciftehan, S of Alihoca village, Bolkar Daglari, 950 m, in an oak trunk, 12 Jul 1994, K.D. Schenk lgt, 2 ♂♂, 1 ♀ (CKDS); N of Karaduk, Nemrud Dag, 4-5 Jul 2004, K. Werner lgt, 1 ♂, 1 ♀ (CKDS).

Lucanus cervus akbesianus - S Anatolia, Çamliyayla (Mersin), 1100 m, 9-21 Jul 1991, P. Mazzi lgt, 2 ♂♂ (CLB); S Anatolia, pass 30 km N di Kahramanmaras, 750 m, 20 Jul 1991, P. Mazzi lgt, 1 ♂ (CLB); SW Anatolia, Karabel (Mugla), 1300 m, 23 Jul 1991, P. Mazzi lgt, 1 ♂, 1 ♀ (CLB); surr. Bahce, 30 Jun 2003, K. Werner lgt, 1 ♂ (CLB); Mugla (Fethiye), Jul 2012, M.A. Cirmaz lgt, 3 ♂♂ (CLB).

Lucanus cervus judaicus - surroundings of Kozan, 1 Jul 2003, K. Werner lgt, 1 ♂ (CLB).

Lucanus laticornis - S Anatolia, hill S of Aglasun (Burdur), 1090 m, 18 Jul 1992, P. Mazzi lgt, 1 ♂ (CLB); Anatolia, Elmali, 12 Aug 1975, A. Casale lgt, 1 ♂ (CLB); W Anatolia, Gölcuk (Mugla), 750 m, 19 Jul 1992, P. Mazzi lgt, 1 ♂ (CLB); SW Anatolia, hill 30 km NE of Mugla, 800 m, 19 Jul 1992, P. Mazzi lgt, 1 ♂ (CLB); Mugla (Fethiye), Jul 2012, M.A. Cirmaz lgt, 1 ♂ (CLB); Egirdir, Jun 2003, K. Werner lgt, 1 ♂ (CLB); surr. Kozan, Jul 2001, E. Rautenstrauch lgt, 9 ♂♂ (MZUF, coll. n° 17844, CLB); surr. Silifke, Aug 1999, K. Werner lgt, 1 ♂ (CLB).

L. ibericus - N Anatolia, Akpinar forest, Samsun, 17 Jul 1977, P. Cavazzuti lgt, 1 ♂ (CLB); N Anatolia, Almus, 31 Jul 1975, P. Cavazzuti lgt, 2 ♀♀ (MRSN, CLB); Anatolia, Elmali, 12 Jul 1975, A. Casale lgt, 1 ♂ (MRSN); N Anatolia, Konacik (Giresun), 22 Jul 1985, P. Cavazzuti lgt, 1 ♂ (CLB); N Anatolia, Köse, 1850 m, 28 Jul1976, P. Cavazzuti lgt, 1 ♀ (CLB), N Anatolia, Kulak (Ordu), 23 Jul 1985, P. Cavazzuti lgt, 1 ♂ (CLB), NE Anatolia, Ispir (Erturum), 1000 m, 5 Aug 1981, P. Cavazzuti lgt, 2 ♂♂ (CLB), N Anatolia, Mengen, 23 Jul 1975, A. Casale lgt, 3 ♂♂ (MRSN); N Anatolia, Puskedagi, Erzincam, 2100 m, 7 Aug 1981, Morello lgt, 1 ♂, 1 ♀ (CLB); N Anatolia, Sapanca, 24 Jun 1975, P. Cavazzuti lgt, 1 ♂ (MRSN); N Anatolia, Unye, 300 m, 30 Jul 1975, A. Casale lgt, 1 ♂ (MRSN), W Anatolia, Yenişarbademli, 11 Jul 1976, A. Casale lgt, 1 ♂ (MRSN); Hatay Prov., Dortyol, Topaktaş vill., 1200 m, 24 Jun 2012, P. Rapuzzi lgt, 1 ♀, (CLB); Mudurnu, 29 Jul 1977, P. Cavazzuti lgt, 1 ♂ (CLB); Tokat Province, Dumanli Orman, 1200 m, 12 Jul 1976, G. Sabbatinelli & M. Bologna lgt, 2 ♂♂ (MUZR); Tokat Province, Mamo Orman, 1100 m, 13 Jul 1976, G. Carpaneto lgt, 1 ♀ (MUZR); Tunceli Prov., 20 km N Tunceli, 6 Jul 2005, P. Rapuzzi lgt, 1 ♂ (CLB).

Lucanus macrophyllus - S Anatolia, hill S of A glasun (Burdur), 1090 m, 18 Jul 1992, P. Mazzi lgt, 1 ♂ (CLB); same locality, 18 Jul 1998, P. Mazzi lgt, 2 ♂♂ (CLB); S Anatolia, S of Beyschir (Konya), 1200 m, 22 Jul 1991, P. Mazzi lgt, 2 ♂♂, 3 ♀♀ (CLB); S Anatolia, Ovacik Dag (Konya), 1300 m, 16 Jul 1992, P. Mazzi lgt, 1 ♂ (CLB); S Anatolia, S of Seydisheir (Konya), 1500 m, 22 Jul 1991, P. Mazzi lgt, 1 ♂ (CLB); W Anatolia, Yenişarbademli, 11 Jul 1976, A. Casale lgt, 1 ♂ (CLB); surr. Incekum, Aug 1999, K. Werner lgt, 1 ♂ (CLB).

Platycerus caucasicus - Sivas Province, Koyulhisar, 10 km N road for Mesudiye, 10 Jun 2009, A. Angelini lgt, 1 ♂ (MZUF, coll. n° 18039).

Syria

El-Hariri (1968) quoted only *Lucanus cervus* from Syria; Bartolozzi et al. (2016) listed the following species for the country: *Dorcus parallelipipedus*, *D. peyronis*, *Lucanus*

cervus akbesianus, *L. cervus judaicus*. *L. orientalis*, *Platycerus caraboides*, *P. delagrangei*.

Dorcus parallelipipedus was quoted from Quaast-al Ma'af and Bludan by Kairouz et al. (2011). They also quoted *Dorcus peyronis* from Aleppo and *Lucanus cervus judaicus* from East Latakia.

See also below under Taxonomic remarks.

Additional records
Dorcus peyronis - Syria, no precise collecting data, ex collection Roelofs, 1 ♀ (IRSNB).
Lucanus cervus akbesianus - N Siria, Massah Kanli, Jul 1961, 1 ♂, 1♀ (specimens identified from photos available in a on line sell; present collection unknown).
Lucanus cervus judaicus - Syria: coastal region, Jul 1997, 1 ♂ (CLB); surroundings of Ikbis, Jun-Jul 1998, 1 ♂ (CLB).

Lebanon
Kairouz et al. (2011) quote *Dorcus parallelipipedus* from Bcharre, Al Sindiyanah and Bezbiha (caza Aakkar), and *Lucanus cervus turcicus* Sturm, 1843 from Beit Ayoub and Fnaideq (Caza Bscharré), Qartaba and Ehmej (Caza Jbail), Chira near Berhalioum (Caza Bziza), and Ash-Shamal area. The subspecies *turcicus* is placed in synonymy of *Lucanus ibericus ibericus* by Bartolozzi et al. (2016), and they only quote *L. orientalis* for Lebanon. See also below under Taxonomic remarks.

Additional records
Lucanus sp. prope *cervus akbesianus* - A'akkar, Beit-Ayoub, 1200 m, 7 Jul 2009, A. Kairouz lgt, 1 ♀ (CLB); Mt. Lebanon Gov., Beskinta, caza Metn, 1300 m, Jul 2009, A. Kairouz lgt, 1 ♂ (CLB); Mt. Lebanon Gov., Qartaba, caza Jbail, 1200 m, Jul 2009, A. Kairouz lgt, 1 ♂ (CLB).

Israel
Chikatunov & Pavlícek (1997) listed four species of Lucanidae in Israel: *Dorcus parallelipipedus*, *D. peyronis*, *Lucanus cervus syriacus* Motschulsky, 1870, and *Platycerus delagrangei*. Subsequently Chikatunov et al. (1999, 2006) quoted *Dorcus parallelipipedus* and *Lucanus cervus* and Kairouz et al. (2011) quoted *Lucanus cervus turcicus* from the following localities: Golan Heights, Carmel Ridge, Ramin Mountains. Finally, Bartolozzi et al. (2016) listed only three species for the country: *Dorcus parallelipipedus*, *D. peyronis*, and *Lucanus cervus judaicus*. The subspecies *L. cervus syriacus* was placed in synonymy with *Lucanus ibericus ibericus* and the subspecies *L. cervus turcicus* in synonymy with *L. cervus cervus* (Bartolozzi et al. 2016). Kairouz et al. (2011) reported that *D. parallelipipedus* is only present in central and northern Israel, and that it is not common. See also below under Taxonomic remarks.

Additional records
Lucanus cervus cervus - Golan Heights, Odem forest, Jul 2009, E. Orbach lgt, 2 ♂♂ (CLB, CEO).

Palestine
We have no records of Lucanidae from the Gaza strip.

Egypt
We found no quotations of the presence of Lucanidae species in Egypt, but we believe useful to quote a recent published paper (Alahmadi et al. 2012) where *Lucanus cervus* is reported as a pest for the date palm in Saudi Arabia. It is evident that this paper is based on a misidentification of the pest specimens. Actually, the authors write: "*L. cervus* (3rd and 4th instar) larvae were collected by hand picking from the soil adjacent to roots of infested palm trees". It is well known that the larvae of *L. cervus* live underground on dead roots and rotting wood of broad-lived trees in temperate areas and this species is not present in Saudi Arabia. Most probably the cited paper deals with the larvae of another large xylophagous (s.l.) or rhizophagous beetle species occurring in the same area. Alahmadi et al. (2012) also quote, as a reference supporting the role of *L. cervus* as a pest for palms, the paper of Gómez Vives & Ferry (1998) which actually deals with the palm pest weevil *Rhynchophorus ferrugineus* (Olivier, 1790) and not at all with *Lucanus*. We thus believe that the quotation of the presence of *L. cervus* in Saudi Arabia is wrong and should not be taken into account.

Lybia
We have no records of Lucanidae from this country.

Tunisia
Baraud (1993) and Bartolozzi et al. (2016) quoted only two species for the country: *Dorcus musimon* and *Platycerus caraboides*. Franciscolo (1997) quoted the locality of Al'Drahen (30 Apr 1983, G. Osella lgt, 2 ♂♂, 1 ♀) for *D. musimon*.

Additional records
Dorcus musimon - Ain Draham, May1945, 1 ♂, 1 ♀ (MSNM); Ain Draham, B.V. Bodemayer lgt, 1 ♀ (MSNM); Ain Draham, Jun 1925, B.V. Bodemeyer lgt , 1 ♂ (CKDS); Ain Draham, 800 m, 5 Jun 1994, F. Kanter, lgt, 2 ♂, 1 ♀ (CKDS); Ain-Draham, Djebel Bir, eastern side, 4 Jul 2001, O. Friedrich lgt, 3 ♂♂, 2 ♀♀ (CKDS); Camp des Chenes (25 km S Tabarka), 1-2 Sep 1995, J. Batelka lgt, 1 ♂ (CKDS); Sfax, 2 Jul 1925, B.V. Bodemeyer lgt, 1 ♂ (CKDS); Tabarka, Ain Sebaa, 24 Jan 2004, 1 ♂ (CAB).

Algeria
Baraud (1993) and Bartolozzi et al. (2016) quoted only two species for the country: *Dorcus musimon* and *Platycerus caraboides*.

Additional records
Dorcus musimon - Jijel, Guerrouch forest, 900 m, 6 Nov 1984, Spedizione "Algeria 1984" (Boffa-Casale-Cavaz-

zutti-Gavetti-Giachino-Levi) lgt, 2 ♂♂, 1 ♀ (CLB); same data, 4-10 Nov 1984, 2 ♀♀ (CAB); Kabilye, Bou Berak, without collecting date, L. Puel lgt, 2 ♀♀ (MSNM, IRSNB); Kabilye, Dayren, without collecting date, V.M. Duchon lgt, 1 ♂ (MSNM); Grand Kabyle, Akfadou forest, Tala Kitan, 1100 m, 18 May 1953, G. Fagel lgt, 2 ♀♀ (IRSNB); Akfadou forest, El Kseur, 1250-1360 m, 12 Nov 1984, Spedizione "Algeria 1984" (Boffa-Casale-Cavazzutti-Gavetti-Giachino-Levi) lgt, 1 ♀ (CLB); Grand Kabyle, Yakouren, 700-850 m, May 1953, G. Fagel lgt, 25 ♂♂, 10 ♀♀ (IRSNB), Grand Kabyle, Yakouren, Tala N' Rbia, 850 m, 20 May 1953, G. Fagel lgt, 1 ♂ (IRSNB); Grand Kabyle, Yakouren, Tagma hill, 950 m, 2 May 1953, G. Fagel lgt, 1 ♀ (IRSNB); Grande Kabilye, 19 Jun 1951, E. Busulini lgt, 4 ♂♂, 1 ♀ (MSNM); Laverdure, 6 Oct 1929, A. Schatzmayr lgt, 1 ♀ (MSNM); Tamanart, 20 May 1984, A. Chaminade lgt 1 ♀ (CKDS); Tizi-Ouzou, Akfadou, 1000 m, 16 Jun 1982, G. Sama lgt, 1 ♀ (MSNG).

Morocco

Only few species of Lucanidae are quoted from this country: *Dorcus parallelipipedus*, *Lucanus barbarossa*, and *Platycerus caraboides* (Benesh 1946; Kocher 1958; Franciscolo 1997; Bartolozzi et al. 2016). Concerning *L. barbarossa*, Kocher (1958) wrote that the species lives in all the wooded mountain areas up to 2000 m and listed some localities (Sidi-Farès, Aïn-Kahla, and surroundings of Tanger). According to Baraud (1993) *L. barbarossa* is quite common in Middle and High Atlas. Kocher (1958) also gives some remarks on the distribution of *D. parallelipipedus*: NW Morocco between Tanger and Rabat; Middle Atlas (up to 2200 m), Aïn-Kahla.

Aourir et al. (2013) quoted the Coleoptera Lucanidae as an important part of the diet of the Gull-billed Tern *Gelochelidon nilotica* (Gmelin, 1789) in Morocco. Due to the scarcity of specimens of stag beetles in coastal Morocco we found this record quite surprising. Thanks to the kindness of the Authors we have been able to examine photos of the "lucanid" mandibles which were found in the pellets of the Tern, and thus verify that they actually were the large sharply pointed mandibles of a species of ground beetle (Carabidae Scaritinae) inhabiting the Mediterranean sandy coastal areas.

Additional records

Dorcus parallelipipedus - 10 km S Ifrane, Meknes Region, Ifrane Province, 29 Apr-10 Jun 2013, vinegar trap, A. Angelini lgt, 1 ♂, 1 ♀ (MZUF, coll. n° 18038); Kenitra, Mamora forest, 16-18 May 1994, P. Leo lgt, 1 ♂ (CPL).

Lucanus barbarossa - Middle Atlas, Azrou, Jun 1978, 1 ♂, 1 ♀ (CKDS); Middle Atlas, Ifrane, Jul 1977, 1 ♂, 1 ♀ (CKDS); Middle Atlas, Ifrane, 1500 m, 21 Jun 1998, P. Leo lgt, 1 ♂ (CPL);. surroundings of Marrakesh, without collecting date, ex collection Heylemans, 1 ♀ (IRSNB); Talassemtane, Rif, 1800 m, Jul 1967, Thewis lgt, 1 ♀ (IRSNB); Tanger, without collecting date, 1 ♂, 1 ♀ (IRSNB).

Taxonomic remarks

The specific validity of *Lucanus pontbrianti* from southern France and N Spain was suggested by Décobert (2010, 2013), under the name of *L. fabianii* (Mulsant & Godart, 1855) and finally confirmed by Boucher (2014) with the right name of *L. pontbrianti*. Boucher (personal communication, 2016) is preparing a detailed paper on the morphology and distribution of this very interesting species.

Concerning *Lucanus cervus cervus* and *L. tetraodon tetraodon* in Italy, as reported above, the first one is distributed in northern and central Italy, whilst the second one is mostly a southern species. In the areas of contact, where the two species overlap, intermediate forms are present and have been investigated by Cortellessa (2010) and Solano et al. (2016). From molecular analysis these individuals seem to be more close to *L. c. cervus* than to *L. t. tetraodon*, even if some morphological characters (e.g. the position of the middle tooth of the mandibles, usually more basal in *L. t. tetraodon*, more distal in *L. c. cervus*) are intermediate or partially overlapping (Solano et al. 2016). Some of the studied populations live in Latium and Umbria regions, but other populations with intermediate morphological characters also occur in the Marche region (Fabbri 2010, and personal communication).

Dorcus alexisi, the only stag beetle known for Cyprus at present, is very closely related to the widespread *D. parallelipipedus* with which it was confused in the collections. Genetic research on the taxon is needed to clarify its taxonomic rank (species, subspecies or local population of *D. parallelipipedus*).

The status of *Lucanus laticornis* from S Turkey as valid species was discussed by Schenk (2012).

Whether or not *Lucanus ibericus* and *L. orientalis* are two distinct species is questionable (Cox et al. 2013; Bartolozzi et al. 2014). Kraatz (1860) doubtfully described it as a variety. Planet (1899) in his monograph on the genus *Lucanus* hypothesized that the two taxa could be synomyms, and Krajcik (2001, 2003) listed *L. orientalis* as a synonym of *L. ibericus*. However, in the last published checklists of the Palaearctic (Bartolozzi et al. 2016) and World (Fujita 2010) Lucanidae, both species are still considered to be valid, as nobody studied their taxonomic status and demonstrated their synonymy. More in general, the status and rank of the several taxa of *Lucanus* inhabiting the Levant is far to be clarified and probably only additional and more detailed DNA studies may solve the problem.

Concerning the systematic status of the Caucasian *Platycerus delagrangei*, it was considered as a subspecies of *P. caraboides* by Kairouz et al. (2011).

Conclusions

Whilst the knowledge on the Lucanidae fauna and distribution can be considered quite good or sufficient for most of the southern European countries, still more research

is surely needed for the northern African and Near East countries in order to evaluate affordable assessments for the conservation of the species. Further research is also needed to clarify the taxonomic status for some of the stag beetle taxa inhabiting the Mediterranean region.

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References

Agoiz-Bustamante J.L., Blázquez Caselles A. 2011. *Platycerus spinifer* Schaufuss, 1862 (Coleoptera, Lucanidae), un nuevo lucánido para la fauna de Cáceres (Extremadura, España). Arquivos Entomolóxicos, 5: 109–110.

Alahmadi S.S., Ouf S.A., Ibrahim R.A., El-Shaikh K.A. 2012. Possible control of date palm stag beetle, *Lucanus cervus* (L.) (Coleoptera: Lucanidae), using gut protease inhibitors of different bio-control agents. Egyptian Journal of Biological Pest Control, 22(2): 93–101.

Aourir M., Radi M., Znari M. 2013. Habitat d'alimentation et régime alimentaire de la Sterne hansel, *Gelochelidon nilotica*, en période de nidification à Sebkha Zima, centre-ouest du Maroc. Ecologia Mediterranea, 39(2): 31–38.

Aslan B., Karaca I. 2012. Insect fauna of Kovada Lake National Park Basin (Isparta, Turkey). Türkiye entomoloji dergisi, 36(4): 473–489.

Avgın S.S., Dertli İ., Barševskis A. 2014. A review of Turkish saproxylic beetles from the European Red List. Annales de la Société entomologique de France (N. S.), 2014: 1–39.

Avgın S.S., Thomaes A. 2014. Taxonomic key of *Lucanus* spp. (Coleoptera: Lucanidae) found in Turkey. Journal of Entomological Science, 49(1): 70–78.

Baena M., Luna A., Vergara M.L. 2001. Nuevos datos sobre lucánidos de la Península Ibérica (Coleoptera, Lucanidae). Boletín de la Sociedad Andaluza de Entomológia, 1: 23–26.

Baraud J. 1993. Les Coléoptères Lucanoidea de l'Europe et du Nord de l'Afrique. Bulletin mensuel de la Société linnéenne de Lyon, 62(2): 42–64.

Barreda J.M. 2011. Los lucánidos (Coleoptera, Lucanidae) de Andalucía, (España). Boletín de la Sociedad Entomológica Aragonesa, 49: 361–362.

Bartolozzi L. 1986a. Segnalazioni faunistiche italiane. 87. *Aesalus scarabaeoides* (Panzer) (Coleoptera Lucanidae). Bollettino della Società entomologica italiana, 118(1-3): 52.

Bartolozzi L. 1986b. Note corologiche e morfologiche sui Lucanidae in Toscana (Coleoptera). Atti del Museo civico di Storia naturale di Grosseto, 7-8: 11–26.

Bartolozzi L. 1989. Descrizione di una nuova sottospecie di *Aesalus scarabaeoides* (Panzer, 1794) di Basilicata. Bollettino della Società entomologica italiana, 121(2): 104–107.

Bartolozzi L. 1994. Segnalazioni faunistiche italiane. 259. *Aesalus scarabaeoides scarabaeoides* (Panzer, 1794) (Coleoptera Lucanidae). Bollettino della Società entomologica italiana, 126(1): 79.

Bartolozzi L., Bettinelli S., Bottacci A., Cianferoni F., Fabiano F., Mazza G., Rocchi S., Terzani F., Zinetti F., Zoccola, A. 2008. *Ceruchus chrysomelinus* (Hochenwarth, 1785), interessante ritrovamento nella Riserva Naturale Integrale di Sasso Fratino (Forlì-Cesena) (Insecta Coleoptera Lucanidae). Quaderni di Studi e Notizie di Storia Naturale della Romagna, 27: 135–142.

Bartolozzi L., Ghahari H., Sprecher-Uebersax E., Zilioli M. 2014. A checklist of stag beetles (Coleoptera: Scarabaeoidea: Lucanidae) from Iran. Zootaxa, 3887(3): 422–436.

Bartolozzi L., Maggini L. 2007. Insecta Coleoptera Lucanidae (pp. 191-192). In. Ruffo S., Stoch F. (eds.), Checklist and distribution of the Italian fauna. Memorie del Museo Civico di Storia Naturale di Verona, 2.serie, Sezione Scienze della Vita 17 [2006]: 191–192, with data on CD ROM.

Bartolozzi L., Sprecher-Uebersax E., Bezděk A. 2016. Family Lucanidae Latreille, 1804, pp. 58–84. In: Löbl I., Löbl D. (eds), Catalogue of Palaearctic Coleoptera. Volume 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Revised and updated Edition. Brill, Leiden, Boston, XXVIII + 983 pp. [ISBN 9789004309135]

Baviera C. 2008. Prima segnalazione del genere *Aesalus*, Fabricius, 1801 in Sicilia con descrizione di *Aesalus scarabaeoides siculus* n. ssp. (Coleoptera Lucanidae: Aesalinae). Revue Suisse de Zoologie, 115(3): 585–592.

Beltrán F.M., Beltrán A.M. 2009. *Lucanus tetraodon* Thunberg, 1806, nuevo lucánido para la Península Ibérica (Coleoptera, Lucanidae). Boletín de la Sociedad Entomológica Aragonesa, 45: 289–291.

Benesh B. 1946. A systematic revision of the holarctic genus *Platycerus* Geoffroy (Coleoptera: Lucanidae). Transactions of the American entomological Society, 72(3): 139–202.

Boucher S. 2013. Présence passée et actuelle de *Pseudolucanus barbarossa* (Fabricius) dans les Pyrénées françaises (Col., Lucanidae). Bulletin de la Société entomologique de France, 118(3): 333–334.

Boucher S. 2014. Lucanidae Latreille, 1804, pp. 374-376, 739. In: Tronquet M. (ed.), Catalogue des Coléoptères de France. Revue Association Roussillonnaise d'Entomologie, XXIII (Suppl.), Perpignan, 1052 pp.

Boucher S., Brustel H., Van Meer C. 2013. *Platycerus spinifer* Schaufuss, élément autochtone de France continentale (Col., Lucanidae). Bulletin de la Société entomologique de France, 118(3): 377–378.

Brechtel F., Kostenbader H. 2002. Die Pracht- und Hirschkäfer Baden-Württembergs. Ulmer Ed., Stuttgart, 632 pp.

Brelih D., Kajzer A., Pirnat. 2010. Material for the Beetle Fauna (Coleoptera) of Slovenia. 4th contribution: Polyphaga: Scarabaeoidea (=Lamellicornia). Scopolia, 70: 1–386.

Carpaneto G.M., Bartolozzi L., Baviera C., Audisio P. 2014. Famiglia Lucanidae. Appendice 1 e schede tecniche on line (www.iucn.it). In: Audisio P., Baviera C., Carpaneto G.M., Biscaccianti A. B., Battistoni A., Teofili C., Rondinini C. (eds), Lista Rossa IUCN dei Coleotteri saproxilici Italiani. Comitato Italiano IUCN e Ministero dell'Ambiente e della Tutela del Territorio e del Mare, Roma, 132 pp.

Carpaneto G.M., Bartolozzi L., Baviera C., Audisio P., Piattella E., Campanaro A., Bardiani M., Tini M., Romiti F., Antonini G., Solano E., Cortellessa S. 2015a. Family Lucanidae, p. 85. In: Carpaneto G.M., Baviera C., Biscaccianti A.B., Brandmayr P., Mazzei A., Mason F., Battistoni A., Teofili C., Rondinini C., Fattorini S., Audisio P. (eds), A Red List of Italian Saproxylic Beetles: taxonomic overview, ecological features and conservation issues (Coleoptera). Fragmenta entomologica, 47(2): 53–126.

Carpaneto G.M., Baviera C., Biscaccianti A.B., Brandmayr P., Mazzei A., Mason F., Battistoni A., Teofili C., Rondinini C., Fattorini S., Audisio P. (eds) 2015b. A Red List of Italian Saproxylic Beetles: taxonomic overview, ecological features and conservation issues (Coleoptera). Fragmenta entomologica, 47(2): 53–126.

Carpaneto G.M., Maltzeff P., Piattella E., Facchinelli L. 2001. Nuovi reperti di coleotteri lamellicorni della Tenuta Presidenziale di Castelporziano e delle aree limitrofe (Coleoptera, Lamellicornia). Bollettino dell'Associazione Romana di Entomologia, 56(1-4): 311–329.

Carpaneto G.M., Maltzeff P., Piattella E., Pontuale G. 1998. I coleotteri lamellicorni della Tenuta Presidenziale di Castelporziano e delle aree limitrofe (Coleoptera, Lamellicornia). Bollettino dell'Associazione Romana di Entomologia, 52(1-4) (1997): 9–54.

Carpaneto G.M., Piattella E. 1995. Coleoptera. Polyphaga V (Lucanoidea, Scarabaeoidea). In: Minelli A., Ruffo S., La Posta S. (eds), Checklist delle specie della fauna italiana, 51. Calderini, Bologna, 18 pp.

Ceccolini F., Norbiato M. 2015. Contributo alla conoscenza della coleotterofauna della "Foresta della Lama" nel Parco Nazionale delle Foreste Casentinesi, Monte Falterona e Campigna (Insecta Coleoptera Rhysodidae, Lucanidae, Scarabaeidae, Elateridae, Endomychidae, Coccinellidae, Cleridae, Salpingidae, Cerambycidae, Anthribidae, Attelabidae). Quaderni di Studi e Notizie di Storia Naturale della Romagna, 42: 113–136.

Chikatunov V., Kravchenko V.D., Muller G.C. 2006. The Lucanidae, Trogidae, Glaresidae, Geotrupidae, Ochodaeidae, Hybosoridae and Scarabaeidae (Coleoptera) collected in the Israeli light trap survey and their association with the major phyto-geographical zones of Israel. Esperiana Buchreihe zur Entomologie, 12: 325–331.

Chikatunov V., Pavlícek T. 1997. Catalogue of the beetles (Coleoptera) in Israel and adjacent areas: 1. Scarabaeoidea. Klapalekiana, 33: 37–65.

Chikatunov V., Pavlícek T., Nevo E. 1999. Coleoptera of "Evolution Canyon" Lowen Nahal Oren, Mount Carmel, Israel. 1. Families: Buprestidae, Carabidae, Cerambycidae, Glaphyridae, Hybosoridae, Hydrophylidae, Lucanidae, Scarabaeidae, Tenebrionidae, and Trogidae. Pensoft Ed., Sofia & Moscow, 174 pp.

Cianferoni F., Fabiano F., Mazza G., Rocchi S., Terzani F., Zinetti F. 2009. Gli Invertebrati della Riserva Naturale Integrale di Sasso Fratino, pp. 227-248. In: Bottacci A. (ed.), La Riserva Naturale Integrale di Sasso Fratino: 1959-2009, 50 anni di conservazione della biodiversità. CFS/UTB Pratovecchio, 253 pp.

Contarini E., Mingazzini A. 2013. Nuovi ritrovamenti e importanti conferme per la coleotterofauna del Parco Nazionale delle Foreste Casentinesi, Monte Falterona e Campigna (Insecta Coleoptera Silphidae, Lucanidae, Geotrupidae, Melolonthidae, Cetoniidae, Buprestidae, Cerambycidae). Quaderni di Studi e Notizie di Storia Naturale della Romagna, 38: 33–48.

Cortellessa S. 2010. Sistematica molecolare e morfometrica delle specie italiane del genere *Lucanus* L. (Coleoptera, Lucanidae). Tesi di Laurea, A.A. 2008-2009, Università La Sapienza, Facoltà di Scienze Matematiche Fisiche e Naturali, Corso di Laurea Quadriennale in Scienze Naturali, Roma, 116 pp.

Cortellessa S., Cianferoni F., Bartolozzi L. 2014. Nuovi dati sulla distribuzione dei Lucanidi in Toscana (Coleoptera, Lucanidae). Onychium, 10 (2013): 68–77.

Cox K., Thomaes A., Antonini G., Zilioli M., De Gelas K., Harvey D., Solano E., Audisio P., McKeown N., Shaw P., Minetti R., Bartolozzi L., Mergeay J. 2013. Testing the performance of a fragment of the COI gene to identify western Palaearctic stag beetle species (Coleoptera, Lucanidae), pp. 105-126. In: Nagy Z.T., Backeljau T., De Meyer M., Jordaens K. (eds). DNA barcoding: a practical tool for fundamental and applied biodiversity research. Zookeys, 365.

Décobert O. 2010. The forgotten horned scarab... and a view of French Lucanids. Scarabs, 48: 7–11.

Décobert O. 2013. A third *Lucanus* species in France? Scarabs, Occasional Issue, 73: 11–14.

Dutto M. 2005. Osservazioni su *Aesalus scarabaeoides scarabaeoides* (Panzer, 1794) (Coleoptera, Lucanidae). Rivista Piemontese di Storia Naturale, 26: 289–292.

el-Hariri G. 1968. A list of recorded Syrian insects and Acari. Part 1. Al-Chark Lahlouh Printing Press, Aleppo, Syria, 160 pp.

Fabbri R. 2010. Segnalazioni faunistiche n. 99 – *Lucanus tetraodon tetraodon* Thunberg, 1806 (Insecta Coleoptera Lucanidae). Quaderni di Studi e Notizie di Storia Naturale della Romagna, 29 (2009): 235–236.

Fernández de Gamboa R., Garzón A. 2009. Primer registro de *Lucanus cervus* (Linné, 1758) f. *pontbrianti* (Mulsant, 1839) (Coleoptera: Lucanidae) para la Península Ibérica. Boletin de la Sociedad Entomológica Aragonesa, 44: 533–534.

Franciscolo M.E. 1997. Fauna d'Italia. Vol. XXXV. Coleoptera Lucanidae. Calderini Editore, Bologna, XI + 228 pp.

Fujita H. 2010. The lucanid beetles of the world. Mushi-Sha's Iconographic Series of Insects, 6, 472 pp.

Gatti E., Nardi G. 2005. Reperti. Coleoptera, Lucanidae. *Cerucchus chrysomelinus* (Hochenwarth, 1785). Bollettino dell'Associazione Romana di Entomologia, 60(1-4): 105–106.

Gómez de Dios M.A., Barreda J.M., Rodríguez Luque F. 2014. Primeras citas de *Dorcus parallelipipedus* (Linnaeus, 1758) para la provincia de Almería. Addenda et corrigenda a "Los lucánidos (Coleoptera, Lucanidae) de Andalucía, (España)". Boletín de la Sociedad Entomológica Aragonesa, 54: 397–401.

Gómez Vives S., Ferry M. 1998. Attempts at biological control of date-palm pests recently found in Spain, pp. 121-125. Proceedings of the First Regional Symposium for Applied Biological Control in Mediterranean Countries (25-29 October 1998), Cairo, Egypt. Imprimérie Sacco, Toulouse, France.

Grupo de Trabajo sobre Lucanidae Ibéricos 2003. Distribución de *Pseudolucanus barbarossa* (Fabricius 1801) (Coleoptera, Lucanidae) en la Península Ibérica. Boletín de la Sociedad Entomológica Aragonesa, 32: 257–266.

Grupo de Trabajo sobre Lucanidae Ibéricos 2006. *Sinodendron cylindricum* (Linnaeus, 1758) (Coleoptera, Lucanidae) en la Península Ibérica: distribución y datos biológicos Boletín de la Sociedad Entomológica Aragonesa, 38: 383–389.

Gulia G. 1858. Corso elementare di entomologia maltese dato nel Palazzo di St. Antonio. Malta, 82 pp.

Harvey D.J., Gange A.C., Hawes C.J., Rink M., Abdehalden M., Al-Fulaij N., Asp T., Ballerio A., Bartolozzi L., Brustel H., Cammaerts R., Carpaneto G.M., Cederberg B., Chobot K., Cianferoni F., Drumont A., Ellwanger G., Ferreira S., Grosso-silva J., Gueorguiev B., Harvey W., Hendriks P., Istrate P., Jansson N., Jelaska L., Jendek E., Jovic M., Kervyn T., Krenn H., Kretschmer K., Legakis A., Lelo S., Moretti M., Merkl O., Mader D., Palma R., Neculiseanu Z., Rabitsch W., Rodriguez S., Smit J., Smith M., Sprecher-Uebersax E., Telnov D., Thomaes A., Thomsen P., Tykarski P., Vrezec A., Werner S., Zach P. 2011. Bionomics and distribution of the stag beetle, *Lucanus cervus* (L.) across Europe. Insect Conservation and Diversity, 4: 23–38.

Horion A. 1958. Faunistik der mitteleuropäischen Käfer. Band 6: Lamellicornia. Fayel Ed., Überlingen-Bodensee, 343 pp.

Kahlen M., Hellrig K., Schwienbacher W. 1994. Lucanidae, p.

267. In: J. Gepp (ed.). Lista Rossa delle specie minacciate in Alto Adige. Ripartizione Tutela del paesaggio e della natura, Provincia Autonoma di Bolzano/Alto Adige, 409 pp.

Kairouz A., Rittner O., Tauzin P. 2011. Family Lucanidae. In: Sabatinelli G. (ed.). The Scarabs of the Levant (Syria, Lebanon, Jordan, Palestine, Israel, Sinai). http://www.glaphyridae.com/Lucanidae/lucanidae.html [accessed 20 Nov 2016]

Kocher L. 1958. Catalogue commenté des Coléoptères du Maroc. VII. Lamellicornes. Travaux de l'Institut Scientifique Chérifien (Série Zoologie) 16(7): 1–83.

Koren T., Burić I., Lauš B., Rojko I., Svoboda P., Šerić Jelaska L. 2010. Carabidae, Cerambycidae and Scarabaeoidea (Insecta: Coleoptera) fauna of Kornat, Lavsa and Žut islands, Croatia. Entomologia Croatica, 14(3-4): 53–62.

Koren T., Trkov D. 2015. Contribution to the fauna of Scarabaeoidea (Coleoptera) of Cres Island, Croatia. Anali za istrske in mediteranske študije, Series historia naturalis, 25(2): 151–160.

Kraatz G. 1860. Über die Europäischen Hirschkäfer. Berliner entomologische Zeitschrift, 4: 68-75, 265-275.

Krajcik M. 2001. Lucanidae of the World. Catalogue - Part I. Checklist of the Stag Beetles of the World (Coleoptera: Lucanidae). Printed by the Author, Most, Czech Republic, 108 pp.

Krajcik M. 2003. Lucanidae of the World. Catalogue - Part II. Encyclopaedia of the Lucanidae (Coleoptera: Lucanidae). Printed by the Author, Plzen, Czech Republic, 197 pp.

Král D., 2015. Lucanidae, p. 3. In: Ziani S., Bezděk A., Branco T., Hillert O., Jákl S., Král D., Mantič M., Rössner E., Sehnal R. New country records of Scarabaeoidea (Coleoptera) from the Palaearctic region. Insecta Mundi, 0409: 1–36.

Lelo S., Kašić-Lelo M. 2009. Biodiverzitet listorošaca (Insecta: Coleoptera: Scarabaeioidea) Bosne i Hercegovine: Biosistematski prijegled podataka sa preliminarnim kartama rasprostranjenja. - Udruženje za inventarizaciju i zaštitu životinja, Ilijaš, Kanton Sarajevo. [in Bosnian]

Lelo S., Kašić-Lelo M., Vesnic A. 2010. Some morphological characteristics and distribution of *Lucanus cervus* (Linnaeus, 1758), (Insecta: Coleoptera, Lucanidae) in Bosnia and Herzegovina. Bulletin oft he Natural History Museum, Sarajevo, 3: 161–172.

López Cólon J.I. 2000. Familia Lucanidae, pp. 43-64. In: Martin-Piera F. & López-Cólon J.I. (eds.). Coleoptera, Scarabaeoidea I. Fauna Ibérica, vol. 14. Ramos M. A. et al. (Eds.), Museu Nacional de Ciencias Naturales, CSIC, Madrid, 534 pp.

López-Pérez J.J. 2011. Catálogo corológico de los lucánidos (Coleoptera, Lucanidae) de Huelva (suroeste de Andalucía, España) y algunas citas externas. Boletín de la Sociedad Entomológica Aragonesa, 48: 475–476.

López-Septiem J.A., López Cólon J.I., Bahillo de la Puebla P. 2014. *Lucanus* (*Pseudolucanus*) *barbarossa* (Fabricius, 1801) y *Oryctes nasicornis grypus* (Illiger, 1803) en Sotillo (Segovia) y algunos datis más sobre lucánidos y dinastinos del centro y norte de España (Coleoptera: Lucanidae y Coleoptera: Scarabaeidae Dynastinae). http://ignacio-lopez-colon.blogspot.com.es/p/httpsdrive.html [accessed 15 Sep 2016]

Maltzeff P. 1998. Segnalazioni faunistiche. 326 – *Aesalus scarabaeoides* (Panzer, 1794) (Coleoptera Lucanidae). Bollettino della Società entomologica italiana, 130(1): 78–79.

Méndez Iglesias M. 2007. El Ciervo Volante (*Lucanus cervus* L.) como ejemplo de los problemas en la conservación de los artrópodos ibéricos, pp. 79–83. I jornadas sobre la conservación de los artrópodos en Extremadura, Centro de Educación Ambiental de Cuacos de Yuste, 16-18 June 2007, 166 pp.

Mikšic R. 1955. Fauna Insectorum Balcanica - Lucanidae (Coleoptera - Lamellicornia). Naucno Drustvo N. R. Bosne I Hercegovine. Radovi, 5: 223–235.

Mikšic R. 1959. Über die Verbreitung der Arten der Gattung *Platycerus* Fourcr. (= *Systenocerus* Ws.) in Jugoslavien (Coleoptera-Lucanidae). Entomologisk Tidskrift, 80(1-2): 33–38.

Mikšic R. 1970. Lucanidae (pp. 61-63). In: Katalog der Lamellicornia Jugoslawiens (Insecta: Coleoptera). Institut za šumarstvo, posebno izdanje, Sarajevo. 71 pp. [in Bosnian]

Mikšic R. 1984. Ergänzungen zum "Katalog der Lamellicornis Yugoslawiens". Acta entomologica Yugoslava, 20(1-2): 109–111.

Müller J., Bussler H., Bense U., Brustel H., Flechtner G., Fowies A., Kahlen M., Möller G., Mühle H., Schmidt J., Zabransky P. 2005. Urwald relict species – Saproxylic beetles indicating structural qualities and habitat tradition. Waldökologie online, 2: 106–113.

Muñoz-Batet J., Soler J., Viñolas A. 2007. Nuevas poblaciones de *Aesalus scarabaeoides* (Panzer, 1794) en Cataluña (Coleoptera: Lucanidae: Aesalinae). Heteropterus Revista de Entomología, 7(1): 91–95.

Muret P., Drumont A. 1999. Description d'une nouvelle espèce de *Dorcus* Macleay, endemique de Chypre (Coleoptera, Scarabaeoidea, Lucanidae). Lambillionea, 49: 484–488.

Navarro García J., 2000. Primera cita de *Pseudolucanus barbarossa* (Fabricius, 1801) para la provincia de Huelva (Coleoptera, Lucanidae). Boletín de la SOCECO, 11: 36.

Pérez-Bote J. L., García Jiménez J. M., Ferri F., Moreno Tamurejo J. A., 2001. Nueva cita de *Lucanus cervus* (Linnaeus, 1758) en Extremadura (Coleoptera: Lucanidae). Boletín de la Sociedad Entomológica Aragonesa, 28: 130.

Planet L. 1899. Essai monographique sur les Coléoptères des Genres Pseudolucane et Lucane. Deyrolle Fils Ed., Paris, 111 pp.

Recalde J.I., Ugarte I., San Martín A.F., Salgueira F. 2006. Hallazgo de *Aesalus scarabaeoides* (Panzer, 1794) en Álava (Coleoptera, Lucanidae). Boletín de la Sociedad Entomológica Aragonesa, 39: 400–401.

San Martín Moreno A.F., Recalde Irurzun J.I. 2008. Nuevo registro de *Aesalus scarabaeoides* (Panzer, 1794) en la Península Ibérica y actualización de la fauna navarra de lucánidos (Coleoptera: Lucanidae). Heteropterus Revista de Entomología, 8(1): 113–115.

Schenk K.-D. 2012. Taxonomic notes to the family Lucanidae (Coleoptera, Lucanidae). Beetles World, 6: 9-15

Schenk K.-D., Fiedler F. 2011. Ein neuer Fund von *Lucanus* (*Pseudolucanus*) *busignyi* in der Türkei. Beetles World, 5: 11–16.

Solano E., Thomaes A., Cox K., Carpaneto G.M., Cortellessa S., Baviera C., Bartolozzi L., Zilioli M., Casiraghi M., Audisio P., Antonini G. 2016. When morphological identification meets genetic data: the case of *Lucanus cervus* and *L. tetraodon* (Coleoptera, Lucanidae). Journal of Zoological Systematics and Evolutionary Research, 54(3): 197–205. [doi: 10.1111/jzs.12124].

Telnov D. 2005. *Ceruchus chrysomelinus* (Hochenwarth, 1785) (Lucanidae) in Latvia: distribution and ecology. Proceedings 3rd Symposium and Workshop on the Conservation of Saproxylic Beetles, (7th-11th July 2004), Riga, Latvia, pp. 93–96.

Tezcan S., Pehlịvan E. 2001. Evaluation of the Lucanoidea and Scarabaeoidea (Coleoptera) fauna of ecological cherry orchards in İzmir and Manisa provinces of Turkey. Ege Üniversitesi Ziraat Fakültesi Dergisine, 38(2-3): 31–37.

Torrella Allegue L.P. 2009. Nuevos registros de lucánidos (Coleoptera, Lucanidae) para la camarca de Ferrol (A Coruña, NO Península Ibérica) y un apunte sobre el status de conser-

vación de *Lucanus cervus* (Linnaeus, 1758). Arquivos Entomolóxicos, 2: 31–32.
Tronquet M. 2014. Catalogue des Coléoptères de France. Revue de l'Association Roussillonaise d'Entomologie, XXIII (Suppl.), Perpignan, 1052 pp.
Viñolas A., Muñoz-Batet J., Bentanachs J., Masó G. 2014. Catálogo de los Coleópteros del Parque Natural del Cadí-Moixeró, Cataluña, Península Ibérica. Coleopterological Monographs, 5. Asociación Europea de Coleopterología, Barcelona, 155 pp.
Vrezek A., Pirnat A., Kapla A., Polak S., Vernik M., Brelih S., Drovenik B. 2011. Status and knowledge about beetles (Coleoptera) of European conservation importance in Slovenia with proposal of Slovenian nomenclature. Acta Entomologica Slovenica, 19(2): 81–138.
Zilioli M., Pittino R. 2004. Un reperto eccezionale: *Lucanus tetraodon* Thunberg in Lombardia (Coleoptera Lucanidae). Atti della Società italiana di Scienze naturali, Museo civico di Storia naturale, Milano, 145(II): 301–306.