

Contribution to the knowledge of Staphylinidae from southern Sardinia (Coleoptera)*

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ABSTRACT

The Staphylinidae (Pselaphinae, Scydmaeninae and Scaphidiinae excluded) collected in the region-owned forest of Marganai (southern Sardinia) and in a few neighbouring localities, mostly in the dry Mediterranean woods (maquis), are listed. Material collected mostly by pitfall and Malaise traps in the CONECOFOR plot is analyzed and commented on. One hundred species are listed, among which three are new to Italy (*Heterothops minutus* Wollaston, 1860, *Atheta bihamata* Fauvel, 1900 and *Aleochara cornuta* Fauvel, 1886) and six new to Sardinia (*Platystethus degener* Mulsant & Rey, 1878, *Habrocerus pisidicus* Korge, 1971, *Myllaena gracilicornis* Fairmaire & Brisout, 1859, *Cypha punctum* (Motschulsky, 1857), *Atheta hummlii* Bernhauer, 1898 and *A. marcida* (Erichson, 1837)). The prevalence of species usually found in open areas is pointed out. A comparison of Staphylininae from Marganai and those from warm dry woods of the rest of Italy is proposed, and the absence of endemic or subendemic silvicolous Staphylininae species in Sardinia is emphasized. The biogeographical analysis of the collected material shows a prevalence of Euro-Mediterranean species, while endemic (Sardinian and Sardo-Corsican) species are 8%. Material collected in the deep soil in the same area, treated in another paper, has highlighted the presence of several other endemic species of the subfamilies Phloeocharinae, Leptotyphlinae and Euaestethinae. The following new synonymies are proposed: *Dropephylla vilis* (Erichson, 1840) = *Phyllodrepa palpalis* Luze, 1906 **new syn.** = *Phyllodrepa jai-laensis* Bernhauer, 1915 **new syn.** = *Phyllodrepa Luigionii* Bernhauer, 1929 **new syn.** The checked Italian distributions of *Heterothops dissimilis* (Gravenhorst, 1802) and *H. minutus* are provided. *Dropephylla brevicornis* (Erichson, 1840) is new to Corsica.

Key words: Coleoptera, Staphylinidae, Sardinia, Mediterranean woods, species new to Italy, species new to Sardinia, taxonomy, biogeography, ecology.

RIASSUNTO

Contributo alla conoscenza degli Staphylinidae della Sardegna meridionale (Coleoptera)

È fornita una lista di Coleotteri Stafilinidi (escluse Pselaphinae, Scydmaeninae e Scaphidiinae) raccolti nell'area demaniale di Marganai (Sardegna meridionale) e in alcune località vicine, soprattutto in boschi secchi mediterranei (macchie). Il materiale, raccolto soprattutto nel plot CONECOFOR con trappole a caduta e Malaise, è discusso e commentato. Sono elencate 100 specie, tra le quali tre nuove per l'Italia (*Heterothops minutus* Wollaston, 1860, *Atheta bihamata* Fauvel, 1900 ed *Aleochara cornuta* Fauvel, 1886) e sei per la Sardegna (*Platystethus degener* Mulsant & Rey, 1878, *Habrocerus pisidicus* Korge, 1971, *Myllaena gracilicornis* Fairmaire & Brisout, 1859, *Cypha punctum* (Motschulsky, 1857), *Atheta hummlii* Bernhauer, 1898 ed *A. marcida* (Erichson, 1837)). È messa in evidenza la prevalenza di specie che sono raccolte di norma in ambienti aperti. È proposta una comparazione tra le Staphylininae di Marganai e quelle di boschi secchi caldi del resto d'Italia, sottolineando l'assenza di Staphylininae endemiche sarde silvicole. L'analisi biogeografica del materiale raccolto mostra la prevalenza di specie euro-mediterranee, mentre le specie endemiche rappresentano l'8%. Materiali raccolti nel suolo profondo nella stessa area, oggetto di un altro contributo, hanno evidenziato la presenza di parecchie altre specie endemiche delle sottofamiglie Phloeocharinae, Leptotyphlinae ed Euaestethinae. Sono proposte le seguenti nuove sinonimie: *Dropephylla vilis* (Erichson, 1840) = *Phyllodrepa palpalis* Luze, 1906 **syn. nov.** = *Phyllodrepa jai-laensis* Bernhauer, 1915 **syn. nov.** = *Phyllodrepa Luigionii* Bernhauer, 1929 **syn. nov.** Sono inoltre fornite le distribuzioni italiane controllate di *Heterothops dissimilis* e *H. minutus*. *Dropephylla brevicornis* è nuova per la Corsica.

INTRODUCTION

The Staphylinidae are Coleoptera with short elytra, mostly predators, present in all habitat types and in

all geographical regions. Staphylinidae, as intended in the classical works, are considered a paraphyletic group and presently other groups, previously considered different families (Pselaphinae, Dasycterinae,

Scaphidiinae, Scydmaeninae), are included (Lawrence & Newton 1995; Grebennikov & Newton, 2007). In this paper the "classical" Staphylinidae will be considered.

The level of knowledge of Staphylinidae from Sardinia is satisfactory. More than 500 species, about one fourth of the Italian fauna, are known with certainty, with an additional 70 doubtful ones (Ciceroni et al. 1995; Smetana 2004; Zanetti, unpublished data). The soil is the least investigated habitat, and certainly many endogean taxa are still to describe. The species diversity of Staphylinidae in Sardinia is somewhat lower than in Sicily (about 680 species plus about 70 doubtful ones), probably owing to the smaller extension and lower environmental diversity of Sardinia, which are only partially counterbalanced by its higher naturalness.

The Staphylinidae play an important function in ecosystems mostly as soil predators, e.g. by controlling the populations of Diptera in decaying matter, and can be considered good bioindicators. Their function is partially similar to that of the Carabidae, but their ecological range is much wider. Besides the litter dwellers, a large amount of species linked to particular habitats (decaying matter, fungi, nests of insects and vertebrates, under bark and in tree holes, etc.) exist. For this reason, they offer a good means of evaluation of the biodiversity of ecosystems. Problems for bioindication are sometimes given by taxonomical difficulties.

STUDY AREA

This contribution deals with materials collected by personnel of the Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale "Bosco Fontana" of Verona (CNBFVR) in the framework of researches carried out in Italian CONECOFOR-ICP Forests plots (see Mason et al. 2006) and during a further survey carried out in the Marganai and Montimannu region-owned forests in the provinces of Carbonia-Iglesias and Medio Campidano in SW Sardinia (Cerretti et al. 2009). In this area, the most intensively investigated habitats were the *Quercus ilex* maquis woods ("macchia"), which were sampled primarily by pitfall and Malaise traps.

The general characteristics of the study area and of the sampling sites are reported in the introductory chapters of this monograph (Angius et al. 2011; Bardiani 2011).

Sampling sites from which Staphylinidae materials treated in this contribution were collected are listed

further on (see Abbreviations). All sampling sites are situated within the region-owned area of Marganai with the exception of C31 and C69, that are located somewhat outside its borders; sites C10 and C23 belong to the closely located region-owned forest of Montimannu (cf. Bardiani 2011).

MATERIAL AND METHODS

Staphylinids were collected in the years 2003–2006 by pitfall and Malaise traps. The collected material was identified in its near entirety except for a certain amount of the common saprophilous *Atheta* Thomson, 1858, which are scarcely significant from an ecological and biogeographical point of view. Materials collected in the deep soil with other techniques were published by Fancello et al. (2009) and are also included in the list. Interesting records from the remaining sites are listed and commented on. These additional records are evidenced by an asterisk.

Nomenclature and taxonomy follow primarily Smetana (2004), while the subgeneric division of *Atheta* is from Benick & Lohse (1974), as proposed also in the Italian Checklist (Ciceroni et al. 1995). For each species, locality, altitude, detailed site, collecting technique, number of specimens, and collector(s) are listed. Geographical distribution is taken from Herman (2001) and Smetana (2004), and additional records are reported for many species. Chorotypes are as in Stoch & Vigna Taglianti (2005). Ecological information is basically taken from Horion (1963, 1965, 1967), Zanetti (1987), Koch (1989), Pilon (2005), Zanetti & Tagliapietra (2005) and unpublished records. The material is deposited at CNBFVR, a sample of species in the A. Zanetti collection (Verona).

ABBREVIATIONS

SAMPLING SITES. **C01** = Carbonia-Iglesias prov., Iglesias, Case Marganai, 725 m, 32S 463890 4355925; **C10** = Medio Campidano prov., Villacidro, dint. P.ta piscina Argiolas, Serbatoio, 282 m, 32S 472049 4360081; **C23** = Villacidro, Rio Cannisoni, radura sponda sinistra, 401 m, 32S 468459 4362806; **C26** = Carbonia-Iglesias prov., Domusnovas, Bega d'Aleni, 621 m, 32S 467855 4361336; **C31** = Carbonia-Iglesias prov., Domusnovas, Lago Siuru, 322 m, 32S 467069 4357916; **C35** = Carbonia-Iglesias prov., Iglesias, Mamenga, 610 m, 32S 462170 4356618; **C69** = Carbonia-Iglesias prov., Domusnovas, dint. sa Duchessa, dint. Agriturismo Perda Niedda, 350 m, 32S 466233 4359025; **C70** = Carbonia-Iglesias prov., Iglesias, Marganai,

presso Case Marganai, 660 m, 32S 463341 4556196; **C77** = Carbonia-Iglesias prov., Iglesias, dint. Case Marganai, car net from C85 to C01, 650 m; **C82** = Carbonia-Iglesias prov., Iglesias, M.ti Marganai, Tintillonis, 480 m, 32S 462590 4355061; **C85** = Carbonia-Iglesias prov., Iglesias, Marganai, 540 m, 32S 463010 4355249; **S1** = Carbonia-Iglesias prov., Iglesias, dint. colonia Beneck, 636 m, 32S 462391 4355441; **S3** = Carbonia-Iglesias prov., Domusnovas, Valle Oridda, 592 m, 32S 466973 4362228; **SARI** = Carbonia-Iglesias prov., Iglesias, Marganai, 700 m, 32S 462853 4355582.

SYMBOLS AND ABBREVIATIONS. at = at light; ba = bait (bones); bz = glass trunk trap (beer and sugar); cn = car net; cd = in cow dung; dc = direct collection; dint. = environs of; ex = specimen/s; lt = light trap; mt = Malaise trap; prov. = province; pt = pitfall trap; vg = sieve; wt = window flight trap; *site name = sampling site outside of the Marganai region-owned forest; *species name = species collected only outside of the Marganai region-owned forest.

COLLECTORS. AZ = A. Zanetti; CM = C. Meloni; DA = D. Avesani; DB = D. Birtele; DW = D. Whitmore; EG = E. Gatti; EM = E. Minari; FC = F. Callegari; FCh = F. Chessa; FM = F. Mason; FS = F. Stoch; FT = F. Terzani; GC = G. Chessa; GN = G. Nardi; GS = G. Sabella; LD = L. De Marzo; LF = L. Fancello; MB = M. Bardiani; MD = M. Daccordi; MT = M. Tisato; MZ = M. Zapparoli; PCe = P. Cerretti; PCo = P. Cornacchia; PL = P. Leo; RP = R. Pace; SE = A. Sette; WR = W. Rossi.

CHOROTYPES. CAE = Centralasiatic-European; CEU = Centraleuropean; COS = Cosmopolitan; EME = E-Mediterranean; EUM = Euro-Mediterranean; EUR = European; MED = Mediterranean; OLA = Holarctic; PAL = Palaearctic; SACO = Sardo-Corsican endemic; SARD = Sardinian endemic; SEU = S-European; TEM = Turanian-European-Mediterranean; WME = W-Mediterranean.

COLLECTIONS. CNBFVR = Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale "Bosco Fontana" di Verona (Marmirolo, Mantua, Italy); CZA = A. Zanetti (Verona, Italy); MNB = Museum für Naturkunde, historical collection (Berlin, Germany).

OTHER ABBREVIATIONS AND RECURRENT TERMS USED. Fiume = River; Lago = Lake; M.ti = Mounts; P.ta = Peak; presso = near; radura = clearing; Rio = stream, small river; Serbatoio = reservoir; sponda sinistra = left bank; Valle = Valley.

FAUNISTIC LIST

1. *Phloeocharis (Scotodytes) ichnusae* Doderò, 1900

RECORDS. Carbonia-Iglesias prov., Domusnovas, Gutturu di Monte Nieddu, 290–320 m, 25.X.1985–10.I.1986, LF PL, 5 ex; ditto, Domusnovas, Valle di Oridda, 570 m, 12.X.1992, LF PL, 1 ex; Medio Campidano prov., *Villacidro, Foresta Demaniale di Montimannu, 280 m, 8.V.1986, PL, 1 ex; ditto, *Villacidro, San Sisinnio, 250 m, 9.XII.1989, PL, 1 ex (Fancello et al. 2009).

GEOGRAPHICAL DISTRIBUTION. Sardinian endemic, previously recorded only from three localities of central-southern Sardinia: Oristano, Aritzo and Fluminimaggiore (Fancello et al. 2009). SARD.

ECOLOGY. Collected with the Berlese method in wooded areas with *Quercus ilex* dominance (Fancello et al. 2009).

2. *Proteinus atomarius* Erichson, 1840

RECORDS. **SARI**: 29.IV–20.V.2005, GC, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. All of Europe, North Africa, Azores, Turkey, Mongolia, Canada (?), USA (?). CEM.

ECOLOGY. Eurytopic species with a wide altitudinal range, usually found in decaying mushrooms.

3. *Proteinus brachypterus* (Fabricius, 1792)

RECORDS. **SARI**: 22.XI–17.XII.2004, GC, pt, 1 ex; 22.XI–17.XII.2004, GC, mt, 1 ex; 17.XII.2004–4.I.2005, GC, pt, 1 ex; 18.I–1.III.2005, GC, pt, 1 ex; 1.III–29.IV.2005, GC, pt, 9 ex; 29.IV–20.V.2005, GC, pt, 2 ex; 2–16.XII.2005, GC, mt, 1 ex; 2–16.XII.2005, GC, pt, 3 ex; 3–16.XI.2005, GC, pt, 1 ex; 16.XI–2.XII.2005, GC, pt, 2 ex; 16.XII.2005–3.I.2006, GC, pt, 6 ex; 16.XII.2005–3.I.2006, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. All of Europe and North Africa, it has been reported also from Ghana, Canada (?), USA (?). EUM.

ECOLOGY. Eurytopic, usually in decaying mushrooms.

4. *Eusphalerum tempestivum* (Erichson, 1840)

RECORDS. **S3**: 18.IV–2.V.2006, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Endemic of Sardinia (Zanetti 1987). A closely related species, *E. corsicum* (Luze, 1910), lives in Corsica. SARD.

ECOLOGY. On blossoms of bushes, mostly of *Erica arborea*.

5. *Phyllodrepa floralis* (Paykull, 1789)

RECORDS. **SARI**: 15.XI–2.XII.2005, GC, wt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Most of Europe, Algeria and Turkey. The species is present also in North America (introduced). EUM.

ECOLOGY. Phytodetriticolous species with a wide ecological range, often collected on flowers too.

6. *Dropephylla brevicornis* (Erichson, 1840)

RECORDS. **S1**: 3–17.X.2006, GC, mt, 6 ex. **SAR1**: 30.IX–17.X.2005, GC, wt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Known from Sardinia only (Jászlay & Hlaváč 2006) but present also in Corsica (Val d'Ese, 30.VI.1977, MD, sifting under *Alnus viridis* ssp. *suaveolens*, CZA). SACO.

ECOLOGY. Unknown; this species is very probably associated to dead trees.

TAXONOMICAL NOTE. *Dropephylla brevicornis* was recently revalidated by Jászlay & Hlaváč (2006). Previously, the name *D. brevicornis* was erroneously used for *D. devillei* Bernhauer, 1902 by some authors (see Zanetti 1987) or considered a junior synonym of *D. vilis* (Erichson, 1840). The study of the type demonstrated that *D. brevicornis* is a valid species closely related to the new species *D. koltzei* Jászlay & Hlaváč, 2006, which is widespread in Europe. Both have the parameres of the aedeagus as long as the median lobe. In the volume Staphylinidae Omaliinae of "Fauna d'Italia" (Zanetti 1987: figs 43e, 43f) the aedeagus of *D. brevicornis* is represented under the name *Phyllodrepa vilis* (Erichson, 1840) on the basis of a Sardinian specimen. I examined a female specimen of *P. vilis*, probably the type, considered syntype by Jászlay & Hlaváč (2006), without locality (MNB), and attributed to it the few central European male specimens I had seen of the species described later as *D. koltzei*. I considered the specimens from Sardinia conspecific with them because the differences between the two species are difficult to appreciate on the basis of scarce material.

Jászlay & Hlaváč (2006) attributed to *D. vilis* male specimens with a completely different aedeagus, with a short median lobe and long parameres, distributed in central and western Europe, Italy and North Africa. Even if female specimens of *Dropephylla* Mulsant & Rey, 1880 are very difficult to identify, this interpretation can be accepted. The same pattern of aedeagus is present in *D. palpalis* (Luze, 1906), distributed in Italy, France and Ukraine. In the discussion of *D. palpalis* (as *Phyllodrepa*) I wrote: "A very variable species, difficult to interpret, often confused with *P. vilis*. Larger specimens are easily identified by the convex shape and especially by the incised microsculpture of pronotum; smaller ones, also described as *P. luigionii*, have a much less pronounced microsculpture. They are extremely similar in external morphology to *P. vilis* and *P. perforata*, but the punctuation of the head is moderately dense and the microsculpture of pronotum is still more evident. Between the two extremes there are all intermediate forms. The aedeagus

is very characteristic, but also shows a variation related to size: lateral lobes are stout and straight in smaller specimens, more slender and slightly curved in the large ones (figg. 38c–h)" (Zanetti 1987: 188 [translated from Italian]). This interpretation is not reported and discussed by Jászlay & Hlaváč (2006) and no evidence that it is wrong exists. In the genus *Eusphalerum* Kraatz, 1857 too, a similar allometric variability is present. On these bases the following synonymies are here proposed:

Dropephylla brevicornis (Erichson, 1840) (*Omaliium*) = *Phyllodrepa (Dropephylla) vilis* (Erichson, 1840) sensu Zanetti, 1987 partim, not Erichson, 1840

Dropephylla vilis (Erichson, 1840) (*Omaliium*) = *Phyllodrepa palpalis* Luze, 1906 **new syn.**
= *Phyllodrepa jaiilaensis* Bernhauer, 1915 **new syn.**
= *Phyllodrepa Luigionii* Bernhauer, 1929 **new syn.**

Also the differential characters of *D. beieri* (Scheerpeltz, 1958) reported by Jászlay & Hlaváč (2006) ("similar to *D. vilis* which has much stronger microsculpture on pronotum, from all other species differs by characteristic structure of aedeagus"), described on a female specimen from Greece, could enter in the variability range of *D. vilis*. I consider it here as a *species dubia* and its presence in Italy (Sicily, Ragusa) (Jászlay & Hlaváč 2006) needs to be demonstrated.

7. *Omaliium excavatum* Stephens, 1834

RECORDS. **C77**: 9.VI.2004, DB PCe GN MT DW, cn, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Distributed in most of Europe and in North Africa. EUM.

ECOLOGY. Phytodetricolous, mostly in woods at low altitude and in subalpine bushy habitats, with a very wide altitudinal range.

8. *Omaliium rugatum* Mulsant & Rey, 1880

RECORDS. **C77**: 9.VI.2004, DB PCe GN MT DW, cn, 4 ex. **SAR1**: 15–30.VI.2004, GC, pt, 1 ex; 5–22.XI.2004, GC, pt, 11 ex; 22.XI–17.XII.2004, GC, pt, 15 ex; 17.XII.2004–4.I.2005, GC, pt, 10 ex; 4–18.I.2005, GC, pt, 3 ex; 4–18.I.2005, GC, mt, 1 ex; 18.I–1.III.2005, GC, pt, 3 ex; 1.III–29.IV.2005, GC, pt, 12 ex; 1.III–29.IV.2005, GC, mt, 1 ex; 29.IV–20.V.2005, GC, pt, 7 ex; 17.X–3.XI.2005, GC, pt, 3 ex; 3–16.XI.2005, GC, pt, 24 ex; 16.XI–2.XII.2005, GC, pt, 9 ex; 2–16.XII.2005, GC, pt, 59 ex; 16.XII.2005–3.I.2006, GC, pt, 4 ex.

GEOGRAPHICAL DISTRIBUTION. Most of Europe, Cy-

prus, Turkey. EUR.

ECOLOGY. In litter of woods, mostly broad-leaved.

9. *Paraphloeostiba gayndahensis* (MacLeay, 1871)

RECORDS. **C82**: 11–12.VI.2004, DB PCe GN MT DW, mt, 17 ex. **SARI**: 14.VII–15.VIII.2005, GC, pt, 1 ex; 5.VIII–13.IX.2005, GC, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. An introduced species native of Australia, presently spread in all continents. COS.

ECOLOGY. Phytosaprophilous in all kinds of anthropogenic habitats, often collected in flight.

10. *Lesteva longoelytrata maura* Erichson, 1840

RECORDS. **SARI**: 29.IV–20.V.2005, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. *Lesteva longoelytrata longoelytrata* (Goeze, 1777) is distributed in Europe, North Africa, Turkey, Cyprus, Lebanon and Turkmenistan. *Lesteva longoelytrata maura* is endemic of Corsica and Sardinia and *L. l. cretica* Lohse & Steel, 1961 of Crete. Both are scarcely morphologically characterized. TEM.

ECOLOGY. A ripicolous species, mostly in gravelly banks, sometimes also in wet litter near water and near snow.

11. **Ochtheophilus aureus* (Fauvel, 1871)

RECORDS. ***C23**: 21.V.2006, PCo DB MB DW, dc under stones, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Central and Southern Europe and North Africa. EUM.

ECOLOGY. A ripicolous species, mostly in moss and in gravelly banks of small streams, at low altitude. Sometimes in caves too.

12. *Anotylus inustus* (Gravenhorst, 1806)

RECORDS. **S1**: 21.III–4.IV.2006, GC, mt, 7 ex. **SARI**: 16.II–15.VI.2004, GC, mt, 1 ex; 30.IX–17.X.2005, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Almost all the Palaearctic region (not in Japan). PAL.

ECOLOGY. In decaying matter, at low altitude.

13. *Anotylus sculpturatus* (Gravenhorst, 1806)

RECORDS. **C77**: 9.VI.2004, DB PCe GN MT DW, cn, 1 ex. **S1**:

21.III–4.IV.2006, GC, mt, 1 ex. **SARI**: 15–30.VI.2004, GC, pt, 1 ex; 18.I.2005–1.III.2006, GC, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. All of Europe, North Africa, Turkey, Cyprus, Iran, Kazakhstan, Mongolia. CEM. ECOLOGY. In decaying matter, at low and middle altitudes.

14. *Platystethus degener* Mulsant & Rey, 1878

RECORDS. **SARI**: 8–21.I.2004, GC, mt, 1 ex.

OTHER RECORDS. **Lombardy**: Mantua prov., San Benedetto Po, banks of Po river, 4.IV.1990, AZ, 3 ex (CZA). **Venetia**: Verona prov., San Martino Buon Albergo, Tenuta Musella, 4.X.1979, AZ, 3 ex (CZA); ditto, between Soave and Montecchia di Crosara, 20.IV.1996, AZ, cn, 6 ex (CZA); Belluno prov., Feltre dint., Rio Ligant, 13.V.1973, Villabruna leg., 1 ex (CZA). **Tuscany**: Pistoia prov., Padule di Fucecchio, Cala delle Morette, banks with silt, 14.IV.2006, AZ, 5 ex (CZA). **Latium**: Viterbo prov., Vulci, Ponte dell'Abbadia, banks of Fiora river, 15.VII.1996, AZ, 2 ex (CZA). **Abruzzi**: L'Aquila prov., Parco Nazionale d'Abruzzo, spring of Sangro river, 1200 m, 13.VII.1998, AZ, 9 ex (CZA). **Sardinia**: Cagliari prov., Capoterra, Rio Santa Lucia, 28–29.VI.1978, CM, 1 ex (CZA).

GEOGRAPHICAL DISTRIBUTION. Central and Southern Europe, Canary Islands, Morocco, Cyprus and Turkey. Reported also from Northern India and North America. It was confused with *P. cornutus* (Gravenhorst, 1802) (Hammond 1971) and often reported under this name in the catalogues. It was recorded for Italy for the first time by Gerardi & Zanetti (1995) from Val di Ronchi (southern Trentino); it is known also from the above-mentioned additional Italian localities. EUM.

ECOLOGY. In muddy banks.

15. *Entomoculia (Entomoculia) villascemae* Fancello, Hernando & Leo, 2009

RECORDS. Medio Campidano prov., Villacidro, Rio Bidda Scema, 330 m, 20.IX.1986, PL, 1 ♂ (holotype); ditto, Villacidro, Rio Bidda Scema, 330 m, 20.IX.1986, PL, 1 ♀ (paratype); ditto, Villacidro, Foresta Demaniale di Montimannu, 280 m, 8.V.1986, 8.VI.1986, 8.XI.1986, 13.X.1991, PL, 1 ♂ and 5 ♀♀ (paratypes) (Fancello et al. 2009).

GEOGRAPHICAL DISTRIBUTION. Sardinian endemic (Fancello et al. 2009). SARD.

ECOLOGY. The above specimens were collected by washing soil from mixed woods dominated by *Quercus ilex*. The sampling localities are situated on granit-

ic (Rio Bidda Scema) and clay schist (Montimannu) Palaeozoic soils (Fancello et al. 2009).

16. *Entomoculia (Entomoculia) carbonaria* Fancello, Hernando & Leo, 2009

RECORDS. Carbonia-Iglesias prov., Domusnovas, Gutturu di Monte Nieddu, 290 m, 25.X.1985, LF PL, 1 ♂ (holotype); ditto, Domusnovas, Gutturu di Monte Nieddu, 290 m, 22.V.1985, 18.IX.1985, 1.X.1985, 25.X.1985, 10.I.1986, 18.XII.1989, LF PL, 19 ♂♂ and 14 ♀♀ (paratypes); ditto, Domusnovas, Grotta San Giovanni, North entrance, 200 m, 28.III.1987, PL, 1 ♀ (paratype) (Fancello et al. 2009).

GEOGRAPHICAL DISTRIBUTION. Sardinian endemic (Fancello et al. 2009). SARD.

ECOLOGY. Collected in woodland in soil samples taken at the base of an old *Quercus ilex* and under a stone, near a natural cave. Sampling localities are situated on Palaeozoic limestone soil (Fancello et al. 2009).

17. *Entomoculia (Entomoculia) shardana* Fancello, Hernando & Leo, 2009

RECORDS. Medio Campidano prov., *Villacidro, in town, 260 m, 9.XII.1989, PL, 1 ♂ (holotype); ditto, *Villacidro, in town, 260 m, 10.XI.1985, 1.I.1986, 27.IV.1986, 15.III.1987, PL, 6 ♂♂ and 8 ♀♀ (paratypes) (Fancello et al. 2009).

GEOGRAPHICAL DISTRIBUTION. Sardinian endemic (Fancello et al. 2009). SARD.

ECOLOGY. Collected in an abandoned orchard garden of the historical centre of the small town of Villacidro, in soil samples taken at the base of a *Ficus carica*. The sampling locality is situated on Palaeozoic granitic soil (Fancello et al. 2009).

18. *Entomoculia (Entomoculia) melonii* Fancello, Hernando & Leo, 2009

RECORDS. Medio Campidano prov., *Villacidro, San Sisinnio, 250 m, 2.I.1987, PL, 1 ♂ (holotype); ditto, *Villacidro, San Sisinnio, 250 m, 8.V.1986, 2.V.1987, 15.III.1989, 9.XII.1989, 24.IV.1990, PL, 5 ♂♂ and 5 ♀♀ (paratypes) (Fancello et al. 2009).

GEOGRAPHICAL DISTRIBUTION. Sardinian endemic (Fancello et al. 2009). SARD.

ECOLOGY. The type specimens were found in samples taken at the base of age-old olive (*Olea europaea*) trees. The sampling locality is situated on clay schist Palaeozoic soil (Fancello et al. 2009).

19. *Leptotyphlus nardii* Fancello, Hernando & Leo, 2009

RECORDS. Carbonia-Iglesias prov., *Iglesias, Nebida, 120 m, 25.I.1987, LF PL, 1 ♂ (holotype) and 2 ♂♂ and 3 ♀♀ (paratypes); ditto, *Carbonia, Barbusi, 130 m, 11.XI.1986, LF PL, 2 ♂♂ and 2 ♀♀ (paratypes); ditto, Domusnovas, Gutturu di Monte Nieddu, 290 m, 12.I.1990, 13.IV.1990, LF PL, 3 ♂♂ and 12 ♀♀ (paratypes) (Fancello et al. 2009).

GEOGRAPHICAL DISTRIBUTION. Sardinian endemic (Fancello et al. 2009). SARD.

ECOLOGY. The species was collected by washing soil in Mediterranean maquis with *Pistacia lentiscus* dominance and in *Quercus ilex* woodland (Fancello et al. 2009).

20. *Leptotyphlus villacidrinus* Fancello, Hernando & Leo, 2009

RECORDS. Medio Campidano prov., *Villacidro, in town, 260 m, 10.X.1985, PL, 1 ♂ (holotype); ditto, *Villacidro, in town, 260 m, 10.XI.1985, 1.I.1986, 16.III.1986, 27.IV.1986, PL, 9 ♂♂ and 30 ♀♀ (paratypes); ditto, *Villacidro, Sa Spendula, 220 m, 9.XII.1989, PL, 1 ♀ (paratype); ditto, *Villacidro, San Sisinnio, 250 m, 8.V.1986, 2.I.1987, PL, 3 ♀♀ (paratypes) (Fancello et al. 2009).

GEOGRAPHICAL DISTRIBUTION. Sardinian endemic (Fancello et al. 2009). SARD.

ECOLOGY. Most specimens of the type series were collected in an abandoned orchard garden of the historical city centre of Villacidro, in soil samples taken at the base of a *Ficus carica* tree; other specimens were found in woody areas dominated by *Quercus ilex*. The collecting localities are situated on granitic (Villacidro, village and Sa Spendula) and clay schist (San Sisinnio) Palaeozoic soils (Fancello et al. 2009).

21. *Leptotyphlus minator* Fancello, Hernando & Leo, 2009

RECORDS. Carbonia-Iglesias prov., *Iglesias, Nebida, 120 m, 25.X.1987, LF PL, 1 ♂ (holotype); ditto, *Carbonia, Monte Sirai, 120 m, 22.XII.1990, LF PL, 1 ♂ (paratype); ditto, Domusnovas, Gutturu di Monte Nieddu, 290 m, 1.X.1985, LF PL, 2 ♂♂ and 2 ♀♀ (paratypes); ditto, *Fluminimaggiore, near cave "Su Mannau", 200 m, 19.III.1989, PL, 1 ♂ (paratype); ditto, *Narcao, 310 m, 5.I.1990, LF PL, 1 ♀ (paratype); ditto, *Iglesias, Nebida, 120 m, 25.I.1987, LF PL, 1 ♂ (paratype); Medio Campidano prov., *Villacidro, in town, 260 m, 27.IV.1986, PL, 1 ♀ (paratype); ditto, *Villacidro, San Sisinnio, 250 m, 15.III.1987, PL, 1 ♀ (paratype) (Fancello et al. 2009).

GEOGRAPHICAL DISTRIBUTION. Sardinian endemic (Fancello et al. 2009). SARD.

ECOLOGY. The species, relatively widespread but always rare in the study area, was found in soil samples taken from a wide range of habitats: Mediterranean maquis with *Pistacia lentiscus* dominance, *Quercus ilex* woodland, degraded areas at the base of *Ficus carica* and *Olea europaea* trees. The sampling localities are situated on a range of soil types: Palaeozoic granites, limestones and clay schists, and Cenozoic basaltic trachytes (Fancello et al. 2009).

22. *Stenus aceris* Stephens, 1833

RECORDS. **SARI**: 29.IX–21.X.2003, DB PCe EM MT DW, mt, 1 ex; 21.X–17.XI.2003, DB PCe EM MT DW, mt, 2 ex; 21.IX–6.X.2004, GC, mt, 2 ex; 6.X–5.XI.2004, GC, pt, 2 ex; 30.IX–17.X.2005, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Southern and central Europe, North Africa, Cyprus, Turkey and Lebanon. EUM.

ECOLOGY. Phytodetriticolous in rather dry open habitats.

23. *Stenus cordatus* Gravenhorst, 1802

RECORDS. **S1**: 2–16.V.2006, GC, mt, 2 ex.

GEOGRAPHICAL DISTRIBUTION. South-western Europe (Spain, Portugal, southern France, southern Italy, Croatia) and North Africa (Algeria, Tunisia). WME.

ECOLOGY. Phytodetriticolous in dry open habitats.

24. *Stenus elegans* Rosenhauer, 1856

RECORDS. **C77**: 9.VI.2004, DB PCe GN MT DW, cn, 7 ex. **SARI**: 29.IX–21.X.2003, DB PCe EM MT DW, pt, 1 ex; 29.IV–20.V.2005, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. South-western Europe (Spain, Portugal, southern France, southern Italy) and North Africa (Algeria, Morocco). WME.

ECOLOGY. Phytodetriticolous in rather dry open habitats.

25. **Stenus hospes* Erichson, 1840

RECORDS. ***C31**: 20–23.V.2006, MB DB PCo DW, mt, 3 ex.

GEOGRAPHICAL DISTRIBUTION. South-eastern Europe (southern France, Italy, Balkans, southern Russia), Turkey, Lebanon, Syria and Jordan. EME.

ECOLOGY. Phytodetriticolous in dry open habitats.

26. **Stenus intricatus intricatus* Erichson, 1840

RECORDS. ***C31**: 6.VI.2004, GN, 2 ex; 23.V.2006, PCo DB DW, bank of the lake dc under stones, 2 ex.

GEOGRAPHICAL DISTRIBUTION. *Stenus intricatus intricatus* is distributed in western Europe (Spain, Portugal, France, Italy in western regions), *S. i. zoufali* A. Fleischer, 1909 in Italy (eastern regions), south-eastern Central Europe, the Balkans and Turkey. SEU.

ECOLOGY. Ripicolous species at low altitude.

27. **Stenus languidus* Erichson, 1840

RECORDS. ***C31**: 23.V.2006, PCo DB DW, bank of the lake dc under stones, 2 ex.

GEOGRAPHICAL DISTRIBUTION. Mediterranean Region (Spain, Portugal, Southern France, Italy, Greece, Malta, Morocco, Algeria, Tunisia). WME.

ECOLOGY. Ripicolous in Mediterranean habitats (Focarile 1964).

28. **Stenus similis* (Herbst, 1784)

RECORDS. ***C31**: 20–23.V.2006, MB DB PCo DW, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. All of Europe, North Africa, Turkey, Iran, Kazakhstan, Mongolia, West Siberia. CEU.

ECOLOGY. Eurytopic in open areas.

29. *Octavius raymondi* Saulcy, 1878

RECORDS. Carbonia-Iglesias prov., Domusnovas, Gutturu di Monte Nieddu, 310 m, 10.I.1986, 280 m, LF PL, 2 ex (Fancello et al. 2009).

GEOGRAPHICAL DISTRIBUTION. Sardinian endemic, previously known only from the type locality: northern Sardinia, Bonnari (Coiffait 1984; Fancello et al. 2009). SARD.

ECOLOGY. Collected with the Berlese method in a wood, at the base of a *Quercus ilex* (Fancello et al. 2009).

30. **Octavius sardous* Coiffait, 1965

RECORDS. Medio Campidano prov., *Villacidro, Foresta Demaniale di Montimannu, 280 m, 8.V.1986, 8.XI.1986, PL, 9 ex (Fancello et al. 2009).

GEOGRAPHICAL DISTRIBUTION. Sardinian endemic, previously known only from the type locality: central Sardinia, Aritzo (Coiffait 1984; Fancello et al. 2009). SARD.

ECOLOGY. Collected with the Berlese method in a *Quercus ilex*-dominated woodland (Fancello et al. 2009).

31. *Astenus lyonessius* (Joy, 1908)

RECORDS. **SAR1**: 1.III–29.IV.2005, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. All of Europe, North Africa and Turkey. EUM.

ECOLOGY. In open, often cultivated areas.

32. *Medon apicalis* (Kraatz, 1857)

RECORDS. **S1**: 21.III–4.IV.2006, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Most of Europe, Canary Islands and Morocco (Assing 2006). EUM.

ECOLOGY. Eurytopic species at low altitude.

33. *Medon sardous* Doderò, 1922

RECORDS. **C70**: 4.XI.2006, MB GN MZ DW, vg, 4 ex.

GEOGRAPHICAL DISTRIBUTION. Endemic of Sardinia (Assing 2006). SARD.

ECOLOGY. Probably sylvicolous, collected by sifting leaf litter, also in caves (Assing 2006).

34. *Gyrophypnus fracticornis* (O. Müller, 1776)

RECORDS. **SAR1**: 15–30.VI.2004, GC, pt, 2 ex; 16.VI–14.VII.2005, GC, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Almost cosmopolitan. COS.

ECOLOGY. In decaying materials, often coprophilous.

35. *Megalinus glabratus* (Gravenhorst, 1802)

RECORDS. **SAR1**: 21.IX–6.X.2004, GC, pt, 3 ex; 6.X–5.XI.2004, GC, mt, 2 ex; 22.XI–17.XII.2004, GC, pt, 1 ex; 3–16.XI.2005, GC, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Europe (mostly southern), Azores, Canary Islands, North Africa, Turkey, Cyprus, Lebanon, Syria. EUM.

ECOLOGY. Saprophilous, often coprophilous, in dry places.

36. *Othius laeviusculus* Stephens, 1833

RECORDS. **S1**: 21.III–4.IV.2006, GC, mt, 2 ex; 4–18.IV.2006, GC, mt, 2 ex. **SAR1**: 21.X–17.XI.2003, DB PCe EM MT DW, mt, 2 ex; 21.X–12.XII.2003, GC, mt, 2 ex; 6.X–5.XI.2004, GC, pt, 2 ex; 22.XI–17.XII.2004, GC, mt, 3 ex; 29.IV–20.V.2005, GC, mt, 1 ex; 30.IX–17.X.2005, GC, mt, 1 ex; 17.X–3.XI.2005, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Western North Africa, most of southern Europe including the Mediterranean Islands, Western Europe, Turkey, the Caucasus, Syria and Iran (Assing 1997a). MED.

ECOLOGY. In moist open areas, rather thermophilous.

37. *Othius punctulatus* (Goeze, 1777)

RECORDS. **SAR1**: 29.IX–21.X.2003, DB PCe EM MT DW, mt, 2 ex; 21.IX–6.X.2004, GC, pt, 2 ex; 5.X–5.XI.2004, GC, mt, 1 ex; 6.X–5.XI.2004, GC, pt, 2 ex; 5–22.XI.2004, GC, pt, 1 ex; 21.XI–17.XII.2004, GC, mt, 1 ex; 22.XI–17.XII.2004, GC, pt, 1 ex; 17.XII.2004–4.I.2005, GC, pt, 1 ex; 4–18.I.2005, GC, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Canary Islands, Europe, North Africa, central Asia? (Assing 1997a). EUM.

ECOLOGY. Eurytopic sylvicolous species with a wide ecological and altitudinal range, rather thermophilous.

38. *Philonthus cognatus* Stephens, 1832

RECORDS. **C85**: 3–4.IX.2003, DB PCe EM MT DW, mt meadow with *Foeniculum vulgare*, 1 ex. **SAR1**: 13.VI–16.VII.2004, GC, pt, 1 ex; 16.VII–1.VIII.2004, GC, pt, 1 ex; 20.V–16.VI.2005, GC, pt, 2 ex; 16.VI–14.VII.2005, GC, pt, 4 ex.

GEOGRAPHICAL DISTRIBUTION. Widespread in the Palearctic Region (not in Japan), Canada and the USA (introduced?). PAL.

ECOLOGY. Phytodetriticolous in open areas, with a wide ecological and altitudinal range.

39. *Philonthus concinnus* (Gravenhorst, 1802)

RECORDS. ***C69**: 8.V.2004, GN, dc small stream in *Quercus ilex* wood, 2 ex. **C82**: 22.IX–25.IX.2004, mt clearing with *Foeniculum vulgare*, DB PCe EG FM DW, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Widespread in the Palearctic Region (not in Japan), introduced in North America. PAL.

ECOLOGY. In decaying materials, mostly coprophilous.

40. *Philonthus intermedius* (Lacordaire, 1835)

RECORDS. **S3**: 8.V.2004, GN, dc, 1 ex. **SARI**: 22.XI–17.XII.2004, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. All of Europe, North Africa, Turkey, Cyprus, Iran, Iraq, Lebanon, Turkmenistan. TEM.

ECOLOGY. Coprophilous, rather thermophilous.

41. *Philonthus jurgans* Tottenham, 1937

RECORDS. **SARI**: 1–16.VIII.2004, GC, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Europe and North America (introduced?). EUR.

ECOLOGY. Coprophilous, mostly at low altitude.

42. *Philonthus nitidicollis* (Lacordaire, 1835)

RECORDS. **C85**: 3–4.IX.2003, DB PCe EM MT DW, mt meadow with *Foeniculum vulgare*, 1 ex. **SARI**: 6.X–5.XI.2004, GC, pt, 1 ex; 30.IX–17.X.2005, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Most of Europe, North Africa, Turkey, Middle East, central Asia. CEM.

ECOLOGY. Coprophilous and phytodetriticolous in open warm areas.

43. *Bisnius fimetarius* (Gravenhorst, 1802)

RECORDS. **C77**: 9.VI.2004, DB PCe GN MT DW, cn, 7 ex. **SARI**: 1.VI.2004, DB PCe FM EG DW, pt, 18 ex; 15–30.VI.2004, GC, pt, 5 ex; 13.VI–16.VII.2004, GC, pt, 3 ex.

GEOGRAPHICAL DISTRIBUTION. Widespread in the Palearctic region (not in Japan), introduced in North America. PAL.

ECOLOGY. Phytodetriticolous and coprophilous with a wide ecological range.

44. *Gabrius nigrifulus* (Gravenhorst, 1802)

RECORDS. **C77**: 9.VI.2004, DB PCe GN MT DW, dc, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Cosmopolitan. COS.

ECOLOGY. Phytodetriticolous with a very wide ecological range.

45. *Ontholestes marginalis* (Gené, 1836)

RECORDS. ***C23**: 19.V.2006, PCo MB DB DW, dc ba, 1 ex. **C26**: 24.V.2006, PCo MB DB DW, dc cd, 1 ex. **C27**: 22.V.2006, PCo

MB DB DW, dc on the soil, 1 ex. **S3**: 4–18.IV.2006, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Western Mediterranean region (Spain, Portugal, South France, Corsica, Sardinia and western North Africa). WME.

ECOLOGY. Coprophilous species.

46. *Ocypus fortunatarum* Wollaston, 1871

RECORDS. **SARI**: 30.IX–7.X.2005, GC, mt, 3 ex; 30.IX–17.X.2005, GC, wt, 1 ex; 17.X–3.XI.2005, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Western Mediterranean region (France, Italy, Spain, Portugal, western North Africa), Canary Islands, Madeira and Ireland. WME.

ECOLOGY. Phytodetriticolous in open warm areas.

47. *Ocypus olens olens* (O.F. Müller, 1764)

RECORDS. **SARI**: 1–5.IX.2003, DB PCe EM MT DW, pt, 1 ex; 14–29.IX.2003, DB PCe EM MT DW, mt, 1 ex; 8–21.IX.2004, GC, pt, 1 ex; 21.IX–6.X.2004, GC, pt, 1 ex; 6.X–5.XI.2004, GC, pt, 1 ex; 5–22.XI.2004, GC, pt, 1 ex; 20.V–16.VI.2005, GC, pt, 3 ex; 14.VII–5.VIII.2005, GC, pt, 4 ex; 5.VIII–13.IX.2005, GC, pt, 3 ex; 13–30.IX.2005, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Tunisia, Algeria, Morocco, Madeira, Canary Islands, Azores (*O. o. azoricus* Méquignon, 1942), Europe, USA (introduced). EUM.

ECOLOGY. Mostly in open habitats at low altitude, often anthropophilous; in the southern regions also in woods.

48. *Ocypus ophthalmicus* (Scopoli, 1763)

RECORDS. **SARI**: 14–29.IX.2003, DB PCe EM MT DW, mt, 1 ex; 8–21.IX.2004, GC, mt, 1 ex; 21.IX–6.X.2004, GC, pt, 1 ex; 6.X–5.XI.2004, GC, pt, 2 ex; 21.XI–17.XII.2004, GC, pt, 1 ex; 5.VIII–13.IX.2005, GC, pt, 5 ex; 5.VIII–13.IX.2005, GC, mt, 1 ex; 30.IX–17.X.2005, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. *Ocypus ophthalmicus ophthalmicus* (Scopoli, 1763) is distributed in most of Europe and in Siberia, Kazakhstan and Turkmenistan, *O. o. atrocyanus* Fairmaire, 1860 in the western Mediterranean region (France, Spain, Portugal, North Africa). Probably, the populations from Corsica, Sardinia and Sicily could also be referred to this subspecies, the aedeagus of the species is very variable, but in specimens from Sicily, Sardinia and Cor-

sica it is very similar to that of specimens from Spain and North Africa. TEM.

ECOLOGY. Mostly in rather dry open areas.

49. *Heterothops minutus* Wollaston, 1860

RECORDS. **S1**: 21.III–4.IV.2006, GC, mt, 1 ex. **SAR1**: 3.VIII–14.IX.2003, DB PCe MT DW, mt, 1 ex; 14–29.IX.2003, DB PCe EM MT DW, mt, 5 ex; 29.IX–21.X.2003, DB PCe EM MT DW, mt, 1 ex; 8–21.IX.2004, GC, mt, 2 ex; 21.IX–6.X.2004, GC, mt, 1 ex; 6.X–5.XI.2004, GC, pt, 11 ex; 5.VIII–13.IX.2005, GC, mt, 2 ex; 13–30.IX.2005, GC, pt, 1 ex; 30.IX–17.X.2005, GC, mt, 5 ex.

OTHER RECORDS¹. **Venetia**: Verona prov., Mazzantica, 1.XII.1976, SE, 1 ex; ditto, Sommacampagna, IV.1973, SE, 1 ex (CZA). **Latium**: Roma prov., Castelporziano, 5.X.1974, WR, on fungi, 1 ex. **Apulia**: Taranto prov., Torre Colimena, 24.VIII.1969, LD, 4 ex. **Sicily**: Siracusa prov., Vendicari, 28.VI.1990, GS, 8 ex; ditto, 5.VIII.1990, GS, 1 ex (CZA); ditto, 7.VIII.1990, GS, 1 ex; ditto, Tellaro River, 800 m from the outfall, 7.VIII.1990, GS, 2 ex; ditto, Monti Iblei, Pgio Terrano, 250 m, 15.VII.1978, RP, *Quercus ilex* litter, 2 ex; ditto, Noto, "Cava" near Lenzevacche, 300 m, 14.VII.1993, AZ, 1 ex. **Sardinia**: Cagliari prov., 1.IX.1973, CM, 1 ex; ditto, road to Terramaini, 5.IX.1974, CM, basis of *Eucalyptus*, 3 ex; ditto, Capoterra, Riu S. Lucia, 17.VI.1975, CM, 1 ex; Nuoro prov., Su Gologone spring, 100 m, 14.VII.1999, AZ, banks, 2 ex; ditto, Orosei, outfall of Cedrino river, 26.VII.1999, AZ, cn, 1 ex; Nuoro prov., Torpe/Sassari prov., Alà dei Sardi, 14.VII.2004, AZ, cn, 1 ex; Nuoro prov., San Teodoro/Coda Cavallo, 5.VII.2004, AZ, cn, 2 ex; ditto, Valley of Cedrino river between Orosei and Gallu, 17.VII.1999, AZ, cn, 1 ex.

France, Corsica: Desert des Agriates, 12.VIII.1979, SE, 1 ex; Bastia, loc. Pineto, 28.VI.1973, SE, 1 ex; ditto, 5.VII.1974, SE, 1 ex; ditto, 7.VIII.1978, SE, 3 ex; Aleria env., 4.VII.1991, AZ, cn, 1 ex.

GEOGRAPHICAL DISTRIBUTION. *Heterothops minutus* is new to Italy. The distribution of this species, often confused with *H. dissimilis* (Gravenhorst, 1802), is imperfectly known. Smetana (2004) reports it from the Azores, Canary Islands, Madeira, Spain, Great Britain, Ireland, France, Germany, Austria, Czech Republic, Sweden and Morocco (EUM). A careful examination of Italian material in CZA on the basis of characters illustrated by Israelson (1979) demonstrates that both species occur in Italy. Italian localities of *H. dissimilis* are here reported:

Piedmont: Cuneo prov., Valle Stura, Sambuco, 1300 m, 1.XI.1996, fields/basis of trees, AZ, 1 ex. **Lom-**

bardy: Sondrio prov., Monte Vespolo, loc. Uberti, 900 m, 20–30.VIII.1973, Dioli leg., 1 ex, Varese prov., Ispra, 3.VII.1976, Ratti leg., on lymph of *Quercus*, 1 ex. **Trentino-Alto Adige**: Bolzano prov., Val Venosta, env. Lasa, 30.IX–1.XI.1995, AZ, pt *Robinia* small wood, 2 ex; ditto, Luson, 1000 m, 1.XI.1992, AZ, bottom of valley, margin of wood, 2 ex; ditto, Tirolo near Merano, 400 m, VIII.1995, AZ, margin of mixed wood, 1 ex; ditto, Val Venosta, Oris, 1.XI.1990, AZ, basis of *Populus* or *Salix*, 1 ex; ditto, Val Venosta, Spondigna, 900 m, 2.XI.1990, AZ, basis of *Salix alba*, 1 ex; Trento prov., Val di Sole, Caldes, loc. Ponte Stori, banks of Noce river, 570 m, 6.VIII.1982, AZ, 1 ex.

ECOLOGY. Both *H. minutus* and *H. dissimilis* live in open areas or in ecotonal situations, e. g. at the edge of riparian woods. *H. minutus* is more thermophilous and in Italy is found in the Po Valley and lowlands of central Italy, Sicily and Sardinia, often by car net; *H. dissimilis* is mostly found at the bottom of alpine valleys, at low altitude.

50. *Euryporus aeneiventris* P. Lucas, 1846

RECORDS. **SAR1**: 15–30.VI.2004, GC, pt, 1 ex; 21.IX–6.X.2004, GC, pt, 1 ex; 30.IX–17.X.2005, GC, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Spain, Corsica, Sardinia, Sicily, southern Italy and North Africa (Morocco, Algeria, Tunisia, Egypt). WME.

ECOLOGY. Usually collected in warm Mediterranean woods (Zanetti & Tagliapietra 2005).

51. *Quedius prope aetolicus* Kraatz, 1858

RECORDS. **SAR1**: 15.VI–30.VI.2004, GC, mt, 1 ♂.

GEOGRAPHICAL DISTRIBUTION. *Quedius aetolicus* is known from France, Great Britain, Greece, Italy, Portugal and Algeria. Gridelli (1924) reports it from Sardinia (Santadi) and Corsica (Vizzavona, "dans un hêtre-creux"). The aedeagus of the male specimen from Marganai is clearly different from that of *Q. aetolicus* from Italy, but the whole material referred to *Q. aetolicus* should be revised.

ECOLOGY. In tree cavities.

52. *Quedius cruentus* (Olivier, 1795)

RECORDS. **SAR1**: 13.VI–16.VII.2004, GC, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. All of Europe and western North Africa, introduced in North America. EUM.

¹ All specimens are conserved in CZA.

ECOLOGY. In cavities of broad-leaved trees.

53. *Quedius fuliginosus* (Gravenhorst, 1802)

RECORDS. *C31: 20–23.V.2006, MB DB PCo DW, pt, 2 ex.

GEOGRAPHICAL DISTRIBUTION. All of Europe, West Siberia, Turkey and western North Africa. EUM.

ECOLOGY. In open wet areas, with a wide altitudinal range.

54. *Quedius humeralis* Stephens, 1832

RECORDS. *C31: 20–23.V.2006, MB DB PCo DW, mt, 2 ex. S1: 21.III–4.IV.2006, GC, mt, 1 ex. SARI: 14–29.IX.2003, DB PCe EM MT DW, mt, 2 ex; 29.IX–21.X.2003, DB PCe EM MT DW, mt, 8 ex; 21.X–17.XI.2003, DB PCe EM MT DW, mt, 22 ex; 21.X–12.XII.2003, GC, mt, 1 ex; 12.XII.2003–8.I.2004, GC, mt, 1 ex; 1.VI.2004, DB PCe FM EG DW, pt, 5 ex; 15–30.VI.2004, GC, mt, 1 ex; 21.IX–6.X.2004, GC, pt, 2 ex; 6.X–5.XI.2004, GC, pt, 29 ex; 29.IV–20.V.2005, GC, mt, 11 ex; 20.V–16.VI.2005, GC, wt, 1 ex; 20.V–16.VI.2005, GC, pt, 4 ex; 30.IX–17.X.2005, GC, mt, 10 ex; 17.X–3.XI.2005, GC, mt, 2 ex.

GEOGRAPHICAL DISTRIBUTION. All of Europe, Cyprus, Turkey and Uzbekistan. CAE.

ECOLOGY. Sylvicolous species of broad leaved woods, rather thermophilous.

55. *Quedius levicollis* (Brullé, 1832)

RECORDS. C01: 1.IX–5.IX.2003, DB PCe EM MT DW, bz *Quercus ilex* forest, 4 ex. *C31: 20.V–23.V.2006, MB DB PCo DW, mt, 2 ex. SARI: 1–5.IX.2003, DB PCe EM MT DW, pt, 6 ex; 29.IX–21.X.2003, GC, mt, 17 ex; 29.IX–21.X.2003, DB PCe EM MT DW, mt, 21 ex; 21.X–17.XI.2003, DB PCe EM MT DW, mt, 1 ex; 11.VI.2004, GN, dc, 1 ex; 21.IX–6.X.2004, GC, mt, 5 ex; 21.IX–6.X.2004, GC, pt, 2 ex; 21.IX–6.X.2004, GC, wt, 1 ex; 5.X–5.XI.2004, GC, mt, 2 ex; 6.X–5.XI.2004, GC, pt, GC, pt, 7 ex; 20.V–16.VI.2005, GC, pt, 17 ex; 20.V–16.VI.2005, GC, wt, 1 ex; 16.VI–14.VII.2005, GC, mt, 1 ex; 16.VI–14.VII.2005, GC, pt, 20 ex; 14.VII–5.VIII.2005, GC, pt, 2 ex; 5.VIII–13.IX.2005, GC, pt, 21 ex; 13–30.IX.2005, GC, mt, 7 ex; 13–30.IX.2005, GC, pt, 2 ex; 30.IX–17.X.2005, GC, mt, 24 ex; 30.IX–17.X.2005, GC, pt, 1 ex; 30.IX–17.X.2005, GC, wt, 18 ex.

GEOGRAPHICAL DISTRIBUTION. Europe, western North Africa, Madeira, Turkey, Cyprus, Lebanon, Syria, Israel, Iran. EUM.

ECOLOGY. In open, also anthropogenic habitats, phytodetrilicous, sometimes in woods in southern regions.

56. *Quedius nemoralis nemoralis* Baudi, 1848

RECORDS. *C31: 20–23.V.2006, MB DB PCo DW, mt, 3 ex. S1: 21.III–4.IV.2006, GC, mt, 1 ex. SARI: 14–29.IX.2003, DB PCe EM MT DW, mt, 1 ex; 29.IX–21.X.2003, DB PCe EM MT DW, mt, 5 ex; 29.IX–21.X.2003, GC, mt, 1 ex; 21.X–17.XI.2003, DB PCe EM MT DW, mt, 2 ex; 15–30.VI.2004, GC, pt, 2 ex; 15–30.VI.2004, GC, mt, 4 ex; 21.IX–6.X.2004, GC, mt, 3 ex; 6.X–5.XI.2004, GC, pt, 5 ex; 22.XI–17.XII.2004, GC, mt, 1 ex; 29.IV–20.V.2005, GC, mt, 1 ex; 16.VI–14.VII.2005, GC, pt, 1 ex; 16.VI–14.VII.2005, GC, mt, 1 ex; 5.VIII–13.IX.2005, GC, mt, 1 ex; 13–30.IX.2005, GC, pt, 1 ex; 13–30.IX.2005, GC, mt, 4 ex; 30.IX–17.X.2005, GC, mt, 6 ex; 17.X–3.XI.2005, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. All of Europe; *Q. n. erinci* Korge, 1971 lives in Turkey. EUR.

ECOLOGY. Mostly in broad leaved woods at low altitude. Very abundant in Sardinia, in continental Italy and Sicily it is often substituted by *Q. masoni* Zanetti, 1992 (Zanetti & Tagliapietra 2005).

57. *Quedius scintillans* (Gravenhorst, 1806)

RECORDS. *C31: 20–23.V.2006, MB DB PCo DW, mt, 1 ex. SARI: 22.XI–17.XII.2004, GC, wt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. All of Europe, western North Africa, Turkey, Middle East and central Asia. CEM.

ECOLOGY. In open habitats, phytodetrilicous.

58. *Quedius semiaeneus* (Stephens, 1833)

RECORDS. SARI: 29.IX–21.X.2003, GC, mt, 1 ex; 29.IX–21.X.2003, DB PCe EM MT DW, mt, 1 ex; 21.X–17.XI.2003, DB PCe EM MT DW, mt, 1 ex; 1.VI.2004, DB PCe FM EG DW, pt, 1 ex; 15–30.VI.2004, GC, mt, 1 ex; 21.IX–6.X.2004, GC, mt, 1 ex; 6.X–5.XI.2004, GC, mt, 2 ex; 29.IV–20.V.2005, GC, mt, 2 ex; 20.V–16.VI.2005, GC, pt, 4 ex; 30.IX–17.X.2005, GC, mt, 3 ex.

GEOGRAPHICAL DISTRIBUTION. Europe, western North Africa, Cyprus, Syria. EUM.

ECOLOGY. In open habitats, phytodetrilicous.

59. *Quedius semiobscurus* (Marsham, 1802)

RECORDS. *C31: 20–23.V.2006, MB DB PCo DW, mt, 1 ex; 20–23.V.2006, MB DB PCo DW, pt, 1 ex. S1: 21.III–4.IV.2006, GC, mt, 2 ex; 4–18.IV.2006, GC, mt, 2 ex. SARI: 1–5.IX.2003, DB PCe EM MT DW, pt, 1 ex; 14–29.IX.2003, DB PCe EM MT DW, mt, 7 ex; 29.IX–21.X.2003, DB PCe EM

MT DW, mt, 1 ex; 1.VI.2004, DB PCe FM EG DW, pt, 2 ex; 15.VI–30.VI.2004, GC, pt, 1 ex; 8–21.IX.2004, GC, mt, 3 ex; 21.IX–6.X.2004, GC, mt, 2 ex; 21.IX–6.X.2004, GC, pt, 1 ex; 20.V–16.VI.2005, GC, pt, 16 ex; 20.V–16.VI.2005, GC, wt, 4 ex; 16.VI–14.VII.2005, GC, pt, 2 ex; 16.VI–14.VII.2005, GC, mt, 2 ex; 14.VII–5.VIII.2005, GC, pt, 1 ex; 5.VIII–13.IX.2005, GC, pt, 3 ex; 13–30.IX.2005, GC, mt, 8 ex; 30.IX–17.X.2005, GC, mt, 2 ex; 30.IX–17.X.2005, GC, wt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Europe, Canary Islands, western North Africa, Turkey, Cyprus, Syria, Iran. EUM.

ECOLOGY. In open habitats, phytodetrivicolous.

60. **Quedius virgulatus* Erichson, 1840

RECORDS. *C31: 20–23.V.2006, MB DB PCo DW, mt, 4 ex.

GEOGRAPHICAL DISTRIBUTION. Endemic species of Corsica and Sardinia. SACO.

ECOLOGY. In open and marginal habitats, phytodetrivicolous.

61. *Habrocerus capillaricornis* (Gravenhorst, 1806)

RECORDS. C77: 9.VI.2004, DB PCe GN MT DW, cn, 6 ex.

GEOGRAPHICAL DISTRIBUTION. Europe, Canary Islands, Madeira, western North Africa, Cyprus, Iran, Turkey. It is present also in the Australian, Nearctic and Neotropical Regions as an introduced species (Assing & Wunderle 1997). EUM.

ECOLOGY. Mostly sylvicolous with a wide ecological range in vegetal detritus at low altitude.

62. *Habrocerus pisidicus* Korge, 1971

RECORDS. SARI: 21.IX–6.X.2004, GC, pt, 4 ex.

GEOGRAPHICAL DISTRIBUTION. Distributed mostly in the eastern Mediterranean region (Bosnia-Herzegovina, Bulgaria, Georgia, Greece, Turkey, Italy in the Gargano Promontory). EME.

ECOLOGY. *Habrocerus pisidicus* lives in the same habitats of *H. capillaricornis*, often together with it. Notice that the specimens of *H. pisidicus* in the Marganai area were collected by pitfall traps, the ones of *H. capillaricornis* in flight.

NOTES. The records from Sardinia, checked by Volker Assing (Hannover) too, enlarge to the West the range of the species.

63. *Mycetoporus angularis* Mulsant & Rey, 1853

RECORDS. SARI: 21.IX–6.X.2004, GC, mt, 1 ex; 6.X–5.XI.2004, GC, pt, 3 ex.

GEOGRAPHICAL DISTRIBUTION. Most of Europe, Canary Islands, western North Africa and Cyprus (Smetana 2004). EUM.

ECOLOGY. Rather thermophilous species in woods and open areas.

64. *Mycetoporus baudueri* Mulsant & Rey, 1875

RECORDS. S1: 21.III–4.IV.2006, GC, mt, 1 ex. SARI: 14–29.IX.2003, DB PCe EM MT DW, mt, 1 ex; 21.X–17.XI.2003, DB PCe EM MT DW, mt, 1 ex; 6.X–5.XI.2004, GC, pt, 3 ex; 22.X–17.XII.2004, GC, mt, 2 ex.

GEOGRAPHICAL DISTRIBUTION. All of Europe, western North Africa, Cyprus and Iran. EUM.

ECOLOGY. Detriticolous in woods and in open areas.

NOTES. The identifications were checked by Michael Schülke (Berlin).

65. *Mycetoporus confinis* Rey, 1883

RECORDS. S1: 21.III–4.IV.2006, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. *Mycetoporus confinis* was recently revalidated by Schülke & Kocian (2000). Presently it is known from Spain, Italy, Austria, Bosnia-Herzegovina, Bulgaria, Czech Republic, Macedonia and Greece. SEU.

ECOLOGY. *M. confinis* has often been collected in woods, often in warm and dry Mediterranean environments (Schülke & Kocian 2000).

66. *Mycetoporus glaber glaber* (Sperk, 1835)

RECORDS. S1: 4–18.IV.2006, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Most of Europe, western North Africa, Turkey, Cyprus and Israel; *M. g. rufus* Wollaston, 1864 is endemic of the Canary Islands. EUM.

ECOLOGY. Detriticolous in different habitats (rather dry woods, fields and meadows, etc.).

67. *Mycetoporus rufescens* (Stephens, 1832)

RECORDS. SARI: 3–16.XI.2005, GC, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Most of Europe and Cyprus. EUR.

ECOLOGY. Sylvicolous with a wide ecological and altitudinal range.

68. *Lordithon exoletus* (Erichson, 1839)

RECORDS. **SAR1**: 13.VI–16.VII.2004, GC, pt, 1 ex; 16.VII–1.VIII.2004, GC, mt, 1 ex; 16.VII–1.VIII.2004, GC, pt, 1 ex; 6.X–5.XI.2004, GC, pt, 1 ex; 29.IV–20.V.2005, GC, mt, 1 ex; 14.VII–5.VIII.2005, GC, pt, 3 ex.

GEOGRAPHICAL DISTRIBUTION. All of Europe, western North Africa and Turkey (Smetana 2004). EUM.
ECOLOGY. In decaying mushrooms in a wide altitudinal range.

69. *Lordithon thoracicus thoracicus* (Fabricius, 1777)

RECORDS. **S1**: 21.III–4.IV.2006, GC, mt, 1 ex; 4–18.IV.2006, GC, mt, 1 ex. **SAR1**: 29.IX–21.X.2003, DB PCe EM MT DW, mt, 1 ex; 21.X–17.XI.2003, DB PCe EM MT DW, mt, 1 ex; 16.V–15.VI.2004, GC, mt, 2 ex; 22.X–17.XII.2004, GC, mt, 1 ex; 29.IV–20.V.2005, GC, mt, 1 ex; 5.VIII–13.IX.2005, GC, mt, 1 ex; 30.IX–17.X.2005, GC, mt, 2 ex.

GEOGRAPHICAL DISTRIBUTION. The nominal ssp. is distributed in all of the Palearctic region, *L. t. luridus* Wollaston, 1864 in the Canary Islands. PAL.
ECOLOGY. In decaying mushrooms in a wide altitudinal range.

70. *Sepedophilus immaculatus* (Stephens, 1832)

RECORDS. **S1**: 21.III–4.IV.2006, GC, mt, 1 ex. **SAR1**: 21.IX–6.X.2004, GC, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. All of Europe, Canary Islands, western North Africa, Cyprus, Turkey, Iran, Siberia. The species is reported also from the Oriental Region. PAL.
ECOLOGY. In vegetal detritus, sometimes also in tree-holes.

71. *Sepedophilus nigripennis* (Stephens, 1832)

RECORDS. ***C31**: 20–23.V.2006, MB DB PCo DW, mt, 1 ex. **SAR1**: 29.IX–21.X.2003, DB PCe EM MT DW, mt, 1 ex; 13–30.IX.2005, GC, mt, 2 ex; 30.IX–17.X.2005, GC, mt, 2 ex.

GEOGRAPHICAL DISTRIBUTION. Central and southern Europe and North Africa. EUM.
ECOLOGY. In vegetal detritus in dry open areas.

72. *Sepedophilus testaceus* (Fabricius, 1793)

RECORDS. **S1**: 4–18.IV.2006, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. It is widespread in the Palearctic region and in North America. OLA.
ECOLOGY. Mostly in tree holes and under bark, often also in the litter.

73. *Tachyporus hypnorum* (Fabricius, 1775)

RECORDS. ***C31**: 20–23.V.2006, MB DB PCo DW, mt, 5 ex. **C77**: 9.VI.2004, DB PCe GN MT DW, cn, 17 ex. **SAR1**: 21.X–17.XI.2003, DB PCe EM MT DW, mt, 2 ex; 11.IV.2004, GN, dc, 1 ex; 1.VI.2004, DB PCe EG FM DW, pt, 2 ex; 8–21.IX.2004, GC, pt, 1 ex; 21.IX–6.X.2004, GC, wt, 1 ex; 21.IX–6.X.2004, GC, pt, 1 ex; 6.X–5.XI.2004, GC, pt, 3 ex; 22.X–17.XII.2004, GC, mt, 4 ex; 22.XI–17.XII.2004, GC, pt, 1 ex; 18.I–1.III.2005, GC, pt, 1 ex; 1.III–29.IV.2005, GC, mt, 5 ex; 29.IV–20.V.2005, GC, mt, 2 ex; 20.V–16.VI.2005, GC, mt, 4 ex; 20.V–16.VI.2005, GC, wt, 2 ex; 5.VIII–13.IX.2005, GC, pt, 1 ex; 13–30.IX.2005, GC, pt, 1 ex; 30.IX–17.X.2005, GC, mt, 2 ex; 30.IX–17.X.2005, GC, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Most of the Palearctic region (not in Japan), Pakistan. PAL.
ECOLOGY. Phytodetriticolous in open, also anthropogenic habitats.

74. *Tachyporus nitidulus* (Fabricius, 1781)

RECORDS. ***C31**: 20–23.V.2006, MB DB PCo DW, mt, 10 ex. **C77**: 9.VI.2004, DB PCe GN MT DW, cn, 1 ex. **SAR1**: 29.IX–21.X.2003, DB PCe EM MT DW, mt, 1 ex; 21.X–17.XI.2003, DB PCe EM MT DW, mt, 4 ex; 21.X–12.XII.2003, GC, mt, 2 ex; 13.XII.2003–8.I.2004, GC, mt, 1 ex; 16.II–15.VI.2004, GC, mt, 1 ex; 16.V–15.VI.2004, GC, mt, 2 ex; 15–30.VI.2004, GC, mt, 2 ex; 15–30.VI.2004, GC, wt, 3 ex; 30.VI–16.VII.2004, GC, mt, 2 ex; 1–16.VIII.2004, GC, pt, 1 ex; 12.IX–6.X.2004, GC, wt, 1 ex; 21.IX–6.X.2004, GC, mt, 1 ex; 21.IX–6.X.2004, GC, pt, 1 ex; 6.X–5.XI.2004, GC, pt, 12 ex; 22.X–17.XII.2004, GC, mt, 22 ex; 5–22.XI.2004, GC, mt, 3 ex; 21.XI–17.XII.2004, GC, pt, 8 ex; 22.XI–17.XII.2004, GC, wt, 1 ex; 17.XII.2004–4.I.2005, GC, mt, 2 ex; 8–21.I.2004, GC, mt, 1 ex; 1.III–29.IV.2005, GC, mt, 10 ex; 1.III–29.IV.2005, GC, pt, 2 ex; 29.IV–20.V.2005, GC, mt, 1 ex; 20.V–16.VI.2005, GC, mt, 1 ex; 13–30.IX.2005, GC, mt, 2 ex; 30.IX–17.X.2005, GC, mt, 1 ex; 3–16.XI.2005, GC, mt, 1 ex; 2–16.XII.2005, GC, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Subcosmopolitan. COS.
ECOLOGY. Phytodetriticolous in open, also anthropogenic habitats.

75. *Tachyporus solutus* Erichson, 1839

RECORDS. *C31: 20–23.V.2006, MB DB PCo DW, mt, 1 ex.
SARI: 18.I–1.III.2005, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Europe, western North Africa, Turkey, Cyprus, Iran, Syria, West Siberia. EUM.
ECOLOGY. Phytodetrivicolous in open habitats.

76. **Myllaena gracilicornis* Fairmaire & Brisout, 1859

RECORDS. *C31: 20–23.V.2006, MB DB PCo DW, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Western Europe, western North Africa. Reported for Piedmont, northern and central Apennines, Corsica and Sicily in the ancient catalogues (Porta 1926; Luigioni 1929); data for continental Italy and Sicily to be confirmed. WME.
ECOLOGY. In wetlands.

77. *Cypha punctum* (Motschulsky, 1857)

RECORDS. C77: 9.VI.2004, DB PCe GN MT DW, cn, 1 ex.
SARI: 15–30.VI.2004, GC, wt, 1 ex; 8–21.IX.2004, GC, mt, 1 ex; 22.X–17.XII.2004, GC, mt, 1 ex; 5.VIII–13.IX.2005, GC, mt, 1 ex; 30.IX–17.X.2005, GC, mt, 1 ex.

OTHER RECORDS. **Lombardy**: Sondrio prov., Monte Rolla, S side, between Ligari and Sondrio, 300–1100 m, 24.VII.1987, AZ, cn, 1 ex (CZA).

GEOGRAPHICAL DISTRIBUTION. Denmark, France, Great Britain, Ireland, Italy, Norway, Sweden. In Italy, it was previously reported only from South Tyrol (Bressanone/Brixen) (Horion 1967). EUR.
ECOLOGY. Phytodetrivicolous, eurytopic.

78. *Placusa adscita* Erichson, 1839

RECORDS. SARI: 30.VI–16.VII.2004, GC, wt, 1 ex; 16.VIII–9.IX.2004, GC, wt, 1 ex; 16.VI–14.VII.2005, GC, wt, 2 ex; 14.VII–5.VIII.2005, GC, wt, 1 ex; 5.VIII–13.IX.2005, GC, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Large part of Europe, Algeria and Syria. EUM.
ECOLOGY. Under bark of broad-leaved trees in warm habitats.

79. *Bolitochara varia* Erichson, 1839

RECORDS. C70: 8.VI.2004, DB PCe GN MT DW, cn, 2 ex.

GEOGRAPHICAL DISTRIBUTION. Mediterranean region: Spain, France, Italy (with certainty in Sardinia and

Sicily only), Greece, western North Africa, Syria. MED.

ECOLOGY. Probably in tree holes with fungi like the closely related *B. obliqua* Erichson, 1837.

80. **Myrmecopora fugax* (Erichson, 1839)

RECORDS. *C10: 12.IX.2006, DA MB DB GN, lt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Mediterranean region: southern Spain, southern France, Monaco, Italy, including Sardinia and Sicily, Croatia, Bosnia-Herzegovina, Greece, Cyprus, Romania (?), Bulgaria (?), Turkey, Lebanon, Israel, Tunisia (Assing 1997b). MED.
ECOLOGY. In open, warm, usually wet, areas.

81. *Aloconota cyanea* (Mulsant & Rey, 1874)

RECORDS. SARI: 22.XI–17.XII.2004, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Endemic species of Corsica, Sardinia and the Tuscan Archipelago. SACO.
ECOLOGY. Unknown. *Aloconota* Thomson, 1858 species are usually – *A. gregaria* (Erichson, 1839) excepted – riparian.

82. *Aloconota gregaria* (Erichson, 1839)

RECORDS. SARI: 8–21.I.2004, GC, mt, 1 ex; 22.XI–17.XII.2004, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. All of Europe, Canary Islands, Madeira, North Africa, Cyprus, Syria, Sinai, Uzbekistan, Afghanistan. CEM.
ECOLOGY. In open wet areas.

83. *Geostiba brigantii* Pace, 1988

RECORDS. C35: 1.III.2006, LE, vg, 6 ex.

GEOGRAPHICAL DISTRIBUTION. Known from the type locality only: Sardinia, Domusnovas, C.se sa Duchessa (Pace 1988). The new record is from close to the type locality. SARD.
ECOLOGY. In the litter/soil.

84. *Liogluta longiuscula* (Gravenhorst, 1802)

RECORDS. C77: 9.VI.2004, DB PCe GN MT DW, cn, 1 ex. S1: 12.III–4.IV.2006, GC, mt, 1 ex. SARI: 21.I–16.II.2004, GC, mt, 2 ex; 15–30.VI.2004, GC, mt, 1 ex; 22.XI–17.XII.2004, GC, pt, 1 ex; 2–16.XII.2005, GC, mt, 2 ex; 1.III–29.IV.2005, GC, mt, 2 ex; 16.XII.2005–3.I.2006, GC, mt, 4 ex.

GEOGRAPHICAL DISTRIBUTION. Europe, North Africa, Turkey, Cyprus, Iran, Afghanistan, Siberia. CEM.
 ECOLOGY. Detriticolous with a very wide ecological range.

85. *Atheta bihamata* Fauvel, 1900

RECORDS. **SARI**: 20.V–16.VI.2004, GC, wt, 1 ex; 30.VI–16.VII.2004, GC, mt, 1 ex; 29.IV–20.V.2005, GC, pt, 4 ex.

GEOGRAPHICAL DISTRIBUTION. Corsica and Tunisia. Species new to Italy. WME.

ECOLOGY. Unknown.

NOTES. Smetana (2004) includes this species in the subgenus *Traumoecia* Mulsant & Rey, 1874, but its correct systematic position has still to be defined. One of the above specimens was identified by Jürgen Vogel (Görlitz, Germany).

86. *Atheta (Microdota) amricula* (Stephens, 1832)

RECORDS. **SARI**: 30.VI–16.VII.2004, GC, wt, 1 ex; 18.I–1.III.2005, GC, pt, 1 ex; 20.V–16.VI.2005, GC, wt, 2 ex.

GEOGRAPHICAL DISTRIBUTION. All of the Palearctic Region (not in Japan) and in the Neotropical Region (introduced?). PAL.

ECOLOGY. In decaying matter, with a very wide ecological range.

87. *Atheta (Microdota) inquinula* (Gravenhorst, 1802)

RECORDS. **SARI**: 3–16.XI.2005, GC, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Europe, western North Africa, Kazakhstan. CEM.

ECOLOGY. In decaying matter, with a very wide ecological range.

88. *Atheta* (mixed group II) *trinotata* (Kraatz, 1856)

RECORDS. **SARI**: 15–30.VI.2004, GC, pt, 2 ex; 5–22.XI.2004, GC, pt, 1 ex; 22.XI–17.XII.2004, GC, pt, 8 ex; 16.VI–14.VII.2005, GC, pt, 4 ex; 30.IX–17.X.2005, GC, pt, 9 ex; 17.X–3.XI.2005, GC, pt, 3 ex; 17.X–3.XI.2005, GC, mt, 1 ex; 3–16.XI.2005, GC, mt, 1 ex; 16.XI–2.XII.2005, GC, pt, 1 ex; 2–16.XII.2005, GC, pt, 1 ex

GEOGRAPHICAL DISTRIBUTION. Europe, Canary Islands, North Africa, Cyprus, Turkey, Iran. EUM.

ECOLOGY. In decaying vegetal matter; this species has a very wide ecological range. Often it is collected by vinegar traps.

89. *Atheta (Mocyta) gr. fungi* (Gravenhorst, 1806)

RECORDS. **SARI**: 21.X–12.XII.2003, GC, mt, 1 ex; 8–21.I.2004, CG, mt, 1 ex; 21.I–16.II.2004, CG, mt, 1 ex; 16.II–15.VI.2004, CG, mt, 2 ex; 8–21.IX.2004, CG, mt, 1 ex; 22.XI–17.XII.2004, CG, mt, 1 ex; 22.XI–17.XII.2004, CG, pt, 1 ex; 4–18.I.2005, CG, pt, 2 ex; 5.VIII–13.IX.2005, CG, pt, 1 ex; 30.IX–17.X.2005, CG, pt, 1 ex; 30.IX–17.X.2005, CG, mt, 1 ex; 2–16.XII.2005, CG, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Under the name *Atheta fungi*, considered a widespread Palearctic species, a very difficult complex of taxa is included.

ECOLOGY. Phytodetriticolous with a very wide ecological range.

90. *Atheta (Atheta) aeneicollis* (Sharp, 1869)

RECORDS. ***C31**: 20.V–23.V.2006, DB MB PCo DW, pt, 1 ex. **C82**: 11.VI–12.VI.2004, DB PCe GN MT DW, mt, 1 ex. **SARI**: 21.I–16.II.2004, GC, mt, 2 ex; 16.II–15.VI.2004, GC, mt, 1 ex; 15–30.VI.2004, GC, mt, 3 ex; 21.IX–6.X.2004, GC, pt, 2 ex; 5–22.XI.2004, GC, pt, 1 ex; 17.XII.2004–4.I.2005, GC, pt, 2 ex; 1.III–29.IV.2005, GC, mt, 1 ex; 20.V–16.VI.2005, GC, mt, 2 ex; 5.VIII–13.IX.2005, GC, pt, 6 ex; 30.IX–17.X.2005, GC, mt, 1 ex; 16.XII.2005–3.I.2006, GC, pt, 1 ex; 16.XII.2005–3.I.2006, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Europe, Canary Islands, western North Africa, Cyprus, Israel, Syria. EUM.

ECOLOGY. In decaying matter, mostly mushrooms, with a very wide ecological range.

91. *Atheta (Atheta) hummleri* Bernhauer, 1898

RECORDS. **SARI**: 22.XI–17.XII.2004, GC, mt, 1 ex; 18.I–1.III.2005, GC, pt, 7 ex; 2–16.XII.2005, GC, pt, 4 ex; 16.XII.2005–3.I.2006, GC, pt, 1 ex; 17.XII.2004–4.I.2005, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Known from Spain, Italy, "Yugoslavia", Croatia, Greece. Reported for central Italy (Tuscany and Latium) in the ancient catalogues (Porta 1926; Luigioni 1929). SEU.

ECOLOGY. Unknown, possibly in decaying matter in woods.

NOTES. One specimen was identified by Jürgen Vogel (Görlitz, Germany).

92. **Atheta* (mixed group I) *coriaria* (Kraatz, 1856)

RECORDS. ***C10**: 6.IX.2006, GN, at, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Cosmopolitan. COS.
 ECOLOGY. In decaying matter, also synanthropic,
 with a very wide ecological range.

93. *Atheta* (mixed group I) *crassicornis* (Fabricius, 1792)

RECORDS. **C01**: 1–5.IX.2003, DB PCe EM MT DW, bz *Quercus ilex* forest, 4 ex. **SAR1**: 15–30.VI.2004, GC, pt, 1 ex; 8–21.IX.2004, GC, wt, 1 ex; 21.IX–6.X.2004, GC, pt, 2 ex; 16.VI–14.VII.2005, GC, pt, 1 ex; 14.VII–15.VIII.2005, GC, pt, 2 ex; 5.VIII–13.IX.2005, GC, pt, 3 ex; 13–30.IX.2005, GC, mt, 2 ex.

GEOGRAPHICAL DISTRIBUTION. Europe, western North Africa, Turkey, Cyprus. EUM.

ECOLOGY. In decaying matter, mostly mushrooms, with a very wide ecological range.

94. *Atheta* (mixed group I) *oblita* (Erichson, 1839)

RECORDS. **SAR1**: 14.VII–15.VIII.2005, GC, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Europe, western North Africa, Turkey, Iran. EUM.

ECOLOGY. In decaying matter, mostly mushrooms, with a very wide ecological range.

95. *Atheta* (*Dimetrota*) *marcida* (Erichson, 1837)

RECORDS. **SAR1**: 22.XI–17.XII.2004, GC, pt, 8 ex; 22.XI–17.XII.2004, GC, mt, 1 ex; 17.XII.2004–4.I.2005, GC, mt, 1 ex; 4–18.I.2005, GC, mt, 1 ex; 18.I–1.III.2005, GC, pt, 1 ex; 2–16.XII.2005, GC, pt, 1 ex; 16.XII.2005–3.I.2006, GC, pt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. All of Europe, Tunisia and "Indes orientales". Reported throughout all of Italy by Porta (1926) without the islands, and for northern Italy only by Luigioni (1929). EUM(?).

ECOLOGY. In decaying matter and fungi, mostly in woods.

96. *Amarochara cribripennis* Mulsant & Rey, 1874

RECORDS. **SAR1**: 1.III–29.IV.2005, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Corsica and Sardinia (Assing 2002). SACO.

ECOLOGY. "Found by sifting leaf litter, under stones, and with pitfall traps at elevations of 900–1500m" (Assing 2002).

97. *Euryalea occidentalis* Assing & Wunderle, 1997

RECORDS. **S1**: 21.III–4.IV.2006, GC, mt, 1 ex. **SAR1**: 1.III–29.IV.2005, GC, mt, 1 ex

GEOGRAPHICAL DISTRIBUTION. Western Mediterranean region: Portugal, Spain, Corsica, Sardinia, mainland Italy (Latium and Calabria, doubtful records) (Assing & Wunderle 1997). WME.

ECOLOGY. "In moist habitats (banks of rivers and streams etc.)" (Assing & Wunderle 1997).

98. *Oxypoda lurida* Wollaston, 1857

RECORDS. **SAR1**: 6.X–5.XI.2004, GC, pt, 1 ex; 30.IX–17.X.2005, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Central and southern Europe, Canary Islands, Madeira, North Africa, Cyprus. EUM.

ECOLOGY. In warm open habitats, sometimes in anthropogenic habitats.

99. *Aleochara cornuta* Fauvel, 1886

RECORDS. **S1**: 21.III–4.IV.2006, GC, mt, 1 ex.

GEOGRAPHICAL DISTRIBUTION. Corsica, Morocco. New to Italy. WME.

ECOLOGY. Coprophilous species (Tronquet 2006).

NOTES. The above specimen was identified following Assing (2009).

100. *Aleochara laticornis* Kraatz, 1856

RECORDS. **SAR1**: 14.VII–5.VIII.2005, GC, mt, 1 ex; 5.VIII–13.IX.2005, GC, pt, 2 ex.

GEOGRAPHICAL DISTRIBUTION. Central and southern Europe, Canary Islands, western North Africa, Turkey, Iran. EUM.

ECOLOGY. In decaying matter, mostly in warm places.

RESULTS AND DISCUSSION

The large majority (1,200 specimens, 80 species) of the material listed above is from the Marganai CONECOFOR plot (SAR1), and was mostly collected by Malaise and pitfall traps (1,077 specimens). Ten additional species were collected in other areas of SW Sardinia, and ten endogean species collected in the same area by soil washing and reported by Fancello et al. (2009) are also included in the list. The records from the whole area of the region-owned

forest of Marganai are summarized in tab. 1, in which species are listed in alphabetic order.

Some general remarks on the Marganai staphylinid fauna are possible, mostly on the subfamily Staphylininae, that has been extensively studied in broad-leaved woods throughout Italy, Sardinia excepted (Zanetti & Tagliapietra 2005; Zanetti 2007).

Concerning the collecting techniques, mostly pitfall and Malaise trapping, a positive selectivity is evident for species with high dispersal capacity, like good flyers and very active soil runners. No endogean species were collected (*Geostiba brigantii* was found at Iglesias, loc. "Mamenga", by sifting) and also a typical endemic litter dweller such as *Medon sardous* was not collected by pitfall/Malaise trapping. Specialized researches in the same area by soil washing have highlighted the presence of a rich endogean Staphylinid fauna (Fancello et al. 2009). The abundance of some saprophagous species living in fermenting matter like many *Atheta*, is overestimated.

The contribution to the knowledge of Sardinian biodiversity is important. Three species new to Italy were recognized (*Heterothops minutus*, *Atheta bihamata* and *Aleochara cornuta*), while six other species are new to Sardinia (*Platystethus degener*, *Habrocerus pisidicus*, *Myllaena gracilicornis*, *Cypha punctum*, *Atheta hummieri*, *A. marcida*). A species possibly new to science, closely related to *Quedius aetolicus*, was also found.

From the community point of view, the prevalence of species usually considered as not sylvicolous is worthy of mention (fig. 1). *Ocypus olens*, *O. ophthalmicus*, *Quedius levicollis*, *Q. semiobscurus*, *Q. semiaeneus*, *Tachyporus nitidulus*, *T. hypnorum* and many other are usually found in open, often cultivated areas in continental Italy (Daccordi & Zanetti 1987, 1989; Lupi et al. 2006). Only *Omalium rugatum*, *Quedius humeralis* and *Q. nemoralis nemoralis*, among the dominant species, are regularly sylvicolous (Zanetti 1987; Sabella & Zanetti 1991; Zanetti & Tagliapietra 2005). This fact could be partially explained by the aridity of *Quercus ilex* woods and partially by the geographical isolation of Sardinia and the consequent difficulty of colonisation by scarcely mobile insects, as sylvicolous ones often are. On the other hand, the deep soil fauna is very rich and represented by palaeoendemic taxa fully adapted to life in the ground (Fancello et al. 2009).

Zanetti & Tagliapietra (2005) illustrated the taxocoenoses of Staphylinidae of the subfamily Staphylininae at 70 sites throughout almost all of continental Italy and Sicily, monitored by pitfall trapping, and underlined the lack of data for Sardinia. A preliminary comparison between Staphylininae of

Mediterranean woods in continental Italy and Sicily and in Sardinia is now possible. Records of Staphylininae from Marganai are reported in tab. 2. Species are grouped on the basis of ecological preferences and abundance is represented as a percentage, like in Zanetti & Tagliapietra (2005).

The main difference between Sardinian and Apennine thermophilous woods is the absence of large endemic *Ocypus* Leach, 1819 on the island. In the Apennine Mediterranean woods, *Ocypus italicus* (Aragona, 1830) is absolutely dominant among the Staphylininae, with percentages varying between 94 and 99.5% of sampled specimens. *Quedius latinus* Gridelli, 1938, a large sylvicolous mycetophilous species, is always present too.

The Staphylininae fauna of thermophilous woods of Sicily lacks *Ocypus italicus*, like in Sardinia. *Ocypus olens*, which usually inhabits open areas in continental Italy, is regularly found in woods, as in Sardinia. It is associated, in Mediterranean woods, to several sylvicolous Mediterranean species absent from Sardinia (*Gabrius doderoi* Gridelli, 1920, *Quedius masoni* Zanetti, 1992, *Q. magniceps* Bernhauer, 1914, *Ocypus aethiops luigionii* (J. Müller, 1926)), *Euryporus aeneiventris* being the only shared species.

A biogeographical analysis of the Marganai records based on the chorotypes proposed by Stoch & Vigna Taglianti (2005) is also provided (fig. 2). Knowledge of distributions is often imperfect in the staphylinids, and the attribution to a given chorotype is often tentative. For this reason the chorotype Euro-Mediterranean-(Turanic) used in the analysis means "a species distributed in Europe and in the Mediterranean region for which some records in the Turanic area and/or in central Asia are known" (see Zanetti 2007). Figure 2 points out the prevalence of widely distributed Euro-Mediterranean species, often extended to central Asia (52%). The European species represent 6% of the total and include *Omalium rugatum* and *Quedius nemoralis nemoralis*, typical sylvicolous species. The W-Mediterranean species are numerous (9%) and the abundance of endemic (SARD+SACO) staphylinid species (8%) fits with that of the whole Sardinian fauna (6.5%) (Minelli et al. 2005). These two chorotypes include the primary inhabitants of the island. The presence of Holomediterranean (3%), E-Mediterranean (1%), and S-European (3%) species is scarce. The rest includes Palearctic, Cosmopolitan and doubtful elements. The inclusion in the analysis of the soil species collected outside this research (Fancello et al. 2009) should produce completely different results, with a much higher percentage of endemics of around 15%.

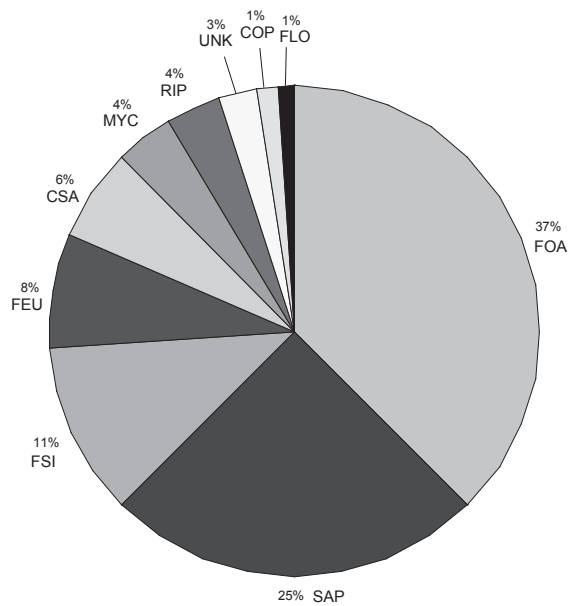


Fig. 1. Pie diagram of the autoecology of Staphylinidae from the Marganai area. For abbreviations, see tab. 1.

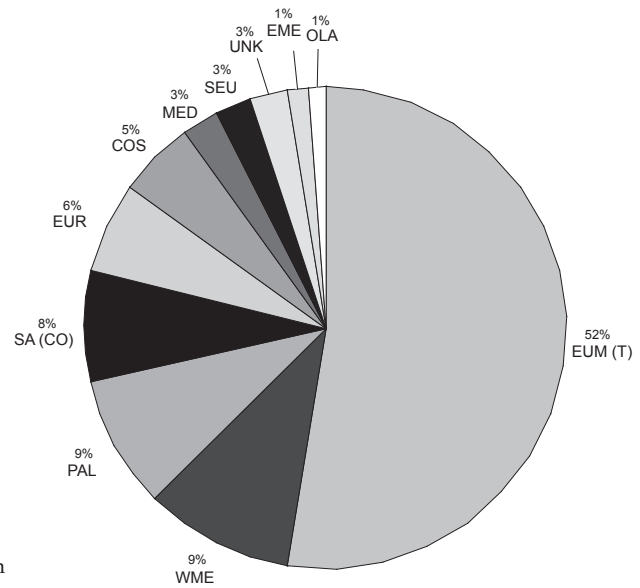


Fig. 2. Pie diagram of the chorotypes of Staphylinidae from the Marganai area. For abbreviations, see tab. 1.

Tab. 1. Epigeic Staphylinidae species (in alphabetic order) from the Marganai area.

Abbreviations. bz = glass trunk trap (beer and sugar); cn = car net; COP = coprophilous; COS = Cosmopolitan; CSA = corticolous/saproxylous; dc = direct collection; EME = E-Mediterranean; EUM(T) = distributed in Europe and in the Mediterranean region with some records in the Turanic area and/or in central Asia; EUR = European; FEU = phytodetriticolous eurytopic; FLO = flower; FOA = phytodetriticolous in open areas; FSI = phytodetriticolous sylvicolous; MED = Mediterranean; mt = Malaise trap; MYC = mycetophilous; OLA = Holarctic; PAL = Palaearctic; pt = pitfall trap; RIP = ripicolous; SA(CO) = Sardinian or Sardo-Corsican endemic; SAP = saprophilous; SEU = S-European; UNK = unknown; vg = sieve; WME = W-Mediterranean; wt = window flight trap.

Species	collecting methods							Chorotype	Ecology	Total
	mt	pt	cn	dc	bz	vg	wt			
<i>Aleochara cornuta</i>	1							WME	SAP	1
<i>Aleochara laticornis</i>	1	2						EUM(T)	SAP	3
<i>Aloconota cyanea</i>	1							SA(CO)	UNK	1
<i>Aloconota gregaria</i>	2							EUM(T)	FOA	2
<i>Amarochara cribripennis</i>	1							SA(CO)	FOA	1
<i>Anotylus inustus</i>	9							PAL	SAP	9
<i>Anotylus sculpturatus</i>	1	2	1					EUM(T)	SAP	4
<i>Astenus lyonessius</i>	1							EUM(T)	FOA	1
<i>Atheta aeneicollis</i>	12	13						EUM(T)	SAP	25
<i>Atheta amicula</i>		1					3	PAL	SAP	4
<i>Atheta bihamata</i>	1	4					1	WME	UNK	6
<i>Atheta crassicornis</i>	2	9			4		1	EUM(T)	SAP	16
<i>Atheta</i> gr. <i>fungi</i>	8	6						UNK	FOA	14

Species	collecting methods							Chorotype	Ecology	Total
	mt	pt	cn	dc	bz	vg	wt			
<i>Atheta hummleri</i>	2	12						SEU	SAP	14
<i>Atheta inquinula</i>		1						EUM(T)	SAP	1
<i>Atheta marcida</i>	3	11						EUM(T)	SAP	14
<i>Atheta oblita</i>		1						EUM(T)	SAP	1
<i>Atheta trinotata</i>	2	29						EUM(T)	SAP	31
<i>Bisnius fimetarius</i>		26	7					PAL	FEU	33
<i>Bolitochara varia</i>			2					MED	MYC	2
<i>Cypha punctum</i>	4		1				1	EUR	FOA	6
<i>Dropephylla brevicornis</i>	6						1	SA(CO)	CSA	7
<i>Eusphalerum tempestivum</i>	1							SA(CO)	FLO	1
<i>Euryalaea occidentalis</i>	2							WME	RIP	2
<i>Euryporus aeneiventris</i>		3						WME	FSI	3
<i>Gabrius nigrutilus</i>				1				COS	FEU	1
<i>Geostiba brigantii</i>						6		SA(CO)	FSI	6
<i>Gyrohypnus fracticornis</i>		3						COS	SAP	3
<i>Habrocerus capillaricornis</i>			6					EUM(T)	FEU	6
<i>Habrocerus pisidicus</i>		4						EME	FEU	4
<i>Heterothops minutus</i>	18	12						EUM(T)	FOA	30
<i>Lesteva longoelytrata maura</i>	1							EUM(T)	RIP	1
<i>Liogluta longiuscula</i>	12	1	1					EUM(T)	FEU	14
<i>Lordithon exoletus</i>	2	6						EUM(T)	MYC	8
<i>Lordithon thoracicus thoracicus</i>	11							PAL	MYC	11
<i>Medon apicalis</i>	1							EUM(T)	FOA	1
<i>Medon sardous</i>						4		SA(CO)	FSI	4
<i>Megalinus glabratus</i>	2	5						EUM(T)	SAP	7
<i>Mycetoporus angularis</i>	1	3						EUM(T)	FOA	4
<i>Mycetoporus baudueri</i>	5	3						EUM(T)	FOA	8
<i>Mycetoporus confinis</i>	1							SEU	FOA	1
<i>Mycetoporus glaber glaber</i>	1							EUM(T)	FOA	1
<i>Mycetoporus rufescens</i>		1						EUR	FSI	1
<i>Ocypus fortunatarum</i>	4						1	WME	FOA	5
<i>Ocypus olens olens</i>	2	15						EUM(T)	FOA	17
<i>Ocypus ophthalmicus</i>	4	9						EUM(T)	FOA	13
<i>Omalius excavatum</i>			1					EUM(T)	FSI	1
<i>Omalius rugatum</i>	2	161	4					EUR	FSI	167
<i>Ontholestes marginalis</i>	1			2				WME	COP	3
<i>Othius laeviusculus</i>	14	2						MED	FOA	16
<i>Othius punctulatus</i>	4	8						EUM(T)	FSI	12
<i>Oxypoda lurida</i>	1	1						EUM(T)	FOA	2
<i>Paraphloeostiba gayndabensis</i>	17	2						COS	SAP	19
<i>Philonthus cognatus</i>	1	8						PAL	FOA	9
<i>Philonthus concinnus</i>	1			2				PAL	SAP	3
<i>Philonthus intermedius</i>	1			1				EUM(T)	SAP	2
<i>Philonthus jurgans</i>		1						EUR	SAP	1
<i>Philonthus nitidicollis</i>	2	1						EUM(T)	FOA	3
<i>Phyllodrepa floralis</i>							1	EUM(T)	FEU	1
<i>Placusa adscita</i>		1					5	EUM(T)	CSA	6
<i>Platystethus degener</i>	1							EUM(T)	RIP	1
<i>Proteinus atomarius</i>		1						EUM(T)	SAP	1
<i>Proteinus brachypterus</i>	3	26						EUM(T)	SAP	29
<i>Quedius pr. aetolicus</i>	1							UNK	CSA	1
<i>Quedius cruentus</i>		1						EUM(T)	CSA	1
<i>Quedius humeralis</i>	61	40					1	EUM(T)	FSI	102
<i>Quedius levicollis</i>	78	78		1	4		20	EUM(T)	FOA	181
<i>Quedius nemoralis nemoralis</i>	33	9						EUR	FSI	42
<i>Quedius scintillans</i>							1	EUM(T)	FOA	1
<i>Quedius semiaeneus</i>	12	5						EUM(T)	FOA	17
<i>Quedius semiobscurus</i>	27	28					5	EUM(T)	FOA	60

Species	collecting methods							Chorotype	Ecology	Total
	mt	pt	cn	dc	bz	vg	wt			
<i>Sepedophilus immaculatus</i>	1	1						EUM(T)	FOA	2
<i>Sepedophilus nigripennis</i>	5							EUM(T)	FOA	5
<i>Sepedophilus testaceus</i>	1							OLA	CSA	1
<i>Stenus aceris</i>	6	2						EUM(T)	FOA	8
<i>Stenus cordatus</i>	2							WME	FOA	2
<i>Stenus elegans</i>	1	1	7					WME	FOA	9
<i>Tachyporus hypnorum</i>	19	12	17	1			3	PAL	FOA	52
<i>Tachyporus nitidulus</i>	60	25	1				5	COS	FOA	91
<i>Tachyporus solutus</i>	1							EUM(T)	FOA	1
Total specimens	481	596	48	8	8	10	49			1200
Total species	60	47	11	6	2	2	14			80

Tab. 2. Staphylinidae Staphylininae collected by pitfall traps in the Marganai area sorted by decreasing percentage of abundance. The column "%" reports the percentage of specimens collected, as in Zanetti & Tagliapietra (2005).

Abbreviations. 1 = species of Mediterranean woods (maquis); 2 = sylvicolous species with a wide ecological range; 3 = saproxylic species living in tree-holes; 4 = phytodetriticolous species with a wide ecological range; 5 = species inhabiting animal and vegetal decaying matter (dung, carrions etc.).

Species	Ecology	%
<i>Quedius levicollis</i>	4	33.9
<i>Quedius humeralis</i>	2	18.5
<i>Quedius semiobscurus</i>	4	10.9
<i>Quedius nemoralis</i>	2	7.6
<i>Bisnius fimetarius</i>	4	6
<i>Heterothops minutus</i>	4	5.4
<i>Ocypus olens</i>	4	3
<i>Quedius semiaeneus</i>	4	3
<i>Othius laeviusculus</i>	4	2.9
<i>Ocypus ophthalmicus</i>	4	2.3
<i>Othius punctulatus</i>	2	2.1
<i>Philonthus cognatus</i>	4	1.6
<i>Megalinus glabratus</i>	5	1.2
<i>Euryporus aeneiventris</i>	1	0.5
<i>Gyrohypnus fracticornis</i>	5	0.5
<i>Philonthus nitidicollis</i>	4	0.5
<i>Quedius cruentus</i>	3	0.1
<i>Philonthus jurgans</i>	5	0.1

CONCLUSIONS

The results of this survey allow some general remarks on Staphylinidae from the Marganai area and from the whole of Sardinia. The presence of three species new to Italy and six new to Sardinia in the examined material suggests that further researches are recommendable. The use of particular techniques (for instance soil washing mostly in wooded areas, car netting mostly in wet places) will surely increase the number of species, mostly among the endemic soil dwellers (Leptotyphlinae, Paederinae, genus *Geostiba* Thomson, 1858) (see Fancello et al. 2009). The ancient materials on which the faunistic knowledge of Sardinia is based should be revised, as 12% of doubtful records is too high.

The staphylinid records from the Marganai area confirm the lower level of biodiversity of Sardinia, mostly for forest species, when compared to Sicily and continental Italy. The scarcity of competition with sylvicolous species allows access to the dry forest ecosystem of eurytopic species normally found in open areas. The richness of the endogean fauna highlighted by Fancello et al. (2009), mostly regarding the Leptotyphlinae, is comparable to that of Corsica and much higher than that of Sicily. This could be partially explained by the intensive ancient anthropic impact on Sicily. The saproxylic environment seems particularly important and needs care; the possibly new species of *Quedius* Stephens, 1829 collected during this study is almost certainly associated to tree holes.

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