

THE GENUS *ONTHOPHAGUS* LATREILLE, 1802 (SENSU LATO) (COLEOPTERA: SCARABAEIDAE) IN PAKISTAN

Hareem Siddiqui and Syed Kamaluddin

Department of Zoology, Federal Urdu University of Arts, Sciences and Technology, Karachi, Pakistan.

Corresponding author: Hareem Siddiqui (pakistan.siddiqui@gmail.com)

ABSTRACT

Eleven species of the genus *Onthophagus* Latreille, 1802 (sensu lato) are listed from Pakistan and a key is provided for their separation. Two new records *Onthophagus paliceps* and *O. quadridentatus* are included with their distributions.

Key words: New records, Distribution, *Onthophagus*, *Digitonthophagus* species.

INTRODUCTION

The composition of the beetle family Scarabaeidae in Pakistan is virtually unknown. Arrow (1917, 1925, 1931) attempted to catalogue and describe the Scarabaeoid beetles of the Indian subcontinent, but this work is now outdated. Since that time, no additional faunistic studies on the genus *Onthophagus* Latreille, 1802 have been undertaken in Pakistan. Sewak (2003) gave systematic data on dung beetles from Arunachal Pradesh, Gujrat and Rajasthan, India. He listed 96 species of *Onthophagus*, of which only seven species, *O. variegatus*, *ramosellus*, *catta* (= *gazella*), *ramosus*, *bonasus*, *falsus* and *semicinctus* are reported in this paper. Kabakov (2008) described seven new species of *Onthophagus* including one new species *O. lahorensis* from Lahore, Pakistan and illustrated the pronotum and male genitalia. The genus *Onthophagus* of the tribe Onthophagini consist of about 2000 species worldwide. The diversity of this genus is high in the Oriental and Afrotropical regions. Even after many years of study, the Oriental *Onthophagus* are still poorly known (Tarasov and Kabakov, 2010). The systematic position of the subgenera of *Onthophagus* is still not completely clear. Various authors have described species under different subgenera of *Onthophagus* (Kabakov & Napolov 1999; Ziani 2003, 2005, 2006; Ziani & Gudenzi 2000, 2001, 2006; Balthasar 1963; Kabakov, 2006; 2008; Rössner *et al*, 2010; Ziani and Gharakhloo 2010; Kabakov, 2008). Balthasar (1959) made a genus *Digitonthophagus* under the type species *Scarabaeus bonasus*, later on he (1963) keyed out the species of *Digitonthophagus* including *D. bonasus* and *D. gazella*. Lole and Smetana (2006) catalogued the Palaearctic Coleoptera including two species of *Digitonthophagus*, *bonasus* and *gazelle* recorded from Pakistan. Hashmi & Tashfeen (1992) carried out only list of nine species of *Onthophagus* from Pakistan, and only two species *O. mopsus* and *O. ramosellus* are in the list.

Present work is the part of Ph.D. research of the first author. Eleven species belonging to the genera *Onthophagus* and *Digitonthophagus* were collected from Pakistan and two new records with their distribution, checklist and key to the species are given.

MATERIALS AND METHODS

The specimens were collected from different areas of Pakistan by hand picking and through light traps. All these specimens are deposited in The Natural History Museum University of Karachi, Karachi, Pakistan (NHMUK).

Specimens were identified or confirmed by the following specialists:

Darren Mann, Hope Entomological Collections, Oxford, United Kingdom.

Adrian Davis, University of Pretoria, Pretoria, South Africa.

Bruce Gill, Canadian Food Inspection Agency, Ottawa, Canada.

Teruo Ochi with reference to Masahiro Kon.

Checklist of *Onthophagus* (s.l.) from Pakistan

Digitonthophagus bonasus (Fabricius 1775), described as *Scarabaeus*.

Digitonthophagus .gazella (Fabricius 1787), described as *Scarabaeus*

Onthophagus falsus Gillet, 1925

Onthophagus hindu Arrow, 1931

Onthophagus mopsus (Fabricius 1792), described as *Scarabaeus*.

Onthophagus paliceps Arrow, 1931 **New record.**

Onthophagus quadridentatus (Fabricius 1798), described as *Copris*. **New record.**

Onthophagus ramosus Arrow, 1931

Onthophagus ramosellus Bates, 1891

Onthophagus semicinctus d'Orbigny, 1897

Onthophagus variegatus (Fabricius 1798), described as *Copris*

Key to the Pakistani species of *Onthophagus sensu lato* recorded in this paper

1. Elytra brown.....2
- Elytra black.....3

2. Head with horn slender, sloped back without tubercle.....*Digitonthophagus gazella*
- Head with horn backwardly directed with a tubercle.....*D. bonasus*

3. Clypeus semicircular.....4
- Clypeus excised in the middle.....8

4. Head with horn not extending beyond the hind margin of pronotum.....5
- Head with horn sometimes extending beyond the hind margin of pronotum.....*Onthophagus mopsus*

5. Head with a teeth.....6
- Head without teeth.....7

6. Horns bears a strong tooth near the middle of the anterior edge; lateral margins of elytra black*O. ramosus*
- Horns bears a small sharp teeth on the outer edge of each; elytra with lateral margins tinge with light brown.....*O. falsus*

7. Pronotum strongly punctured, base rounded.....*O. ramosellus*
- Pronotum finely and not closely punctured, base sinuate.....*O. quadridentatus*

8. Head bears a single horn.....9
- Head bears two horns.....10

9. Vertex with an acute horn, on very small males, horn is replaced by a tubercle; tibiae with spur quadrate.....*O. hindu*
- Vertex with a straight horn, not change in tubercle; tibiae with spur spatulate*O. paliceps*

10. Horns united by a basal lamina; pronotum with front angles acutely produced; intervals slightly convex.....*O. variegatus*
- Horns unconnected; pronotum with front angles little produced and not sharp; intervals flat.....*O. semicinctus*

Species records for Pakistan

Digitonthophagus bonasus (Fabricius) (Fig. 1a)

Material. PAKISTAN: *Sindh Prov.*: 4♂, 1♀ Karachi, Gulzar-e-hijri, 24°57'09" N, 67°07'23" E, 12 VI 2007 (Siddiqui H); 12♂, 3♀, Bhains colony, 24°49'42" N, 67°16'24" E, 26 I 2007 (Siddiqui H); 7♂, 1♀, Malir, 24°55'49" N, 67°11'49" E, 22 VI 2006 (Ahmed Z); 5♂, 4♀, Islam kot, 24°42'02" N, 70°11'06" E, 15 VI 2006 (Ahmed Z); 8♂, 3♀, Mirpur khas, 25°32'11" N, 68°58'49" E, 28 X 2006 (Khatri I); ?♂ ?♀, Chilhar; °° N, °° E, 19 VIII 2007 (Ahmed Z); 6♂, 2♀, Thar desert, 24°55'34" N, 69°42'34" E, 25 VI 2009 (Behan A); 9♂, 2♀, Naukot, 24°51'27" N, 69°21'43" E, 12 VIII 2009 (Ahmed Z); 7♂, 4♀ Mithi, 69°44'18" N, 69°47'43" E, 18 VIII 2007 (Khatri I) (Ahmed Z); 5♂, 2♀ Naushero feroze, 26°50'15" N, 68°07'12" E, 3 V 2007 ; (Akhter MA). *Punjab Prov.*: 1♂, Chakwal,

Kalarkahar, 32°44'50" N, 72°55'14" E, 3 IX 2007 (Behan A); 2♂, Kamalia, 30°43'23" N, 72°38'20" E, 5 V 2008 (Ahmed Z). *Khyber Pakhtoon Khwa Prov.*: 3♂ 1♀, Sawat, Kanju, 34°49'46" N, 72°20'30" E, 15 VIII 2009; 5♂, 1♀ Sawabi, 34°08'15" N, 72°28'15" E, 12 VII 2006 (Akhter MA), 4♂, 2♀, Peshawar, 33°56'48" N, 71°31'44" E, 20 X 2007 (Ahmed Z); 7♂, 3♀, Rangpur, 32°47'11" N, 74°11'25" E, 18 V 2009 (Ahmed Z). *Azad Kashmir*: 5♂, 1♀, Muzaffarabad, Pir Chanasi, 34°23'32" N, 73°32'38" E, 5 IX 2007; 2♂, Pulandari, 20 VI 2009; 4♂, 1♀, Chikar, 5 III 2007.

Distribution. Indian subcontinent and South East Asia.

Onthophagus (incertae sedis) falsus Gillet

Material. PAKISTAN: *Sindh Prov.*: 12♂, 4♀, Karachi, Gulzar-e-Hijri, 24°57'18" N, 67°06'57" E, 22 VI 2006 (Siddiqui H); 9♂, 2♀, Malir field, 24°53'47" N, 67°13'01" E, 22 VI 2006 (Ahmed Z); 5♂, 1♀, Thar Desert, 24°43'48" N, 70°05'07" E, 29 VIII 2007 (Ahmed Z).

Distribution. Bengal and Pakistan.

Digitonthophagus gazella (Fabricius) (Fig. 1b) New record

Material. PAKISTAN: *Sindh Prov.*: 4♂, 1♀, Karachi, Gulzar-e-hijri, 24°58'21" N, 67°06'13" E, 5 VI 2007 (Akhter MA); 6♂, 2♀, Bhains colony, 24°50'21" N, 67°16'25" E, 26 I 2007 (Siddiqui H); 3♂, 3♀, Malir, 24°55'53" N, 67°13'25" E, 22.vi.2006 (Ahmed Z); 8♂, 2♀, Islam kot, 24°41'58" N, 70°10'43" E, 15 VI 2006 (Ahmed Z); 9♂, 4♀, Mirpur khas, 25°30'51" N, 69°01'12" E, 28 X 2006 (Khatri I); 2♂ 1♀, Chilhar, 19 VIII 2007 (Ahmed Z); 6♂, 2♀, Thar desert, 24°54'32" N, 69°30'50" E, 25 VI 2009 (Behan A); 7♂, 1♀, Naukot, 24°51'26" N, 69°23'59" E, 12 VIII 2009 (Behan A); 8♂, 3♀, Mithi, 24°44'30" N, 69°47'54" E, 18 VIII 2007 (Khatri I); 11♂, 2♀, Nausheroferoz, 26°50'29" N, 68°06'43" E, 3 V 2007 (Ahmed Z). *Punjab Prov.*: 3♂ 1♀, Chakwal, Kalarkahar, 32°43'39" N, 72°53'50" E, 3 IX 2007 (Ahmed Z); 3♂, 1♀, Kamalia, 30°43'42" N, 72°39'29" E, 5 V 2008 (Ahmed Z). *Khyber Pakhtoon Khwa Prov.*: 4♂, 2♀, Sawat, Kanju; 34°49'36" N, 72°20'44" E, 15VIII 2009 (Ahmed Z); 5♂, 2♀, Sawabi, 34°08'07" N, 72°28'20" E, 12 VII 2006 (Ahmed Z); 6♂, 1♀, Peshawar, 33°59'49" N, 71°32'28" E, 20 X 2007 (Ahmed Z); 7♂, 3♀, Rangpur, 32°46'53" N, 74°11'05" E, 18 V 2009 (Ahmed Z). *Azad Kashmir*: 4♂, 1♀ Muzaffarabad, Pirchanasi, 34°23'09" N, 73°33'16" E, 5 IX 2007 (Ahmed Z); 5♂ 1♀, Pulandari, 20 VI 2009 (Siddiqui H & Akhter MA); 3♂, 1♀, Chikar, 5 III 2007 (Ahmed Z);

Distribution. Indian subcontinent, Ceylon, Arabia, tropical Africa and Madagascar.

Onthophagus (Colobonthophagus) hindu Arrow (Fig. 1c)

Material. Males 12: PAKISTAN: 2♂, 1♀, Islamabad, 33°43'37" N, 73°00'28" E, 11 V 2008 (Ahmed Z); 1♂, 1♀, *Azad Kashmir*: Muzaffarabad, 34°21'44" N, 73°28'22" E, 23 VI 2008 (Akhter, A).

Distribution. Indian subcontinent and South Afghanistan.

Onthophagus (incertae sedis) mopsus (Fabricius) (Fig. 1d)

Material. PAKISTAN: *Sindh Prov.*: 11♂ 2♀, Thar Desert, 25°01'43" N, 69°36'14" E, 5 V 2009 (Khatri I). *Punjab Prov.*: 15♂ 4♀, Kalar kahar, 32°43'39" N, 72°54'33" E, 3 IX 2007 (Siddiqui H). *Khyber Pakhtoon Khwa Prov.*: 3♂, 6♀, Koray, 34°56'55" N, 72°22'26" E, 18 VIII 2008 (Siddiqui H).

Distribution. Bengal, Bihar and Pakistan.

Onthophagus (Colobonthophagus) paliceps Arrow (Fig. 1e) New record

Material. Male 1: PAKISTAN: *Punjab Prov.*: 16♂ 3♀, Kalar kahar, 32°43'38" N, 72°53'32" E, 3 IX 2007 (Akhter MA).

Distribution. India and Pakistan.

Onthophagus (incertae sedis) quadridentatus (Fabricius) (Fig. 1f) New record

Material. PAKISTAN: Sindh Prov.: 3♂, Tharparkar, 24°41'02" N, 69°46'59" E, 4 VII 2008 (Ahmed Z).

Distribution. India, Bengal and Pakistan.

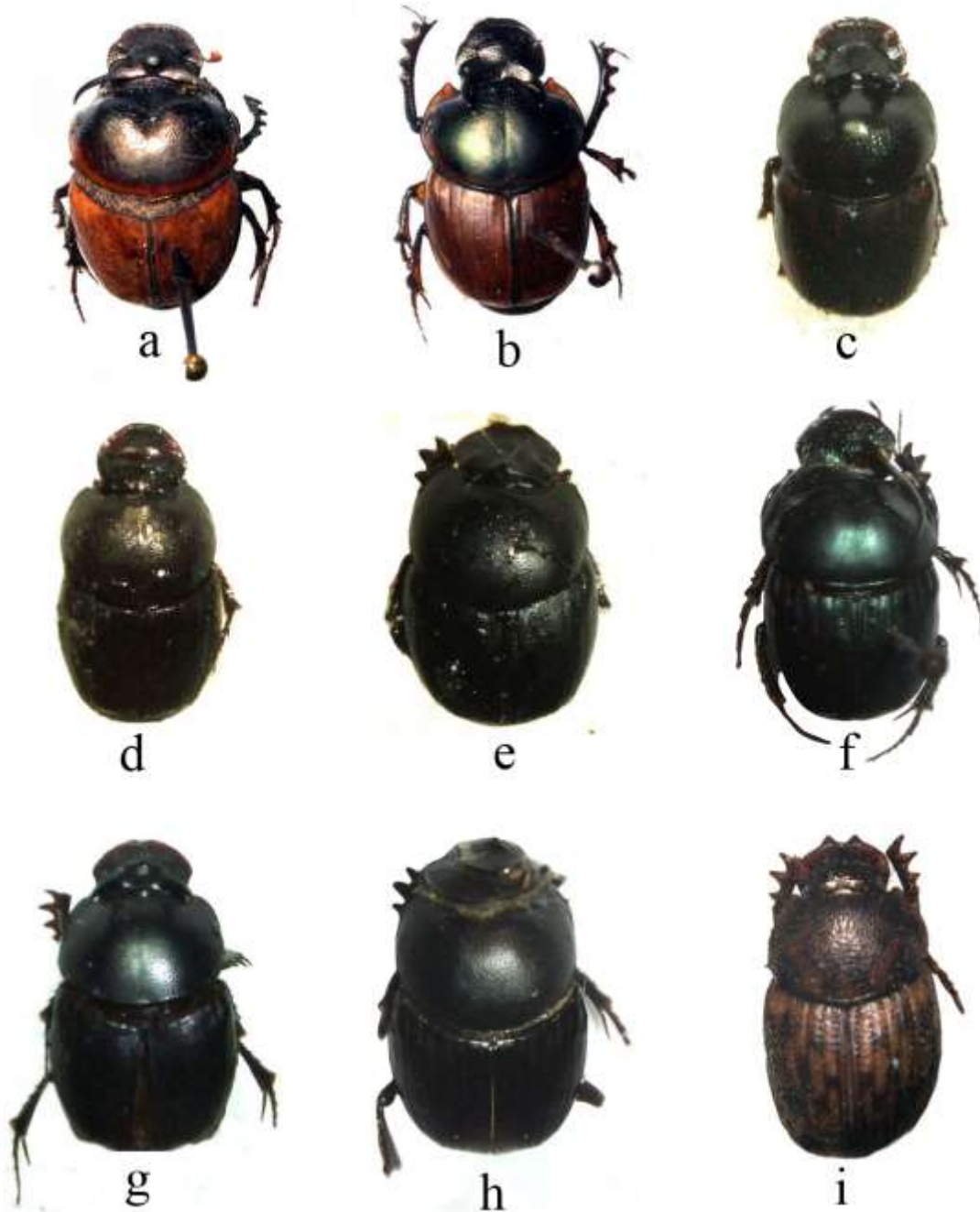


Fig.1. **a**, *Digitonthophagus bonasus* (Fabricius); **b**, *D. gazella* (Fabricius); **c**, *Onthophagus (Colobonthophagus) hindu* Arrow; **d**, *Onthophagus mopsus* (Fabricius); **e**, *Onthophagus (Colobonthophagus) paliceps* Arrow; **f**, *Onthophagus quadridentatus* Fabricius); **g**, *Onthophagus ramosellus* Bates; **h**, *Onthophagus (Colobonthophagus) ramosus* (Wiedemann); **i**, *Onthophagus (Furconthophagus) variegatus* (Fabricius).

***Onthophagus (Colobonthophagus) ramosellus* Bates (Fig. 1g)**

Material. PAKISTAN: *Punjab Prov.*: 7♂, 1♀, Mianwali, 32°31'35" N, 71°33'27" E, 15 V 2008 (Siddiqui H); 5♂, 2♀, Kalar Kahar, 32°43'40" N, 72°52'21" E, 14 IX 2007 (Ahmed Z); 2♂, 1♀, Chakwal, 32°56'06" N, 72°50'45" E, 3 IX 2007 (Ahmed Z). *Balochistan Prov.*: 4♂, 1♀, Dera Ismail Khan, 31°49'32" N, 70°53'57" E, 19 V 2009 (Siddiqui H). *Azad Kashmir*: 6♂, 3♀, Pir Chanasi, 34°23'06" N, 73°33'27" E, 5 IX 2007 (Ahmed Z).

Distribution. Indian subcontinent.

***Onthophagus (Colobonthophagus) ramosus* (Wiedemann) (Fig. 1h) New record**

Material. PAKISTAN: *Khyber Pakhtoon Khwa*: 3♂, 1♀, Sawat, 34°47'27" N, 72°20'49" E, 22 VI 2008. *Azad Kashmir*: 2♂, Bagh, 33°59'37" N, 73°46'39" E, 24 VI 2008 (Siddiqui H), 5♂, Kanju, 34°49'22" N, 72°21'01" E, 23 IX 2009 (Akhter MA); 4♂, 2♀, Punjkot, 2 IX 2008 (Ahmed Z).

Distribution. Indian subcontinent.

***Onthophagus (Eremonthophagus) semicinctus* d'Orbigny**

Distribution. Pakistan., Afghanistan and India.

***Onthophagus (Furconthophagus) variegatus* (Fabricius) (Fig. 1i)**

Material. Males 2: PAKISTAN: *Azad Kashmir*: 3♂, 1♀, Muzaffarabad, 34°21'47" N, 73°27'45" E, 20 VII 2007 (Akhter MA).

Distribution. Africa and South Palaearctic and Pakistan.

REFERENCES

- Arrow, G.J. (1917). *The Fauna of British India, Including Ceylon and Burma: Coleoptera Lamellicornia part II (Rutelinae, Desmonycinae, and Euchirinae)*. Taylor & Francis. London 1-387
- Arrow, G.J. (1925). *The Fauna of British India (Including Ceylon and Burma) Lamellicornia I*. Taylor & Francis. London 1-322
- Arrow, G.J. (1931). *The Fauna of British India III, Coprinae*. Taylor & Francis. London 1-428
- Balthasar, V. (1959) Beitrag zur Kenntnis der Gattung *Onthophagus* Latr. Acta Entomologica Musei Nationalis Pragae. 33: 461-471.
- Balthasar, V. (1963). *Monographie der Scarabaeidae und Aphodidae der palaearktischen und Orientalischen Region Coprinae Onitini Oniticellini Onthophagini*. Tschechoslowakische Akademie der Wissenschaften Prag 2: 1-627
- Hashim, A.A. and A. Tashfeen (1992). Coleopter of Pakistan. *Proceedings Pakistan Congress of zoology*, 12: 133-170.
- Kabakov, O.N. (2006) *Plastincatousye zuki podsemejstva Scarabaeinae* (Insecta: Coleoptera: Scarabaeidae). Fauny Rossii I sopedelnych strain. Tovariscestvo nauchnyh izdaniji KMK, Moscow, 374 pp.
- Kabakov, O.N. (2008). New and little known species of the Scarab genus *Onthophagus* Latr (Coleoptera, Scarabaeidae) from China, Vietnam, Laos, and Pakistan. *Entomological Review*, 88(3): 350-358.
- Kabakov, O.N. and A. Napolov (1999). Fauna and ecology of Lamellicornia of subfamily Scarabaeinae (Scarabaeidae, Coleoptera) of Vietnam and some parts of adjacent countries, South China, Laos and Thailand. *Latvijas Entomologs*, 37: 58-96.
- Löbl, I., Krell, F. T., Ziani, S. & Král, D. (2006) Onthophagini. In: Löbl, I. & Smetana, A. (eds.), Catalogue of Palaearctic Coleoptera, Vol.3. Apollo Books, Stenstrup, pp. 159-176.
- Rössner, E., J. Schönfeld and D. Ahrens (2010). *Onthophagus (Palaeonthophagus) medius* (Kugelann, 1792) a good western palaearctic species in the *Onthophagus vacca* complex (Coleoptera: Scarabaeidae: Scarabaeinae: Onthophagini). *Zootaxa*, 2629: 1-28.
- Sewak, R. (2003). Dung Beetles (Coleoptera:Scarabaeidae:Coprinae) of India with special refrence to Arunachal Pradesh, Uttar Pradesh, Gujarat and Rajasthan. *Advancements in Insect Biodiversity*. Pp.249-287.

- Tarasov, S. and O. Kabakov (2010). Two new species of *Onthophagus* (Coleoptera: Scarabaeidae) from Indochina, with a discussion of some problems with the classification of *Serrophorus* and similar subgenera. *Zootaxa*, 2344: 17-28.
- Ziani, S. (2003). *Onthophagus* (*Palaeonthophagus*) *semicornis* (Panzer,1798) in Romagna e considerazioni sugli Scarabaeoidea italiani che vivono associati alle tane di piccolo Mammiferi (Insecta Coleoptera Scarabaeoidea). *Quaderno di Studi e Notizie di Storia Naturale della Romagna Cesena*, 18: 67-82.
- Ziani, S. (2005) *Stereopyge*, Nome da conservare per *Stereopuge*. A Costa, 1847 (Insecta Coleoptera Geotrupidae). *Quaderno di Studi e Notizie di Storia Naturale della Romagna Cesena*, 20: 109-113.
- Ziani, S. (2006) Remarks on some near eastern *Euonthophagus* species with the description of two new species from Iran (Insecta Coleoptera Scarabaeidae:Onthophagini). *Quaderno di Studi e Notizie di Storia Naturale della Romagna Cesena*, 23: 95-130.
- Ziani, S. and M.M. Gharakhloo (2010). Studies on palaeartic *Onthophagus* associated with burrows of small mammals.IV. A new Iranian species belonging to the *furciceps* group (Coleoptera, Scarabaeidae, Onthophagini). *ZooKeys*, 34: 33-40.
- Ziani, S. and I. Gudenzi (2000). About some *Onthophagus* Latreille, 1802 (sensu lato) collected during a trip to Iran (Insecta, Coleoptera, Scarabaeidae). *Quaderno di Studi e Notizie di Storia Naturale della Romagna Cesena*, 13 (suppl.): 17-26.
- Ziani, S. and I. Gudenzi (2001). A survey of the *Onthophagus* (s.l) species occurring in Syria (Coleoptera Scarabaeidae Scarabaeinae). *Memorie della Società Entomologica Italiana Genova*, 80: 87-105.
- Ziani, S. and I. Gudenzi (2006) Studies on palearctic *Onthophagus* associated with burrows of small mammals. I. *O. furciceps*, *O. kindermanni*, *O. vitalus* and closely related species. (Coleoptera Scarabaeidae). *Bollettino della Società entomologica italiana Genova*, 138(3): 207-248.

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