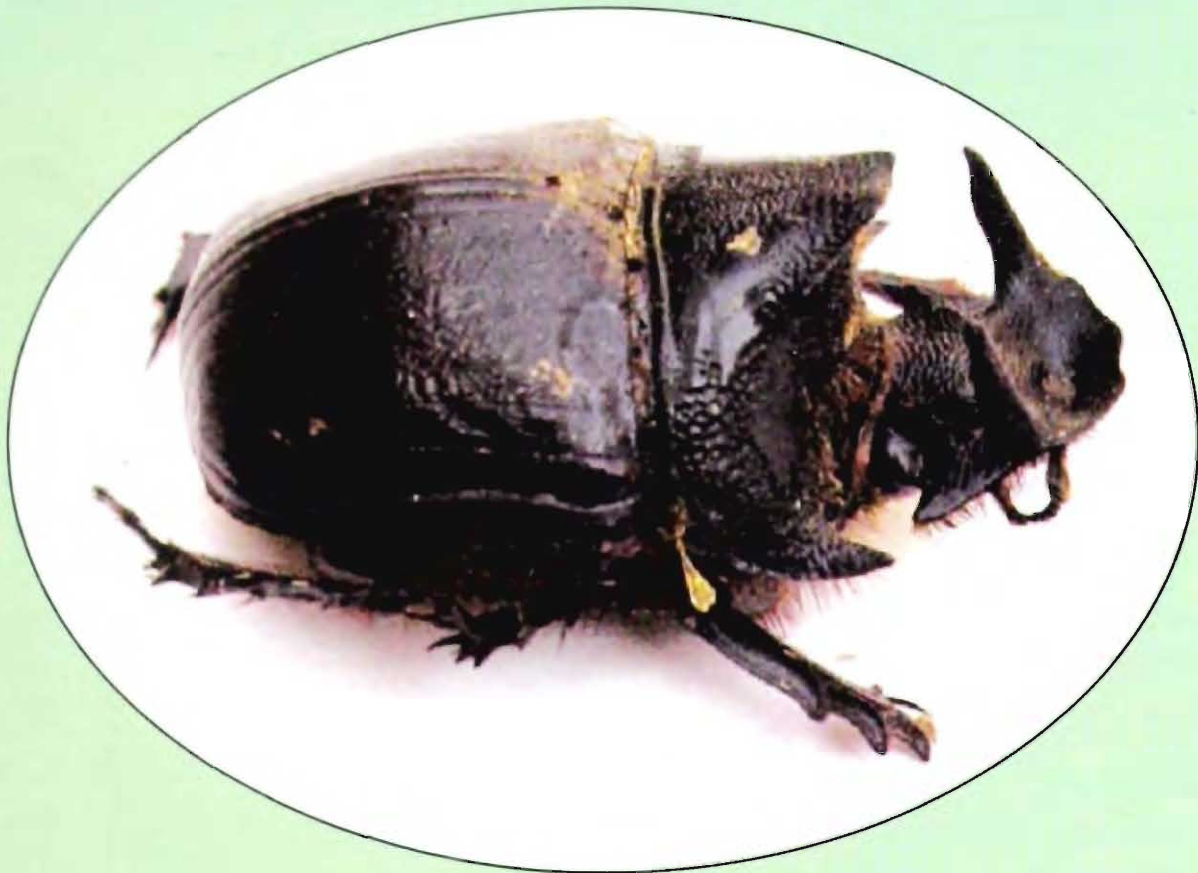


Occasional Paper No. 296

Dung Beetles
Coleoptera : Scarabaeidae : Coperinae)
of Rajasthan

Ram Sewak



ZOOLOGICAL SURVEY OF INDIA

OCCASIONAL PAPER NO. 296

**RECORDS OF THE
ZOOLOGICAL SURVEY OF INDIA**

**Dung Beetles (Coleoptera : Scarabaeidae : Coprinae)
of Rajasthan**

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**Zoological Survey of India
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INTRODUCTION

Rajasthan is the largest state of India, covering 3, 42, 239 sq. Km area and situated in 23°30" and 30° 11"N latitude and 69° 29"and 78° 17"E longitude of north western India. The western part of the state is surrounded by Pakistan, northern part by India state Punjab & Haryana, eastern part by Uttar Pradesh, south-east by Madhya Pradesh and south-west by Gujarat. Rajasthan consists of 32 districts and geographically is divided into four region : 1. The Western Desert (Thar); 2. Aravali Hills; 3. The Eastern Plane and 4. The South Western Plateau region. The Aravali Hills spreads from north-east to south-west of Rajasthan, divided the state into western arid and eastern semi arid region.

Coleoptera is the largest order of the class Insecta, which includes "Beetles and Weevils" They show exceptionally diverse adaptation to wide range of environmental conditions and habitats and are economically important both destructive as well as beneficiary point of view. The members of the subfamily Coprinae (Scarabaeidae) are commonly known as "Dung Beetles or Dung Rollers" and found in every part of the world. They are scavenger in nature and feed upon the dung of herbivorous mammals, human fecal matter and some of them are also feed upon carrion, decaying fungi and vegetable substances. Dung beetles are very economically important because they play very important role in pasture ecosystem, where they annually breakdown tones of animal dung and remove it from the soil surface to clean the environment and also incorporate much of it into the soil to increase the soil fertility, at the same time they destroy the habitats of parasites of many pest flies (Horn Flies), which they lay eggs in the dung, causes disease in domestic as well as wild animals. Some species of them are also serving as intermediate host for parasites of domestic animals.

Arrow (1931) published a fauna volume on India Coprinae in the series "Fauna of British India" Unfortunately, not a single species have been reported from Rajasthan. Balthasar (1963) also published the monographs on Scarabaeidae of Palaearctic and Oriental Region. Biswas (1978a & b), Biswas and Chatterjee (1985), Biswas *et al.* (1997), Chatterjee and Biswas (1995, 2000, 2003, 2004) studied the Scarabaeidae fauna of Arunachal Pradesh, West Bengal, Delhi, Meghalaya, Tripura, Sikkim, Manipur North-East India. Sewak (1985 & 1986, 1991, 2004 a & b, 2005, 2006) worked out the Coprinae fauna of Gujarat, Uttar Pradesh, Arunachal Pradesh and Rajasthan.

The present study is based on the collection of the dung beetles collected from the thirty-two districts of Rajasthan by the different parties of Desert Regional Station, Zoological Survey of India, Jodhpur from 1963 to 2005. The author also carried out the extensive and intensive survey of Rajasthan from 1999 to 2003, collected large number of specimens from dung pad, dung heap, digging of dung burrows and also

by utilizing the light trap method to collect them from urban and rural localities. So far one hundred two species belonging to fourteen genera of sub family Coprinae under family Scarabaeidae have been identified. Of these, sixty-six species have been recorded for the first time from Rajasthan. The classified list of these dung beetles provided according to their systematic position under tribe Scarabaeini and Coprini. The surveyed localities and *Distribution* tables have also been provided.

SYSTEMATIC LIST

Class INSECTA

Order COLEOPTERA

Suborder POLYPHAGA

Superfamily SCARABAEOIDEA

Family SCARABAEIDAE

Subfamily COPRINAE

Tribe I. **Scarabaeini**

1. Genus *Scarabaeus* Linnaeus

1. *Scarabaeus sacer* Linnaeus*
2. *Scarabaeus gangaticus* (Castelnau)
3. *Scarabaeus brahminus* (Castelnau)
4. *Scarabaeus cristatus* Fabricius
5. *Scarabaeus andrewesi* (Felsche)
6. *Scarabaeus devotus* (Redtenbacher)*
7. *Scarabaeus erichsoni* (Harold)

2. Genus *Gymnopleurus* Illiger

8. *Gymnopleurus cyaneus* (Fabricius)
9. *Gymnopleurus miliaris* (Fabricius)*
10. *Gymnopleurus koenigi* (Fabricius)
11. *Gymnopleurus bicallosus* Felsche**
12. *Gymnopleurus dejeani* Castelnau*

Tribe II. **Coprini**

3. Genus *Heliocopriss* Hope

13. *Heliocopriss gigas* (Linnaeus)

14. *Heliocopris tyrannus* (Thomson)
15. *Heliocopris bucephalus* Fabricius*
16. *Heliocopris dominus* Bates

4. Genus *Catharsius* Hope

17. *Catharsius platypus* Sharp
18. *Catharsius molossus* (Linnaeus)*
19. *Catharsius sagax* (Quenstedt)
20. *Catharsius birmanensis* Lansberge*
21. *Catharsius pithecius* (Fabricius)
22. *Catharsius inermis* (Castelnau)**

5. Genus *Copris* Geoffroy

23. *Copris indicus* Gillet*
24. *Copris iris* Sharp**
25. *Copris repertus* Walker
26. *Copris delicatus* Arrow
27. *Copris corpulentus* Gillet
28. *Copris numa* Lansberge
29. *Copris imitans* Felsche*
30. *Copris punctulatus* Wiedemann*
31. *Copris andrewesi* Watson*
32. *Copris cribratus* Gillet
33. *Copris furciceps* Felsche
34. *Copris signatus* Walker*

6. Genus *Phalops* Erichson

35. *Phalops cyanescens* (D'Orbigny)*
36. *Phalops divisus* (Wiedmann)
37. *Phalops olivaceus* Lansberge

7. Genus *Disphysema* Harold

38. *Disphysema candezei* Harold*

8. Genus *Caccobius* Thomson

39. *Caccobius torticornis* Arrow*
40. *Caccobius unicornis* (Fabricius)*
41. *Caccobius meridionalis* Boucomont
42. *Caccobius ultor* Sharp*
43. *Caccobius vulcanus* (Fabricius)*
44. *Caccobius indicus* Harold
45. *Caccobius himalayanus* (Jekel)*
46. *Caccobius pantherinus* Arrow*
47. *Caccobius denticollis* Harold

9. Genus *Onthophagus* Latreille

48. *Onthophagus gulo* Arrow*
49. *Onthophagus vigilans* Boucomont*
50. *Onthophagus oculatus* Arrow*
51. *Onthophagus crassicollis* Boucomont*
52. *Onthophagus imperator* Castelnau*
53. *Onthophagus gladiator* Arrow*
54. *Onthophagus digitatus* Arrow*
55. *Onthophagus tarandus* Fabricius*
56. *Onthophagus dynastoides* Arrow*
57. *Onthophagus variegatus* (Fabricius)*
58. *Onthophagus fuscopunctatus* (Fabricius)*
59. *Onthophagus troglodyta* (Wiedemann)*
60. *Onthophagus orientalis* Harold*
61. *Onthophagus catta* (Fabricius)
62. *Onthophagus bonasus* (Fabricius)
63. *Onthophagus seniculus* (Fabricius)
64. *Onthophagus ramosus* (Wiedemann)*
65. *Onthophagus atropolitus* D'Orbigny*
66. *Onthophagus occipitalis* Lansberge*

67. *Onthophagus furcicollis* Arrow*
68. *Onthophagus concolar* Sharp*
69. *Onthophagus bengalensis* Harold*
70. *Onthophagus nasalis* Arrow*
71. *Onthophagus ephippioderus* Arrow*
72. *Onthophagus mirandus* Arrow*
73. *Onthophagus kuluensis* Bates
74. *Onthophagus armatus* Blanchard*
75. *Onthophagus semicinctus* D'Orbigny*
76. *Onthophagus angus* Gillet*
77. *Onthophagus tragus* (Fabricius)
78. *Onthophagus sagittarius* (Fabricius)*
79. *Onthophagus difficilis* Walker*
80. *Onthophagus hamaticeps* Arrow*
81. *Onthophagus politus* (Fabricius)*
82. *Onthophagus ensifer* Boucomont
83. *Onthophagus frugivorus* Arrow*
84. *Onthophagus carinensis* Boucomont**
85. *Onthophagus centricornis* (Fabricius)*
86. *Onthophagus cervus* (Fabricius)*
87. *Onthophagus falsus* Gillet*

10. Genus *Liatongus* Reitter

88. *Liatongus martialis* (Harold)*

11. Genus *Oniticellus* Serville

89. *Oniticellus pallipes* (Fabricius)*
90. *Oniticellus spinipes* Roth*
91. *Oniticellus cinctus* (Fabricius)*

12. Genus *Drepanocerus* Kirby

92. *Drepanocerus exsul* (Sharp)*

13. Genus *Onitis* Fabricius

93. *Onitis siva* Gillet
 94. *Onitis lama* Lansberge*
 95. *Onitis falcatus* (Wulfen)
 96. *Onitis philemon* Fabricius
 97. *Onitis singhalensis* Lansberge*
 98. *Onitis subopacus* (Arrow)*
 99. *Onitis virens* Lansberge*
 100. *Onitis castaneus* Redtenbacher
 101. *Onitis brahma* Lansberge

14. Genus *Chironitis* Lansberge

102. *Chironitis indicus* Lansberge

*Reported for the first time from Rajasthan, India.

**Reported for the first time from India.

SYSTEMATIC ACCOUNT

Key to the tribes of Subfamily COPRINAE

1. Middle coxae not widely separated; middle tibia with one terminal spur **Scarabaeini**
 2
- Middle coxae widely separated, middle tibia with two terminal spurs 2
2. Posterior legs extremely long, the tarsi filiform **Sisyphini**
 – Basal joint of the hind tarsus much longer than the second 3
3. Posterior legs not extremely long, tarsi more or less flat and tapering... **Coprini**
 – Basal joint of the hind tarsus not much longer than the second **Panelini**

Tribe 1. **Scarabaeini**

The body rather depressed and legs very slender, middle and hind tibiae narrow and dilated at the each end, bearing a single terminal spur and tarsi filiform. The clypeus produced into two or more lobes at front margin and ocular lobes prominent. The male and female generally alike.

The tribe consisting of two genera *Scarabaeus* and *Gymnopleurus* have been recorded from Rajasthan.

Key to Genera of Tribe Scarabaeini

1. Front tarsi absent, elytra not excised behind the shoulder ..*Scarabaeus* Linnaeus
- Front tarsi present, elytra excised behind the shoulder*Gymnopleurus* Illiger

Genus 1 : *Scarabaeus* Linnaeus, 1758

The seven species of the genus *Scarabaeus* have been recorded from Rajasthan.

Key to species of genus *Scarabaeus*

1. Scutellum absent, upper surface opaque, head with a pair of tubercles, and prothorax unevenly punctured*sacer* Linnaeus*
- Head without tubercles and prothorax not punctured 2
2. Prothorax irregularly granular and upper surface opaque*gangeticus* (Castelnau)
- Prothorax not granular 3
3. Upper surface shining, prothorax sparingly punctured and head with a feeble median tooth.....*brahminus* (Castelnau)
- Fore head with a sharp median tooth 4
4. Prothorax closely punctured and with smooth area at Basal part, front tibia without teeth at inner edge*cristatus* Fabricius
- Prothorax not closely punctured and without smooth area..... 5
5. Prothorax moderately and uniformly punctured, front tibia toothed along its anterior edge*andrewesi* (Felsche)
- Scutellum present, front tibia with very uppermost small external teeth 6
6. Upper surface entirely dull, prothorax evenly granular and head densely and confluent pitted*devotus* (Redtenbacher)*
- Prothorax flatter, broader and without smooth basal area*erichsoni* (Harold)

1. *Scarabaeus sacer* Linnaeus*

1758. *Scarabaeus sacer* Linnaeus, *Syst. Nat.*, **10** : 347.

1931. *Scarabaeus sacer*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), **3** : 40-41, pl. II, Fig. 7.

1963. *Scarabaeus sacer*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 145-160.

Diagnostic characters : Broadly oval and slightly convex. Head densely rugosely punctured in front and tuberculated behind, frons with a pair of tubercles, arise between eyes. Clypeus having four strong external teeth at front margin, separated by rounded notches. Prothorax unevenly punctured, lateral margin strongly rounded and closely denticulate. Front angles sharply toothed and hind angles entirely rounded, basal margin obtusely angulate in middle. Elytra very finely striate, sparsely punctured. Pro and metasternum clothed with hairs and abdomen smooth. Front tibiae bearing four external teeth and denticulated between them. Male and female differentiated by presence of closely fringed basal outer part of front tibiae in male.

Distribution : India : Himachal Pradesh, Jammu & Kashmir and Rajasthan.

Elsewhere : Arabia, Cyprus, Egypt, France, Hungary, Persia, Romania, Russia, Spain, Tunis and Turkestan.

2. *Scarabaeus gangeticus* (Castelnau)

1840. *Ateuchus gangeticus* Castelnau, *Hist. Nat. Insect. Col.*, 2 : 64.

1931. *Scarabaeus gangeticus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera: Lamellicornia : Coprinae), 3 : 41-42, pl. II, Fig. 4.

1963. *Scarabaeus gangeticus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia) 1 : 71-72.

Diagnostic characters : Broadly oval, slightly convex. Head densely, rugosely punctured in front and tuberculate behind, frons with two tubercles, arise between eyes. Clypeus with four frontal teeth, separated by rounded notches. Prothorax unevenly punctured, lateral sides strongly rounded, closely denticulate. Front angles sharply toothed and hind angles entirely rounded, base obtusely angulate in middle. Scutellum absent. Elytra very finely striated, externally sharply punctured. Pygidium opaque at base and shining at apex, very sparsely finely tuberculate. Pro and mesosternum clothed with hairs, abdomen very smooth except sides. Middle tibiae of male with short internal fringe and hind tibiae very short internal fringe near middle of its inner edge, middle tibiae of female with long internal fringe and hind tibiae with long loose internal fringe.

Distribution : India : Karnataka, Himachal Pradesh and Rajasthan.

Elsewhere : Arabia, Abyssinia, East and West Africa, Rhodesia, Somalia, Transvaal and Uganda.

3. *Scarabaeus brahminus* (Castelnau)

1840. *Ateuchus brahminus* Castelnau, *Hist. Nat. Ins. Col.*, 2 : 64.

1931. *Scarabaeus brahminus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera: Lamellicornia : Coprinae), 3 : 42-43, Pl. II, Fig. 3.

1963. *Scarabaeus brahminus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 168, Pl. IV, Fig. 2.

Diagnostic characters : Broadly oval, scarcely convex. Head coarsely rugose, granulated behind, has a very feeble median tubercle. Clypeus having four frontal teeth, separated by rounded notches. Prothorax sparingly punctured in front, with slightly opaque sides. Lateral margins evenly rounded, serrate in front, base margined with a close series of setigerous pits. Elytra are distinctly serrate with sparsely and regularly punctured intervals. Pygidium semi opaque, sparsely punctured. Sides of metasternum clothed with long hair. Front tibia having four long external teeth, minutely serrate between and above. Middle tibia short and hind tibia long, bisinuate.

Distribution : India : Bihar, Rajasthan, Kerala and Tamil Nadu.

Elsewhere : Bhutan and Pakistan.

4. *Scarabaeus cristatus* Fabricius

1775. *Scarabaeus cristatus* Fabricius, *Syst. Nat.*, p. 27.

1931. *Scarabaeus cristatus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera: Lamellicornia : Coprinae), 3 : 42-43, Pl. II, Fig. 5.

1963. *Scarabaeus cristatus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 169.

Diagnostic characters : Flat, parallel sided, not very broad. Head densely rugose in front, with an acute laterally compressed median cephalic horn, minute tubercle on each side of it. Prothorax closely punctured, basal part smooth, with large pit close to outer margin. Outer margin strongly rounded, slightly flattened in middle part, finely dentate. Front angles minutely dented and hind angles rounded. Scutellum absent. Elytra slightly striate, intervals very minutely, closely punctured. Meso and meta sternum closely clothed with reddish hairs except in middle, with two longitudinal excavations. Front femur has a sharp tooth, directed upward near extremity, front tibia armed with four strong external teeth, serrate between them and above. Middle, hind tibiae, tarsus having very long fringe of hairs. Male and females differentiate by presence of flat, vertical pygidium in male and convex, protuberant in female.

Distribution : India : Rajasthan.

Elsewhere : Afghanistan, Arabia, Egypt and Pakistan.

5. *Scarabaeus andrewesi* (Felsche)

1907. *Sebasteos andrewesi* Felsche, *Deut. Ent. Zeits*, p. 275.
1931. *Scarabaeus andrewesi*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera: Lamellicornia: Coprinae), 3 : 43-44, Pl. II, Fig. 1.
1963. *Scarabaeus andrewesi*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 170-171. Pl.V, Fig. 1.

Diagnostic characters : Elongate, little convex, parallel sided. Head densely rugose in front, with sharp laterally compressed median tubercle along with minute tubercle on each side, placed between eyes. Prothorax moderately, uniformly punctured, without smooth area. Lateral margins strongly rounded, denticulate. Front angles toothed and hind angles rounded, base tuberculated, obtusely angulated in middle. Scutellum absent. Elytra very lightly striate, intervals extremely minutely sparingly punctured. Pygidium opaque, punctured. Meta sternum has a deep longitudinal pit between middle coxae, shallower behind it, sides punctured, hairy. Front femur has a upwardly directed toothed near extremity on inner edge. Front tibia with four strong external teeth, numerous irregular tubercles on its inner edge, hind tibia, tarsus with long fringe of hairs.

Distribution : India : Rajasthan.

Elsewhere : Afghanistan and Pakistan.

6. *Scarabaeus devotus* (Redtenbacher)*

1848. *Ateuchus devotus* Redtenbacher, *Hugel's Kachmir*, 2(4) : 515.
1931. *Scarabaeus devotus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 44-45.
1963. *Scarabaeus devotus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera: Lamellicornia), 1 : 174.

Diagnostic characters : Flat, very broad, parallel sided. Head densely, confluent pitted, cypeal margin with four strong teeth. Prothorax very strongly transversely closely but unevenly granular with irregular smooth patch on each side of median line. Front angles obtuse and hind angles entirely obsolete. Sides very strongly rounded crenulate in front. Elytra lightly striate, intervals feebly sparsely punctured. Pygidium opaque, punctured. Metasternal sides very lightly punctured, hairy. Front femur has a feeble tooth beyond middle of its anterior edge. Hind tibia of male has a dense fringe in its middle part on upper surface, unevenly spaced but not dense in female.

Distribution : India : Rajasthan.

Elsewhere : Pakistan.

7. *Scarabaeus erichsoni* (Harold)

1867. *Ateuchus erichsoni* Harold, *Col. Hefte.*, 2 : 94.

1931. *Scarabaeus erichsoni*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 45-46, Pl. II, Fig. 6.

1963. *Scarabaeus erichsoni*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 173, Pl. VI, Fig. 1.

Diagnostic characters : Broadly oval, flat, scarcely shining. Head coarsely densely rugosely pitted with short erect hairs on clypeus. Clypeal margin has four external teeth, separated by acute notches. Prothorax convex, densely asperately punctured, very smooth in middle area near base. Lateral margins subangulate, scarcely rounded, serrate anteriorly, base rounded. Front angles very obtuse and hind angles obsolete. Elytra very deeply striate, intervals very coarsely confluent punctured. Pygidium punctured. Metasternum sparingly punctured, hairy. Front femur has a minute tooth beyond middle of its anterior edge. Hind tibia of male has a fringe in middle of upper surface, very closely evenly spaced, thin in female.

Distribution : India : Karnataka, Rajasthan and Tamil Nadu.

Elsewhere : Sri Lanka

Genus 2. *Gymnopleurus* Illiger, 1803

The five species of the genus *Gymnopleurus* have been reported from Rajasthan.

Key to Species of Genus *Gymnopleurus*

1. Clypeus quadridented and upper surface without hairy clothing
..... *cyaneus* (Fabricius)
- Upper surface clothed with hairy clothing 2
2. Upper surface clothed with minute gray setae along with a few shining denuded patches *miliaris* (Fabricius)*
- Clypeus not quadrident 3
3. Clypeus bidented, upper surface clothed with pale setae, elytra strongly costate
..... *koenigi* (Fabricius)
- Upper surface without hairy clothing and elytra not strongly costate 4
4. Prothorax with a large transverse pit and granulate *bicallosus* Felsche**
- Upper surface granulose and without punctures *dejeani* Castlenau

8. *Gymnopleurus cyaneus* (Fabricius)

1798. *Copris cyaneus* Fabricius, *Ent. Syst. Suppl.*, p. 34.

1931. *Gymnopleurus cyaneus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 49-50.

Diagnostic characters : Broadly oval, not very convex. Clypeus with four blunt teeth at its anterior edge, sides of prothorax strongly rounded. Front femur having a tooth placed at two-third of its length from base. Middle tibia scarcely and hind tibia distinctly serrate. All six tarsi present.

Distribution : India : Andhra Pradesh, Gujarat, Haryana, Karnataka, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Bangladesh and Sri Lanka.

9. *Gymnopleurus miliaris* (Fabricius) *

1725. *Scarabaeus miliaris* Fabricius, *Syst. Ent. App.*, p. 817.

1931. *Gymnopleurus miliaris*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera: Lamellicornia : Coprinae), 3 : 50-51.

Diagnostic characters : Broadly oval, not very convex, upper surface closely clothed with minute grey setae. Clypeus has four blunt lobes at its front edge. Prothorax having a ring of five spots along with a centrally located spot, one on each side near lateral pit, two spots adjoining basal margin of each, one near middle, one upon apical callus. Front tibia armed with three external strong teeth, middle and hind tibiae coarsely serrate. Front femur has two sharp carinae along its anterior margin.

Distribution : India : Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, and Uttar Pradesh.

Elsewhere : Sri Lanka.

10. *Gymnopleurus koenigi* (Fabricius)

1775. *Scarabaeus koenigi* Fabricius, *Syst. Ent.*, p. 29.

1931. *Gymnopleurus koenigi*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera: Lamellicornia : Coprinae), 3 : 51-52, Pl. III, Fig. 5.

1963. *Gymnopleurus koenigi*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera: Lamellicornia), 1 : 200-201, Fig. 90.

Diagnostic characters : Black, shining, broadly oval, moderately convex, dorsally clothing with white or pale yellow setae. Head densely granular, clypeus deeply notched

in middle, forming a single lobe on each side. Prothorax convex, very transverse with strongly rounded sides, with acute front angles and rectangular hind angles. Elytra deeply sulcate, punctured, intervals shining, convex, 2nd and 4th much broader in front than rest. Elytra bearing double series of elongate patches upon 2nd, 4th and 6th intervals, 1st beyond, 2nd before extremity, 3rd patch upon 2nd interval close to hind margin, also one upon dorsal part of first abdominal sternite. Lateral margins deeply excised exposed, metasternal epimera. Pygidium thinly angular, setose with a small carina. Male frontal tibial spurs flat, truncated, hind tibial spurs shorter in female.

Distribution : India : Pondicherry, Rajasthan and Tamil Nadu.

Elsewhere : Sri Lanka.

11. *Gymnopleurus bicallosus* Felsche**

1909. *Scarabaeus bicallosus* Felsche, *Deuts. Ent. Zeits*, 751.

1931. *Gymnopleurus bicallosus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 54.

1963. *Gymnopleurus bicallosus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 205.

Diagnostic characters : Small, elongate in shape with slender legs. Head uniformly granulate, clypeus excised in middle, produced into blunt reflexed lobes. Prothorax convex, densely granulate with large transverse pit on each side, a short median longitudinal groove at base, lateral sides straight. Front tibia armed with three external teeth, occupying terminal half of outer edge, basal half serrate. Front femur double carinate, little hollowed along its anterior edge, with sharp oblique tooth placed at two-third of its length from base. Middle and hind tibiae strongly toothed at outer edge. Elytra striate, intervals granulate. Pygidium sparingly granulate, moderately shining. Front tibia of male more elongated than female.

Distribution : India : Bihar, Orissa, Karnataka, Kerela, Madhya Pradesh, Maharashtra, Pondicherry and Rajasthan.

Elsewhere : Sri Lanka.

12. *Gymnopleurus dejeani* Castelnau

1840. *Gymnopleurus dejeani* Castelnau, *Hist. Nat.*, 2 : 70.

1931. *Gymnopleurus dejeani*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 59, Pl. III, Fig. 11.

1963. *Gymnopleurus (Garreta) dejeani*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 227.

Diagnostic characters : Broad and flat. Head, prothorax closely finely granulose. Clypeus produced into four lobes at front margin. Sides of prothorax rounded, front angles acute and hind angles vary obtuse, base almost straight with slight impression on each side of middle. Elytra faintly striate, striae unpunctured, intervals more or less closely granular. Front tibia armed with three strong external teeth, not reaching middle, remaining serrate. Front femur sharply carinate, terminal half flattened, with a sharp tooth between two halves. Abdominal sides sharply carinate. Front tibia of male longer than female, terminal spur broad short.

Distribution : India : Arunachal Pradesh, Karnataka, Maharashtra, Nagaland, Rajasthan, Sikkim and West Bengal.

Elsewhere : Myanmar and Nepal.

Tribe 2. Coprini

Head and prothorax generally with horns or tubercle and carinae. Legs slendered, middle and hind coxae far apart, more or less parallel. Middle and hind tibiae dilated towards extremity and middle tibia with two and hind with one terminal spurs. Middle and hind tarsi more or less flattened.

Tribe Coprini consists of most commonly found genera and species of dung beetles, those are known with an ample of morphological variation in size and forms. Total of 90 species belonging twelve genera, were recorded from Rajasthan.

Key to Genera of tribe Coprini

1. Prothorax with one, elytra with two lateral carina, and first joint of antennal club shining *Heliocopris* Hope
- First joint of antennal club not shining 2
2. Antennal club joints long and entirely pubescent *Catharsius* Hope
- Elytra with one lateral carina 3
3. Prothorax with a strong deep basal median groove *Copris* Geoffroy
- Prothorax without a strong deep basal median groove 4
4. Middle and hind tarsi broadly dilated *Phalops* Erichson
- Middle and hind tarsi not broadly dilated 5
5. Wing less, elytra very much narrowed at the shoulder *Disphysema* Harold
- Winged, elytra not much narrowed at the shoulder 6

6. Terminal margin of the front tibia of the at right angle to the inner margin and front angles of prothorax hollowed beneath *Caccobius* Thomson
 – Both these character not usually neither present 7
7. Middle and hind tibiae dilating from base to extremity *Onthophagus* Latreille
 – Middle and hind tibiae not greatly dilating from base to extremity 8
8. Scutellum present, elytra not fringed before the hind margin ... *Liatongus* Reitter
 – Elytra fringed before the hind margin 9
9. Sides of the abdomen exposed above *Oniticellus* Serveille
 – Sides of the abdomen not exposed above 10
10. Clypeus bidented and scutellum distinct *Drepanocerus* Kirby
 – Prothorax with two basal impression near the middle 11
11. Scutellum very minute and front tarsi absent in male and female
 *Onitis* Fabricius
 – Scutellum not very minute and front tarsi present in female
 *Chironitis* Lansberge

Genus 5. *Heliocopriss* Hope, 1837

The four species of the genus *Heliocopriss* have been recorded from Rajasthan.

Key to the species of the genus *Heliocopriss*

1. Elytra closely sculptured and not shining, prothorax not entirely granulate, male with two or four cephalic horns *gigas*(Linnaeus)
 – Male without cephalic horns 2
2. Prothorax entirely granulate *tyrannus* (Thomson)
 – Elytra not closely sculptured and shining 3
3. Clypeus not distinctly truncated in front, rounded at the sides, male with single cephalic horn *bucephalus* Fabricius*
 – Clypeus truncate in front angulate at the side. Male with two or four horns
 *dominus* Bates

13. *Heliocopris gigas* (Linnaeus)

1764. *Scarabaeus gigas* Linnaeus, *Mus. Lud. Ulr.*, p. 16.
1931. *Heliocopris gigas*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 86, Pl. IV, Fig. 1-4.
1963. *Heliocopris gigas*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 300-302, Pl. XII, Fig. 2.

Diagnostic characters : Broad, very convex. Clypeus hollowed, its margin with two prominence on each sides. Prothorax broad with a steep anterior declivity bearing reddish hairs. Elytra having sutural border, sloping strongly from suture to each side, sutural region strongly rounded from base to apex. Pygidium smooth, shining with very sparse fine scattered punctures. Metasternal shield densely clothed with hairs. In male, outer margin of clypeus at junction of ocular lobes produced upward as a pair of long slightly curved parallel cephalic horns, prothorax dorsally prouced forward in middle as a broad tapering horizontal processes, truncated at extremity. Female has a sharply elevated transverse cephalic carinae and prothorax with slight broadly rounded prominence in middle.

Distribution : India : Bihar, Gujarat, Karnataka, Rajasthan and Uttar Pradesh. *Elsewhere* : Africa, Arabia, Egypt and Pakistan.

14. *Heliocopris tyrannus* (Thomson)

1858. *Copris tyrannus* Thomson, *Arch. Ent.*, 2 : 49, Pl. II, Fig. 1.
1931. *Heliocopris tyrannus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 87-88, Pl. VI, fig. 1 & 2.
1963. *Heliocopris tyrannus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera: Lamellicornia), 1 : 304.

Diagnostic characters : Broadly oval and higly convex Head trasnsvesely strigoses in front, covered with coarsely granules. Clypeus having feebly marked facets. Prothorax divided by a very strong transverse carina into two parts, sides strongly rounded, front angles blunt but prominent, opaque. Pygidium minutely sparsely punctured. Metasternal shield smooth in middle, hairy at sides. Male bearing erect slightly flattened cephalic horn and prothorax strongly elevated, flat dorsal declivity with straight carina. Female with transverse acute prothoracic carina.

Distribution : India : Rajasthan and Uttar Pradesh.

Elsewhere : Java, Malaysia, Sumatra and Tenasserim.

15. *Heliocopris bucephalus* Fabricius*

1775. *Scarabaeus bucephalus* Fabricius, *Syst. Ent.*, p. 24.
1789. *Scarabaeus bucephalus*, Olivier, *Ent.*, 1(3) : 99, Pl. IV, Fig. 26.
1931. *Heliocopris bucephalus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 88-90, Pl. V, Fig. 2 & 3.
1963. *Heliocopris bucephalus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 303-304, Pl. XIII, Fig. 2.

Diagnostic characters : Broad, quadrate in shape. Head small transversely strigose, clypeus feebly excised in middle. Prothorax unevenly rugose or reticulate, having slightly depressed area in middle basal part, sides strongly rounded, front angles not very blunt and hind angles feebly indicated. Elytra lightly striate, intervals minutely sparsely punctured. Male bearing a centrally placed, slightly curved cephalic horn. Prothorax verticle in front, upper edge of declivity forms a sharp straight carina, feebly toothed at each end. In female, head bearing a transverse cephalic carina and prothorax with gently curved carina.

Distribution : India : Bihar, Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh and West Bengal.

Elsewhere : Java, Malaysia, Myanmar and Siam.

16. *Heliocopris dominus* Bates

1868. *Heliocopris dominus* Bates, *Col. Hefte*, 4 : 88.
1931. *Heliocopris dominus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 90-92, pl. V, fig. 1.
1963. *Heliocopris dominus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 302-303, fig. 21.

Diagonostic characters : Broad, nearly quadrate in shape. Head large, a pair of erect slightly divergent horns arises from outer margin of head in male and cephalic carina in female. Prothorax rugose or granular, with small smooth area, anterior part nearly vertical, divided form posterior part by a carina which produced in middle in male while dorsal carina very slightly, more prominent in female. Front tibiae armed with three strong external teeth.

Distribution : India : Arunachal Pradesh, Assam, Manipur, Meghalaya, Rajasthan and Uttar Pradesh.

Elsewhere : Myanmar.

Genus 4. *Catharsius* Hope 1837

The six species of the genus *Catharsius* have been recorded from Rajasthan.

Key to the species of genus *Catharsius*

1. Prothorax with distinct hind angles *platypus* Sharp
- Prothorax without distinct hind angles 2
2. Head with a small smooth area adjoining each eye *molossus* (Linnaeus)*
- Head without a small smooth area adjoining each eye 3
3. Prothoracic declivity straight and with sharp front angles *sagax* (Quenstedt)
- Elytra not entirely opaque 4
4. Middle and hind tarsi very broad *birmanensis* Lansberge*
- Prothorax with lateral prominence on each side of declivity 5
5. Head very transverse, prothorax of male with two tubercles and granulate
..... *pithecus* (Fabricius)
- Prothorax granular at the sides only and mesosternal line straight
..... *inermis* (Castelnau)**

17. *Catharsius platypus* Sharp

1875. *Catharsius platypus* Sharp, Col. Hefte, 13 : 42.

1931. *Catharsius platypus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 93-94, Pl. VIII, Fig. 1 & 2.

1963. *Catharsius platypus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 313-314.

Diagnostic characters : Very massive, short broad, parallel sided. Head broad, semicircular, strigose in front, granular behind. Prothorax closely granular, front angles broadly rounded and hind angle obtuse, lateral margins bisinuate and base margined. Elytra striate, broadly rounded, elevate at sutures, intervals flat, not shining. Metasternum closely punctured, hairy, with narrow smooth medium groove, hind tarsi long. In male, cephalic horn erect with transverse carina, prothorax has irregular shaped shining area and hind tibial spurs broad, obliquely truncate at end. Middle and hind tarsus broad, short, flat.

Distribution : India : Rajasthan and Uttar Pradesh.

Elsewhere : Pakistan.

18. *Catharsius molossus* (Linnaeus)*

1758. *Scarabaeus molossus* Linnaeus, *Syst. Nat. ed.*, p. 347.
1931. *Catharsius molossus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 94-95.
1963. *Catharsius* (*s. str.*) *molossus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 307-309.

Diagnostic characters : Broadly oval, very convex, partially clothed with reddish hairs beneath. Head broad with front margin almost imperceptibly excised in middle. Sides of prothorax rounded, front angles broadly truncate and hind angles almost obsolete, lateral scars are large. Metasternal shield acutely angular in front, longitudinally grooved in hinder part. Front tibia armed with three external teeth, middle and hind tibiae broad, crenate at extremity. Male having conical, median cephalic horns, broad, a little fattened at base, sharp pointed at tip. Prothorax has a steep declivity in front, upper edge of which forms a sharp ridge, feebly convex in middle, curved with its extremities. Head of female has a short, pointed process and prothorax is with nearly straight ridge.

Distribution : India : Arunachal Pradesh, Assam, Bihar, Andaman & Nicobar Island, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Meghalaya, Orissa, Rajasthan, Sikkim, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere : Sri Lanka.

19. *Catharsius sagax* (Quenstedt)

1806. *Copris sagax* Quenstedt, *Schönh. Syn. Ins.*, 1 : 43.
1931. *Catharsius sagax*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3: 96, Pl. VIII, Fig. 3.
1963. *Catharsius sagax*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 309-310.

Diagnostic characters : Closely similar to *Catharsius mollosus* but smaller in size. Elytra less dull, sooty. Head with smooth shining area adjoining eyes on each side. Cephalic horn less erect situated forward. Thoracic declivity straight and front angles sharp but not all produced.

Distribution India : Bihar, Haryana, Punjab, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

Elsewhere Bhutan.

20. *Catharsius birmanensis* Lansberge*

1874. *Catharsius birmanensis* Lansberge, *Col.Hefte*, 12 : 11.
1931. *Catharsius birmanensis*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 97-98, pl. VIII, fig. 4, 5.
1963. *Catharsius (s.str.) birmanensis*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 311, pl. XV, fig. 1.

Diagnostic characters : Broadly oval, convex. Head broadly semicircular, clypeus finely rugose, front margin reflexd and not perceptibly excised in middle. Prothorax partly or entirely covered with closely set minute granule. Front angles obtuse and hind angles completely obliterated, base gently rounded, margined. Elytra finely but distinctly striate, stria with scarcely perceptibly punctures, intervals smooth except near base, scarcely punctured. Pygidium lightly finely, not closely punctured. Metasternal shield bluntly angular in front, very smooth, shining, with a longitudinal groove and a deep pit at base. Middle and hind tarsi broad. Male differentiate from female by presence of erect slender horn, arises just in front of eyes and slight short sharp conical prothoracic protuberance in female.

Distribution : India : Rajasthan and Sikkim.

Elsewhere : Bhutan and Myanmar

21. *Catharsius pithecius* (Fabricius)

1775. *Scarabaeus pithecius* Fabricius, *Syst. Ent.*, 21.
1931. *Catharsius pithecius*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 100-101, pl. VII, fig. 1&2.
1963. *Catharsius pithecius*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 312-313, pl. XV, fig. 2.

Diagnostic characters : Shortly oval, very convex.. Head nearly semicircular, clypeus feebly excised in middle, having nearly straight, slendered horn arising just in front of eyes in male and female having slighty acuminate transverse elevation. Prothorax has a slight, sharp, conical protuberance on each side of median groove in male. Metasternal shield acutely angular in front, very smooth, shining along with median groove.

Distribution : India : Arunachal Pradesh, Bihar, Karnataka, Kerala, Maharashtra, Rajasthan, Tamil Nadu and Uttar Pradesh.

Elsewhere : Sri Lanka.

22. *Catharsius inermis* (Castelnau)**

1840. *Copris inermis* Castelnau, *Hist. Nat. Con.*, 2 : 78.

1931. *Catharsius inermis*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 101.

1963. *Catharsius inermis*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 316-317.

Diagnostic characters : Broadly oval, moderately convex. Head very broad, transversely rugose, with granular ocular lobes, clypeal margin rounded, feebly excised in middle and frons bear a short tubercle between eyes. Prothorax asperately punctured, with a slight median longitudinal groove upon basal half. Front angles broadly rounded and hind angles obliterated. Elytra striate, stria with fine punctures, intervals slightly convex, minutely punctured. Pygidium closely, strongly punctured. Metasternal shield angulate in front, sparsely punctured. Male have a sharp tubercle than female.

Distribution : India : Rajasthan.

Elsewhere : Africa, Ambyssinia, Arabia and Pakisthan.

Genus 5. *Copris* Geoffroy, 1762

The twelve species of the genus *Copris* have been recorded from Rajasthan.

Key to the species of genus *Copris*

1. Very shining and the front angles of prothorax are very blunt *indicus* Gillet*
 - Prothorax very unequally and scarcely punctured 2
2. Prothorax without a longitudinal groove *iris* Sharp**
 - Prothorax with a longitudinal groove 3
3. Prothorax with sharp front angles and elytra feebly striate *repertus* Walker
 - Clypeus smooth or with only few punctures on each sides 4
4. Prothorax with deep median groove and elytra deeply striate *delicatus* Arrow
 - Prothorax smooth and elytra not deeply striate 5
5. Prothorax with punctured median groove and elytra lightly striate
 - *corpulentus* Gillete

- Prothorax not entirely nor evenly punctured..... 6
- 6. Clypeus feebly notched and elytra deeply striate *numa* Lansberge
- Elytral intervals convex and punctured 7
- 7. Clypeal margin reflexed and elytral intervals with minute scattered punctures ...
..... *imitans* Felsche*
- Clypeal margin strongly reflexed 8
- 8. Elytra strongly striate and intervals closely punctured... *punctulatus* Wiedemann*
- Prothorax without a median groove and intervals not closely punctured 9
- 9. Prothorax strongly and densely punctured, elytra deeply sulcate
..... *andrewesi* Gillet*
- Clypeal margin strongly bidentate 10
- 10. Prothorax and elytra strongly punctured *cribratus* Gillet
- Clypeus shining, smooth and not punctured 11
- 11. Prothorax, elytra and metasternal shield well punctured *furciceps* Felsche
- Metasternal shield unpunctured *signatus* Walker*

23. *Copris indicus* Gillet*

1910. *Copris indicus* Gillet, *Notes Leyed. Mus.*, 32 : 5.

1931. *Copris indicus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 106-107, pl. X, fig. 6.

Diagnostic characters : Broadly oval, highly convex. Head semicircular, front margin feebly bilobed in middle, sides of prothorax nearly straight in front, strongly rounded behind, front angles broadly truncate and hind angles are very obtuse. Front tibia broad, armed with four blunt external teeth, terminal spur has bented tip at right angles. Male with a short erect, flattened median cephalic horn, slightly dilated, feebly bicuspid at extremity. Prothorax has dorsal straight prominence along with lateral tubercles on each side. Female bears a slight transverse cephalic elevation.

Distribution : India : Arunachal Pradesh, Gujarat, Karnataka, Kerala, Rajasthan and Tamil Nadu.

Elsewhere : Sri Lanka.

24. *Copris iris* Sharp**

1881. *Copris iris* Sharp, *Col. Hefte*, 13 : 45

1931. *Copris iris*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 108, Pl. X, Figs. 15-17.

1963. *Copris iris*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 345, Fig. 126.

Diagnostic characters : Moderately elongate, very convex. Head rounded in front, rather strongly unevenly punctured, clypeal margin strongly reflect, scarcely notched in middle. Prothorax very unevenly punctured, smooth in basal part and without median groove. Front angles obtuse, sides strongly rounded reflexed. Elytra deeply striate, stria minutely punctured, intervals flat, sparsely, minutely punctured. Pygidium shining sparsely punctured. Metasternal shield entirely smooth, sides strongly punctured. Head of male having a long recurved, pointed cephalic horn but pointed in female.

Distribution : India : Arunachal Pradesh, Assam, Meghalaya, Manipur, Rajasthan and Sikkim.

Elsewhere : China, Laos, Siam, Tonkin and Yunnan.

25. *Copris repertus* Walker

1858. *Copris repertus* Walker, *Ann. Mag. Nat. Hist.*, 3(2) : 208.

1931. *Copris repertus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 126-127, pl. X, figs. 8 & 9.

1963. *Copris repertus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 351-352.

Diagnostic characters : Broadly oval, highly convex, covered with reddish bristles beneath. Head semicircular, clypeus deeply notched in middle. Prothorax strongly grooved longitudinally in middle, front angles truncate and hind angles almost obsolete. Front tibia broad, armed with four nearly straight external teeth. Male bears a slendered slightly compressed erect cephalic horn, with a minute tooth near base on each side and female with short transverse elevated cephalic carina.

Distribution : India : Arunachal Pradesh, Bihar, Gujarat, Karnataka, Maharashtra, Madhya Pradesh, Pondicherry, Rajasthan, Tamil Nadu and Uttar Pradesh.

Elsewhere : China, Myanmar and Sri Lanka.

26. *Copris delicatus* Arrow

1931. *Copris delicatus* Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 117-118.
1963. *Copris delicatus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 347-348.

Diagnostic characters : Oblong oval, very convex. Clypeus smooth, broadly, deeply excised in middle, with few punctures, vertex sparsely punctured. Prothorax strongly closely punctured, with a deep median groove. Front angles blunt and hind angles obsolete. Elytra deeply striate, stria strongly, closely punctured, intervals convex, minutely sparsely punctured. Pygidium strongly evenly punctured. Metasternal shield has a deep pit and median groove. Head of male bearing a long slender, compressed horn and female with small tubercle.

Distribution : India : Assam, Rajasthan and West Bengal.

27. *Copris corpulentus* Gillet

1910. *Copris corpulentus* Gillet, *Notes. Leyden Mus.*, 32 : 118.
1931. *Copris corpulentus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 118-119.
1963. *Copris* (s. str.) *corpulentus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera: Lamellicornia), 1 : 363-364.

Diagnostic characters : Elongate-oval, moderately convex, covered with reddish bristles beneath. Clypeal margin notched in middle, feebly bilobed, with a sharply pointed, backwardly curved cephalic horn in middle. Prothorax has a median groove, front angles obtuse. Male thoracic prominences simple, conical, but flattened dilated laterally in female.

Distribution : India : Arunachal Pradesh, Assam, Gujarat, Manipur, Meghalaya, Rajasthan and Uttar Pradesh.

Elsewhere : Laos, Myanmar and Tonkin.

28. *Copris numa* Lansberge

1886. *Copris numa* Lansberge, *Tizds. Ent.*, 29 : 19.
1931. *Copris numa*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 121-122, pl. X, fig. 14.
1963. *Copris numa*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 364-365.

Diagnostic characters : Narrowly oval, moderately convex, covered with reddish bristles beneath. Clypeus feebly excised in middle at front margin, with a very short conical cephalic process just in front of eyes. Median prothoracic groove extended from base to in front of middle, front angles truncate and hind angles obsolete. Middle and hind tibiae trilobed at extremity. Front tibial spurs of male blunt, slightly spatulate and pointed in female.

Distribution : India : Arunachal Pradesh, Assam, Gujarat, Rajasthan and Uttar Pradesh.

Elsewhere : Borneo, Malaya Peninsula, Myanmar, Sumatra, Tenassrim.

29. *Copris imitans* Felsche*

1910. *Copris imitans* Felsche, *Deutsche, Ent., Zeits.*, p. 47.

1931. *Copris imitans*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 124-125, Pl. X, Fig. 3.

1963. *Copris imitans*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 317-318.

Diagnostic characters : Broadly oval, convex. Head smooth, shining, with few punctures on ocular lobes and vertex, clypeus reflect, little immarginate in front. Prothorax finely evenly closely punctured., front angles very obtuse and hind angles obsolete, lateral margins strongly margined. Elytra deeply striate, stria finely closely punctured, intervals convex, with few minute scattered punctures. Pygidium strongly punctured. Metasternal shield very smooth, shining, with fine scattered punctured. Clypeal processes flat very convex in male but carinate in female.

Distribution : India : Goa, Gujarat, Karnataka, Madhya Pradesh, Maharashtra and Rajasthan.

30. *Copris punctulatus* Wiedemann*

1823. *Copris puntulatus* Weidemann, *Zool. Mag.*, 2(1) : 11.

1931. *Copris punctulatus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 126-127, pl. x, figs. 8 & 9.

1963. *Copris punctulatus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 1 : 370.

Diagnostic characters : Oval, not very convex. Anterior margin of clypeus strongly reflexed in middle. Prothorax has a broad marginal membrane in anterior emargination, front angles formed prominent rounded lobes and hind angles obsolete. Elytral intervals flat, well punctured. Front tibiae broad, armed with four external teeth. Metasternal shield very smooth, with a narrow median groove.

Distribution : India : Arunachal Pradesh, Assam and Rajasthan.

Elsewhere : Cambodia, Indo-China, Indonesia, Java, Malaya Peninsula, Myanmar and Tonkin.

31. *Copris andrewesi* Watson*

1891. *Copris andrewesi* Watson, *Ann. Mag. Nat. Hist.*, **6** : 521.

1931. *Copris andrewesi*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), **3** : 127

Diagnostic characters : Oval, broadly convex. Head very shining, strongly punctured, clypeal margin strongly reflexed, produced a rounded lobe in middle. Prothorax strongly, evenly densely punctured, front angles rounded and hind angles entirely obsolete, sides gently rounded. Elytra deeply sulcate, sulci punctured, intervals strongly convex, intirely opaque. Pygidium strongly closely punctured. Metasternal shield bearing few scattered punctures in front, a longitudinal median groove behind. Male having a short longitudinal elevation between eyes, rectangular transverse elevation at short distance in front of it, but a short conical median tubercle in middle of front in female.

Distribution : India : Karnataka, Madhya Pradesh, Maharashtra, Orissa and Rajasthan

32. *Copris cribratus* Gillet

1927. *Copris cribratus* Gillet, *Ann. Soc. Ent. Belg.*, **67** : 253.

1931. *Copris cribratus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), **3** : 129.

1963. *Copris cribratus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), **1** : 373-374.

Diagnostic characters : Chocalate brown, more reddish beneath, bristles only present on legs. Clypeal margin strongly bidented at middle. Front angle of prothorax broadly rounded, prominent, and hind angles almost obsolete. Front tibia broad, armed with four sharp external teeth.

Distribution : India : Arunachal Pradesh, Gujarat, Kerala, Meghalaya, Rajasthan and Uttar Pradesh.

33. *Copris furciceps* Felsche

1910. *Copris furciceps* Felsche, *Deutsche. Ent. Zeitscher*, p. 348.

1931. *Copris furciceps*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), **3** : 130-131.

1963. *Copris (Paracopris) furciceps*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), **1** : 372.

Diagnostic characters : oval, not very convex. Head very smooth, shining in front, strongly, closely punctured behind. Prothorax densely punctured, front angles blunt and hind angles obsolete. Elytra lightly striate, closely punctured. Metasternal shield well punctured except along middle line of anterior part. Front tibia armed with four sharp external teeth.

Distribution : India : Arunachal Pradesh, Gujarat, Meghalaya, Rajasthan and Uttar Pradesh.

Elsewhere : Myanmar.

34. *Copris signatus* Walker*

1858. *Copris signatus* Walker, *Ann. Mag. Nat. Hist.*, **3** : 208.

1931. *Copris signatus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), **3** : 131, Pl. X, Figs. 10 & 11.

Diagnostic characters : Oval, not very convex. Clypeus not very smooth, frons, ocular lobes strongly punctured. Prothorax densely punctured. Front angles entirely rounded and hind angles obsolete, lateral margins strongly rounded. Elytra strongly striate, intervals convex, closely punctured. Metasternal shield very smooth shining, with few scattered punctures. Clypeus of male with a pair of narrow erect, parallel processes, scattered hairs and a slight conical projection in front of eyes in female.

Distribution : India : Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Rajasthan and Tamil Nadu.

Genus 6. *Phalops* Erichson 1848

Three species of the genus *Phalops* have been found from Rajasthan.

Key to the species of genus *Phalops*

1. Prothorax entirely granulate and elytra very opaque *cyanescens* (D'orbigny)*
 - Elytra not very opaque 2
2. Elytra deeply striate, immaculate *divisus* (Wiedemann)
 - Prothorax rugose, with granules at the sides only *olivaceus* Lansberge

35. *Phalops cyanescens* (D'Orbigny)*

1897. *Phalops cyanescens* D'Orbigny, *Ann. Soc. Ent. France*, **64** : 243.
1931. *Phalops cyanescens*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), **3** : 136-137.
1963. *Phalops cyanescens*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), **1** : 609.

Diagnostic characters : Dark blue, elytra with a yellow outer marginal line along with numerous irregular spots. Upper surface clothed with minute yellow setae. Side of head produced into a broadly rounded lobes. Clypeus of male reflexed into a tongue like process in front and bilobed in female. Front tibia of male long, with broad, blunt external teeth and strongly toothed in female.

Distribution : India : Gujarat, Rajasthan and Tamil Nadu. *Elsewhere* : Pakistan.

36. *Phalops divisus* (Weidemann)

1823. *Copris divisus* Weidemann, *Zool. Mag.*, **2**(1) : 12.
1883. *Copris divisus*, Lansberge, *Stett. Ent. Zeit.*, **44** : 169.
1931. *Phalops divisus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), **3** : 135-136, Pl. I, Fig. 2.
1963. *Phalops divisus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), **1** : 609-610.

Diagnostic characters : Short, broad, not very convex. Bright metallic green, dark blue or coppery, elytra with yellow markings. Dorsal surface clothed with fine erect yellow setae. Clypeus separated from frons by a carina. Front angles of prothorax broadly truncate, having minute external tooth and hind angles feebly indicated. Sides slightly sinuate behind and base rounded.

Distribution : India : Gujarat, Madhya Pradesh, Rajasthan, Tamil Nadu and Uttar Pradesh.

Elsewhere : Sri Lanka.

37. *Phalops olivaceus* Lansberge

1883. *Phalops olivaceus* Lansberge, *Stett. Ent. Zeit.*, **44** : 164-169.
1931. *Phalops olivaceus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), **3** : 137-138.
1963. *Phalops olivaceus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), **1** : 610-611, Pl. XVI, Fig. 4.

Diagnostic characters : Deep bluish or greenish black, upper surface uniformly clothed with fine yellowish hairs. Clypeus separated from frons by a curved carina, strongly reflexed in the middle. Front angles of prothorax blunt, lateral margins sinuated behind. Prothorax of male little hollowed behind posterior cephalic process.

Distribution : India : Gujarat and Rajasthan.

Genus 7. *Disphysema* Harold

The single species *Disphysema candezi* has been found from Rajasthan.

38. *Disphysema candezi* Harold *

1863. *Disphysema candezi* Harold, *Col. Hefte*, 11 : 102

1931. *Disphysema candezi*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 140-141

1963. *Disphysema candezi*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 613.

Diagnostic characters Dull, sooty black, very convex. Head and prothorax closely, uniformly covered with small roundish granules. Clypeus deeply notched in middle, produced two teeth at anterior margin. Prothorax convex, wider than elytra, front angles very sharply produced and hind angles obsolete, base rounded. Elytra very short, convex, shoulders strongly contracted. Tibiae distinct, not deep with flat and opaque intervals. Metasternal shield sparingly uniformly punctured. Posterior tarsi rather long. Male differentiate from female by presence of large prothorax, wider elytra and elongate front tibiae.

Distribution : India : Rajasthan and Tamil Nadu.

Remark : Collected from hyena dung.

Genus 8. *Caccobius* Thomson 1863

The nine species of the genus *Caccobius* Thomson have been recorded from Rajasthan.

Key to Species of Genus *Caccobius*

1. Clypeus strongly bilobed..... *torticornis* Arrow*
- Clypeus not strongly bilobed 2
2. Clypeus slightly bilobed, male with horn and metasternum without punctures in the middle *unicornis* (Fabricius)*

- metasternum punctured in the middle and elytra not shining 3
- 3. Elytra brown, variegated and prothorex with median groove
..... *meridionalis* Boucomont
- Elytra not brown and metasternum grooved in the middle 4
- 4. Elytra entirely black, and prothorex strongly and closely punctured
..... *ulter* (Sharp)*
- Prothorax not closely punctured 5
- 5. Elytra with orange epical patch and prothoracic lamina present in male
..... *vulcanus* (Fabricius)*
- Elytra without orange epical patch 6
- 6. Prothoracic carina and cephalic horns absent *indicus* Harold
- Prothorax and elytra minutely granular 7
- 7. Entirely opaque *himalayanus* (Jekel)*
- Very smooth and without setae above 8
- 8. Clypeus entirely and elytra yellow and spotted *pantherinus* Arrow*
- Elytra usually black and with pale apical margin *denticollis* Harold

39. *Caccobius torticornis* Arrow*

1931. *Caccobius torticornis* Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 144-145.

1963. *Caccobius torticornis*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 135-136.

Diagnostic characters : Broadly oval, compact, convex, black, shining with deep red spot on each shoulder, red marginal patch at extremity. Antennae and legs reddish. Head broad, bluntly angular in front of eyes. Clypeus sharply bidentate, sides straight convergent. Prothorax moderately strongly but not closely punctured. Front angles fairly sharp, sides nearly straight in front, feebly curved behind and base gently rounded. Elytra striate, intervals flat, minutely sparsely aciculate-punctate. Pygidium strongly, not closely punctured. Metasternum bearing few large punctures. In male, posterior margin of head produced as flat plate with short horns, but in female clypeus separated from frons by strong carina.

Distribution : India : Rajasthan and Uttrakhand.

40. *Caccobius unicornis* (Fabricius)*

1798. *Copris unicornis* Fabricius, *Ent. Syst. Suppl.*, 33p.

1931. *Caccobius unicornis*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 145-147, fig. 9.

1963. *Caccobius unicornis*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 142-143.

Diagnostic characters : Minute, broadly oval, compact, convex, black, pitchy. Head short and broad. Clypeus slightly bilobed in front, rounded at sides. Prothorax evenly moderately strongly punctured, front angles very blunt, lateral sides rounded in front, sinuate behind, base rounded. Elytra striate, 7th stria strongly curved, intervals flat, minutely, sparingly punctured. Pygidium punctured. Mmetasternal shield almost smooth, punctured. In male, head shining, with few scattered punctures, has a short erect horn, and intermixed punctures in female.

Distribution : India : Assam, Madhya Pradesh, Rajasthan, Uttar Pradesh and Utrakhand.

Elsewhere : Bangladesh, Borneo, China, Java, Malaya Peninsula and Sri Lanka.

41. *Caccobius meridionalis* Boucomont

1914. *Caccobius meridionalis* Boucomont, *Ann. Mus. Civ. Geneva*, 47 : 239.

1931. *Caccobius meridionalis*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 148-150, fig. 10.

1963. *Caccobius (Caccophilus) meridionalis*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 138.

Diagnostic characters : Small, oval, very convex. Clypeus bilobed, separated from frons by a curved carina. Prothorax has well marked posterior longitudinal groove. Front angles rather blunt, base rounded. Front tibiae very short, broad. Terminal tooth very blunt, set obliquely in male and sharp long in female.

Distribution : India : Gujrat, Karnataka, Kerala, Maharashtra, Rajasthan and Tamil Nadu.

42. *Caccobius ultor* Sharp*

1875. *Caccobius ultor* Sharp, *Col. Hefte*, 13 : 135.

1931. *Caccobius ultor*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 148-150, fig. 10.

1963. *Caccobius (Caccophilus) ultor*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 135.

Diagnostic characters : Oval, compact convex. Head short, broad with bilobed clypeus, separated from frons by a curved carina. Prothorax strongly, very closely punctured with sharp front angles and obsolete hind angles, lateral sides nearly straight, base gently rounded. Elytra striate, intervals flat with double series of asperate punctures. Pygidium shining strongly punctured. Metasternum grooved, bears scattered punctures. In male, vertex has a pair of short erect, pointed horns united by a lamina at base.

Distribution : India : Maharashtra and Rajasthan.

43. *Caccobius vulcanus* (Fabricius)*

1801. *Copris vulcanus* Fabricius, *Syst. Eleut.*, 1 : 41

1931. *Caccobius vulcanus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 151-152, fig. 11.

1963. *Caccobius (Caccophilus) vulcanus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 137.

Diagnostic characters : Oval, compact, convex with short broad head. Clypeus bilobed, separated from frons by a curved carina. Prothorax fairly strongly, evenly, closely punctured, sides granulated. Front angles fairly sharp and hind angles obsolete, base gently rounded. Elytra striate, intervals flat, asperately punctured in double series. Pygidium shining strongly punctured. Metasternum strongly grooved, with scattered punctures. In male, vertex has a broad, erect lamina, produced into a pair of short flat horns.

Distribution : India : Bihar, Karnataka, Maharashtra and Rajasthan.

Elsewhere : Sri Lanka.

44. *Caccobius indicus* Harold

1867. *Caccobius indicus* Harold, *Col. Hefte.*, 2 : 12

1931. *Caccobius indicus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 152-153.

1963. *Caccobius (Caccophilus) indicus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 137-138.

Diagnostic characters: Broadly oval, convex. Head short, broad, clypeus bilobed, separated from frons by a strong carina. Prothorax having a slight transverse prominence in middle, front angles sharp and hind angles obsolete. In male, terminal tooth of front tibia blunt, thin, bent at obliquely at angle and sharp in female.

Distribution : India : Gujrat, Karnataka, Kerala, Rajasthan and Tamil Nadu.

45. *Caccobius himalayanus* (Jekel)*

1872. *Caccophilus himalayanus* Jekel, *Rev. Mag. Zool.*, 411p.

1931. *Caccobius himalayanus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 153-154.

1963. *Caccobius himalayanus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 132-133.

Diagnostic characters : Oval, not very convex. Clypeus a little produced, bilobed. Prothorax densely covered by minute granules, lateral margins strongly angulated, feebly curved, sinuate behind, with slightly indicated hind angles, base obtusely angulated in middle. Elytra striate, with flat intervals, bearing minute granules. Pygidium having few scattered punctures. Metasternal shield strongly punctured. In male, vertex produced backwardly as a elongate, curved upwards flat triangular lobe, but in female, a carina upon frons and vertex.

Distribution : India : Himachal Pradesh, Jammu and Kashmir, Rajasthan and Utrakhand.

46. *Caccobius pantherinus* Arrow*

1931. *Caccobius pantherinus* Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 154-155.

1963. *Caccobius pantherinus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 126-127.

Diagnostic characters : Oval, moderately convex, without hairs or setae upon dorsal surface. Head strongly rounded at sides, clypeus a little produced. Prothorax without punctures, front angles sharp and hind angles obsolete, base rounded. Elytra striate, intervals flat. Metasternal shield strongly punctured. In male, vertex produced as a broad triangular lamina, forms a short upwardly directed horns and in female, a carina between eyes.

Distribution : India : Rajasthan.

Elsewhere : Pakistan.

47. *Caccobius denticollis* Harold

1867. *Caccobius denticollis* Harold, *Col. Hefte*, 2 : 12.

1931. *Caccobius denticollis*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 155-157, Fig. 13.

1963. *Caccobius denticollis*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 137-138.

Diagnostic characters : Very short, broad, compact Head and prothorax more or less coppery or metallic, hind margin of elytra yellow. Sides of head nearly straight, clypeus shining, separated from frons by a curved carina. Prothorax punctured, becoming stronger, closer at sides. Front angles sharp, intervals punctured. Pygidium shining punctured. Frontal cephalic carina short, posteriorly produced at each end into a short but slendered vertical horn in male but cephalic carina long, prothorax has two slight lateral tubercle in female.

Distribution : India : Himachal Pradesh, Jammu & Kashmir, Rajasthan, Uttarakhand and Uttar Pradesh.

Genus 9. *Onthophagus* Latreille 1802

The forty species of the genus *Onthophagus* have been recorded from Rajasthan.

Key to the species of Genus *Onthophagus*

1. Eyes large, clothed with long erect hairs above and front tibiae bearing four external teeth *gulo* Arrow*
- Front tibiae not bearing four external teeth 2
2. Prothorax closely punctured, front tibiae bearing only three external teeth
..... *vigilans* Boucomont
- Prothorax not closely punctured 3
3. Prothorax shining and bearing few irregularly scattered punctures
..... *oculatus* Arrow*
- Eyes small and not clothed with hairs above 4
4. 2nd joint of hind tarsus only 1/4th as long as last joint ... *crassicollis* Boucomont*
- Hind tibiae produced into three lobes externally at extremity 5
5. Head with paired horns and prothorax deeply excavated, Elytra golden red or golden green
..... *imperator* Castlenau*
- Elytra not golden red or golden green 6
6. Elytra black or almost black *gladiator* Arrow*
- Head without paired horns and prothorax not deeply excavated 7
7. Metasternum hollowed and very smooth behind *digitatus* Arrow*
- Upper surface clothed with very dense piles 8

8. Clypeul margin feebly excised and elytral sutures shining
 *tarandus* (Fabricius)*
- Elytral sutures not shining 9
9. Clypeal margin strongly reflexed *dyanastoides* Arrow*
- Prothorax with evenly distributed granules 10
10. Upper surface variegated and prothorax not distinctly punctured
 *variegatus* (Fabricius)*
- Elytra very short 11
11. Prothorax black spotted and sides rounded *fuscopunctatus* (Fabricius)*
- Prothorax distinctly punctured 12
12. Prothorax closely asperately punctured *troglodyta* (Wiedemann)*
- Prothorax not asperately punctured 13
13. Prothorax strongly deeply rather closely punctured *orientalis* Harold*
- Upper surface smooth or with very fine hairy clothing, elytra more or less opaque
 14
14. Front angles of prothorax not very sharp and bears spars granules medially and
 fine scattered punctures behind *catta* (Fabricius)
- Front angles very sharp 15
15. Frons bears a short acute horn in the middle and vertex with a pair of horns..
 *bonasus* (Fabricius)
- Prothorax not bears granule in the middle 16
16. Prothorax sparsly punctured and with blunt front angles *seinculus* (Fabricius)
- Upper surface uniformly dark 17
- 17 Prothorax moderately punctured and front angles bluntly produced
 *ramosus* (Wiedemann)*
- Prothorax not punctured and front angles bluntly produced 18
18. Elytra uniformly coloured and extremely smooth above ... *atropolitus* D'Orbigny*
- Not extremely smooth above 19

19. Prothorax retuse, front angles sharp and a little produced.....
 *occipitalis* Lansberge*
 – Pygidium not hairy or setose 20
20. Prothorax bears umbilicate and pygidium with annular punctures
 *furcicollis* Arrow*
 – Prothorax not bears umbilicate and pygidium without annular punctures 21
21. Front angles of prothorax bluntly produced..... *concolar* Sharp
 – Upper surface shining, front angles of prothorax not very sharp..... 22
22. Clypeo-frontal carina strongly curved *bengalensis* Harold*
 – Upper surface dull, elytra lightly striate 23
23. Front angles of prothorax strongly produced *nasalis* Arrow*
 – Head, prothorax and lower surface shining, elytra and pygidium sub-opaque.....
 24
24. Prothorax coppery, not uniformly punctured. Elytral sutures with minute elevation
 near base..... *ephippoiderus* Arrow*
 – Elytral sutures without minute elevation near base 25
25. Elytra dull, prothorax closely uniformly punctured..... *mirandus* Arrow*
 – Elytra shining 26
26. Eyes very small above *kuluensis* Bates
 – Eyes not very small..... 27
27. Eyes larger from above. Pygidium sparsely punctured..... *armatus* Blanchard*
 – Prothorax unequal and unevenly punctured 28
28. Entirely black, elytral intervals sparsely granulated *semicinctus* D'Orbigny*
 – Elytral intervals punctured..... 29
29. Elytral intervals very finely, sparingly punctured *angus* Gillet*
 – Elytra deeply striate, prothorax not unequally punctured 30
30. Not very convex, prothorax not very closely punctured *tragus* (Fabricius)
 – Upper surface not entirely dark and minute 31

31. Elytra mottled with dark brown above *sagittarius* (Fabricius)*
 – Elytra yellow with black strips 32
32. Without horns, elytral interval with scattered punctures *difficilis* Walker*
 – Minute, intervals not scatteredly punctured 33
33. Elytra dark, intervals flat very minutely sparsely punctured... *hamaticeps* Arrow*
 – Elytra yellow, intervals not minutely sparsely punctured 34
34. Elytral stria very finely punctured, intervals very smooth with scarcely perceptible puncturation *politus* (Fabricius)*
 – Dorsally and ventrally covered with hairs, pygidium with basal ridge 35
35. Uniformly dark above, frontal margin of head rounded *ensifer* Boucomont
 – Not uniformly dark above 36
36. Elytral intervals bearing minute granules *frugivorus* Arrow*
 – Thoracic elevation not longitudinally impressed 37
- 37 Middle thoracic process divided *carinensis* Boucomont**
 – Clypeus notched or lobed 38
38. Black, very small, elytra pale and male with a short erect cephalic horn
 *centricornis* (Fabricius)*
 – Prothorax with or without a broad anterior prominence 39
39. Prothorax rather less closely punctured, clypeus not pointed in male
 *cervus* (Fabricius)*
 – Clypeus pointed, prothorax rather more closely punctured, and male with two horns *falsus* Gillet

48. *Onthophagus gulo* Arrow*

1931. *Onthophagus gulo* Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera: Lamellicornia : Coprinae), 3 : 164-165.
1963. *Onthophagus gulo*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 375-376, Fig. 183.

Diagnostic characters Broadly oval, moderately convex, eyes large, head dilated at sides, clypeus closely rugose, a little produced, feebly imarginate in front, separated

from frons by a strongly curved carina, having a pair of strong tubercles or carina between eyes. Prothorax closely moderately punctured, front angles acutely produced, sides straight in front, sinuate behind, base rounded. Elytra striate, intervals convex, asperately punctured. Pygidium moderately punctured. Metasternal shield has fine scattered punctures.

Distribution : India : Karnataka, Madhya Pradesh, Maharashtra and Rajasthan.

49. *Onthophagus vigilans* Boucomont*

1921. *Onthophagus vigilans* Boucomont, *Faune Ent. De l'Indoch.*, Scar., 38p.

1931. *Onthophagu vigilans*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 165-166.

1963. *Onthophagus (Micronthophagus) vigilans*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 580-581

Diagnostic characters : Broadly oval, compact, convex. Head large, very sparsely but coarsely punctured, with large eyes. Clypeus truncate in front, slightly rugose. Prothorax strongly, moderately closely punctured, front angles acutely produced, sides straight, base evenly rounded. Elytra striate, very punctured, intervals flat asperate - punctate or granular in double rows. Pygidium shining sparsely punctured. Metasternal shield very sparsely punctured in middle, more or less closely at sides. Front tibia armed with three strong external teeth. Male has little longer clypeus than female, vertex having a short, broad, flat pointed triangular horn.

Distribution : India : Rajasthan.

Elsewhere : China

50. *Onthophagus oculatus* Arrow*

1931. *Onthophagus oculatus* Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 168-169.

1963. *Onthophagus (Micronthophagus) oculatus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 460-461.

Diagnostic characters : Oval, not very convex. Head large, clypeus little produced, excised at front margin, separated from frons by a straight carina. Sides of prothorax straight, base rounded, front angles sharp. Vertex of male has blunt prominence on each side between eyes but female with straight carina in place of prominence.

Distribution : India : Gujarat, Kerala, Pondicherry, Rajasthan and Tamil Nadu.

Elsewhere : Sri Lanka

51. *Onthophagus crassicollis* Boucomont*

1914. *Onthophagus crassicollis* Boucomont, *France*, 83 : 280.
1931. *Onthophagus crassicollis*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 170-171, fig. 15.
1963. *Onthophagus (Onthophagiellus) crassicollis*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 320-321.

Diagnostic characters : Broadly oval, deeply waisted, highly convex. Clypeus rounded in front, ocular lobes strongly rounded. Prothorax evenly rounded, closely punctured. Basal joint of hind tarsus long, second joint not more than a quarter as long as preceding one. Elytra striate, intervals flat, closely and punctured. Pygidium strongly punctured.

Distribution : India : Arunachal Pradesh and Rajasthan.

Elsewhere : Indonesia, Malaya Peninsula and Myanmar.

52. *Onthophagus imperator* Castelnau*

1840. *Onthophagus imperator* Castelnau, *Hist. Nat. Col.*, 2 : 84
1931. *Onthophagus imperator*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 174-175, Pl. XIII, fig. 19 to 22.
1963. *Onthophagus (Proagoderus) crassicollis*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 389

Diagnostic characters : Body oval, clypeus granular, anterior margin entire, reflexed, a little produced, , having a curved sub-rectangular carina, a pair of backwardly directed horns, united at base. Prothorax long, more or less hollowed in front, unpunctured, sparingly granular or quite smooth, front angles broadly produced, base produced in middle, distinctly margined. Elytra very finely inconspicuously striate with minutely punctured, intervals flat. Pygidium opaque. Sides of metasternum hairy. Clypeus of male not closely granular or hairy, has slender cephalic horns but flattened sides in female.

Distribution : India : Karnataka, Kerala, Rajasthan, Tamil Nadu and Uttar Pradesh.

53. *Onthophagus gladiator* Arrow*

1907. *Onthophagus gladiator* Arrow, *Ann. Mag. Nat. Hist.*, 7(19) : 418.
1931. *Onthophagus gladiator*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 175-176, Pl. XIII, Fig. 17.
1963. *Onthophagus (Proagoderus) gladiator*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 371.

Diagnostic characters : Broadly oval. Head rather broad, closely granular with rounded, ocular lobes, clothed with recumbent pale setae. Clypeus rounded, a little produced. Prothorax smooth, bearing few scattered punctures at sides, front angles blunt, sides nearly straight, base angulated in middle. Elytra striate, stria minutely punctured, intervals flat, minutely punctured. Pygidium not closely punctured. Metasternal shield smooth, middle and hind tibiae three lobed at end. Vertex of male having a pair of very long slendered horns, united at base.

Distribution : India : Rajasthan and Uttar Pradesh.

Elsewhere : Myanmar.

54. *Onthophagus digitatus* Arrow*

1931. *Onthophagus digitatus* Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 177-178.

1963, *Onthophagus (Digitonthophagus) digitatus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 332-333.

Diagnostic characters: Oval, not very convex, partially opaque, clothed with hairs. Head very obtusely angulate at sides, eyes very small, narrow. Front angles of prothorax not very sharp, sides nearly straight in front, sinuate behind, base distinctly angulated in middle. Elytra broadly striate, intervals flat, opaque, punctured. Pygidium coarsely, rugosely punctured, clothed with hairs. Metasternal shield very smooth, with a posterior depression. Hind tibia very strongly dilated at end, produced three finger like lobes. Male having a backwardly directed a short triangular cephalic horns arises between eyes.

Distribution : India : Rajasthan and Sikkim.

55. *Onthophagus tarandus* Fabricius*

1792. *Onthophagus tarandus* Fabricius, *Ent. Syst.*, 1 : 48

1931. *Onthophagus tarandus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 182, fig. 17.

1963. *Onthophagus (s. str) tarandus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 548-549.

Diagnostic characters: Oval, coppery or dark metallic green. Prothorax and elytra opaque, densely rugolose, clothed with recumbent yellowish hair. Clypeus short broad, transversely rugolose with feebly excised front margin, ocular lobes rounded, prominent, frons enclosed between two curved carina, vertex very smooth, shining, produced outward on each side into a sharp pointed process, curving a little upward.

Prothorax closely granulated, smooth, shining with deep round excavation on each side. Elytra feebly striate, with deeply punctured intervals. Pygidium densely more strongly punctured. Metasternum very smooth in middle and strongly punctured at sides. Clypeus of male slightly shining and thoracic process is divided into sharper, more divergent lobes anteriorly.

Distribution : India : Andhra Pradesh, Bihar, Karnataka, Kerala, Madhya Pradesh, Orissa, Rajasthan, Uttarakhand and West Bengal.

56. *Onthophagus dynastoides* Arrow*

1931. *Onthophagus dynastoides* Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 182-183, fig. 18.

Diagnostic characters : oval, elongate moderately convex. Head not broad, sides rounded in front of eyes, clypeus rounded, strongly reflexed in front. Prothorax very minutely, densely, confluent punctured, front angles very blunt, sides obtusely angulate before middle, lightly sinuate behind, base rounded. Elytra very finely striate, with flat intervals. Pygidium minutely, densely granulated. Metasternum bearing moderately fine punctures. Clypeus of male separated from frons by a curved carina, having a broad transverse flattened erect horn at end, prothorax vertical, produced obliquely forward and upward in middle as a short blunt process.

Distribution : India : Rajasthan.

Remarks : First time recorded from India in Rajasthan.

57. *Onthophagus variegatus* (Fabricius)*

1798. *Copris variegatus* Fabricius, *Ent. Syst. Suppl.*, 36.

1931. *Onthophagus variegatus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 204-205, Fig. 20.

1963. *Onthophagus variegatus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 575-576.

Diagnostic characters : Oval, highly convex. Clypeus a little produced, notched in middle. Prothorax granulated. Elytral intervals convex, sparsely, minutely punctured. Pygidium strongly closely punctured. Vertex of male having a pair of straight, parallel horns, produced obliquely backwards, not very far apart, united by a basal lamina. Clypeus of female acutely notched, bidentate, separated by a strongly rounded carina from frons, another straight posterior carina.

Distribution : India : Arunachal Pradesh, Gujarat, Punjab and Rajasthan.

Elsewhere : Arabia, Abyssinia, Angola, Egypt, East Africa, Pakistan, Portugal, Somalia, Senegal, Sudan and Tanganyika.

58. *Onthophagus fuscopunctatus* (Fabricius)*

1798. *Copris fuscopunctatus* Fabricius, *Ent. Syst. Suppl.*, 36p.

1931. *Onthophagus fuscopunctatus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 206-207, fig. 21.

1963. *Onthophagus fuscopunctatus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 362.

Diagnostic characters : Minute oval, compact, very convex, shining, ochreous yellow, decorated with variable black spots. Head not very broad, rounded at sides, sharply bidentate in front. Prothorax fairly numerous but not closely punctate - granular, front angles acute, sides straight in front, sinuate behind, base gently rounded. Elytra deeply striate, 7th stria feebly curved, punctured, intervals rather convex, distinctly but sparingly punctured in double rows. Pygidium bearing few deep punctures. Metasternum having a deep median groove, strongly but unevenly punctured. Legs slendered.

Distribution : India : Rajasthan and Tamil Nadu.

Elsewhere : Sri Lanka.

59. *Onthophagus troglodyta* Wiedemann*

1828. *Onthophagus troglodyta* Weidemann, *Zool. Mag.*, 2(1) : 20

1931. *Onthophagus troglodyta*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 207-208, Fig. 22.

1963. *Onthophagus (s. str.) troglodyta*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 565-566, Fig. 216 & 217.

Diagnostic characters : Very short, convex, globular. Head short, not very broad, ocular lobes not very prominent, clypeus a little emarginated in front. Prothorax strongly, closely punctured, front angles acute, lateral margin feebly sinuate, base strongly rounded. Elytra deeply striate and stria closely punctured, 7th stria nearly straight, parallel to 6th, intervals slightly convex, minutely, sharply granular. Clypeus of male feebly emarginated, vertex having a flat plate, a pair of short, curving, divergent, cephalic horns and female clypeus distinctly emarginated, frons divided by curved carinae.

Distribution : India : Rajasthan and Uttar Pradesh

60. *Onthophagus orientalis* Harold*

1868. *Onthophagus orientalis* Harold, *Col. Hefte*, 4 : 83.

1931. *Onthophagus orientalis*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 213-214.

1963. *Onthophagus* (*s. str.*) *orientalis*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 463-464.

Diagnostic characters : Oval, convex. Clypeal margin strongly rounded. Prothorax convex, deeply, closely punctured except near front margin, with deep median longitudinal groove at base. Elytra striate, little rounded irregular intervals. Pygidium strongly, closely punctured, clothed with moderately long recumbent hairs. Male has a pair of backwardly, upward curving parallel horns behind eyes and carina in female.

Distribution : India : Arunachal Pradesh, Andaman & Nicobar Island, Assam, Bihar, Manipur, Meghalaya, Rajasthan, Sikkim, Uttrakhand and Uttar Pradesh.

Elsewhere : Bangladesh, Malay Peninsula, Siam and South China.

61. *Onthophagus catta* (Fabricius)

1787. *Scarabaeus catta* Fabricius, *Mant. Inst.*, 1 : 12.

1931. *Onthophagus catta*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 230-231.

Diagnostic characters : Broadly oval, convex, smooth, moderately shining. Head semicircular, clypeus strongly reflexed anteriorly, separated from frons by a strong, feebly curved carina. Prothorax bearing granules in middle part, scattered punctures behind. Elytra striate, with flat intervals. Pygidium has an angulate basal carina, a few scattered punctures. Vertex of male bears a pair of slendered horns and prothorax having two-minute prominence, separated by a slight groove.

Distribution : India : Anrunachal Pradesh, Gujarat, Haryana, Himachal Pradesh, Karnataka, Maharashtra, Punjab, Rajasthan, Uttrankhand, Uttar Pradesh and Tamil Nadu.

Elsewhere : Africa, Arabia, Pakistan, Cambodia, Madagascar, Myanmar and Sri Lanka.

62. *Onthophagus bonasus* (Fabricius)

1775. *Onthophagus bonasus* Fabricius, *Syst. Ent.*, 23.

1931. *Onthophagus bonasus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 231-232, Pl. XIII, Fig. 5 & 6.

1963. *Onthophagus* (*Digitonthophagus*) *bonasus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 296-297, Pl. XII, Fig. 5.

Diagnostic characters Very broadly oval, convex. Legs, sides clothed with yellow setae beneath. Head semi-circular with strongly reflexed front margin, clypeus separated

from frons by a strong curved carina, with a short acute horn in middle, vertex with a pair of back wardly directed horns. Prothorax having a slight median groove, front angles acutely produced, side feebly sinuate, hind angles and base angulate in middle. Front tibia of male elongated, slendered, having feebly curved external teeth.

Distribution : India : Arunachal Pradesh, Himachal Pradesh, Haryana, Karnataka, Maharashtra, Madhya Pradesh, Punjab, Rajasthan, Tamil Nadu and Uttar Pradesh.

Elsewhere : Afghanistan, Cambodia, Pakistan, Myanmar, Siam and Tonkin.

63. *Onthophagus seniculus* Fabricius

1781. *Scarabaeus seniculus* Fabricius, Spec. Ins., 1 : 23.

1931. *Onthophagus seniculus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 235-236.

Diagnostic characters : Broadly oval, moderately compact, smooth, not very shining above. Head having a straight, parallel carina, basal joint of antenna has serrate anterior edge. Prothorax has smooth, shining excavation just behind front margin, horizontal prominence behind each excavation. Clypeus of male curved upward a little in front, sides nearly straight, front tibia little elongate with rather small teeth. Head of female almost semicircular in out line, dorsal prothoracic prominence slightly rounded.

Distribution : India : Arunachal Pradesh, Gujarat, Rajasthan and Uttar Pradesh.

Elsewhere : China and Indo-China, Malay Peninsula and Myanmar.

64. *Onthophagus ramosus* (Wiedemann)*

1823. *Copris ramosus* Weidemann, *Zool. Mag.*, 2(1) : 13.

1931. *Onthophagus ramosus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 236-237.

1963. *Onthophagus (s. str.) ramosus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 497-498.

Diagnostic characters : Broadly oval, compact, moderately convex. Head almost semicircular. Clypeus separated from frons by a slight rounded carina, vertex having a pair of backwardly inclined horns between eyes, united by a straight carina, sharply pointed in middle. Front angles of prothorax bluntly produced, sides nearly straight, base gently rounded.

Distribution : India : Bihar, Gujarat, Himachal Pradesh, Karnataka, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Pondicherry, Punjab, Rajasthan and Uttarakhand.

Elsewhere : Saim.

65. *Onthophagus atropolitus* D'Orbigny*

1823. *Onthophagus atropolitus* D'Orbigny, *Ann. Soc. Ent., France*, p. 148
1931. *Onthophagus atropolitus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), **3** : 250-251.
1963. *Onthophagus (Serrophorus) atropolitus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), **2** : 281-282.

Diagnostic characters : Smooth, shining black, narrow in shape. Head sub-circular with transversely rugose clypeus, with reflexed anterior margin, separated from frons by a strong rounded carina. Prothorax feebly punctured, with complete margin. Front angles blunt, sides nearly straight, base very obtusely angulated in middle. Elytra striate, intervals flat, not distinctly punctured. Pygidium shining, thinly but strongly punctured. Frons of male has a pair of short erect parallel horns between eyes. Female has a carina on vertex.

Distribution : India : Assam, Rajasthan, Sikkim, Uttarakhand and West Bengal.

Elsewhere : Mynamar.

66. *Onthophagus occipitalis* Lansberge*

1885. *Onthophagus occipitalis* Lansberge, *Ann. Mus. Civ. Genova*, **22** : 379.
1931. *Onthophagus occipitalis*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), **3** : 251-252.

Diagnostic characters : Oval, very convex. Head not very wide, clypeus a little produced, sides nearly straight, apex feebly excised. Frons produced backward as broad flat tooth near eyes, bifercated at end. Prothorax strongly, not very closely punctured, front angles little produced, moderately sharp, side straight in front, sinuate behind, base rounded. Elytra strongly striate, with a little convex intervals and striae with well marked punctures. Pygidium moderately punctured.

Distribution : India : Arunachal Pradesh and Rajasthan.

Elsewhere : Myanmar.

67. *Onthophagus furcicollis* Arrow*

1931. *Onthophagus furcicollis* Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), **3** : 276-277, fig. 32.
1963. *Onthophagus* (s. str.) *furcicollis*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), **2** : 359.

Diagnostic characters : Broadly oval, compact, convex. Head bearing only a few fine scattered punctures, clypeus bluntly bilobed. Frons has a short straight erect horn between eyes. Prothorax with a large, close umblicate punctures, a broad bifurcate horizontal process, projecting over the head. Front angles sharply produced, base strongly rounded. Elytra bearing a chain of large number of punctures in place of stria, intervals asparately punctured. Pygidium has a very large annular punctures.

Distribution : India : Arunachal Pradesh, Rajasthan, Sikkim and Uttrakhand.

68. *Onthophagus concolar* Sharp*

1878. *Onthophagus concolar* Sharp, *Jour. Asiat. Soc. Bengal*, 44(2) : 170.

1931. *Onthophagus concolar* Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae) 3 : 283-284, fig. 32.

1963. *Onthophagus* (s. str.) *concolar*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia) 2 : 316.

Diagnostic characters : Broadly oval, compact, not very convex, black, shining beneath, opaque above. Head moderately rounded with feebly excised clypeus, vertex with a slightly elevated carina. Prothorax finely sparsely punctured, with a little produced front angles, rounded base. Elytra bluntly striate, with flat, minutely, sparsely asperatly intervals. Pygidium also minutely sparsely punctured. Metasternal shield bearing a scattered punctured. Clypeus and frons of male not separated, vertex with or without horn, but clypeus and frons separated in females.

Distribution : India : Himachal Pradesh, Rajasthan and Uttrakhand.

69. *Onthophagus bengalensis* Harold*

1836. *Onthophagus bengalensis* Harold, *Berl. Ent. Zeit*, 30 : 146

1931. *Onthophagus bengalensis*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 286-287, fig. 32.

Diagnostic characters : Black, opaque, oval, compact, convex. Head rather short and broad with moderately large eyes. Clypeus rounded with very feebly excised at front margin in middle. Prothorax finely sparsely punctured, with a little produced front angles. Sides straight in front, sinuate bhind, base gently rounded. Elytra little striate, stria punctured, with flat sparsely, minutely punctured intervals. Pygidium opaque punctured. Metasternal shield having very few fine scattered punctures. Clypeus separated from frons by a very strongly rounded carina, with a pair of curved, slendered horns between eyes.

Distribution : India : Karnataka, Kerala, Rajasthan and Tamil Nadu.

70. *Onthophagus nasalis* Arrow*

1931. *Onthophagus nasalis* Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 288, fig. 33.

1963. *Onthophagus* (*s. str.*) *nasalis*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 445.

Diagnostic characters : Black, opaque, ovate, not very convex. Head flat, not very broad, closely punctured. Clypeus produced, strongly reflexed in front, having a slight straight carina between eyes. Prothorax bearing a finely, fairly, closely, shallow, umblicate punctures. Front angles acutely produced, sides straight in front, sinuate behind, base obtusely angular in middle. Elytra striate, stria minutely, sparingly punctured, intervals flat, very minutely, sparsely granulated. Metsternal shield opaque, strongly punctured. Prothorax of male flattened, sloping gently in middle to front margin.

Distribution : India : Rajasthan and Uttarakhand.

71. *Onthophagus ephippioderus* Arrow*

1907. *Onthophagus ephippioderus* Arrow, *Ann. Mag. Nat. Hist.*, 7(19) : 425.

1931. *Onthophagus ephippioderus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 290

1963. *Onthophagus* (*Colobonthophagus*) *ephippioderus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 342-343.

Diagnostic characters : Very broadly oval, convex. Head produced in front. Prothorax has complete margin, blunt front angles. Clypeus of male having a blunt curved, process, a rounded carina behind. Frons having a recurved pointed process on each side, vertex with slendered curved horn in middle. Prothorax has a cavity along with blunt processes. Front tibia little elongate with broad terminal spurs and broad narrow in female.

Distribution : India : Gujarat, Karnataka, Kerala, Rajasthan and Tamil Nadu.

72. *Onthophagus mirandus* Arrow*

1931. *Onthophagus mirandus* Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 290-291, fig. 34.

1963. *Onthophagus* (*s. str.*) *mirandus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 440.

Diagnostic characters : Black, opaque above, broadly oval, convex. Head broad, sides strongly rounded, clypeus little produced, lightly excised in middle anteriorly,

separated from frons by a curved carina. Prothorax rather closely unevenly punctured, having a light median longitudinal groove. Front angles bluntly rounded, sides almost straight in front, sinuate behind, base rounded, margined. Elytra striate, intervals flat, minutely numerous granulated. Pygidium shining, strongly closely punctured. Metasternal shield strongly punctured. Frons of male having a short slendered, outwardly recurved horn and prothorax little hollowed at front margin and vertex of female with carina.

Distribution : India : Himachal Pradesh, Rajasthan and Uttarakhand.

73. *Onthophagus kuluensis* Bates

1891. *Onthophagus kuluensis* Bates, *Entom. Suppl.*, 34 : 12.

1931. *Onthophagus kuluensis*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 292-293.

1963. *Onthophagus kuluensis*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera: Lamellicornia), 2 : 409-410.

Diagnostic characters : Oval, moderately convex. Head broad, clypeus nearly straight in front, separated from frons by a straight carina. Front angles of prothorax blunt, lateral margin feebly curved in front, base obtusely angulated in middle. Male having a pair of nearly parallel horns, connected by a ridge and female with straight carina on vertex.

Distribution : India : Arunachal Pradesh, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Rajasthan, Uttrankhand and Uttar Pradesh.

74. *Onthophagus armatus* Blanchard

1853. *Onthophagus armatus* Blanchard, *Voy. Au. Pole. Sud.*, P. 98, Pl. VII, figs. 9 & 10.

1931. *Onthophagus armatus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 293-294.

1963. *Onthophagus* (*s. str.*) *armatus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 277-278.

Diagnostic characters : Broadly oval, compact, moderately convex. Head large, broad, clypeal margin straight, excised in middle. Prothorax not closely punctured, front angles blunt, lateral margin nearly straight in front, sinuate behind, base rounded. Elytra deeply striate, intervals convex, minutely, sparsely punctured. Pygidium not very closely punctured. In male, vertex has a broad lamina, which is outer angles form a pair of curved short horns.

Distribution : India : Arunachal Pradesh, Assam and Rajasthan.

Elsewhere : Indonesia, Myanmar, Philippine Island and Vietnam.

75. *Onthophagus semicinctus* D'Orbigny*

1897. *Onthophagus semicinctus* D'Orbigny, *Ann. Soc. Ent.*, France, **64** : 242.
1931. *Onthophagus semicinctus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), **3** : 294.
1963. *Onthophagus* (*s. str.*) *semicinctus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), **2** : 518, Fig. 208.

Diagnostic characters : Oval, not very convex. Head broad with strongly rounded ocular lobes. Clypeus a little produced, excised at front margin. Front angles of prothorax not sharp, lateral margins straight in front, sinuate behind, base rounded. Male has a pair of unconnected parallel cephalic horns, sloping obliquely backwards and female with slightly curved frons carina along with straight carina.

Distribution : India : Gujarat, Maharashtra and Rajasthan.

Elsewhere : Pakistan.

76. *Onthophagus angus* Gillet*

1925. *Onthophagus angus* Gillet, *Ann. Sci. Broux.*, **44** : 233.
1931. *Onthophagus angus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera: Lamellicornia: Coprinae), **3** : 286-297.
1963. *Onthophagus* (*s. str.*) *angus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), **2** : 267.

Diagonostic characters : Oval, not very convex. Head broad, semi-circular, anterior margin strongly reflexed elevated, bilobed in middle, with large eyes. Prothorax strongly punctured, lateral margins nearly straight in front, sinuate behind. Front angles of prothorax blunt and hind angles obsolete. Elytra striate, stria slightly punctured, intervals flat, opaque, minutely sparsely punctured. Pygidium opaque asparingly punctured. Metasternal shield sparingly punctured. Male has a transverse cephalic tubercle just behind carina and prothorax sloping in middle at front margin but prothorax of female narrowly verticle in front along with a blunt tubercle on each side of middle.

Distribution : India : Gujarat, Karnataka, Orissa and Rajasthan.

Elsewhere : Java, Myanmar, South-China and Tonkin.

77. *Onthophagus tragus* Fabricius

1792. *Scarabaeus tragus* Fabricius, *Ent. Syst.*, **1** : 56.
1931. *Onthophagus tragus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), **3** : 303-304.

1963. *Onthophagus (Colobonthophagus) tragus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 557-558.

Diagnostic characters : Broadly oval, not very convex. Head has large eyes. Clypeal margin feebly bilobed in middle, sides bluntly angular. Front angles of prothorax blunt, lateral margin straight in front, sinuate behind, base gently rounded. Male has two parallel cephalic horns, arising from inner margin of eyes. Front tibia armed with four external teeth, a small terminal spur. Vertex of female has a strong tubercle, front tibia with a elongate strongly curved spur.

Distribution : India : Gujarat, Karnataka, Orissa and Rajasthan.

Elsewhere : Java, Myanmar, South China and Tonkin.

78. *Onthophagus sagittarius* Fabricius*

1775. *Onthophagus sagittarius* Fabricius, *Syst. Ent.*, 24.

1931. *Onthophagus Sagittarius*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 304-306, fig. 37.

Diagnostic characters : Oval, moderately compact, convex. Head subcircular with reflexed clypeal margin, bears a pair of horns upon clypeo-frontal suture. Prothorax highly convex in front, well punctured behind. Front angles blunt, base margined, prominent in middle. Elytra strongly striate, with minutely punctured flat intervals. Pygidium sparsely punctured. Male has a little elongate, strongly curved front tibia but female with very broad front tibia.

Distribution : India : Arunachal Pradesh, Assam, Madhya Pradesh, Rajasthan, Uttrankhand and West Bengal.

Elsewhere : Java, Malaya Peninsula and South China.

79. *Onthophagus difficilis* Walker*

1858. *Onthophagus difficilis* Walker, *Ann. Mag. Nat. Hist.*, 3(2) : 205.

1931. *Onthophagus difficilis*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 306-307, Fig. 38.

1963. *Onthophagus (s. str.) difficilis*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 332.

Diaginostic characters : Testaceous yellow, broadly oval, not very convex. Head broad, angulated at sides. Prothorax very smooth and with few scattered fine punctures. Front angles blunt, sides feebly rounded in front, sinuate behind, base gently rounded. Elytra very strongly striate, striae closely punctured, intervals convex, bearing

few scattered punctures. Pygidium has a few minute punctures. Metasternal shield extremely smooth, having a few fairly large punctures at sides. In male, prothorax with a minute tubercle on each side but in female clypeus notched, bluntly bilobed in front.

Distribution : India : Rajasthan and Tamil Nadu. *Elsewhere* : Sri Lanka

80. *Onthophagus hamaticeps* Arrow*

1931. *Onthophagus hamaticeps* Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia: Coprinae), **3** : 308-309, fig. 36.

1963. *Onthophagus* (s. str.) *hamaticeps*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), **2** : 376.

Diagnostic characters : Black, very shining, oval, compact, convex. Head broad, short. Prothorax fairly punctured, front angles rounded, sides gently curved, base strongly rounded. Elytra striate, striae with indistinctly punctures, intervals flat, minutely sparsely punctured. Pygidium rather strongly punctured. Metasternal shield strongly punctured. Vertex of male has a short stout parallel horns.

Distribution India Arunachal Pradesh, Assam, Rajasthan and Utrankhand.

81. *Onthophagus politus* (Fabricius)*

1798. *Copris politus* Fabricius, *Ent. Soc. Suppl.*, 35.

1931. *Onthophagus politus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera: Lamellicornia: Coprinae), **3** : 309-310.

1963. *Onthophagus* (s. str.) *politus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), **2** : 480-481.

Diagnostic characters : Minute, broadly oval, compact, convex. Clypeus bluntly bilobed in front, with a few punctures on each side. Prothorax bearing a fine scattered punctures, angles obtuse, sides gently rounded in front, feebly sinuate behind, base strongly rounded. Elytra strongly striate, striae minutely sparingly punctured, 7th gently curved, intervals very smooth shining. Pygidium smooth shining and has a few scattered punctures.

Distribution : India : Arunachal Pradesh, Bihar, Gujarat, Karnataka, Rajasthan and Tamil Nadu.

Elsewhere : Sri Lanka.

82. *Onthophagus ensifer* Boucomont

1914. *Onthophagus ensifer* Boucomont, *Ann. Mus. Civ. Genova*, **96** : 220.

1931. *Onthophagus ensifer*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), **3** : 334-335, fig. 41.

1963. *Onthophagu (s.str.) ensifer*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 342.

Diagnostic characters : Oval, moderately convex. Head not very broad, clypeus, ocular lobes rounded. Front angles of prothorax a little produced, fairly sharp, lateral margins straight in front, sinuate behind. Male has a very long slendered, slightly flattened, backwardly directed, curved cephalic horn, arises from middle of frons, extending upto middle of body. Female has a curved carina in place of horn.

Distribution : India : Andhra Pradesh, Arunachal Pradesh, Gujarat, Kerala, Rajasthan and Uttar Pradesh.

83. *Onthophagus frugivorus* Arrow*

1931. *Onthophagus frugivorus* Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 336-337.

1963. *Onthophagus (Paraphanaeomorphus) frugivorus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 356.

Diagnostic characters : Oval, highly convex, deeply waisted. Black, or very dark chocolate brown. Head not very broad, closely moderately punctured, clypeal margin strongly rounded, ocular lobes prominent, rounded. Prothorax strongly punctured, front angles prominent, lateral margins straight in front, sinuate behind, base strongly rounded. Elytra finely shallowly striate, intervals flat, bearing fine scattered punctures. Frons of male has a long backwardly directed slender horn, arising between eyes. Female has a distinct curved clypeo-frontal carina, a short straight more distinct one between eyes.

Distribution : India : Assam, Rajasthan and Uttar Pradesh.

84. *Onthophagus carinensiss* Boucomont*

1914. *Onthophagus carinensiss* Boucomont, *Ann. Mus. Civ., Genova*, 44 : 223

1931. *Onthophagus carinensiss*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 337-338.

1963. *Onthophagus (s. str.) carinensiss*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 303-304.

Diagnostic characters : Broadly oval, compact, convex. Head large, broad, clypeus produced, with complete front margin. Prothorax strongly fairly closely punctured, bearing three tubercles on front margin. Front angles bluntly produced, lateral margins straight in front, sinuate behind and hind angles very obtuse, base rounded. Elytra finely

striate, intervals nearly flat, moderately punctured. Pygidium strongly deeply punctured. Metasternal shield sparsely punctured. Vertex of male has a backwardly curved, pointed horn, but in female, clypeus and frons separated by a very strongly curved carina

Distribution : India : Rajasthan.

Remarks : This species is reported first time from Rajasthan.

Elsewhere : Myanmar.

85. *Onthophagus centricornis* (Fabricius)*

1798. *Copris centricornis* Fabricius, *Ent. Syst. Suppli*, p. 33.

1931. *Onthophagus centricornis*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), **3** : 343-344.

1963. *Onthophagus* (*s. str.*) *centricornis*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), : 305-306.

Diagnostic characters : Very small, broadly oval, compact, moderately convex. Head short broad, clypeus sparsely punctured, feebly excised in middle. Frons has a short, straight, erect horn just before eyes. Prothorax strongly closely punctured, sides strongly rounded, scarcely sinuate behind, base gently rounded. Elytra striate, 7th stria strongly curved, intervals flat, with extremely minute scanty asperate punctures. Pygidium finely not closely punctured. Male has a short straight erect cephalic horn just before eyes. In female clypeus separated from frons by a strongly curved caina.

Distribution : India : Arunachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Meghalaya, Rajasthan and Tamil Nadu.

Elsewhere : Sri Lanka.

86. *Onthophagus cervus* Fabricius*

1798. *Copris cervus* Fabricius, *Ent. Syst. Suppl.*, p. 31.

1931. *Onthophagus cervus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), **3** : 348-350, fig. 45.

Diagnostic characters : Oval, moderately convex. Head not very broad, clypeus a little produced, vertex has a pair of backwardly sloping horns, broad at base. Prothorax fairly strongly, not very closely but evenly punctured, with intermixed small punctures. Front angles sharp, lateral margin straight in front, sinuate behind, base rounded. Elytra striate, intervals slightly convex but evenly punctured. Pygidium punctured with intermix large and small punctures.

Distribution India : Andaman and Nicobar Island, Arunachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Pondicherry, Rajasthan, Utrakhhand and West Bengal.

Elsewhere : Sri Lanka.

87. *Onthophagus falsus* Gillet*

1925. *Onthophagus falsus* D'Orbigny, *L'Abeille*, 29 : 214.

1931. *Onthophagus falsus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 350-352, Fig. 46.

1963. *Onthophagus* (*s. str.*) *falsus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 345-346.

Diagnostic characters : Broadly oval, moderately convex. Head not very broad, clypeus a little produced. Front angles rather sharply produced, lateral margins nearly straight in front, sinuate behind, base rounded. Vertex of male with a pair of unconnected, backwardly directed cephalic horns..

Distribution : India : Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Meghalaya and Rajasthan.

Elsewhere : Bangladesh and Pakistan.

Genus 10. *Liatongus* Reitter 1893

Only single species *Liatongus martialis* Harold has been found from Rajasthan.

88. *Liatongus martialis* Harold

1897. *Oniticellus martialis* Harold, *Col. Hefte.*, 14 : 227

1931. *Liatongus martialis*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 371, fig. 51.

1963. *Liatongus martialis*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 98.

Diagnostic characters : Broadly oval, convex. Head closely punctured, clypeus rounded. Prothorax punctured, front angles strongly bluntly produced. Elytra strongly striate, striae deeply punctured, intervals convex deeply punctured. Metasternal shield sparsely punctured, longitudinally channeled along middle. Male has a slendered curved cephalic horn, arising between eyes.

Distribution : India : Gujarat, Rajasthan and Uttar Pradesh.

Elsewhere : Myanmar.

Genus 11. *Oniticellus* Serville 1825

The three species of the genus *oniticellus* have been found from Rajasthan.

Key to the species of the genus *Oniticellus*

1. Head with carina and prothorax sparingly punctured *pallipes* (Fabricius)*
- Head without carina..... 2
2. Dorsal surface opaque *spinipes* Roth*
- Dorsal surface very smooth and shining *cinctus* (Fabricius)*

89. *Oniticellus pallipes* (Fabricius)*

1781. *Scarabaeus pallipes* Fabricius, *Spec. Ins.*, 1 : 33.

1931. *Oniticellus pallipes*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 375-376, Fig. 52.

1963. *Oniticellus (Euoniticellus) pallipes*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaarktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 74, Pl. X. Fig. 3.

Diagnostic characters : Narrowly elongate. Head short broad, clypeal margin straight in front, vertex hollowed. Prothorax has slight posterior median groove with almost rectangular front angle, sides strongly rounded, base angulate in middle and have a spot a little behind front margin in middle, a similar one on each side of last, one on each side of middle, another one in same line near outer margin, a pair near middle of base and one on middle of pygidium. Front tibia less broad, armed with four sharp short external teeth.

Distribution : India : Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Maharashtra, Rajasthan, Tamil Nadu and West Bengal.

Elsewhere : Bangladesh.

90. *Oniticellus spinipes* Roth*

1851. *Oniticellus spinipes* Roth, *Arch. F. Nat.*, 1 : 128

1931. *Oniticellus spinipes*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 378-379.

Diagnostic characters : Elongate oval, very flat. Head without carina and clypeus feebly emmarginate in middle. Prothorax densely subrugosely punctured, with a longitudinal median line upon basal half. Front angles blunt and hind angles obsolete, sides rounded anteriorly and straight behind, base gently rounded. Elytra striate, intervals flat, minutely granulated. Pygidium setose, metasternum opaque, sparsely granulated.

Distribution : India : Gujarat: Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Uttarakhand and Uttar Pradesh.

Elsewhere : Ambyssinia, East & West Africa, Transval, Uganda and Zimbabwe.

91. *Oniticellus cinctus* (Fabricius)*

1775. *Scarabaeus cinctus* Fabricius, *Syst. Ent.*, 30.

1931. *Oniticellus cinctus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 379-380.

1963. *Oniticellus* (s. str.) *cinctus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 77.

Diagnostic characters : Oblong-oval, not very convex, smooth, shining black with a slight greenish lusture. Head without carina or elevations, clypeus short, with a slight depression just behind middle of front margin, rounded, gently excised in middle. Prothorax very smooth, unpunctured, front angles rounded, hind angles obsolete. Elytra deeply striate, striae feebly closely punctured, intervals convex, very minutely sparingly punctured. Pygidium finely rugose and opaque.

Distribution : India : Arunachal Pradesh, Assam, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Uttarakhand, Uttar Pradesh and West Bengal.

Elsewhere : Annam, Bangladesh, Malaya Peninsula, Myanmar, Siam and South China.

Genus 12. *Drepanocerus* Kirby, 1828

Only single species *Drepanocerus exsul* Sharp has been recoded from Rajasthan.

92. *Drepanocerus exsul* (Sharp)*

1875. *Oniticellus exsul* Sharp, *Col. Hefte*, 13 : 53.

1931. *Drepanocerus exsul*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 385-386, Fig. 55.

Diagnostic characters : Elongate, sub-rectangular, very flat above. Head flat very broad, sides bidentate. Prothorax has slightly broad elevation in front, with transverse depression in middle. Lateral margins converging towards base, strongly rounded in front, nearly straight behind, base obtusely angular in middle. Scutellum is long and narrow. Elytra striate, outer stria, sides sinuous. Sternites abruptly reflected, bearing three prominences on sutural intervals with stiff bristles. Front tibia of male strongly curved at inner edge.

Distribution : India : Arunachal Pradesh, Assam, Gujarat, Meghalaya and Rajasthan.

Elsewhere : Siam.

Genus 13. *Onitis* Fabricius 1798

The author recorded nine species of the genus *Onitis* from Rajasthan.

Key to the Species of Genus *Onitis*

1. Clypeus without a carina, clypeo-frontal carina simple and entire *siva* Gillet
- Clypeus with a carina 2
2. Prothorax very lightly punctured *lama* Lansberge*
- Prothorax not very lightly punctured, clypeo-frontal carina not simple 3
3. Prothorax sparsely punctured, without a well marked median groove or line.....
..... *falcatus* (Wulfen)
- Prothorax not sparsely punctured, clypeo-frontal carina not widely interrupted..
..... 4
4. Prothorax without a smooth median line and clypeo-frontal carina interrupted,
front femur of male not toothed *philemon* Fabricius
- The front femur of male toothed 5
5. Prothorax with a smooth median line, metasternum closely granular and hairy ..
..... *singhalensis* Lansberge*
- Metasternum flat and not closely granular 6
6. Clypeo-frontal carina broadly interrupted, terminal external tooth of front tibia
projecting in front in male *subopacus* (Arrow)*
- Clypeo-frontal carina not broadly interrupted, terminal external tooth of front tibia
not projecting in front in male 7
7. Clypeo-frontal carina narrowly interrupted, terminal tooth of front tibia tapering
in male *virens* Lansberge*
- Head tuberculated, clypeus truncate and excised 8
8. Tubercle placed on the clypeo-frontal carina *castaneus* Redtenbacher
- Tubercle placed behind the clypeo-frontal carina, elytra smooth
..... *brahma* Lansberege

93. *Onitis siva* Gillet

1911. *Onitis siva* Gillet, *Ann. Soc. Ent. Belg.*, 4 : 313.

1931. *Onitis siva*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 388-389.

1963. *Onitis siva*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 53-54.

Diagnostic characters : Elongate-oval, moderately convex. Clypeus separated from frons by a strongly elevated curved carina. Prothorax has a trace of a longitudinal median groove posteriorly in middle, uniting with basal foveae. Front angles acutely rectangular and hind angles obsolete. Fore legs of male elongate, femur having a very strong spine at middle of anterior edge, tibiae slendered, strongly curved anteriorly, armed with four sharp external teeth. Hind femur little hollowed on its lower surface, has a hooked tooth just beyond middle on its anterior edge and female without teeth.

Distribution : India : Arunachal Pradesh, Gujarat, Kerala, Rajasthan, Tamil Nadu and Uttar Pradesh.

94. *Onitis lama* Lansberge*

1875. *Onitis lama* Lansberge, *Ann. Soc. Ent.*, Belgium, 18 : 123.

1931. *Onitis lama*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 389-390, Pl. XI, Fig. 11 & 12.

1963. *Onitis lama*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 44-45.

Diagnostic characters : Narrowly oval, very convex. Head having a strongly elevated, slightly acute frontal carina, with a short straight transverse carina, an trisinate vertex carina. Front angles of prothorax blunt, sides strongly rounded, base almost completely rounded. Front femur of male have a very sharp oblique tooth beyond middle on lower edge and hind femur with a tooth near end of lower edge. Front tibia broad, armed with four external teeth.

Distribution : India : Gujarat, Haryana, Punjab, Rajasthan, Uttarakhand and Uttar Pradesh.

95. *Onitis falcatus* (Wulfen)

1786. *Scarabaeus falcatus* Wulfen, *Descr. Cap. Ins.*, p. 14, Pl. 2, fig. 17.

1931. *Onitis falcatus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 392-393, pl. XI, figs. 9, 10.

1963. *Onitis falcatus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 33-34, Pl. IV, fig. 1.

Diagnostic characters : Narrowly oval, convex. Clypeus elliptical, clypeo-frontal carina widely interrupted in middle, with a short frontal tubercle behind it. Prothorax without a well-marked median groove, base strongly rounded. Front tibia of male elongate, armed with four short external teeth, two or three minute teeth before middle on lower surface. Middle femur has a minute tooth near end of lower edge. Front tibia of female rather uniformly curved, armed at tip with an articulated spur.

Distribution : India : Arunachal Pradesh, Assam, Gujarat, Haryana, Karnataka, Meghalaya, Manipur, Rajasthan, Tamil Nadu, Tripura, Uttrakhand, Uttar Pradesh and West Bengal.

Elsewhere : Bangladesh, Malaya Peninsula, Philippine Island and South-China.

96. *Onitis philemon* Fabricius

1801. *Onitis philemon* Fabricius, *Syst. Eleut.*, 1 : 30.

1931. *Onitis philemon*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 393-394, pl. XI, figs. 3, 4.

1963. *Onitis philemon*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 41, pl. V, fig. 2.

Diagnostic characters : Oval, not very elongate or convex. Clypeus parabolic with a feeble emargination in middle, separated from frons by interrupted carina, with a short transverse carina just before it, an conical tubercle just behind it. Prothorax without well marked median line, front angles rectangular and hind angles obsolete, sides straight in front, strongly rounded in middle, base obtusely angulate in middle. Middle femur of male has a sharp tooth near end of lower edge. Front tibia of female broad, armed with four strong external teeth.

Distribution : India : Arunachal Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Uttrakhand, Uttar Pradesh and West Bengal.

Elsewhere : Sri Lanka

97. *Onitis singhalensis* Lansberge*

1875. *Onitis singhalensis* Lansberge, *Ann. Soc. Ent.*, Belgium, 18 : 140.

1931. *Onitis singhalensis*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 394-395, Pl. XI, Fig. 5 & 6.

1963. *Onitis singhalensis*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 40-41.

Diagnostic characters : Elongate oval. Head closely granular, clypeus is slightly bidented anteriorly in middle, separated from vertex by a interrupted straight carina with short transverse carina just before it and a conical tubercle behind it. Prothorax strongly unevenly punctured, with well marked smooth median line. Front angles very blunt and hind angle obsolete, laeral margins feebly curved in front, bisinuate behind, base strongly rounded. Elytra strongly striate, intervals very minutely punctured. Metasternal shield strongly channelled in middle, sides punctured, clothed with long hairs. Fore legs elongate, tibia slendered, strongly curved in front, armed with four short external teeth in male and broad in female.

Distribution : India : Rajasthan and Tamil Nadu.

98. *Onitis subopacus* (Arrow)

1875. *Onitis philemen* Lansberge, *Ann. Soc. Ent.*, Belgium, 18 : 133.

1931. *Onitis subopacus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 395-396.

1963. *Onitis subopacus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 38-39, figs. 19-21.

Diagnostic characters : Oval, narrow, moderately convex. Clypeus elliptical, transversely rugulose, separated from frons by a broadly interrupted carina, another carina in front of it and a conical tubercle behind it. Prothorax closely punctured, with an incomplete median longitudinal line, base margined with a deep pit on each side of middle. Elytra striate, 1st, 3rd & 5th intervals slightly convex. Pygidium opaque, punctured. Metasternal shield smooth, front tibia elongate, slendered, strongly curved.

Distribution : India : Bihar, Assam, Jammu and Kashmir, Kerala, Madhya Pradesh, Rajasthan, Tamil Nadu and West Bengal.

Elsewhere : Malaya Peninsula, Myanmar, Nepal, Siam and Tenasserim.

99. *Onitis virens* Lansberge

1875. *Onitis virens* Lansberge, *Ann. Soc. Ent.*, Belgium, 18 : 135.

1931. *Onitis virens*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 396-397, Pl. XII, Fig. 20& 21.

1963. *Onitis virens*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 40.

Diagnostic characters : Oval, smooth, moderately convex. Clypeus elliptical, closely transversely rugulose, separated from frons by an interrupted carina, another short transverse carina just before it and a conical tubercle just behind it. Prothorax strongly

punctured with a median line in front, narrow median groove behind, basal margin has a deep longitudinal pit on each side of middle. Elytra striate, intervals flat, distinctly punctured. Pygidium flat, punctured. Metasternal shield smooth, front tibia of male elongate, slendered strongly curved, with a long spine at extremity but short broad in female.

Distribution : India : Bihar, Madhya Pradesh, Maharashtra, Karnataka, Kerala, Rajasthan, Tamil Nadu, Utrakhand and West Bengal.

Elsewhere : Bangladesh, China, Myanmar and Tonkin.

100. *Onitis castaneus* Redtenbacher

1848. *Onitis castaneus* Redtenbacher, *Hugel's Kaschmir*, 4(2) : 517.

1931. *Onitis castaneus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 398-399, pl. XI, figs. 7, 8.

1963. *Onitis castaneus*, Balthasar, *Monographie der Scarabaeidae und Aphodiidae der Palaearktischen und Orientalischen Region* (Coleoptera : Lamellicornia), 2 : 46.

Diagnostic characters : Short, compact and convex. Clypeal margin strongly reflexed, straight in middle with a long transverse arcuate carina. Frons has a strongly elevated entire carina, vertex strongly excavated. Front angles of prothorax blunt, sides bisinuate, base distinctly lobed in the middle. Front femur of male has a strong oblique spine near middle of its anterior edge, middle tibia has two strong processes at outer edge. Front tibia of female broad armed with four strong external teeth.

Distribution : India : Arunachal Pradesh, Assam, Bihar, Gujarat, Rajasthan, Utrakhand, Uttar Pradesh and West Bengal.

Elsewhere : Pakistan.

101. *Onitis brahma* Lansberge

1875. *Onitis brahma* Lansberge, *Ann. Soc. Ent. Belgium*, 18 : 142.

1931. *Onitis brahma*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 399-400, Pl. XI, Fig. 15 & 16.

Diagnostic characters : Elongate, parallel sided. Clypeal margin strongly reflexd, a little excised in middle, forming two obtuse angles, separated from frons by a interrupted carina. Prothorax has a posterior median groove, uniting behind with a basal foveae. Front angles at right angles and hind angles almost obsolete. Fore leg of male

elongate, femur with a blunt process before extremity, tibia slendered, strongly curved, armed with four sharp external teeth. Middle femur has a sharp tooth near middle on lower edge, hind femur also have a sharp outwardly directed tooth at upper edge near base.

Distribution : India : Guajrat, Karnataka, Maharashtra, Rajasthan and Tamil Nadu.

Elsewhere : Pakistan.

Genus 14. *Chironitis* Lansberge, 1875.

The single species *Chironitis indicus* has been found from Rajasthan.

102. *Chironitis indicus* Lansberge

1875. *Chironitis indicus* Lansberge, *Ann. Soc. Ent., Belgium*, 18 : 45.

1931. *Chironitis indicus*, Arrow, *Fauna of British India including Ceylon and Burma* (Coleoptera : Lamellicornia : Coprinae), 3 : 402-403, Pl. XII, Fig. 15 & 16.

Diagnostic characters : Oblong, rather depressed. Clupeus strongly depressed, has a short transverse posterior carina, with another carina bears short erect setae. Prothorax broader than elytra, lateral margin strongly dilated in middle. Front angles slightly and hind angles strongly obtuse, basal fovae narrow. Front femur has a sharp strong tooth near end of anterior edge, tibia long, slender, strongly curved, armed with four external teeth. Clypeo-frontal carina of female has a sharp tubercle in middle.

Distribution : India : Guajrat, Karnataka, Maharashtra, Rajasthan and Tamil Nadu.

Elsewhere : Pakistan.

Table I. District-wise localities surveyed in Rajasthan.

S. No.	Name of District	Name of Locality	Date of Survey
1.	Ajmer	Kishangarh & around	24-09-2002
		Pushkar & around	25-09-2002
		Nasirabad & around	26-09-2002
		Beawar & around	26-09-2002
2.	Alwar	Tehla & around, Sariska	14-05-1986, 21-10-2005
		Naraini mata village & around	15-05-1986
		Rajgarh & around	16-05-1986, 17-09-2001
		Bagar village & around	17-05-1986
		Jai Sariska	19-05-1986
		Rajakhera & around	21-05-1986
		Karauli dam & around	15-09-2001
		Akbarpur forest check post area, Sariska	16-09-2001
		Nagali village & around, Sahajpur	18-09-2001
		Madhopur forest check post area, Sariska	19-10-2005
		Kankwari forest & around, Sariska	20-10-2005
		Udaynath & around, Sariska	22-10-2005
		Jahaj & around, Sariska	23-10-2005
Umri, Silliveri & around, Sariska	24-10-2005		
3.	Banswara	Haripura & around,	25-10-2005
		Londha village & around	24-08-1984
		Mahi dam & around	25-08-1986
		Kushalgarh & around	26-08-1984
		Danpur & around	28-08-1984
		Daylabh talab & around	28-08-1983
		Thikaria & around	29-08-1984
		P.W.D. guest house	30-08-1984
Sundanpur & around	12-04-2000		

S. No.	Name of District	Name of Locality	Date of Survey		
4.	Baran	Sukhania dam & around	12-04-2004		
		Mahi river & around	13-04-2000		
		Surpura village & around	14-04-2000		
		Kelwada & around	04-04-2001		
		Anta, Kali sindh river area	05-04-2001		
5.	Barmer	Bothia village & around	13-09-1986		
		Gunga village & around	14-09-1986		
		Sarun village & around	15-09-1986		
		Siwan & around	31-08-2003		
		Dhori manna & around	01-09-2003		
		Utarlai & around	01-09-2003		
		Derasar & around	02-09-2003		
		Shiv & around	03-09-2003		
		6.	Bharatpur	Nadbai & around	08-05-1986
				Bhokarwada & around	09-05-1986
Kama & around	10-05-1986				
Kumer & around	11-05-1986				
Deeng & around	12-05-1986, 13-09-2001				
Uncha ka nagla & around	11-09-2001				
Uchchain & around	12-09-2001				
7.	Bikaner			Bikaner & around	24-08-1987
				Hasansar & around	25-08-1987, 08-09-2003
				Kodamsar, Gajner lake & Kolayat	26-09-1987
		Badrasar & around	27-09-1987		
		Deshnokh & around	28-08-1987		
		Nal & around	07-09-2003		
		Naurang Desar & around	09-09-2003		
		Bhamatsar & around	10-09-2003		

S. No.	Name of District	Name of Locality	Date of Survey
8.	Bhilwara	Forest rest house	21-08-1985, 24-08-1985
		Jahajpur & around	22-08-1985
		Shahpura & around	22-08-1985
		Mandalgarh & around	23-08-1985
		Asind & around	24-08-1985
		Sahara & around	25-08-1985
		Ladpura, Mandalgarh & around	18-04-2001
		Maja dam & around	19-04-2001
9.	Bundi	Hindoli & around	13-08-1985
		P.W.D. guest house	13-08-1985
		Guda dam & around	13-08-1985
		Varudhara dam, Talera & around	14-08-1985
		Sheetal Ki Pahadi, Nenwa road	15-08-1985
		Bundi & around	15-08-1985
		Rameshwar & around	15-04-2001
		Pai Balapur Dam & around	16-04-2001
		Circuit house	16-04-2001
		10.	Chittorgarh
Barabarunda & around, Pratapgarh	17-08-1985		
Imalia ka Magra Bari & around	18-08-1985		
Jaloda bari & around, Sandari	18-08-1985		
Rawalian village & around, Nimbahera	18-08-1985		
Neemach road, Nimbaheda	18-08-1985		
Pratapgarh road	19-08-1985		
Begun & around	19-08-1985		
Persoli & around	19-08-1985		
Nardhari village & around, Mangalbar	20-08-1985		
Chittorgarh & around	20-08-1985		
P.W.D. guest house	20-08-1985		

S. No.	Name of District	Name of Locality	Date of Survey
11.	Churu	Khor & around	15-04-2000
		Ghosunda dam & around	16-04-2000
		Gangral & around	17-04-2000
		Taranagar road area	08-09-2002
		Sehala village & around, Ratangarh road	09-09-2002
		Khasoli Dudhawa Khera area	10-09-2002
		Talchappar wildlife sanctuary	17 & 18-04-2004, 7 th 8 th 9 th & 11 th Oct. 2004
12.	Dausa	Mahuwa & around	19-09-2002
		Salempura village & around	20-09-2002
		Kundol & around	21-09-2002
13.	Dholpur	Rajakheda & around	21-05-1986, 09-09-2001
		Bajhari & around	22-05-1986
		Dhari & around	24-05-1986
		Dholpur & around	25-05-1986
		Vadi & around	07-09-2001, 27-09-2002
		Baraitha & around	08-09-2001
		Van vihar area, Dholpur	29-09-2002
14.	Dungarpur	Forest nursery, Dholpur	29-09-2002
		P.W.D. guest house	19-08-1982
		Ratanpur road	20-08-1984
		Gap sagar	21-08-1984
		Bechiwara & around	22-08-1984
		Tijbar & around	08-04-2000
		Pal Deval & around	09-04-2000
Mandala & around	10-04-2000		

S. No.	Name of District	Name of Locality	Date of Survey
15.	Ganganagar	Khara Chak kalyaan & around	05-09-2002
		Suratgarh & around	05-09-2002
16.	Hanumangarh	Guraunanak nagar & around	05-09-2002
		Sangaria & around	06-09-2002
		Nohar & around	07-09-2002
17.	Jaipur	Chauman & around	18-09-2002
		Chakasu & around	22-09-2002
		Ramgarh jheel & around	23-09-2002
		Bagru & around	24-09-2002
18.	Jaisalmer	Sam & around	28-10-1984, 04-09-2003
		Dabala village & around	10-09-1986
		Kuldhara village & around	11-09-1986
		Devicot & around	03-09-2003
		Pohara village & around	04-09-2003
		Chandan village & around	05-09-2003
		Pokran & around	06-09-2003
19.	Jalore	Bagra & around	29-08-2003
		Bhinmal & around	29-08-2003
		Leta village & around	29-08-2003
		Syla & around	30-08-2003
		Kolar dam & around	30-08-2003
20.	Jhalawar	Jhalawar tank on Bhawani mandi road	07-04-2001
		Kota road & around	08-04-2001
		Aklera & around	09-04-2001
		Chirava and around	11-09-2002
21.	Jhunjhunu	Titwar & around	12-09-2002
		Lalpur & around	12-09-2002
		Navalgarh & around	13-09-2002

S. No.	Name of District	Name of Locality	Date of Survey
22.	Jodhpur	Bijolai & around	26-07-1984
		Bhinbharak & around	26-07-1984
		Bilara & around	13-09-1984
		Pichyak dam & around	13-09-1984
		Kerio ki Dhani & around	13-09-1984
		Asop & around	22-10-1984, 15-07-1987
		Sathin road & around	22-10-1984, 15-07-1987
		Tinvari village & around	14-06-1985
		Dhawa & Dolly village	23-07-1987
		ZSI campus	7 th , 8 th , 10 th , 11 st , 17 th , 19 th , 21 st , 22 nd , 3 rd & 24 th Jun. 2001
		Shergarh & around	01-08-2003
		Phalodi & around	06-08-2003
		23.	Karauli
Hindon & around	04-09-2001		
Bhikanpur, Mandaragal road & around	05-09-2001		
Forest nursery & around	22-09-2002		
Keladevi sanctuary	23-09-2002		
Panchala dam area	24-09-2002		
Binaga village & around	24-09-2002		
24.	Kota		
		Alni dam, Jagpura & around	12-04-2001
		Kalipur area on Rawatbhata road	13-04-2001
25.	Nagaur	Kharnal & around	18-08-1987
		Bajoli & around	19-08-1987
		Jayal & around	20-08-1987
		Merta road area	21-08-1987

S. No.	Name of District	Name of Locality	Date of Survey
26.	Pali	Deh road area	22-08-1987
		Rol village & around	11-09-2003
		Nagaur & around	11-09-2003
		Marwar, Mandwa & around	12-09-2003
		Khimsar & around	13-09-2003
		Pali & around	21-11-1984
		Sardarsamand & around	21-11-1984
27.	Rajsamand	Hemawas dam & around	22-06-1994
		Nathdwara & Bhetawar & around	12-09-1984, 26-08-2003
		Haldighati area	04-04-2000
28.	Sawaimadhopur	Deogarh & around	27-08-2003
		Charbhujia & around	28-08-2003
		Sawaimadhopur road, Ranthambore	30-11-1999
		Lahpur dam, Ranthambore	1-12-1999, 06-11-2000
		Lakarda chowki, Ranthambore	2-12-1999, 09-11-2000
		Indala village, Ranthambore	3-12-1999, 28-11-2000
		Milak talab, Ranthambore	4-12-1999, 3-11-2000
		Amaghati, Ranthambore	4-12-1999
		Kachhida chowki, Ranthambore	4-12-1999
		Sultanpur chowki, Ranthambore	5-12-1999
		Rambheet, Ranthambore	6-12-1999
		Anantpura village, Ranthambore	6-12-1999, 4-11-2000
Dhundharmal ka Darra, Ranthambore	6-12-1999, 1-04-2001, 24-11-2002		

S. No.	Name of District	Name of Locality	Date of Survey
29.	Sikar	Galai Sagar dam, Ranthambore	7-12-1999, 25-11-2002
		Mansarover, Ranthambore	8-11-2002, 31-03-2001
		Gaudwar chowki, Ranthambore	9-12-1999
		Bhakula & around, Ranthambore	3-11-2000
		Rajbagh & around, Ranthambore	8-11-2000, 26 th & 28 th Nov., 2002
		Phakiri talab, Ranthambore	30-04-2001
		P.W.D. guest house	30-03-2001
		Atal sagar, Ranthambore	22-11-2002
		Kathali forest chowki, Ranthambore	2-04-2001
		Padam talab, Ranthambore	23-11-2002
		Harsh Parbat	13-09-2002
		Lakshmangarh & around	14-09-2002
		Khur & around	15-09-2002
		Raghunathgarh & around	16-09-2002
30.	Sirohi	Srimadhapur & around	17-09-2002
		Sirohi to Mount Abu road	4-09-1984, 8-09-1984
		Sirohi to Rly. Stn. Road	5-09-1984
		Sirohi & around	5-09-1984
		On way to Sirohi	6-09-1984
		Samardhara Sirohi	7-09-1984
		Mt. Abu	8-09-1984
		Wildlife sanctuary	9-09-1984
		Gomukh, Mt. Abu	9-09-1984, 31-03-2000
		Honeymoon point, Mt. Abu	9-09-1984
		P.W.D. guest house	11-09-1983

S. No.	Name of District	Name of Locality	Date of Survey
31.	Tonk	Govt. College area, Mt. Abu	31-03-2000
		Trevors Tank area	1-04-1000
		Talhati area, Mt. Abu	2-04-2000
		Gurushikhar area, Mt. Abu	2-04-2000
		Bhanwartala & around	30-08-2001
32.	Udaipur	Niwai & around	1-09-2001
		Keer ki chowki & around	12-09-1984
		Kewara ki nal & around	13-09-1984
		Jaisamand & around	13-09-1984, 5-04-2000
		Sanjay park	14-09-1984
		P.W.D. guest house	14-09-1984
		Thur & around	15-09-1984
		Baghela talab	6-04-2000
		Mandala talab, Barapal village	7-04-2000

Table II. District-wise distribution of species of Dung beetle in Rajasthan.

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
1.	<i>Scarabaeus sacer</i> Linnaeus*	Bikaner	23	4 th , 7 th , 8 th Sept. 2003	R. Sewak
		Jaisalmer	60	03-09-2003	R. Sewak
		Jodhpur	1	10-08-1971	R.N. Bhargava
2.	<i>Scarabaeus gangeticus</i> (Castlenau)	Barmer	1	17-03-2002	S.I. Kazmi
		Jaisalmer	11	21-07-1978	N.S. Rathore
				28 th & 30 th Jan., 2003	S.I. Kazmi
				28-01-2002, 12-02-2002, 15-03-2002	M. Faisal
		Jodhpur	11	04-07-1963, 03-08-1963, 21-07-1976	R.C. Sharma
				21-07-1978, 13-08-1978	N.S. Rathore
10-09-1963	R.N. Bhargava				
3.	<i>Scarabaeus brahminus</i> (Castlenau)	Barmer	26	13-08-1965	V.C. Agarwal
				03-09-1973	R.C. Sharma
		Jaipur	1	3 rd & 4 th Sept., 2003	R. Sewak
				23-09-2002	R. Sewak
				Jaisalmer	23
		Jodhpur	20	28-08-1963	V.C. Agarwal
				22-07-1964	K.V. Surya Rao
7 th 8 th Aug., 1971, 22-07-1964	R.N. Bhargava				

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.				
4.	<i>Scarabaeus cristatus</i> Fabricius	Nagaur	1	03-08-1973	R.C. Sharma				
				08-06-1974	Y.P. Sinha				
				11 th , 21 st & 24 th Aug., 2001	R. Sewak				
				21-09-2003	R. Sewak				
				Pali	3	10-08-1971	P.D. Gupta		
						Barmer	9	05-08-1973	R.C. Sharma
				Jaisalmer	5			03-09-2003	R. Sewak
						04-09-2003	R. Sewak		
				Jodhpur	9	03-08-1963	V.C. Agarwal		
						08-07-1963	R.N. Bhargava		
5.	<i>Scarabaeus andrewesi</i> (Felsche)	Nagaur	2	17-10-1976	N.S. Rathore				
				23-09-2003	R. Sewak				
				Pali	3	10-08-1971	P.D. Gupta		
						Barmer	12	03-08-1973	R.C. Sharma
				Jaisalmer	1			01-09-2003	R. Sewak
						20-07-1978	N.S. Rathore		
				Jodhpur	23	09-09-1964	V.C. Agarwal		
						10-09-1964	R.N. Bhargava		
				6.	<i>Scarabaeus devotus</i> (Redtenbacher)*	Barmer	17	03-08-1973	R.C. Sharma
								12-08-2001	R. Sewak
10-01-1975	Y.P. Sinha								
7.	<i>Scarabaeus erichsoni</i> (Harold)	Barmer	9	2 nd & 3 rd Sept., 2003	R. Sewak				
				Jaisalmer	9	04-09-2003	R. Sewak		
				Barmer	1	03-08-1973	R.C. Sharma		
		Jodhpur	3	22-07-1964	K.V. Surya Rao				

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
8.	<i>Gymnopleurus cyaneus</i> (Fabricius)	Bharatpur	1	10-09-1964	R.N. Bhargava
				06-09-1969	D.S. Mathur
		Jodhpur	10	13-09-2001	R. Sewak
				03-07-1973	K.C. Kansal
9.	<i>Gymnopleurus miliaris</i> (Fabricius)*	Alwar	1	24-08-1976	Y.P. Sinha
				01-08-1979	R.N. Bhargava
		Bharatpur	1	21-10-2005	R. Sewak
				13-09-2001	R. Sewak
				05-09-2002	R. Sewak
		Hanumangarh	5	6 th & 7 th Sept., 2002	R. Sewak
		Jodhpur	1	17-08-1969	R.N. Bhargava
10.	<i>Gymnopleurus koenigi</i> (Fabricius)	Churu	18	09-10-2004	S. Kumar
				Jaisalmer	7
		Jodhpur	2	17-08-1969	V.C. Agarwal
		Jaisalmer	10	04-09-2003	R. Sewak
11.	<i>Gymnopleurus bicallosus</i> Felsche**	Jaisalmer	10	04-09-2003	R. Sewak
12.	<i>Gymnopleurus dejeani</i> Castlenau*	Dungarpur	3	22-08-1984	N.S. Rathore
13.	<i>Heliocopris gigas</i> (Linnaeus)	Ajmer	2	23-09-2002	R. Sewak
		Alwar	3	15 th & 18 th Sept., 2001, 25-10-2005	R. Sewak
		Bhilwara	3	22 nd & 23 rd Aug., 1985	R. Sewak
		Chittorgarh	1	20-08-1985	R. Sewak
		Churu	2	20-11-1975	M. Hayat
		Dausa	1	20-09-2002	R. Sewak
		Jaipur	2	24-09-2002	R. Sewak

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.		
14.	<i>Heliocopris tyrannus</i> (Thomson)	Jodhpur	9	1308-1975 17-10-1976 10-08-2001	Light Trap V.C. Agarwal G. Ram		
		Karauli	1	05-09-2001	R. Sewak		
		Nagaur	3	21-08-1987, 13-09-2003	R. Sewak		
		Sawaimadho Pur	2	07-12-1999	R. Sewak		
		Banswara	1	26-08-1984	N.S. Rathore		
		Bhilwara	1	24-08-1985	R. Sewak		
		Chittorgarh	2	17 th & 18 th Aug., 1985	R. Sewak		
		Dungarpur	1	20-08-1984	N.S. Rathore		
		Jodhpur	1	06-08-2003	R. Sewak		
		15.	<i>Heliocopris bucephalus</i> Fabricius*	Alwar	3	16-09-2001, 2-08-1985	R. Sewak
Bhilwara	4			22 nd , 23 rd & 2 nd Aug., 1985	R. Sewak		
Bundi	1			13-08-1985	R. Sewak		
Chittorgarh	3			17 th , 19 th & 20 th Aug., 1985	R. Sewak		
Rajsamand	1			26-08-2003	R. Sewak		
Bhilwara	1			23-08-1985	R. Sewak		
Chittorgarh	1			19-08-1985	R. Sewak		
16.	<i>Heliocopris dominus</i> Bates	Jodhpur	2	13 th , 17 th & 18 th Sept., 2001	R.C. Sharma		
		17.	<i>Catharsius platypus</i> Sharp	Alwar	23	16 th , 17 th & 18 th Sept., 2001	R.C. Sharma
				Barmer	1	01-09-2003	R. Sewak
Bharatpur	1	11-09-2001	R. Sewak				
Dausa	11	20 th & 21 st Sept., 2002	R. Sewak				

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
18.	<i>Catharsius molossus</i> (Linnaeus)*	Jaipur	12	22 nd & 24 th Sept., 2002	R. Sewak
		Jaisalmer	1	06-09-2003	R. Sewak
		Jodhpur	14	25-08-1961, 14-08-1964	R.N. Bhargava
				13-09-1975	Motilal
		Karauli	45	3 rd , 4 th & 5 th Sept., 2001	R. Sewak
		Rajsamand	1	28-08-2002	R. Sewak
		Tonk	15	30-08-2001, 01-09-2001	R. Sewak
		Alwar	6	12 th & 13 th Oct., 1973	Y.P. Sinha
				17-09-2001	R. Sewak
		Barmer	47	15-07-1978	N.S. Rathore
				13-09-1987	R. Sewak
		Bharatpur	4	13-09-2001	R. Sewak
		Bhilwara	7	23 rd & 24 th Aug., 1985	R. Sewak
		Bundi	23	13 th , 14 th & 15 th Aug., 1985	R. Sewak
		Chittorgarh	22	17 th , 18 th , 19 th & 20 th Aug., 1985	R. Sewak
		Dholpur	7	7 th , 8 th & 9 th Sept. 2001	R. Sewak
		Dungarpur	6	20-08-1984	N.S. Rathore
		Jaipur	1	24-09-2002	R. Sewak
		Jodhpur	13	18-07-1976	Motilal
Karauli	27	3 rd , 4 th & 5 th Sept., 2001	R. Sewak		
Sawaimadho Pur	2	10-10-2003	N.S. Rathore & S. Kumar		
Tonk	6	31-08-2001, 01-09-2001	R. Sewak		

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
19.	<i>Catharsius sagax</i> (Quenstedt)	Ajmer	6	12-08-1973	R.C. Sharma
				12-10-1973	Y.P. Sinha
				26-09-2002	R. Sewak
		Alwar	33	12 th & 13 th Oct. 1963	Y.P. Sinha
				15 th , 16 th & 17 th Sept., 2002, 26-10-2005	R. Sewak
		Banswara	1	26-08-1984	N.S. Rathore
		Bharatpur	2	12-09-2001	R. Sewak
		Bundi	3	15 th & 18 th Aug., 1985	R. Sewak
		Dausa	5	20 th & 21 st Sept., 2002	R. Sewak
		Dungarpur	3	20 th , 21 st & 2 nd Aug., 1984	N.S. Rathore
		Jaipur	20	22 nd & 24 th Sept. 2002	R. Sewak
		Karauli	10	3 rd , 4 th & 5 th Sept. 2001	R. Sewak
		Tonk	16	30-08-2001, 01-09-2001	R. Sewak
20.	<i>Catharsius birmanensis</i> Lansberge*	Nagaur	1	13-09-2003	R. Sewak
		Rajsamand	3	27-08-2003	R. Sewak
21.	<i>Catharsius pithecius</i> (Fabricius)	Ajmer	1	26-09-2003	R. Sewak
		Alwar	2	20-10-2005	R. Sewak
		Bharatpur	1	12-09-2001	R. Sewak
		Dausa	1	20-09-2002	R. Sewak
		Dholpur	16	7 th , 9 th Sept., 2002	R. Sewak
		Jhunjhunu	3	12 th & 13 th Sept. 2002	R. Sewak

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.		
22.	<i>Catharsius innermis</i> (Castlenau)**	Karauli	9	04-09-2001	R. Sewak		
		Jhunjhunu	3	12-09-2002	R. Sewak		
23.	<i>Copris indicus</i> Gillet*	Ajmer	4	26-09-2002	R. Sewak		
		Dausa	10	20 th , 21 st Sept., 2002	R. Sewak		
		Jaipur	1	22-09-2002	R. Sewak		
		Hanumangarh	1	05-09-2002	R. Sewak		
		Karauli	3	04-09-2002	R. Sewak		
		Nagaur	3	11 th , 13 th Sept., 2002	R. Sewak		
		Sikar	8	14-09-2002	R. Sewak		
		Tonk	1	01-09-2001	R. Sewak		
		24.	<i>Copris iris</i> Sharp**	Dausa	3	21-09-2002	R. Sewak
				Karauli	3	3 rd & 4 th Sept. 2001	R. Sewak
25.	<i>Copris repertus</i> Walker	Alwar	12	15 th , 16 th , 17 th , 18 th & 19 th Sept., 2002	R. Sewak		
		Bharatpur	20	12 th & 13 th Sept., 2001	R. Sewak		
		Bundi	1	15-08-1985	R. Sewak		
		Chittorgarh	1	17-08-1985	R. Sewak		
		Churu	2	09-10-2004	R. Sewak		
		Dausa	5	19 th , 20 th , 21 st & 27 th Sept. 2001	R. Sewak		
		Bharatpur	20	12 th & 13 th Sept. 2001	R. Sewak		
		Bundi	1	15-08-1985	R. Sewak		
		Chittorgarh	1	17-08-1985	R. Sewak		
		Churu	6	09-10-2004	R. Sewak		
		Dausa	5	19 th , 20 th , 21 st & 27 th Sept. 2002	R. Sewak		

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
		Dholpur	6	09-09-2001	R. Sewak
		Hanumangarh	3	05-09-2002	R. Sewak
		Jaipur	2	22-09-2002	R. Sewak
		Jalore	5	29 th & 30 th Aug., 2003	R. Sewak
		Jhunjhunu	13	11 th & 12 th Sept. 2002	R. Sewak
		Jodhpur	3	06-08-1966	R. Sewak
				18-07-1976	Motilal
				21-07-1976	N.S. Rathore
		Karauli	15	3 rd & 5 th Sept., 2002	R. Sewak
		Nagaur	6	21-07-1973	Y.P. Sinha
				11-09-2003	R. Sewak
		Rajsamand	7	26 th , 27 th & 28 th Sept., 2003	R. Sewak
		Sawaimadho Pur	1	15-10-2003	N.S. Rathore & S. Kumar
		Sikar	2	14-09-2002	R. Sewak
		Tonk	31	30 th & 31 st Aug., 2001, 01-09-2001	R. Sewak
26.	<i>Copris delicatus</i> Arrow	Jhunjhunu	1	16-08-1976	M. Hayat
		Jodhpur	1	07-10-1976	M. Hayat
27.	<i>Copris corpulentus</i> Gillet	Barmer	12	31-08-2003	R. Sewak
		Churu	20	09-09-2002	R. Sewak
		Jaipur	3	22-09-2002	R. Sewak
		Jalore	7	29 th & 30 th Aug., 2003	R. Sewak
		Jhunjhunu	2	13-09-1973	Y.P. Sinha
		Jodhpur	15	14-08-1964, 10-09-1964	R.N. Bhargava

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.	
28.	<i>Copris numa</i> Lansberge			06-08-1966	P.D. Gupta	
				14-08-1964, 10-09-1964	R.N. Bhargava	
				03-09-1972	R.C. Sharma	
				17-07-1975	Light Trap	
			Nagaur	2	13-09-2003	R. Sewak
			Rajsamand	2	26-08-2003	R. Sewak
			Sikar	2	14-09-2002	R. Sewak
			Ajmer	25	26-09-2002	Y.P. Sinha
			Alwar	17	12-10-1973	R. Sewak
					16 th & 17 th Sept., 2001	R. Sewak
				22	1 st , 2 nd & 3 rd Sept., 2003	R. Sewak
			Bharatpur	21	11 th , 12 th & 13 th Sept., 2003	R. Sewak
			Bikaner	57	7 th , 8 th , 9 th & 10 th Sept., 2003	R. Sewak
			Churu	68	8 th , 9 th & 10 th Sept., 2002	R. Sewak
			Dausa	23	19 th , 20 th & 21 st Sept., 2002	R. Sewak
			Dholpur	17	09-09-2001	R. Sewak
			Hanumangarh	29	6 th & 7 th Sept., 2002	R. Sewak
	Jaipur	55	18 th , 22 nd , 23 rd & 24 th Sept., 2002	R. Sewak		
	Jaisalmer	38	29 th , 30 th Aug., 2003	R. Sewak		
	Jalore	38	29 th , 30 th Aug., 2003	R. Sewak		
	Jhunjhunu	51	11 th , 12 th & 13 th Sept., 2002	R. Sewak		

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
		Jodhpur	89	28-07-2964 14-08-1964, 10-09-1964 22-09-1964 06-08-1966 12-09-1972, 15-07-1975 5 th & 13 th Aug., 1975 18-07-1976, 19-08-1976 27-07-1976 1 st & 6 th Aug. 2003	V.C. Agarwal R.N. Bhargava K.V. Surya Rao P.D. Gupta R.C. Sharma Light Trap Motilal N.S. Rathore R. Sewak
		Karauli	5	05-09-2001	R. Sewak
		Nagaur	2	21 st & 24 th Sept. 2003	R. Sewak
		Rajsamand	17	27 th & 30 th Aug. 2003	R. Sewak
		Sawaimadho Pur	11	4 th , 6 th & 12 th Dec.1999	R. Sewak
		Sikar	55	16-09-2003	R. Sewak
		Tonk	52	30 th & 31 st Aug. 2001, 01-09-2001	R. Sewak
29.	<i>Copris imitans</i> Felsche*	Chittorgarh	2	18-08-1984	R. Sewak
30.	<i>Copris punctulatus</i> Wiedemann*	Ajmer	10	26-09-2002	R. Sewak
		Jaipur	40	22-09-2002	R. Sewak
31.	<i>Copris andrewesi</i> Watson	Bharatpur	3	12-09-2001	R. Sewak
32.	<i>Copris cribratus</i> Gillet	Barmer	18	1 st , 2 nd & 3 rd Sept., 2003	R. Sewak
		Bharatpur	1	12-09-2001	R. Sewak

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
33.	<i>Copris furciceps</i> Felsche	Bikaner	10	9 th & 10 th Sept., 2003	R. Sewak
		Dausa	2	20-09-2002	R. Sewak
		Hanumangarh	2	06-09-2002	R. Sewak
		Jaipur	4	24-09-2002	R. Sewak
		Jaisalmer	5	04-09-2003	R. Sewak
		Jalore	1	29-08-2003	R. Sewak
		Jhunjhunu	9	02-10-1975	Y.P. Sinha
		Jodhpur	12-09-2002	R. Sewak	
			40	10-01-1963, 25-08-1963, 19-08-1976	R.N. Bhargava
			20-08-1963, 13-09-1963	Motilal	
			13-09-1963, 04-09-1963, 28-07-1963, 09-07-1965	V.C. Agarwal	
			23-08-1974	T.G. Vazirani	
		Nagaur	03-09-1972	R.C. Sharma	
			4	11 th & 13 th Sept., 2003	R. Sewak
		Rajsamand	2	28-08-2003	R. Sewak
		Sikar	3	16-09-2002	R. Sewak
		Tonk	3	30-08-2002, 01-09-2002	R. Sewak
50	26-09-2002		R. Sewak		
Alwar	6	12-10-1973	Y.P. Sinha		
Barmer	18-09-2001	R. Sewak			
	81	1 st , 2 nd & 3 rd Sept., 2003	R. Sewak		
Bharatpur	6	13-09-2001	R. Sewak		
Bhilwara	1	23-08-1984	R. Sewak		

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
		Bikaner	136	7 th , 8 th , 9 th & 10 th Sept., 2003	R. Sewak
		Churu	40	9 th & 10 th Sept. 2002	R. Sewak
				09-10-2004	R. Sewak
		Dausa	70	19 th , 20 th & 21 st Sept. 2002	R. Sewak
		Hanumangarh	38	5 th & 7 th Sept. 2002	R. Sewak
		Jaisalmer	112	4 th , 5 th & 6 th Sept. 2003	R. Sewak
		Jalore	72	29 th & 30 th Aug., 2003	R. Sewak
		Jhunjhunu	23	13-10-1973	Y.P. Sinha
				12-09-2002	R. Sewak
		Jodhpur	93	17-08-1963	R.C. Sharma
				23-10-1963	Motilal
				7 th & 26 th Sept., 1963	K.C. Kansal
				03-08-1964, 04-09-1964	V.C. Agarwal
				10-09-1964	R.N. Bhargava
				25-09-1964	M.K. Parida
				22-03-1964	K.V. Surya Rao
				26-08-1976	Light Trap
				22-07-1976	N.S. Rathore
				23-08-1974	T.G. Vazirani
				1 st & 6 th Aug., 2003	R. Sewak
				17-08-1963	R.C. Sharma
		Karauli	3	3 rd & 4 th Sept., 2001	R. Sewak
		Nagaur	13	22-08-1987	R. Sewak

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
34.	<i>Copris signatus</i> Walker*	Rajsamand	12	27-08-2003	R. Sewak
		Sawaimadho Pur	1	04-12-1999	R. Sewak
		Sikar	18	13 th & 15 th Sept., 2002	R. Sewak
		Tonk	2	01-09-2001	R. Sewak
35.	<i>Phalops divisus</i> (Wiedemann)*	Dausa	4	20-09-2002	R. Sewak
36.	<i>Phalops cyanescens</i> (D'Orbigny)*	Alwar	1	17-10-2005	R. Sewak
		Barmer	3	15-07-1978	N.S. Rathore
		Jodhpur	3	01-08-2003	R. Sewak
		Karauli	1	03-09-2001	R. Sewak
37.	<i>Phalops olivaceus</i> Lansberge	Churu	13	09-10-2004	S. Kumar
		Jalore	2	30-08-2003	R. Sewak
		Rajsamand	3	26-08-2003	R. Sewak
		Bikaner	4	10-09-2003	R. Sewak
38.	<i>Disphysema candezei</i> Harold*	Jaisalmer	6	21-07-1978	N.S. Rathore
		Jalore	1	29-08-2003	R. Sewak
		Karauli	1	04-09-2001	R. Sewak
39.	<i>Caccobius torticornis</i> Arrow*	Sawaimadho Pur	33	15-10-2003	N.S. Rathore & S. Kumar
		Ajmer	36	26-09-2003	R. Sewak
		Barmer	45	1 st & 2 nd Sept. 2003	R. Sewak
		Churu	13	10-09-2002	R. Sewak
				08-10-2004	R. Sewak
		Jaisalmer	25	04-09-2003	R. Sewak
		Jalore	5	29 th & 30 th Aug. 2003	R. Sewak
		Jhunjhunu	1	11-09-2002	R. Sewak
Jodhpur	11	01-08-2003	R. Sewak		

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
40.	<i>Caccobius unicornis</i> (Fabricius)	Barmer	2	03-09-2003	R. Sewak
41.	<i>Caccobius meridionalis</i> Boucomont	Jaisalmer	16	03-09-2003	R. Sewak
		Jodhpur	8	06-01-1964	R.N. Bhargava
				04-06-1975	Light Trap
				20-04-1984	R. Sewak
42.	<i>Caccobius ultor</i> (Sharp)*	Alwar	5	16-09-2001	R. Sewak
		Jaipur	1	24-09-2002	R. Sewak
		Karauli	7	3 rd & 4 th Sept., 2001	R. Sewak
		Tonk	2	01-09-2001	R. Sewak
43.	<i>Caccobius vulcanus</i> Fabricius	Tonk	10	30-08-2001	R. Sewak
44.	<i>Caccobius indicus</i> Harold	Alwar	2	12-10-1973	Y.P. Sinha
		Barmer	9	1 st & 3 rd Sept., 2003	R. Sewak
		Jaisalmer	1	05-09-2003	R. Sewak
		Jodhpur	18	30-07-1973	Light Trap
				01-08-2003	R. Sewak
		Nagaur	7	11-09-2003	R. Sewak
45.	<i>Caccobius himalayanus</i> (Jekel)*	Churu	3	09-09-2002	R. Sewak
46.	<i>Caccobius pantharinus</i> Arrow*	Ajmer	1	26-09-2002	R. Sewak
		Barmer	7	1 st & 3 rd Sept., 2002	R. Sewak
		Churu	6	8 th , 9 th & 10 th Sept., 2002	R. Sewak
		Jaisalmer	38	3 rd , 4 th & 6 th Sept., 2003	R. Sewak
		Jalore	13	29 th & 30 th Sept., 2003	R. Sewak
		Jhunjhunu	11	13-09-2002	R. Sewak

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
47.	<i>Caccobius denticollis</i> Harold	Jodhpur	89	01-08-2003	R. Sewak
		Nagaur	11	11-09-2003	R. Sewak
		Rajsamand	2	26-th & 28 th Aug., 2003	R. Sewak
		Sikar	2	15-09-2002	R. Sewak
		Alwar	2	13-10-1073	Y.P. Sinha
		Dausa	2	19-09-2002	R. Sewak
		Jhunjhunu	4	11-08-1965	P.D. Gupta
48.	<i>Onthophagus gulo</i> Arrow*	Pali	1	10-08-1971	P.D. Gupta
		Bharatpur	5	12-09-2001	R. Sewak
49.	<i>Onthophagus vigilans</i> Boucomont*	Alwar	16	15-09-2001	R. Sewak
		Bharatpur	3	12-09-2001	R. Sewak
50.	<i>Onthophagus oculatus</i> Arrow*	Bharatpur	8	12-09-2001	R. Sewak
		Sirohi	2	15-06-1987	P.C. Tak
		Tonk	3	09-09-2001	R. Sewak
51.	<i>Onthophagus crassicollis</i> Boucomont*	Bharatpur	15	12-09-2001	R. Sewak
52.	<i>Onthophagus imperator</i> Castelnau*	Dungarpur	2	21-08-1984	N.S. Rathore
53.	<i>Onthophagus gladiator</i> Arrow*	Ajmer	2	26-09-2002	R. Sewak
54.	<i>Onthophagus digitatus</i> Arrow*	Tonk	2	01-09-2001	R. Sewak
55.	<i>Onthophagus tarandus</i> (Fabricius)*	Alwar	2	15-09-1986	R. Sewak
		Bhilwara	2	25-08-1985	R. Sewak
56.	<i>Onthophagus dynastoid</i> Arrow*	Jhunjhunu	2	13-09-2002	R. Sewak
57.	<i>Onthophagus variegates</i> (Fabricius)*	Churu	1	10-09-2002	R. Sewak
		Jaipur	21	23 rd & 24 th Sept., 2002	R. Sewak

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
58.	<i>Onthophagus fuscopunctatus</i> (Fabricius)*	Jaisalmer	2	04-09-2003	R. Sewak
		Jodhpur	5	01-08-2003	R. Sewak
		Nagaur	1	13-09-2003	R. Sewak
		Jodhpur	2	28-10-2003	G. Tripathi
59.	<i>Onthophagus troglodyta</i> (Wiedemann)*	Sikar	2	16-09-2002	R. Sewak
		Jhunjhunu	1	13-09-2002	R. Sewak
		Jodhpur	3	27-08-2004	G. Tripathi
60.	<i>Onthophagus orientalis</i> Harold*	Karauli	2	03-09-2001	R. Sewak
		Sawaimadho Pur	3	30-11-1999, 06-12-1999	R. Sewak
		Alwar	2	22-10-2005	R. Sewak
61.	<i>Onthophagus catta</i> (Fabricius)	Ajmer	83	26 th & 28 th Sept., 2002	R. Sewak
		Alwar	116	16 th to 18 th Sept., 2001, 19 th to 26 th Oct., 2005	R. Sewak
		Barmer	44	15-07-1978	N.S. Rathore
				31-08-2003, 1 st to 3 rd Sept. 2003	R. Sewak
		Bharatpur	43	11 th to 13 th Sept. 2001	R. Sewak
		Bhilwara	5	22 nd & 25 th Aug. 1985	R. Sewak
		Bikaner	71	7 th to 10 th Sept. 2003	R. Sewak
		Bundi	1	15-08-1985	R. Sewak
		Churu	5	8 th & 10 th Sept. 2002	R. Sewak
		Dausa	68	08-10-2004 19 th to 21 st Sept. 2002	S. Kumar R. Sewak

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
		Dholpur	13	7 th & 9 th Sept. 2001	R. Sewak
		Hanumangarh	24	6 th & 7 th Sept. 2002	R. Sewak
		Jaipur	80	22 nd to 24 th Sept. 2002	R. Sewak
		Jaisalmer	49	4 th to 6 th Sept. 2003	R. Sewak
		Jalore	64	09-07-1978	N.S. Rathore
				29 th & 30 th Aug. 2003	R. Sewak
		Jhunjhunu	93	11 th to 13 th Sept. 2002	R. Sewak
		Jodhpur	80	07-09-1963, 04-10-1963	K.C. Kansal
				22-08-1963, 19-11-1963	Motilal
				2 nd & 3 rd Aug., 1963, 10-04-1964	V.C. Agarwal
				23-05-1964	R.S. Pillai
				10-09-1964	R.N. Bhargava
				22-09-1964	K.V. Surya Rao
				25-09-1965	M.K. Parida
				29-07-1975, 23 rd & 25 th Aug., 1975	Light Trap
				19-07-1976	Motilal
				25-06-2001	Deepak
				1 st , 6 th , 8 th & 17 th Aug., 2001	R. Sewak
		Karauli	54	3 rd to 5 th Sept., 2001	R. Sewak
		Nagaur	106	11 th to 13 th Sept., 2003	R. Sewak

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
62.	<i>Onthophagus bonasus</i> (Fabricius)	Rajsamand	60	26 th to 28 th Aug., 2003	R. Sewak
		Sawaimadho	8	8 th , 11 th & 14 th Oct., 2003	N.S. Rathore S. Kumar
		Sikar	43	14 th , 16 th & 17 th Sept. 2002	R. Sewak
		Tonk	104	30 th & 31 st Aug., 2001	R. Sewak
		Ajmer	16	26-09-2002	R. Sewak
		Alwar	90	12-10-1973 16 th & 19 th May 1986, 15 th & 16 th Sept., 2001	Y.P. Sinha R. Sewak
		Barmer	18	31-08-2003, 1 st to 3 rd Sept., 2003	R. Sewak
		Bikaner	61	7 th , 8 th & 10 th Sept., 2003	R. Sewak
		Churu	30	8 th to 10 th Sept., 2002, 17 th & 18 th Apr., 2004	R. Sewak
		Dholpur	84	9-10-2004 21 st 2 3 rd , 24 th & 25 th May, 1986	S. Kumar R. Sewak
		Ganganagar	4	05-09-2002	R. Sewak
		Hanumangarh	36	5 th to 7 th Sept. 2002	R. Sewak
		Jaisalmer	22	10-07-2001 13-08-2000 4 th to 6 th Sept., 2003	S.I. Kazmi M. Faisal
Jalore	7	29 th & 30 th Aug., 2003	R. Sewak		

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
63.	<i>Onthophagus seniculus</i> (Fabricius)	Jhunjhunu	108	13-10-1973 11 th to 13 th Sept., 2002	Y.P. Sinha R. Sewak
		Jodhpur	47	20-06-1964 15-07-1975 20-06-1984, 12-06-1984, 06-12-1999, 17 th , 21 st & 24 th Aug., 2001, 1 st & 6 th Aug., 2003	V.C. Agarwal R.C. Sharma R. Sewak
		Nagaur	29	11 th & 13 th Sept., 2003	R. Sewak
		Pali	1	22-06-1986	R. Sewak
		Sikar	39	13 th to 16 th Sept., 2002	R. Sewak
		Ajmer	17	24 th & 26 th Sept., 2002	R. Sewak
		Alwar	178	16 th to 18 th Sept., 2001, 20 th , 21 st , 23 rd - 26 th Oct., 2005	R. Sewak
		Barmer	28	13-09-1987, 1 st & 3 rd Sept., 2003	R. Sewak
		Bharatpur	64	12 th & 13 th Sept., 2001	R. Sewak
		Bhilwara	19	22 nd & 24 th Aug., 1985	R. Sewak
		Bikaner	26	7 th & 8 th Sept., 2003	R. Sewak
		Chittorgarh	24	19-08-1985	R. Sewak
		Churu	16	7 th , 8 th & 19 th Sept., 2002, 7 th & 8 th April, 2004	R. Sewak

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
		Dausa	106	19 th to 21 st Sept., 2002	R. Sewak
		Dholpur	62	21 st , 22 nd & 24 th May 1986 7 th & 9 th Sept., 2001	R. Sewak
		Hanumangarh	24	6 th & 7 th Sept. 2002	R. Sewak
		Jaipur	91	22 nd to 24 th Sept., 2001	R. Sewak
		Jaisalmer	75	4 th to 7 th Sept., 2002	R. Sewak
		Jalore	78	27 th , 29 th & 31 st Aug., 2003	R. Sewak
		Jhunjhunu	125	11 th to 13 th Sept., 2002	R. Sewak
		Jodhpur	257	03-08-1963, 19-07-1976	Motilal
				24-08-1963, 07-09-1963, 04-10-1963, 23-11-1963	K.C. Kansal
				03-08-1964, 09-09-1964	V.C. Agarwal
				25-09-1965	M.K. Parida
				03-09-1972	R.C. Sharma
				29-07-1975, 26-08-1975, 04-09-1975	Light Trap
				23-08-1975	T.G. Vazirani
				22-07-1976	N.S. Rathore
				10-07-1985, 13-09-1985, 11 th , 17 th , 22 nd Aug. 2003	R. Sewak
				26-07-1984	R.K. Varshney

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.	
64.	<i>Onthophagus ramosus</i> (Wiedemann)*	Karauli	91	3 rd to 5 th Sept. 2001	R. Sewak	
		Nagaur	78	10 th to 13 th Sept., 2003	R. Sewak	
		Pali	18	23-06-1984	R. Sewak	
		Rajsamand	48	26 th & 28 th Aug. 2003	R. Sewak	
		Sawaimadhopur	32	06-12-1999	R. Sewak	
					11 th , 12 th & 14 th Oct. 2003	N.S. Rathore
		Sikar	54	13 th to 17 th Sept. 2002	R. Sewak	
		Sirohi	3	5 th , 7 th & 8 th Sept., 1984	R.K. Varshney	
		Tonk	64	30 th & 31 st Aug. 2001, 01-09-2001	R. Sewak	
				Alwar	2	17-09-2001
65.	<i>Onthophagus atropolitus</i> D'Orbigny*	Dholpur	9	09-09-2001	R. Sewak	
		Karauli	2	4 th & 5 th Sept., 2001	R. Sewak	
66.	<i>Onthophagus occipitalis</i> Lansberge*	Alwar	1	17-09-2001	R. Sewak	
67.	<i>Onthophagus furcicollis</i> Arrow*	Bharatpur	2	12-09-2001	R. Sewak	
		Karauli	5	03-09-2001	R. Sewak	
		Karauli	3	04-09-2001	R. Sewak	
68.	<i>Onthophagus concolor</i> Sharp*	Hanumangarh	2	06-09-2002	R. Sewak	
69.	<i>Onthophagus bengalensis</i> Harold	Dholpur	5	07-09-2001	R. Sewak	

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
70.	<i>Onthophagus nasalis</i> Arrow*	Alwar	4	19-09-2001	R. Sewak
71.	<i>Onthophagus ephippioderus</i> Arrow*	Sirohi	3	15-06-1987	P.C. Tak
72.	<i>Onthophagus mirandus</i> Arrow*	Bharatpur	8	12-09-1981	R. Sewak
73.	<i>Onthophagus kulensis</i> Bates	Alwar	4	26-09-2002	R. Sewak
		Alwar	7	13-10-1973	Y.P. Sinha
				15 th & 18 th Sept., 2001	R. Sewak
		Barmer	1	31-08-2003	R. Sewak
		Bharatpur	57	12-09-2001	R. Sewak
		Churu	6	10-09-2002, 18-04-2004	R. Sewak
				07-10-2004	R. Sewak
		Dausa	33	19 th , 20 th & 21 st Sept., 2002	R. Sewak
		Hanumangarh	40	07-09-2002	R. Sewak
		Jaipur	28	23 rd & 24 th Aug., 2002	R. Sewak
		Jalore	59	29 th & 30 th Aug., 2003	R. Sewak
		Jhunjhunu	34	11 th to 13 th Sept., 2002	R. Sewak
		Jodhpur	7	17-04-1984	R.K. Varshney
				1 st & 8 th Aug., 2003	R. Sewak
Karauli	74	3 rd to 5 th Sept., 2001	R. Sewak		
Rajsamand	40	27 th & 28 th Aug., 2003	R. Sewak		
Sikar	339	15 th to 18 th Sept., 2002	R. Sewak		
Tonk	1	05-09-1984	R.K. Varshney		

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
74.	<i>Onthophagus armatus</i>	Sikar	50	16-09-2002 Blanchard*	R. Sewak
75.	<i>Onthophagus semicinctus</i> D'Orbigny*	Bundi	16	13 th & 14 th Aug., 1984	R. Sewak
		Sawaimadho- pur	3	14-10-2003	N.S. Rathore & S. Kumar
		Sikar	4	15-09-2002	R. Sewak
76.	<i>Onthophagus angus</i> Gillet*	Jodhpur	5	17-04-1984	R.K. Varshney
		Sawaimadho- pur	1	14-10-2003	N.S. Rathore & S. Kumar
77.	<i>Onthophagus tragus</i> (Fabricius)	Banswara	13	14-04-2000	R. Sewak
		Jodhpur	4	01-09-1964 17-04-1984 26-06-1984	V.C. Agarwal R.K. Varshney R. Sewak
		Sawaimadho- pur	5	4 th & 6 th to 8 th Dec., 1999	R. Sewak
		Sirohi	2	05-09-1984	R.K. Varshney
78.	<i>Onthophagus sagittarius</i> (Fabricius)	Dholpur	12	07-09-2001	R. Sewak
79.	<i>Onthophagus difficilis</i> Walker*	Karauli	8	03-09-2001	R. Sewak
80.	<i>Onthophagus hamaticeps</i> Arrow*	Sikar	2	20-09-2002	R. Sewak
81.	<i>Onthophagus politus</i> (Fabricius)*	Bharatpur	4	12-09-2001	R. Sewak
82.	<i>Onthophagus ensifer</i> Boucomont	Alwar	9	16 th to 18 th Sept., 2001	R. Sewak
		Bharatpur	16	12-09-2001	R. Sewak
		Bikaner	1	01-09-2003	R. Sewak
		Dausa	2	19-09-2002	R. Sewak
		Dholpur	5	24-05-1985, 7 th & 9 th Sept., 2001	R. Sewak

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
		Hanumangarh	38	05-09-2002	R. Sewak
		Jaipur	3	18 th & 24 th Sept., 2002	R. Sewak
		Jhunjhunu	4	11 th & 13 th Sept., 2002	R. Sewak
		Karauli	32	31-08-2001	R. Sewak
		Kota	1	15-04-2001	R. Sewak
		Nagaur	1	13-09-2003	R. Sewak
		Sawaimadhopur	1	11-10-2003	N.S. Rathore & S. Kumar
83.	<i>Onthophagus frugivorus</i> Arrow*	Jaisalmer	3	04-09-2003	R. Sewak
84.	<i>Onthophagus carinensis</i> Boucomont**	Jaipur	2	24-09-2002	R. Sewak
85.	<i>Onthophagus centricornis</i> Fabricius*	Alwar	60	18-09-2001	R. Sewak
		Karauli	1	05-09-2001	R. Sewak
86.	<i>Onthophagus cervus</i> (Fabricius)*	Sawaimadhopur	3	07-12-1999	R. Sewak
87.	<i>Onthophagus falsus</i> Gillet*	Bharatpur	2	12-09-2001	R. Sewak
88.	<i>Liatongus martialis</i> (Harold)*	Sawaimadhopur	5	14-10-2003	R. Sewak
89.	<i>Oniticellus pallipes</i> (Fabricius)*	Ajmer	1	26-09-2002	R. Sewak
		Alwar	1	16-09-2001, 23-10-2005	R. Sewak
		Jodhpur	3	22-09-1984	R. Sewak
		Rajsamand	2	26-08-2003	R. Sewak
		Sawaimadhopur	1	04-12-1999	R. Sewak
90.	<i>Oniticellus spinipes</i> Roth*	Rajsamand	4	26 th & 28 th Aug., 2003	R. Sewak
91.	<i>Oniticellus cinctus</i> (Fabricius)*	Banswara	3	12-04-2000	R. Sewak

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
92.	<i>Drepanocerus exsul</i> (Sharp)*	Chittorgarh	29	17-04-2000	R. Sewak
		Jodhpur	1	13-09-1984	R. Sewak
		Alwar	1	16-09-2001	R. Sewak
		Sawaimadhopur	2	14-10-2003	N.S. Rathore & S. Kumar
93.	<i>Onitis siva</i> Gillet	Alwar	2	12-10-1973	Y.P. Sinha
		Bharatpur	48	18-10-1973	Y.P. Sinha
				12-09-2001	R. Sewak
		Dausa	9	19 th & 20 th Sept. 2002	R. Sewak
		Jaipur	1	07-10-1973	Y.P. Sinha
		Jhunjhunu	15	30-10-1973	Y.P. Sinha
				12-09-2002	R. Sewak
94.	<i>Onitis lama</i> Lansberge*	Sikar	2	29-09-1973	Y.P. Sinha
				19-09-2002	R. Sewak
		Bharatpur	1	16-05-1986	R. Sewak
		Chittorgarh	4	20-08-1985	R. Sewak
		Dausa	10	19-09-2002	R. Sewak
		Jaipur	2	21-09-2002	R. Sewak
		Jhalawar	2	22-09-1964	K.V. Surya Rao
		Karauli	8	3 rd to 5 th Sept., 2001	R. Sewak
		Sawaimadhopur	2	14-04-2003	N.S. Rathore & S. Kumar
		95.	<i>Onitis falcatus</i> (Wulfen)	Ajmer	28
				15-09-2001	R. Sewak
Bharatpur	1			18-10-1973	Y.P. Sinha
Churu	3			10-09-2002	R. Sewak
Dausa	7			21-09-2001	R. Sewak
Jaipur	30			21 st & 24 th Sept., 2002	R. Sewak

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
96.	<i>Onitis philemon</i> Fabricius	Jalore	4	29-08-2003	R. Sewak
		Sikar	69	13 th to 15 th Sept., 2002	R. Sewak
		Ajmer	42	24 th & 26 th Sept., 2002	R. Sewak
		Alwar	60	13-10-1973	Y.P. Sinha
				16 th to 18 th Sept., 2001	R. Sewak
		Barmer	5	13-09-1987	R. Sewak
		Bharatpur	107	18-10-1973	Y.P. Sinha
				11 th , 12 th , 13 th & 15 th Sept., 2001	R. Sewak
		Bhilwara	17	22 nd & 23 rd Aug., 1985	R. Sewak
		Bundi	24	13 th & 14 th Aug., 1985	R. Sewak
		Chittorgarh	19	18 th to 20 th Aug., 2002	R. Sewak
		Dausa	80	19 th & 20 th Sept., 2002	R. Sewak
		Jaipur	39	04-10-1973	Y.P. Sinha
				21 st & 23 rd Sept., 2002	R. Sewak
		Jhunjhunu	5	30-11-1973	Y.P. Sinha
		Jodhpur	2	26-07-1984	R.K. Varshney
Karauli	24	3 rd & 5 th Sept., 2001	R. Sewak		
Nagaur	28	22-10-988, 11 th to 13 th Sept., 2003	R. Sewak		
Rajsamand	13	26 th to 28 th Sept., 2002	R. Sewak		
Sawaimadhopur	12	30-11-1999, 4 th & 6 th Dec., 1999	R. Sewak		

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
97.	<i>Onitis singhalensis</i> Lansberge*	Sikar	76	25-09-1973 13 th & 17 th Sept., 2002	Y.P. Sinha R. Sewak
		Tonk	4	30-08-2001	R. Sewak
		Ajmer	28	26-09-2002	R. Sewak
		Alwar	27	16-09-2001	R. Sewak
		Dausa Sept., 2002	18	19 th & 20 th	R. Sewak
		Rajsamand	4	26 th & 28 th Aug., 2003	R. Sewak
98.	<i>Onitis subopacus</i> (Arrow)*	Sikar	1	13-09-2001	R. Sewak
99.	<i>Onitis virens</i> Lansberge*	Jhunjhunu	16	11-09-2002	R. Sewak
100.	<i>Onitis castaneus</i> Redtenbacher	Dausa	4	21-09-2002	R. Sewak
		Jhunjhunu	17	12 th & 13 th Sept., 2002	R. Sewak
		Rajsamand	7	26-08-2003	R. Sewak
		Sikar	10	14-09-2002	R. Sewak
		Alwar	2	13-10-1973	Y.P. Sinha
		Bhilwara Aug., 1985	9	23 rd & 24 th	R. Sewak
		Chittorgarh	8	20-08-1985	R. Sewak
		Dausa	2	19-09-2002	R. Sewak
		Jaipur Oct., 1973	5	4 th & 7 th	Y.P. Sinha
					24-09-2002
101.	<i>Onitis brahma</i> Lansberge	Jhunjhunu	4	30-09-1973	Y.P. Sinha
		Bharatpur	1	12-09-2001	R. Sewak
		Churu	4	09-09-2002	R. Sewak
		Jhunjhunu	40	11-09-2002	R. Sewak
		Jodhpur	1	17-01-1972	R.C. Sharma

S. No.	Name of Species	Name of District	No. Exs.	Date of Coll.	Name of Coll.
102.	<i>Chionitis indicus</i> Lansberge	Karauli	5	04-09-2001	R. Sewak
		Sawaimadhopur	23	4 th , 6 th , 8 th & 9 th Dec., 1999	R. Sewak
		Ajmer	8	26-09-2002	R. Sewak
		Alwar	2	25 th & 25 th Oct. 2005	R. Sewak
		Dholpur	1	07-09-2001	R. Sewak
		Rajsamand	3	26 th & 27 th Aug., 2003	R. Sewak
		Sawaimadhopur	2	04-12-1999	R. Sewak
		Sikar	1	25-10-1973	Y.P. Sinha
Sirohi	1	06-11-1984	R.K. Varshney		

DISCUSSION

So far one hundred two species belonging to fourteen genera have been studied, collected from the dung of cow, buffalo, camel, horse, donkey, blue-bill, goat, sheep, sambhar, blackbuck, cheetal, hyna, pig and human faecal matter. The sub family Coprini divided into four tribes: Scarabaeini, Sisyphini, Coprini and Panelini. The representative of tribe Sisyphini and Panelini have not been found from Rajasthan. Out of these species, twelve are belonging to tribe Scarabaeini and remaining ninety to Coprini. The species belonging to genera *Scarabaeus* and *Gymnopleurus* having two or more clypeal lobes or teeth, middle and hind tibiae bearing one terminal spur and filiform tarsi. The species belonging to genera of tribe Coprini having cephalic horns, tubercles and carina, middle tibia with one and hind tibia with two terminal spurs and more or less flattened tarsi, and also having longitudinal elytral carina. The prothorax of genus *Copris* is bearing basal median groove, front tibia with three or four external teeth, middle and hind tibia are strongly dilated from base to extremity and each with two transverse carina at outer edge. The species of genus *Caccobius*, *Oniticellus* and *Drepanocerus* are very small in size and also having eight jointed antennae. The species of the genus *Liatongus* bearing cephalic horn and elytra with posterior fringe or bristles but scale like hairs or bristles are presented in *Drepanocerus*. The middle and hind tarsi of the species of the genus *Phalops* are broadly dilated and the species of *Disphyseme* are wingless. The species of the genus *Onthophagus* are usually having stout legs, femur very thick, front tibia armed with four but occasionally with three external teeth and also bearing cephalic horns or carina. The species of the genus *Onitis* and *Chironitis* are easily differentiated by presence of front tarsi only in female of *Chironitis* but two basal impression present in both.

SUMMARY

Total one hundred two species belonging to fourteen genera of sub family Coprinae under the family Scarabaeidae were recorded from all thirty-two districts of Rajasthan state. Out of these, sixty-six have been recorded from the first time from Rajasthan and four species *Gymnopleurus bicallosus* Felsche, *Catharsius inermis* Castelnau, *Copris iris* Sharp, *Onthophagus carinensis* Boucomont have been recorded for the first time from India.

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Scarabaeus cristatus Fabricius



Scarabaeus andrewesi (Felsche)



Gymnopleurus miliaris (Fabricius)



Heliocopris gigas (Linnaeus)



Heliocopris bucephalus Fabricius



Catharsius platypus Sharp



Catharsius molossus (Linnaeus)



Catharsius sagax (Quenstedt)



Catharsius pithecius (Fabricius)



Coprins repertus Walker



Phalops cyanescens (D'Orbigny)



Phalops olivaceus Lansberge



Onthophagus catta (Fabricius)



Onthophagus bonasus (Fabricius)



Oniticellus pallipes (Fabricius)



Onitis lama Lansberge



Onitis philemon Fabricius



Onitis brahma Lansberge



Chironitis indicus Lansberge