

DATABASE OF SCARABIDAE FAMILY (INSECTA COLEOPTERA) IN MALËSIA E MADHE REGION

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SYNOPSIS

In this paper are presented 40 Coleoptera species belonging to Scarabidae family. These data are the result of several-year monitoring, based on expeditions carried out in different areas of the country. Seven species are presented for the first time for the Nord Albania Region.

KEY WORDS:

Coleoptera, Scarabidae family, Nord Albania region, first time

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INTRODUCTION:

Coleopteras represent the largest order of the animal world as well as one of the most important steps of the food chain and ecosystem, so studying them is important. The observation of the Coleopteras in general and of the Scarabidaees in particular, plays an important role in enriching Albanian entomofauna informations.

The areas of our studies, which for the variety of habitats represent one of the most interesting fields for the study of Albanian Entomofauna.

For the area that we are studying, we don't have information except the study of the German expedition conducted in different parts of Albania and a doctoral observation work that provides informations for Coleopterofauna The Western Costal Field of Albania (2001) A.Paparisto.

The insects of Scarabidae family play an important role in food chain, decomposition processes, and crop pollination.

For this family we recognize 15.000 types worldwide, in Albania are reported 74 species. 40 species are collected from us, 7 of them for first time. The number of samples we studied from this family is 398.

MATERIALS AND METHOD:

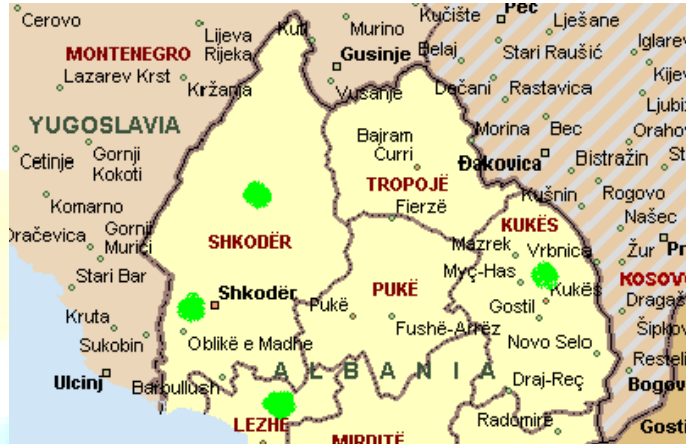
There are performed 5 points of studies in the variety of those expeditions. The material is collected during the period 2012 to the present. The frequency of collecting exemplars has been random.

Referred to the great diversity of species of this family, the collection is based on different methods such as:

- 1 - Mower nets; 2 - Nets entomological; 3 - A Simple Comb; 4 - Entomological forceps
- 5- Japanese umbrellas, Pitt's traps.

The results of this study are processed from the collected material. For each sample is indicated:, the place, the date, the number of samples and the collector. We conserve them until the processing of the material. We place them in glass jars with a mixture: alcohol ethylic 70% white vinegar and distilled water in the ratio 80:5:20, adding a few drops of ether. The collected material is stored and is observed by stereomicroscope according to known methods (Anonymous 1964, 1965, Colas 1969, Friese 1967, Paparisto 2001).

In some cases the collected material is consulted with the scientific fund of the Museum of Natural Sciences in Tirana.



Localities	number	Referring number of species
Shkodër	86	1,4,7,15,19,20,21,22,24,26,29,31,32,33,34,37,40
Rrapsh	101	2,3,4,5,6,7,8,9,10,12,13,17,18,23,27,28,30,31,34,36,37,39
Reç	92	1,2,3,5,6,7,8,9,10,11,12,13,16,17,24,25,27,36,37
Bogë	79	2,3,5,8,11,13,14,16,17,18,20,21,23,24,25,27,28,30,31,32,37,38,39,40
Razëm	40	6,9,10,11,12,14,16,22,35,38

Fig.1 Map of Nord Albania Localities for each of Coleopteras species collected.

RESULTS AND DISCUSSION:

Scarabadiidae Family

For this family, 15 000 species are known worldwide. In Albania are reported 74 species, collected from us 42 species, 6 of which for first time.

I. Genera *Geotrupes* Lats

Larvae in dust balls, in nest under piles of animal manure prepared by imagot, with average body size - Large: 12 - 20 mm. For Albania are reported 6 species, collected from us 4 species, 1 of which for first time.

1 *Geotrupes vernalis* L:

Eurosiberian; Number of samples observed: 8

Reç June 2011 (5e)
Shkodër May 2012 (3e)

2 *Geotrupes silvaticus* Ponz

Eurosiberian; Number of samples observed: 17

Reç 10 – 15 May 2012 (2 e)
Rrapsh 10 August 2012 (11 e)
Rrapsh 10 August 2012 (2 e)
Bogë 20 July 2011 (2 e)

3 *Geotrupes mutator* Marsh

Euroasiatic; Number of samples observed: 9

Reç 10 – 15 May 2012 (2 e)
Rrapsh 10 August 2012 (3e)
Bogë 20 July 2011 (4 e)

4 *Geotrupes spiniger* Marsh

Eurosiberian ; Number of samples observed: 3

Rrapsh 10 – 12 May 2011 (1e)
Shkodër June 2012 (2 e)

II Genera : *Scarabaeus* L

Imagot form dust balls that lcarry them to the nest.They are insects with low gloss black body and large size; 20 - 30 mm. For Albania are reported 4 species , collected from us 2 species.

5. *Scarabaeus affinis* Brulle

Mediterranean; Number of samples observed: 10

Reç August 2011 (6 e)
Rrapsh July 2012 (2e)
Bogë 20 July 2012 (2e)

6. *Scarabaeus sacer* L

Palarctic; Number of samples observed: 6

Reç May 2011 (2 e)
Rrapsh August 2012 (1e)
Razëm June 2012 (3 e)

III. Genera *Onthopagus* Latr

The larvae is found in terrestrial nest filled with manure and average body size; 6 - 12 mm. For Albania are reported 6 species , collected from us 3 species, 1 of which is collected for first time.

7. *Onthopagus muchicornis* L

Eurosiberian Number of samples observed: 18

Reç 10 – 15 May 2011 (11e)

Reç 20 June 2012 (2 e)
Rrapsh May 2012 (3 e)
Shkodër June 2012 (2e)

8. *Onthophagus citellorum* Medv

Euroasiatic; Number of samples observed:13

Reç 10 – 15 May 2012 (6 e)
Rrapsh August 2012 (5 e)
Bogë 20 August 2012 (2 e)

9. *Onthophagus verticicornis* Laich

Eurosiberian; Number of samples observed: 16

Reç 10-12 May 2011 (4 e)
Reç 10-11 September 2011 (4 e)
Rrapsh 12-14 August 2012 (2 e)
Razëm June 2012 (6 e)

IV. Genera : *Gymnopleurus* Ill

Imagot form pellets of animal manure, are black without shine and average size; 10 - 16 mm. For Albania are reported 2 species , collected from us 2 species.

10. *Gymnopleurus geoffroyi* Fuesol

Eurosiberian; Number of samples observed: 8

Reç May 2011 (4 e)
Rrapsh May 2011 (2 e)
Razëm June 2012 (2e)

11. *Gymnopleurus mopsus* Pall

Eurosiberian: Number of samples observed: 12

Reç 10 – 15 May 2011 (2 e)
Bogë 21 August 2011 (3 e)
Razëm 20 – 30 June 2012 (5 e)
Koplik 12 May 2012 (2 e)

V. Genera : *Sisyphus* Latr

Imagot form pellets animal manure, average size 10 -12 mm. For Albania is reported 1 specie , collected from us 1 specie.

12. *Sisyphus schaefferi* L

Pelearctic : Number of samples observed: 12

Reç May 2011 (4 e)
Rrapsh May 2011 (3 e)
Razëm June 2011 (3 e)
Bogë August 2012 (2 e)

VI. Genera : *Copris* Geoffr

Larvae are placed in ground nests or animal manure piles, parents retain and protect their offspring, the average body size - large; 16 - 30 mm. For Albania are reported 2 species , collected from us 2 species.

13. *Copris hispanus* L

Pelearctic; Number of samples observed: 11

Reç May 2011 (5 e)
Reç September 2012 (3 e)
Rrapsh May 2012 (3 e)

14. *Copris lunaris* L

Pelearctic; Number of samples observed: 10

Razëm June 2011(4 e)
Bogë August 2011 (4 e)
Reç September 2011 (2 e)

VII. Genera *Onticellus* Serv

Middle tibia had double wishbone, scutelumi distinguished clearly and late elitrave with long hair. In Albania are reported 2 species , collected from us 2 species, 1 of which for first time.

15. *Onticellus fulvus* Steph

Pelearctic ; Number of samples observed: 8

Shkodër August 2011 (8e)

VIII. Genera *Amphicoma* Latr.

We find Imagot in flowers and larvae in the soil. They have body with disheveled hair and average size body; 10 - 14 mm. In Albania are reported 3 species , collected from us 1 specie.

16. *Amphicoma vulpes* Pall

Eurosiberian; Number of samples observed: 11

Bogë May 2011 (4 e)
Reç 10 – 15 May 2012 (5e)
Razëm 20 June 2012 (2e)

IX. Genera: *Oryctes* Ill

We find the larvae of these insects in decomposing tree stumps. Insects have brown colored body, and body size: 26 - 42 mm. In Albania is reported 1 specie and collected from us 1 specie.

17. *Oryctes nasicornis* L

Palarctic; Number of samples observed: 9

Reç September 2011 (2 e)
Rrapsh May 2011 (5e)
Bogë 20 August 2012 (2e)

X. Genera: *Phylognatus* Esch

We find the larvae of these insects in decomposing tree trunks. They have brightness and large body size; 18 - 30 mm. In Albania, is reported 1 specie, collected from us this specie for the first time.

18. *Phylognatus excavatus* Forst

Palarctic; Number of samples observed:9
Rrapsh 10 – 15 May 2011 (5 e)
Bogë 20 June 2011 (4 e)

XI. Genera *Rhombonix* Hope

The larvae of these insects have emphasized glossy metallic blue-green with bronze shades and large body size averages; 14 - 20 mm. In Albania is reported 1 specie, and collected from us 1 specie.

19. *Rhombonix aurata* Fabr

Mediterranean: Number of samples observed : 7

Shkodër May 2012 (7e)

XII. Genera: *Anomala* Serv

Their larvae are found in the soil, Instead imago feed on leaves. shiny metallic green and average body size - large; 12 - 20 mm. In Albania is reported 4 species, and collected from us 2 species.

20. *Anomala dubia* Scopoli

European; Number of samples observed: 5

Shkodër July 2011 (4 e)
Bogë August 2012 (1 e)

21. *Anomala visit* Fabricius

European; Number of samples observed: 10

Shkodër July 2011 (7 e)
Bogë August 2012 (3 e)

XIII. Genera: *Phylopertha* Kby

The larvae of these insects eat plant roots, while imago are fed with leaves. They have shiny metallic green and the average size of the body; 8 - 11 mm. In Albania is reported 1 specie.

22. *Phylopertha horticola* L

Erosiberian; Number of samples observed: 7

Razëm May 2011 (4 e)
Shkodër July 2011 (3 e)

XIV. Genera: *Anisopla* Serv

We find the larvae of these insects on the ground. Instead imago feed on cereal flower seeds. There are insects that appear in diverse colors and average size (8 - 15 mm). In Albania are reported 6 species, and collected from us 4 species.

23 *Anisopla tempestiva* Erich

European; Number of samples observed: 6

Bogë June 2011 (4 e)
Rrapsh May 2012 (2 e)

24. *Anisopla erichsoni* Reuter

European; Number of samples observed: 8

Reç May 2012 (5e)
Shkodër July 2012 (3e)

25. *Anisopla agricola* Poda

Eurosiberian; Number of samples observed: 5

Reç May 2011 (5e)

26. *Anisopla austriaca* Hbst

Eurosiberian; Number of samples observed: 7

Shkodër August 2011 (7 e)

XV. Genera : *Melolontha* F

The larvae of these insects are found on the ground where they do root, and image feed on the leaves of trees and shrubs. There are insects that have large proportions (21:31 mm). In Albania, are reported 2 species, and collected from us 1 specie.

27. *Melolontha melolontha* L

European; Number of samples observed: 15

Rapsh May 2011 (5e)
Reç May 2012 (6e)
Bogë May 2012 (4e)

XVI. Genera: *Rhizotrqus* Ltr

They are insects fitofage, because their larvae damage the land. They have dirty yellow color and medium size (13 - 17 mm). In Albania is reported 1 species, and collected from us 1 specie.

28. *Rhizotrqus aestivus* Olivier

European; Number of samples observed: 10

Bogë July 2011 (4e)
Rapsh 2011 (6e)

XVII. Genera : *Amphymallon* Berth

There are injurious insects, because their larvae are fed by the root. Usually they have dense brown and large body size (11 - 20 mm). In Albania are reported 3 species, collected from us 1 specie.

29. *Amphymallon solstitialis* L

Eurosiberian; Number of samples observed: 8

Shkodër June 2012 (8 e)

XVIII. Genera *Homolopia* Steph

They are fitofage during the larvare phase, which are fed with the roots of plants. During imago phase they are fed with flowers and leaves. They have their characteristic dotted pigidi and have an average body size (5 - 8 mm). In Albania are reported 4 species, collected from us 1 specie.

30. *Homolopia marginata* Fuessly

Euroanatic; Numri of samples observed: 13

Rapsh July 2011 (4 e)

Rapsh May 2012 (4 e)

Bogë May 2012 (5 e)

XIX. Genera :*Hoplia* Ill

The larvae are fed with the roots in the ground, while imago are fed with flowers and leaves, so they are fitofage. They have an average body size (7 - 13 mm). In Albania are reported 6 species, collected from us 1 specie.

31. *Hoplia parvula* Kryn

Euroasiatic; Number of samples observed: 16

Rapsh May 2011 (6e)

Shkodër May 2012 (6e)

Bogë July 2012 (4e)

XX. Genera: *Trichius* F

The larvae are found in decomposing stumps, while imago live in flowers. Their characteristic are: elitrat spotted, with more body hair and average body size (10 - 15 mm). In Albania are reported 2 species, and collected 2 species from us, which 1 for the first time.

32. *Trichius zonatus* Germ

Eurosiberian; Number of samples observed: 10

Shkodër May 2012 (8e)

Bogë May 2012 (2 e)

33. *Trichius fasciatus* L

Eurosiberian; Number of samples observed: 7

Shkodër May 2011 (7e)

XXI. Genera *Epicometis* Burm

Characteristic for these larvae is the body with dense hairs white spots and average body size (8 - 14 mm). The larvae live in the soil, where they are fed with dendrite, while imago are fed with the larvae. In Albania is reported 1 specie, 1 specie of which is collected for the first time.

34. *Epicometis hirta* Poda

Pelearctic; Number of samples observed : 17

Rapsh May 2011 (7 e)
Rapsh June 2011 (8 e)
Shkodër May 2012 (2e)

XXII. Genera *Oxytherea* Muls

The larvae live in the soil and is fed with dendrite. Instead imago are fed with flower. Their body are with white spots and hairs. They have average body size (8 - 12 mm). In Albania, are reported 2 species, which are collected 2 species from us.

35. *Oxytherea funesta* Poda

European; Number of samples observed: 6

Razëm June 2012 (6 e)

36. *Oxytherea albopicta* Matsch

Palarctic; Number of samples observed: 11

Reç May 2012 (7 e)
Rapsh June 2012 (4 e)

XXIII. Genera *Cetonia* Fabr They have The metallic green body and copper shades. Medium to large body size (14 - 21 mm). The larvae live in decomposing logs, and imago feed on leaves. In Albania is reported 1 specie, which is collected 1 specie from us.

37. *Cetonia aurata aurata* L.

Eurosiberian; Number of samples observed: 18

Rapsh June 2011 (6 e)
Bogë June 2011 (5 e)
Reç May 2012 (3 e)
Shkodër September 2012 (4 e)

XXIV. Genera *Potosia* Mulz

Body of these insects have green metal shades, their sizes are moderate to large. The larvae of these insects live in ant nests, soil and decomposing stumps Instead imago feed on flowers and liquids derived from plants. In Albania, are reported to 5 species, which 3 species are collected from us, 1 for the first time.

38. *Potosia aeruginosa* Drury

European; Number of samples observed: 12

Bogë July 2012 (7 e)
Razëm July 2012 (5 e)

39. *Potosia affinis* Ander

Palarctic; Number of samples observed : 17

Bogë May 2011 (11 e)

Rrapsh July 2012 (6 e)

40. *Potosia lugubris* Hbst

Palarctic; Number of samples observed: 13

Shkodër May 2011 (8e)

Bogë June 2003 (5e)

Below are 40 species of Scarabidae's family found in different regions of Nord Albania, which belong to different families. The families with the largest number of species are Geotrupes and Anisoplia with four species.

Figure 2 represent the relation: number of species according to genera.

Genre	Nr of species	Percentage %
Geotrupes	4	10
Icarabeus	2	5
Onthophagus	3	7.5
Gymnopleurus	2	5
Sisyphus	1	2.5
Copris	2	5
Onticellus	1	2.5
Amphicomma	1	2.5
Oryctes	1	2.5
Phyllognatus	1	2.5
Rhombonix	1	2.5
Anomala	2	5
Phylopertha	1	2.5
Anisoplia	4	10
Melolontha	1	2.5
Rhizotrgus	1	2.5
Amphymallon	1	2.5
Homolopia	1	2.5
Hoplia	1	2.5
Trichius	2	5
Epicometis	1	2.5
Oxytherea	2	5
Cetonia	1	2.5
Potosia	3	7.5

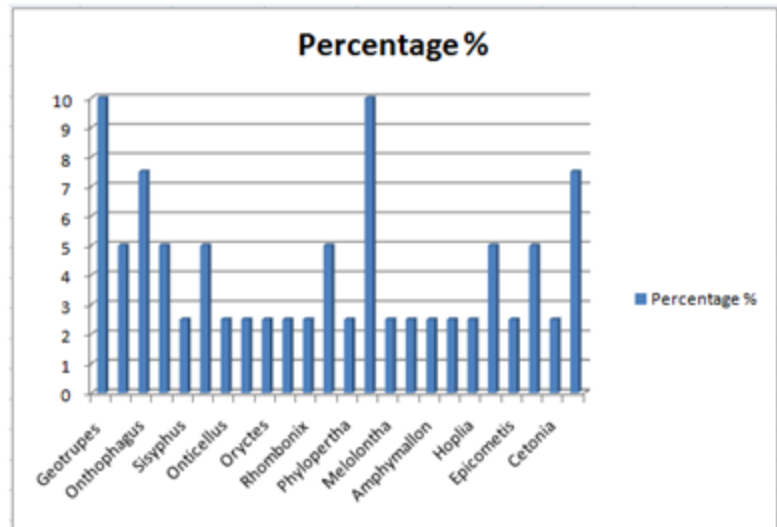


Fig.2 Number of species according to genres

Number of species according to chorology as represented on Fig 3. Regarding Corology we can say that the greatest number of species respectively have: Eurosiberian (15 species), Palarctic(11 species).

Zoogeographic groupation	Nr of species	Percentage %
Eurosiberian	15	37.5
Euroasiatic	3	7.5
Mediterranean	2	5
Palarctic	11	27.5
European	9	22.5

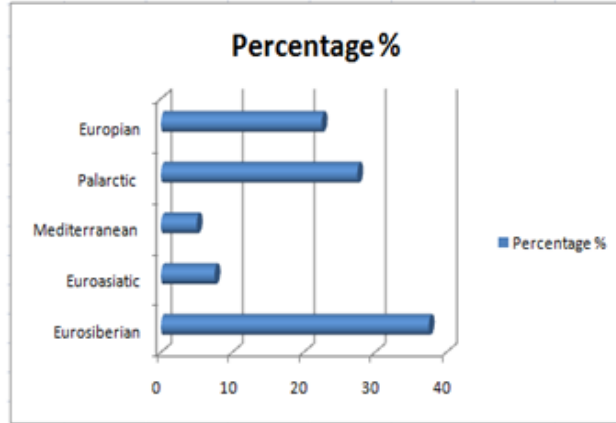


Fig 3. Number of species according to Zoogeographic groupation

Species which are collected for the first time are represented on table below:

Family	Gener	Author	Species	Author
Sarabidae	Geotrupes	Latr	G.Mutator	Marsh
	Ontophagus	Latr	O.Citellorum	Medv
			O.Muchicornis	L
	Phylognatus	Esch	Ph. Exscavatus	Forst
	Hoplia	Ill	H.parvula	Kryn
	Trichius	F	T.Zonatus	Germ
	Potasia	Mulz	P.Lugubris	Hbst

Table no.1 Species collected for the first time

CONCLUSIONS:

- ❖ During this study has been identified 40 species of this family, that belong to the 24 genera.
- ❖ Genera with the largest number of the species are: Geotrupes and Anisoplia (4 species) and
- ❖ Ontophagus and Potassia (3 species).

- ❖ According to the zoogeographic groupation that represents the larger number of species are Eurosiberian with 15 species and Palearctic with 11.
- ❖ We build a database with information related to Scarabidete in this area.
- ❖ We identified 7 species which we collected for the first time in this area:
- ❖ *Onthophagus citellorum* **Medv**; *Onthophagus muchicornis* L; *Geotrupes mutator* **Marsh**; *Phylognathus excavatus* **Forst**; *Hoplia parvula* **Kryn**; *Trichius zonatus* **Germ**, *Potosia lugubris* **Hbst**. Scarabidetes are known to damage the agricultural and forestry economies.
- ❖ The propose to define exactly the habitats of species will help us to protect them.

REFERENCES

MISJA K., 1999: *The compiler for Albania for Red Data Book*, pp:71- 92.

MISJA K, DHORA DH, 1999: *Udhëzues i Praktikave Mësimore në terren (Invertebrorët)*, pp:168-192.

STRINIQI A., OGA J. MISJA K. 2010, *Data on threatened insects of Shkodra Lake Region*. International Conference on Shkodra Lake, pp:22 – 30.

STRINIQI A.MISJA K. 2008 (58), *Insekte të rrezikuara në rrethet Shkodër dhe Malësi e Madhe. Bul. Shkencor Universiteti "Luigj Gurakuqi", Seria e Shkencave të Natyrës.*, pp:137 – 143.

COLAS, 1969, *Guide de L'Entomologist. N.Boubee & C, Paris*, pp: 205–291.

LAMANI F., 1959 (4) *Inventarizimi i insekteve demtuese te kulturave bujqesore te rrethit te Tiranes*, Buletini USHT, Seria e Shkencave Natyrore, pp: 133-157.

MISJA K., 1983: *Percaktues Insektesh, Rendi Coleoptera*, pp:68-92.

MISJA K., 2003: *Entomologjia Insektet*, pp:203-242.

MURRAJ XH., 1962 (4): *Kontribut per faunen e kraheforteve (Coleoptera) te vendit tone*, pp:118-129.

MURRAJ XH., 1968 (8): *Disa rezultate mbi studimin e Rendit te Kraheforteve (Coleoptera) te vendit tone*, pp:31-45.