

**საქართველო,  
საჯარო სამართლის იურიდიული პირი  
ზოოლოგიის ინსტიტუტი**

**GEORGIA LEPL INSTITUTE OF ZOOLOGY**

**ზოოლოგიის ინსტიტუტის  
შრომები  
ტ. XXIII**

გამოცემა დაფინანსებულია ერთობლივი  
გრანტით GNSF-STCU 07/129, პროექტი 4327  
„უხერხემლო ცხოველები, როგორც  
ურბანიზებული გარემოს ბიოინდიკატორები“



გამომცემლობა „უნივერსალი“  
თბილისი 2008

***PROCEEDINGS OF THE INSTITUTE  
OF ZOOLOGY***  
**Vol. XXIII**

**The publishing of proceedings was funded  
by joint grant GNSF-STCU 07/129,  
project 4327 “The invertebrate animals  
as bioindicators of urban environment”**



**Publishing House “UNIVERSAL”  
Tbilisi 2008**

უკ(UDC) 59(012)  
ზ 833

თბილისი 0179, ჭავჭავაძის გამზ. 31. ტელ.: 22.33.53, 22.01.64

Tbilisi 0179, 31 Chavchavadze ave. Tel.: 22.33.53, 22.01.64

izoo@caucasus.net

www.zoo.caucasus.net

რედკოლეგია: გ. ბახტაძე, ნ. ბელთაძე, ა. ბუხნიკაშვილი, ი. ელიავა,  
დ. თარხნიშვილი, ნ. მელაშვილი (მდივანი), მ. მურვანიძე, ე. ყვავაძე (მთავარი  
რედაქტორი), გ. ჯაფოშვილი

Editorial board: G. I. Bakhtadze, N. Beltadze, A. Bukhnikashvili, I. J. Eliava,  
G. Japoshvili, Sh. Kvavadze (editor-in-chief), N. O. Melashvili (secretary of  
editorial board), M. Murvanidze, E. D. Tarkhnishvili

ISSN 1512-1720



**I. J. Eliava**



## 50 წელი მეცნიერების სამსახურში

ბუნებრივი ნიჭით დაჯილდოვებული ინტელექტუალი, ენციკლოპედიური ცოდნის მქონე მეცნიერი, მაღალი დონის პროფესიონალი, შესანიშნავი პედაგოგი, უარესად თავმდაბალი და კოლეგების დამხმარე – ასეთია საქართველოს მეცნიერებათა ეროვნული აკადემიის წევრ-კორესპონდენტი, ბიოლოგიურ მეცნიერებათა დოქტორი, პროფესორი ირაკლი ელიავა. თითქოსდა სრულიად შეუმჩნეველად 50 წელი მიიწურა, რაც იგი დიდ შრომას ეწევა სამეცნიერო-კვლევით და პედაგოგიური მოღვაწეობის დარგში და ღღესაც ჩვეული ენერგიით აგრძელებს მუშაობას.

ი. ელიავა დაიბადა ქ. თბილისში 1928 წლის 23 დეკემბერს მოსამსახურის ოჯახში. 1947 წელს დაამთავრა ქ. თბილისის ვაჟთა II საშუალო სკოლა, სწავლა განაგრძო თბილისის სახელმწიფო უნივერსიტეტის ბიოლოგიის ფაკულტეტზე, ხოლო 1948 წელს გადავიდა ლომონოსოვის სახელობის მოსკოვის სახელმწიფო უნივერსიტეტის ბიოლოგია-ნიადაგმცოდნეობის ფაკულტეტზე, რომელიც დაამთავრა 1953 წელს სპეციალობით „ზოოლოგია“. 1953-55 წლებში იგი მუშაობდა საქართველოს მეცნიერებათა აკადემიის ზოოლოგიის ინსტიტუტში ლაბორანტად. 1955-58 წლებში ამავე ინსტიტუტის ასპირანტია, 1958-61 წლებში – უმცროსი მეცნიერ თანამშრომელი, 1961-1972 წლებში – უფროსი მეცნიერ თანამშრომელი, ხოლო 1972-82 წლებში – ნიადაგის ზოოლოგიის ლაბორატორიის გამგე.

1982 წელს ი. ელიავა აირჩიეს თბილისის სახელმწიფო უნივერსიტეტის ზოოლოგიის კათედრის გამგედ, ხოლო 1987-1989 წლებში იგი იყო აგრეთვე ბიოლოგიის ფაკულტეტის დეკანი. 1989 წლიდან 2005 წლის ჩათვლით იგი საქართველოს მეცნიერებათა აკადემიის ზოოლოგიის ინსტიტუტის დირექტორია, ხოლო 2006 წლიდან დღემდე ინსტიტუტის ნემატოლოგიის ლაბორატორიას ხელმძღვანელობს.

1962 წელს ი. ელიავამ დაიცვა საკანდიდატო დისერტაცია, ხოლო 1984 წელს ქ. ლენინგრადში (სანკტ. პეტერბურგი), ზოოლოგიის ინსტიტუტში – სადოქტორო.

1988 წელს ი. ელიავა არჩეულ იქნა საქართველოს მეცნიერებათა აკადემიის წევრ-კორესპონდენტად. 1985 წელს მონოგრაფიისათვის „ოჯახ დორილაიმიდეს ნემატოდები“ (ლენინგრადი, „ნაუკა“), მას მიენიჭა პ. მელიქიშვილის სახელობის პრემია. 2000 წელს იგი დაჯილდოვდა ღირსების ორდენით.

უარესად ფართოა ი. ელიავას მეცნიერული ინტერესების სფერო. იგი მოიცავს ცხოველთა სამყაროს შესწავლის ისეთ ასპექტებს, როგორცაა სისტემატიკა, ფაუნისტიკა, ეკოლოგია და ევოლუცია. ბატონი ირაკლი 100-ზე მეტი ნაშრომის, მათ შორის, 4 მონოგრაფიის ავტორია. მის გამოკვლევებში უდიდესი ადგილი უჭირავს თავისუფლადმცხოვრები და ფიტოპარაზიტული ნემატოდების შესწავლას. ამ გამოკვლევებში მან მოიცვა საქართველოს თითქმის ყველა კუთხე, როგორც ბუნებრივი, ასევე აგროცენოზები, მტკნარი წყლები და მღვიმეები.

თავის მოწაფეებთან ერთად ი. ელიავამ ამ გამოკვლევებით უდიდესი წვლილი შეიტანა საქართველოს ფაუნის შესწავლაში და გაამდიდრა ამ ჯგუფის შესახებ არსებული ცოდნა. მისი და მისი მოწაფეების მიერ აღწერილია ნემატოდების ორ ათეულზე მეტი ახალი სახეობა: ჩატარებული გამოკვლევების საფუძველზე დადგენილია ძირითადი სასოფლო-სამეურნეო კულტურების ნემატოდოფაუნა როგორც ღია, ისე დახურულ გრუნტში, რაც წარმოადგენს ფიტოპარაზიტული ნემატოდების წინააღმდეგ ბრძოლის ღონისძიებების შემუშავების წინაპირობას.

ი. ელიავას ხელმძღვანელობით დაიწყო გეგმაზომიერი გამოკვლევები ნიადაგის ზოოლოგიის დარგში. მისი ინიციატივით აკადემიკოს მ. გილიაროვისა და ზოოლოგიის ინსტიტუტის დირექტორის, აკადემიის წევრ-კორესპონდენტ ბ. ყურაშვილის ხელშეწყობით ინსტიტუტში 1972 წელს ჩამოყალიბდა ნიადაგის ზოოლოგიის ლაბორატორია, რამაც განაპირობა ნიადაგის ზოოლოგიაში გამოკვლევათა მეცნიერული სკოლის შექმნა. 1972 წლიდან დღემდე ნიადაგის ზოოლოგიასა და ნემატოლოგიაში შესრულებული გამოკვლევები მოიცავენ საქართველოს სხვადასხვა ლანდშაფტურ ზონებს და სხვადასხვა ტიპის ნიადაგებს.

ამ გამოკვლევებით დადგინდა ნიადაგის უხერხემლოთა ფაუნის შედგენილობა, სიმაღლებრივ-სარტყლებრივი განაწილება ნიადაგის ტიპებისა და მცენარეული საფარის მიხედვით. ნაჩვენებია იქნა ნიადაგის ფაუნაზე ანთროპოგენური გავლენის ხასიათი და ნიადაგის ფაუნის ადღენის მექანიზმი რეკულტივირებულ მიწებზე.

ი. ელიავამ გარკვეული წვლილი შეიტანა ფიტო და თავისუფლადმცხოვრები ნემატოდების სისტემატიკის დარგში. მის მიერ გაანალიზებული იყო გვარ ტილენქორინქუსის ადგილი რიგ ტილენქიდას სისტემაში და გამოყოფილ იქნა ახალი ქვეოჯახი ტილენქორინქინე. რიგ დორილაიმიდას დაწვრილებითი

ანალიზის საფუძველზე მისი და მისი მოწაფეების მიერ დაზუსტდა რიგის და დაქვემდებარებული ტაქსონების მოცულობა და შეიქმნა რიგ დორილაიმიდას ოჯახების სახეობათა სარკვევები.

დორილაიმიდას რიგის სისტემის დამუშავებასთან ერთად ი. ელიავამ დიდი ყურადღება მიაქცია რიგის ფილოგენეზისა და ევოლუციის მიმართულების საკითხებს. ევოლუციის სინთეზური თეორიის დებულებებიდან გამომდინარე მის მიერ განხილულ იქნა რიგის ევოლუციის შესაძლო გზები და ფილოგენეზური კავშირები რიგის დაქვემდებარებულ ტაქსონებს შორის.

შედარებით-ფუნქციონალური ანალიზის საფუძველზე ნაჩვენებია იყო დორილაიმიდების რთული შუბის კულმინაციური განვითარების ხასიათი, აგრეთვე დორილაიმიდების რთულ შუბიანი წარმომადგენლების და გრძელსტილეთიანი ტილენქიდების კონვერგენტული განვითარების სურათი. ამ მიმართულებით აღსანიშნავია მისი ნაშრომები: „რიგი დორილაიმიდას ტროფიკული სისტემის ევოლუცია პარაზიტიზმზე მის გადასვლასთან დაკავშირებით“ (1979), „რიგი დორილაიმიდას ნემატოდების წარმოშობის ევოლუციური წინაპირობანი“ (1989), „რიგი დორილაიმიდას ნემატოდების ოდონტოსტილის მულტიფუნქციონალობა და მისი მნიშვნელობა“ (1983).

ი. ელიავას მონოგრაფიებში გარდა ცალკეული ტაქსონების სისტემატიკისა განხილულია ნემატოდების მორფოლოგიის, ზოოგეოგრაფიისა და ევოლოგიის საკითხები. ეს ნაშრომები ხასიათდება ფუნდამენტალურობით, ორიენტაციითა და ზოგადბიოლოგიური მიდგომით.

უაღრესად დიდია ი. ელიავას ღვაწლი სამეცნიერო კადრების აღზრდის საქმეში. მისი პედაგოგიური მოღვაწეობა დაიწყო ჯერ კიდევ 1957 წელს. როგორც პედაგოგი იგი მუშაობდა პედაგოგიურ ინსტიტუტში და შემდგომ პედაგოგიურ უნივერსიტეტში, თბილისის სახელმწიფო უნივერსიტეტში. მისი ხელმძღვანელობით შესრულებულია და დაცულია მრავალი სადიპლომო შრომა და 10 საკანდიდატო დისერტაცია. წლების მანძილზე იგი ხელმძღვანელობდა ზოოლოგიურ ინსტიტუტთან არსებულ სადისერტაციო საბჭოს, სადაც ზოოლოგიის დარგში დაცულ იქნა 3 სადოქტორო და მრავალი საკანდიდატო დისერტაცია.

ი. ელიავას მიერ შედგენილ და გამოცემულ იქნა „მოკლე ზოოლოგიური ლექსიკონი“ (2000), ცხოველთა დასახელებათა სამეზოვანი ლექსიკონი არასპეციალისტებისათვის (ი. ბონდარევთან ერთად) (2003). მისი რედაქტორობით გამოვიდა ზოოლოგიის ინსტიტუტის შრომების XX, XXI, XXII ტომები.

პროფესორების – გ. ნახუცრიშვილსა და გ. ქაჯაიასთან ერთად მან გამოაქვეყნა „ეკოლოგიის საფუძვლები“ (1992), რომელიც დღესაც ძირითადი სახელმძღვანელოა ბიოლოგიის სპეციალობის სტუდენტებისათვის.

ი. ელიავა სისტემატურად მონაწილეობდა სხვადასხვა საერთაშორისო სამეცნიერო კონფერენციებსა და სიმპოზიუმებში.

წელს იგი 80 წლის ხდება. ვუსურვოთ მას ხანგრძლივი სიცოცხლე, ჯანმრთელობა და ჩვეული ენერჯით მუშაობა.

† ა. ჭოლოკავა  
ბიოლოგიურ მეცნიერებათა დოქტორი  
ერ. ყვავაძე  
ბიოლოგიურ მეცნიერებათა დოქტორი  
გ. ბახტაძე  
ბიოლოგიურ მეცნიერებათა დოქტორი



## 50 YEARS FOR SCIENCE

Professor, Member of the National Academy of Sciences of Georgia, doctor of biological sciences Irakli Eliava is an intellectual scientist endowed with a natural talent and encyclopaedic knowledge. He is a high level professional, magnificent pedagogue, extremely modest and everybody's supporter. During 50 years he has carried scientific and pedagogical works and still continues to work with usual energy.

I. Eliava was born in December 23, 1928 in Tbilisi. He finished the school in 1947 and continued to study at the department of biology the Tbilisi State University. In 1948 he is a student of department of biology and soil sciences of Moscow State University, which graduated with specialty zoologist. In 1953-55 he worked as a laboratory assistant at the Institute of Zoology of Georgian Academy of Sciences. In 1955-58 he is a post-graduate student of the same Institute, in 1961-1972- senior researcher and in 1972-1982 head of the laboratory of the Soil Zoology.

In 1982 I. Eliava was elected the head of the Chair of Zoology of Tbilisi State University, during 1987-1989 he was dean of the Department of Biology. From 1989 to 2005 he was director of the Institute of Zoology of Georgian Academy of Sciences and from 2006 to present he is the head of the Laboratory of Nematology of the institute.

I. Eliava defended PhD thesis in 1962 and doctor's thesis in 1984 at the Institute of Zoology of Leningrad (St. Petersburg).

In 1988 Eliava was elected Corresponding Member of Georgian Academy of Sciences. In 1985 awarded the P.Melikishvili prize for the monograph -“Nematodes of the family Dorylaimidae”. He was rewarded with the Order of Honour in 2000.

Area of scientific interests of I. Eliava is wide. It includes such aspects of studies of fauna as systematics, faunistic studies, ecology and evolution. I. Eliava is the author of more than 100 research papers and 4 monographs. Studying of the free-living and phitoparasitic nematodes takes the greatest place in his research. Those researches embrace nearly all places of Georgia, natural and agroecosystems, fresh waters and caves.

Together with his students he made an important contribution in studies of Georgian fauna and enriched the present knowledge. More than two thousand of new species of nematodes are described by him and his students. On the bases of the carried out researches the nematodofauna of crops of both, bare and closed soils, representing the prerequisite for working out the methods of control of phytoparasitic nematodes, were described by him and his collaborators.

Under the direction of I. Eliava regular studies in the field of soil zoology have begun. In 1972 the laboratory of soil Zoology was established under initiative of I. Eliava and with the help of Academician M. Giljarov and support of B. Kurashvili -the director of the Institute of Zoology, which stipulated to create scientific school in soil zoology. From 1972 till present the researches having been carried out in soil zoology and nematology include various landscape zones and soils of different types.

By these researches the faunal composition of soil invertebrates and height zoning distribution by soil types and growth were established. Character of anthropogenic impact on soil fauna and mechanism of soil fauna restoration on reclaiming soil was shown.

I. Eliava made a definite contribution to the field of studies of phyto and free-living nematodes systematics. He also analyzed the place of genus *Tylenchorhynchus* in the system of order Tylenchida and assigned the new sub-family Tylenchorhynchinae. On the basis of detailed analysis of the order Dorylaimida the volume of the order and subordinated taxa were specified and catalogue of the species of family Dorylaimidae was compiled by him and his students.

Processing the system of order Dorylaimida, I. Eliava paid the great attention to the matter of phylogenesis and trend of evolution of the order. On the basis of the synthetic theory of evolution the possible ways of the order evolution and phylogenetic relations among the subordinated taxa of the order were discussed by him.

On the basis of comparative-functional analysis, the character of culmination development of Dorylaimida complex spear was demonstrated. Picture of the convergent development of complex spear representatives of Dorylaimida and long stylet Tylenchida was shown. From this point his following works are noticeable: “Tropical system evolution of the order Dorylaimida in connection with transition to the parasitism” (1979), “Evolutional precondition of the order Dorylaimida nematodes'origin,”(1989), “Multifunctionality of odontostyle of order Dorylaimida nematodes and its significance”(1983).

Except the separate taxa systematics problems of morphology, zoogeography and ecology of nematodes are also discussed in the monographs of I. Eliava. These works are characterized by fundamental, original and general biological approach.

Merit of I. Eliava in training the scientific personal is especially great. His pedagogical activity began in 1957. He worked at the Pedagogical Institute, the Pedagogical University and then at the Tbilisi State University as a pedagogue and as a head of department of Zoology. A lot of graduation theses and 10 theses for candidate's degree were prepared under his guidance.

Within the long period he was the head of dissertation council of the Institute of Zoology, where 3 doctoral and a lot of candidates' degrees were defended in the branch of Zoology.

I. Eliava compiled and published "Short Zoological Dictionary" (2000), triglot dictionary of animal names for laymen (together with I. Bondarjev) (2003). Under his editorial the XX, XXI, XXII volumes of Proceedings of the Institute of Zoology were published.

He published -"Ecology Foundations" - the textbook for the students of the University (1992), together with Professor G. Nakhutsrishvili and G. Kajaia which at present is the main book for the students with speciality of biologist.

I. Eliava systematically took part in different international scientific conferences and symposiums.

It is 80th anniversary this year. We wish him good health, success, may he be satisfied with his scientific work.

† *A. Cholokava*  
*doctor of Biol. Sciences*  
*E. Kvavadze*  
*doctor of Biol. Sciences*  
*G. Bakhtadze*  
*doctor of Biol. Sciences*

**LIST OF FREE, PLANT PARASITIC AND INSECT PARASITIC  
NEMATODES OF GEORGIA  
PART IV. ORDER DORYLAIMIDA PEARCE, 1942**

**I. J. Eliava<sup>1</sup>, T. D. Tskitishvili<sup>2</sup>, N. L. Bagathuria<sup>3</sup>, E. T. Tskitishvili<sup>4</sup>, M. Kuchava<sup>5</sup>.**

**1,2,3,4,5 – Institute of Zoology, e-mail: ekatskitishvili@mail.ru**

**Abstract:** The present day in Georgia is known 218 species of Order Dorylaimida, belonging to 18 families. Among them 16 species are plant parasite. Several species by authors of this article was described.

**Key words:** Plant parasitic, Order Dorylaimida, Frequent, Rare

**Abbreviations:** **F** – Free; **PP** – Plant Parasite; **E.G.** – Eastern Georgia; **W.G.** – Western Georgia, **Fr** – Frequent; **R** – Rare.

**Suborder Dorylaimida Pearce, 1942  
Superfamily Dorylaimodea de Man, 1876  
Family Dorylaimidae de Man, 1876**

1. *Dorylaimus montanus* (Stefanski, 1923) Thorne et Swanger, 1936  
F; E G; R [31]
2. *D. stagnalis* Dujardin, 1845  
F; E G; R [7, 8, 12, 28]
3. *Laimidorus callosus*  
F; E G; R [48]
4. *Protorylaimium brigdamense* (Deman, 1876) Andrassy, 1969  
F; E G; R [14,21]
5. *Paradorylaimus filiformis* (Bastian, 1865) Andrassy, 1969  
F; E G; R [14, 16, 17]
6. *Prodorylaimus longicaudatus* (Bütschli, 1874) Andrassy, 1959  
F; E 9; R [49]
7. *P. paralongicandatus* (Micoletzky, 1925) Andrassy, 1959  
F; E 9; R [49]
8. *Mesodorylaimus abberans* Loof, 1969  
F; E G; R [20]
9. *Mesodorylaimus arvensis* (Cobb in Thorne of Swanger1936) Andrassy, 1959  
F; E 9;R [49]
10. *M. adjariensis* Tskitishvili; 1969  
F; E G; R [22]
11. *M. bastiani* (Bütschli, 1873) Andrassy, 1959  
F; E G a. W G; Fr [3, 13, 14, 16, 17, 27, 28, 25, 36]
12. *M. filicaudatus* (Daday, 1905) Goodey, 1963  
F; W G; R [12]
13. *M. flagellatus* (Williams, 1959) Andrassy, 1960  
F; E G a. W G; R [10,43]
14. *M. imperator* Loof, 1975  
F; E G; R [48]
15. *M. lourdasae* ( Lordello, 1955) Andrassy, 1959  
F; W G; R [47]
16. *M. luci* Bczeski et Szczigel, 1961  
F; E G; R [36]
17. *M. mesonyctius* (Kreis, 1930) Andrassy, 1959  
F; E G a. W G; Fr [12, 20, 35]

18. *M. nudus* (Thorne, 1939) Andrassy, 1959  
F; E G; R [20]
19. *M. pendschikenticus* (Taloganov, 1949) Andrassy, 1959  
F; E G a. W G; R [49]
20. *M. pseudobastiani* Loof, 1969  
F. E G; R [23]
21. *M. pussilus* (Cobb, 1893) Andrassy, 1959  
F; W G; R [23]
22. *M. recurvus* Andrassy, 1959  
F; E G a. W G; R [49]
23. *M. signatus* Lof, 1975  
F; E G a. W G; R [49]
24. *M. spengelii* (de Man, 1912) Andrassy, 1959  
F; W G; R [47]
25. *M. subtilis* (Thorne et Swanger, 1936) Andrassy, 1959  
F; W G; R [47]
26. *M. subtiloides* (Paetzold, 1958) Andrassy, 1959  
F; W G; R [11]
27. *M. subulatus* (Cobb in Thorne et Swanger, 1936) Andrassy, 1959  
F; W G; R [47]
28. *M. sylphus* (Thorne, 1939) Goodey, 1963  
F; W G; R [12]
29. *M. szunyoghi* Andrassy, 1968  
F; W G; R [43]
30. *M. vulvapapillatus* Bagaturia et Eliava, 1966  
F; E G a. W G; R [12, 32]
31. *Chrisodorus filiformis* (Bastian, 1865) Andrassy, 1988  
F; E G a. W G; R [14, 16, 17]
32. *Opistodorylaimus cavalcantii* (Lordello, 1955) Carbonel et Coomans, 1986  
F; W G; R [23]
33. *O. sylphoides* (Williams, 1959) Carbonell et Coomans, 1986  
F; W G; R [23]
34. *Drepanodorylaimus flexus* (Thorne et Swanger, 1936) Andrassy, 1959  
F; W G; R [41]
35. *Thornenema baldum* (Thorne, 1939) Andrassy, 1959  
F; E G; R [36]
36. *T. laevicapitatum* (Cobb in Thorne et Swanger, 1936) Andrassy, 1959  
F; W G; R [10, 43]
37. *T. lissum* (Thorne, 1939) Andrassy, 1959  
F; E G; R [20]
38. *T. mauritanum* (Williams, 1959) Baqri et Fairajrus, 1967  
F; E G a. W G; R [20, 23, 35, 37, 43]
39. *T. thienemanni* (Schneider, 1937) Andrassy, 1959  
F; E G; R [10, 35, 43]
40. *Lagenonema caudatum* (Jairajpuri, Ahmad et Dhanachand, 1979) Andrassy, 1987  
F; W G; R [10]
41. *Willinema opistodelphus* (Thorne et Swanger, 1936) Andrassy, 1986  
F; E G a. W G; R [24, 36]
42. *W. sulhasae* (Tulaganov, 1949) Andrassy, 1986  
F; E G a. W G; R [20, 21, 23]

#### **Family Aporcelaimidae Heuns, 1965**

43. *Aporcelaimus papillatus* (Bastian, 1865) Andrassy, 1986  
F; E G a. W G; R [7, 14, 20]
44. *A. vorax* Thorne et Swanger, 1936  
F; E G; R [12, 13, 35]

45. *Aporcelainellus amilovorus* (Thorne et Swanger, 1936) Heyus, 1965  
F; E G; R [20]
46. *A. capitatus* (Thorne et Swanger, 1936) Heyus, 1965  
F; E G; R [20, 35, 42, 38]
47. *A. krigeri* (Ditlevsen, 1928) Heyus, 1965  
F; E G a. W G; Fr [13, 20, 23, 35, 36, 38, 42, 43, 48]
48. *A. laevis* Tjepkema, Ferris et Ferris, 1971  
F; W G; R [47]
49. *A. obscuroides* Altherr, 1967  
F; E G a. W G; Fr [42, 47, 48]
50. *A. obscurus* (Thorne et Swanger, 1936) Goodey, 1961  
F; E G a. W G; Fr [20, 42, 43, 47, 48]
51. *A. obtusicaudatus* (Bastian, 1865) Altherr, 1968  
F; E G a. W G; Fr [3, 7, 12, 13, 14, 20, 23, 24, 35, 36, 42, 43, 47]
52. *A. paraconicaudatus* (Meyl, 1956) Heyns, 1965  
F; E G; R [35, 36, 42]
53. *A. paraobtusicaudatus* (Micoletzky, 1922) Andrassy, 1986  
F; E G a. W G; Fr [13, 20, 26, 34, 38, 42, 43]
54. *A. simplex* (Thorne et Swanger, 1936) Loof et Coomans, 1970  
F; E G a. W G; R [35, 36, 37, 47, 48]
55. *A. simus* (Kirjanova, 1951) Andrassy, 1986  
F; E G; R [20]
56. *A. submissus* (Kirjanova, 1958) Andrassy, 1986  
F; E G; R [20]
57. *A. tailori* Yeates, 1967  
F; E G; R [42, 48]
58. *A. tritici* (Bastian, 1865) Andrassy, 1986  
E. E G; R [23, 35, 42]
59. *A. vanderlaani* (Meyl, 1965) Heyns, 1965  
F; E G; R [42]
60. *A. vitrinus* (Thorne et Swanger, 1936) Baqri et Khera, 1975  
F; E G; R [20]
61. *A. williamsi* Heyus, 1964  
F; E G; R [35]
62. *Makatinus crassiformis* (Keis, 1924) Andrassy, 1986  
F; W G; R [23]
63. *Sectonema ventrale* Thorne, 1930  
F; E G a. W G; R [3, 36]
64. *Paraxonchium striatum* Krall, 1958  
F; E G a. W G; R [13, 20, 36, 42]

#### **Family Qudsianematidae Jainajpuri, 1959**

65. *Eudorylaimus acuticauda* (de Man, 1880) Andrassy, 1959  
F; E G a. W G; Fr [12, 12, 24, 35, 36]
66. *E. acutus* (Thorne et Swanger, 1936) Andrassy, 1959  
F; E G; R [35]
67. *E. altherri* Tjepkema, Ferris et Ferris, 1971  
F; E G a. W G; R [20]
68. *E. arcus* (Thorne et Swanger, 1936) Andrassy, 1959  
F; E G; R [3]
69. *E. brevis* (Altherr, 1952) Andrassy, 1959  
F; E G; R [13]
70. *E. carteri* (Bastian, 1865) Andrassy, 1959  
F; E G a. W G; Fr [3, 10, 13, 20, 35, 36, 37, 42, 43]
71. *E. centrocercus* (de Man, 1880) Andrassy, 1959  
F; E G a. W G; Fr [12, 20, 26, 28, 42]

72. *E. fransus* Heyns, 1963  
F; E G; R [42]
73. *E. franzi* Andrassy, 1967  
F; W G; R [11]
74. *E. gorgieusrs* Eliava et Bagaturia, 1968  
F; E G a. W G; R [32]
75. *E. inrs* (Bastian, 1864) Andrassy, 1959  
F; E G a. W G; R [14,35]
76. *E. jurassicus* (Altherr, 1953) Andrassy, 1959  
F; E G a. W G; R [20, 36]
77. *E. leuckarti* (Bütschli, 1873) Andrassy, 1959  
F; E G a. W G; R [20,42]
78. *E. lindbergi* Andrassy, 1960  
F; E G; R [20]
79. *E. maritus* Andrassy, 1969  
F; E G; R [20]
80. *E. nodus* (Thorne et Swanger, 1936) Andrassy, 1959  
F; E G; R [13]
81. *E. obtusus* (Cobb, 1893) Andrassy, 1959  
F; E G; R [12]
82. *E. opisthystera* (Altherr, 1953) Andrassy, 1959  
F; E G; R [35; 37]
83. *E. paramonovi* Eliava et Bagaturia, 1968  
F; E G; R [20, 32]
84. *E. pectinatus* Mukhina, 1970  
F; E G; R [20]
85. *E. perspicuus* Andrassy, 1959  
F; W G; R [47, 49]
86. *E. productus* (Thorne et Swanger, 1936) Andrassy, 1959  
F. E G; R [36, 43]
87. *E. pseudocarteri* Loof, 1975  
F; E G; R [48]
88. *E. schraederi* (Altherr, 1970) Andrassy, 1959  
F; E G; R [20]
89. *E. silvaticus* (Brzeski, 1960) Andrassy, 1959  
F; E G; R [36]
90. *E. similis* (de Man, 1876) Andrassy, 1959  
F; E G; R [14]
91. *E. subdigitalis* Tjepkema, Ferris et Ferris, 1971  
F; W G; R [44]
92. *E. vestibulifer* (Micoletzky, 1972) Andrassy, 1959  
F; E G; R [13]
93. *Allodorylaimus bocori* (Andrassy, 1959) Andrassy, 1986  
F; E G; R [35]
94. *A. diadematus* (Cobb in Thorne et Swanger, 1936) Andrassy, 1986  
F; E G; R [13, 35, 37]
95. *A. granuliferus* (Cobb, 1893) Andrassy, 1986  
F; E G; R [20]
96. *A. holdemani* (Andrassy, 1959) Andrassy, 1986  
F; E G; R [20]
97. *A. husmani* (Altherr, 1972) Andrassy, 1986  
F; E G; R [20]
98. *A. irritans* (Cobb in Thorne et Swanger, 1936) Andrassy, 1986  
F; E G; R [20]
99. *A. uniformis* (Thorne, 1929) Andrassy, 1986  
F; E G; R [36]

100. *Microdorylaimu dubius* (Thorne, 1974) Andrassy, 1991  
F; E G; R [20,42]
101. *M. longicollis* (Brzoski, 1964) Andrassy, 1986  
F; E G a. W G; R [3,23, 35, 38]
102. *M. minor* (Cobb in Thorne et Swanger, 1936) Andrassy, 1986  
F; E G; R [35, 37]
103. *M. miser* (Thorne et Swanger, 1936) Andrassy, 1986  
F; E G; R [10, 35, 43]
104. *M. modestus* ( Altherr, 1952) Andrasy, 1986  
F; E G; R [35, 38]
105. *M. parvissimus* (Eliava et Bagaturia, 1968) Andrassy, 1986  
F; E G; R [32, 37]
106. *M. parvus* (de Man, 1880) Andrassy, 1986  
F; E G; R [14, 21]
107. *M. rapsus* (Heyus, 1963) Andrassy, 1986  
F; E G; R [20]
108. *Epidorylaimus lugdunensis* (de Man, 1880) ( Andrassy, 1986  
F; E G a. W G; R [20]
109. *Ecumemicus monohysdera* (de Man, 1880) Thorne, 1974  
F; E G; W G; R [3, 21, 23, 25, 26, 30, 38]
110. *Takamangai brachycephalus* (Thorne et Swanger, 1936) Andrassy, 1986  
F; E G; R [35]
111. *T. confusus* (Thorne, 1939) Andrassy, 1991  
F; E G; R [23]
112. *T. dogieli* (Tulagauov, 1949) Andrassy,  
F; W G; R [20, 23, 43]
113. *T. ettersbergensis* ( de Man, 1885)  
F; E G a. W G; R [3, 14, 35, 36, 38, 43]
114. *T. kaszabi* (Andrassy, 1959) Andrassy, 1991  
F; E G; R [38]
115. *T. laticollis* (de Man, 1906) Andrassy, 1991  
F; E G a. W G; R [24]
116. *T. minuta* (Bütschli, 1873) Andrassy, 1991  
F; E G; R [35, 38]
117. *T. rhopalocercus* (de Man, 1880) Andrassy, 1991  
F; E 9; R [23, 26, 28, 35]
118. *Acrotonus striaticaudatus* ( Coob, 1906) Andrassy, 1986  
F; E G; R [43]
119. *Lobronema obtusum* Thorne, 1974  
F; E G; R [42]
120. *Lobronemella andrassyi* (Baqri et Kbera, 1975) Andrassy, 1985  
F; W G; R [47]
121. *L. georgiensis* Eliava et Kuchava, 2001  
F; E G a. W G; R [11, 43, 47]
122. *L. paesleri* (Paetzold, 1955) Andrassy, 1985  
F; E G; R [20, 44]
123. *Discolaimus laevine* Fusteuberg et Heyns, 1966  
F; E G; R [35, 43]
124. *D. major* Thorne, 1939  
F; E G; R [35, 37, 43]
125. *D. paramajor* Coomans, 1966  
F; E G; R [36, 37]

**Family Nordiidae Jairajpuri et Siddiqi, 1964**

126. *Longidorella cuspidata* (Andrassy, 1964) Jairajpuri et Hoores, 1969  
F; E G; R [20, 43]

127. *L. macramphis* (Andrassy, 1950) Altherr, 1952  
F; E G; R [38, 42, 43]
128. *L. okhlaeosis* (Jairajpuri et Siddiqi, 1964) Jairajpuri et Hooser, 1969  
F; E G; R [35]
129. *L. parva* Thorne, 1939  
F; E G; Fr [3, 20, 36, 38, 42, 43]
130. *Dorydorella bryophila* (de Man, 1880) Andrassy, 1987  
F; E G a. W G; R [26, 38, 4/a]
131. *D. pratensis* (de Man, 1880) Andrassy, 1986  
F; E G a. W G; Fr ( 10, 13, 20, 26, 28, 35, 36, 38, 42, 43]
132. *D. tenuidens* (Thorne et Swanger, 1936) Andrassy, 1987  
F; E G; R [20, 43]
133. *Enchodelus atherri* Vonciguera et Francisei, 1973  
PP; W G; R [47]
134. *E. analatus* (Ditlevcen, 1927) Thorne, 1939  
PP; W G; R [47]
135. *E. brevidentatus* Thorne, 1939  
PP; W G; R [47]
136. *E. conicaudatus* (Ditlevsen, 1927) Thorne, 1939  
PP; E G; R [36]
137. *E. hopedoroides* Altherr, 1963  
PP; E G; R [36]
138. *E. hopedorus* (Thorne, 1929) Brzeski, 1963  
PP; E G a. W G; R [35, 47]
139. *E. longidens* Jairajpusi et Loof  
PP; E G; R [20]
140. *E. macrodorus* (deMam, 1880) Thorne, 1939  
PP; E G a. W G; Fr [20, 36, 42, 47]
141. *E. montanus* Bagaturia, Eliava et Eliashvili, 1979  
PP; E G; R [5]
142. *E. parvus* Loof, 1971  
PP; W G; R [47]
143. *E. teres* Thorne, 1939  
PP; E G; R [20]
144. *Pungentus angulatus* Jairajpusi et Baqri, 1966  
F; E G; R [36]
145. *P. angulosus* Thorne, 1939  
F; E G; R [20, 36]
146. *P. engadinensis* (Altherr, 1950) Altherr, 1952  
F; E G a. W G; F r [13, 24, 35, 36, 43]
147. *P. maorium* Clark, 1963  
F; E G; R [36]
148. *P. maretani* Altherr, 1950  
F; E G; R [36]
149. *P. monohystera* Thorne et Swanger, 1936  
F; E G; R [36]
150. *P. obscurus* Thorne, 1939,  
F; E G; R [20]
151. *P. sylvestris* (de Mal, 1912) Coomans et Gereat, 1967  
F; E G a. W G; R [20, 23]

**Superfamily Actirrolaimoidea Thorne, 1939**

**Family Actrinolaimidae Thorne, 1939**

152. *Actinolamus elaboratus* (Cobb, 1906) Cassidy, 1930  
F; W G; R [23]



153. *Paractinolaimus macroloimus* (de Man, 1880) Andrassy, 1964  
F; E G; W 9; R [14, 30]
154. *Trachactinolaimus montanus* I. Eliava, L. Jgenti, 2006  
F; W 9; R [43]

**Superfamily Family Belonidiroidea Thorne, 1964**  
**Family Belonidirvidae Thorne, 1939**

155. *Belondira apitica* Thorne, 1939  
F; E G a. W G; R [10, 20, 42, 43, 47]
156. *B. caudata* Thorne, 1939  
F; E G a. W G; R [12, 35]
157. *B. clava* Thorne, 1939  
F; E G; R [36, 43]
158. *B. cylindrica* Thorne, 1939  
F; E G a. W G; R [12, 20, 35, 43]
159. *B. ortha* Thorne, 1939  
F; E G; R [20, 42]
160. *B. paraclava* Jairajpuri, 1964  
F; W G; R [43]
161. *B. sacca* Thorne, 1964  
F; E G; R [10, 42, 43 47]
162. *B. tenuidens* Thorne, 1939  
F; E G; R [35, 43]

**Family Axonchidae Thorne, 1964**

163. *Axonchium baldum* Thorne, 1964  
F; E G; R [35]
164. *A. crassum* Thorne, 1939  
F; W G; R [47]
165. *A. leptocephalum* Altherr, 1953  
F; E G; R [20]
166. *A. rotundum* Thorne, 1964  
F; E G; R [36, 37]
167. *A. siddiqi* Coomans et Nair, 1975  
F; W G; R [47]
168. *A. tenuicollis* Steiner, 1914  
F; E G a. W G; R [14, 21]

**Family Oxydiridae Thorne, 1964**

169. *Oxydirus oxuceotalus* (de Man, 1885) Thorne  
F; W G; R [43]
170. *O. tenuicandatus* Thorne, 1939  
F; W G; R [43]

**Family Dorylaimellidae Jairajpuri, 1964**

171. *Dorylaimellus demani* ( de Man, 1876) Goodey, 1963  
PP; E G; R [20]

**Superfamily Tylencholaimoidea Filipjes, 1936**  
**Family Tylencholaimidae Filipjes, 1934**

172. *Tylencholaimus congestus* Loof et Jairajpuri, 1968  
F; E G; R [42]

173. *T. dorae* Kruger, 1965  
F; E G; R [13]
174. *T. formosus* Loof et Jairajpuri, 1968  
F; W G; R [47]
175. *T. gartii* Kruger, 1965  
F; E G a. W G; R [12, 36]
176. *T. macrurus* Siddiqi, 1964  
F; W G; R [12]
177. *T. mininus* de Man, 1876  
F; E G; W G; R [12, 20, 47]
178. *T. miribilis* (Bütschli, 1873) de Man, 1876  
F; E G; R [20]
179. *T. obscurus* Jairajpuri, 1965  
F. E G a. WG; [11, 13]
180. *T. proximus* Thorne, 1939  
F; E G; R [42]
181. *T. stekki* Sterner, 1914  
F; W G; R [11]
182. *T. terevs* Thorne, 1939  
F; E G; R [13, 36]
183. *T. vigil* Andrassy, 1959  
F; E G; R [13]
184. *T. zeelendias* de Man, 1876  
F; E G; R [14, 20]

#### **Family Leptonchidae Thorne, 1935**

185. *Telencholaimellus affinis* (Rrakenhoff, 1914) Thorne, 1939  
F; E G a. W G; R [42, 43]
186. *T. alpinus* (Altherr, 1950) Altherr, 1952  
F; E G a. W G; R [35, 36]
180. *T. diplodorus* Cobb in M. V. Cobb, 1915  
F; W G; R [10, 43]
181. *T. eskei* Siddiqi et Khan, 1964  
F; E G a. W G; R [42, 45, 47]
182. *T. macrophallus* Thorne, 1964  
F; W G; R [43]
183. *T. polonicus* Szczygel, 1962  
F; E G; R [36]
184. *T. striatus* Thorne, 1939  
F; E G; R [12, 36, 43]

#### **Family Mydonomidae Thorne, 1964**

185. *Dorylaimoides micolitzkyi* (de Man, 1921) Thorne et Swanger, 1936  
F; W G; R [43]

#### **Superfamily Longidoroidea Thorne, 1935**

##### **Family Longidoridae Thorne, 1935**

186. *Longidorus caespiticola* Hooper, 1961  
PP; E G; R [35]
187. *L. tardicauda* Merzheewskaya, 1951  
PP; E G; R [20]
188. *Paralongidorus georgieusis* (Tulagonov, 1937) Siddiqi, 1965  
PP; W G; R [21]

189. *Xiphinema hasilgoodey* Coomans, 1964  
PP; E G; R [36]
190. *X. brevicolle* Lordello et da Costa, 1964  
PP; E G; W G; Fr [3,6, 35, 36, 37 44, 48]
191. *X. diversicaudatum* (Micoletzky, 1927) Thorne, 1939  
PP; E G a. W G; Fr [7, 20, 35]
192. *X. index* Thorne et Allen, 1950  
PP; E G; R [20]
193. *X. itahense* Corvallo, 1962 ≈ *brasiliense* Lortello, 1951  
PP; E G a. W G; R [24]
194. *X. italie* Meul, 1953  
PP; E G; R [20]
195. *X. mediteraneum* Martelli et Lamberti, 1967  
PP; E G a. W G; R [20, 24, 35]
196. *X. pachtaicum* (Tulaganov, 1938) Kirjanova, 1951  
PP; E G a. W G; R [6, 20, 21, 35, 43]
197. *X. pini* Heyus, 1865  
PP; E G; R [36]
198. *X. rivesi* Dalmaso, 1960  
PP; W G; R [12, 35]
199. *X. rotundatum* Shuurmans Stekhoven et Teunissen, 1938  
PP; E G; R [20, 35]
200. *X. turcicum* Luc et Dalmaso, 1963  
PP; E G a. W G [36, 43]
201. *X. vuittenezi* Luc, Lima, Waischer et Flegg., 1964  
PP; E G a. W G; R [20, 43]

**Suborder Nygolaimina Ahmad et Jairajpuri, 1979**  
**Superfamily Nygolaimoidea Thorne, 1935**  
**Family Nygolaimidae Thorne, 1935**

202. *Nygolaimus amphigonius* Thorne, 1930  
F; E G; R [37]
203. *N. brachyuris* (de Man, 1880) Thorne, 1930  
F; E G; R [21, 20]
204. *N. directus* Heyns, 1968  
F; E G; R [36, 37]
205. *N. obtusus* Thorne, 1930  
F; W G; R [7]
206. *Poravulvulus hartingii* ( de Man, 1880) Thorne, 1974  
F; E G; R [36]
207. *Aquatides aquaticus* (Thornem 1930) Thorne, 1974  
F; W G; R [12]
208. *A. shadini* (Filipyev, 1928) Thorne, 1974  
F; W G; R [12]
209. *Afronigus longicaudatus* (Heyns, 1968) Thorne, 1974  
F; W G; R [12]
210. *Laevides georgiensis* (Eliava, 1966) Eliashvili, Aliev, Eliava, 1977  
F; W G; R [12]

**Suborder Diphtherophorina Coomans et Loof, 1970**  
**Superfamily Diphtherophoroidea Micoletzky, 1922**  
**Family Diphtherophoridae Thorne, 1935**

211. *Diphtherophora brevicolle* Thorne, 1939  
F; E G; R [35, 36]

212. *D. caudata* Ivanova, 1958  
F; E G; R [36, 43]
213. *D. communis* de Man, 1880  
F, E G; R [36]
214. *D. kitjanovae* Ivanova, 1958  
F; E G a. W G; R [23, 37]
215. *D. perplexans* (Cibb, 1913) de Conninek, 1931  
F; E G a. W G; Fr [3, 13, 20, 24, 35, 36, 42, 43]
216. *Tylolaimophorus kazbegi* (Eliashvili, 1986) n. comb.  
F; E G; R [39]

**Superfamily Trichodoroidea Thorne, 1935**  
**Family Trichodoridae Thorne, 1935**

217. *Trichodorus cedarus* Yokoo, 1964  
PP; E G; R [47]

**Suborder Campidorina Siddiqi, 1983**  
**Superfamily Campidorioidea Thorne, 1935**  
**Family Compidoridae Thorne, 1935**

218. *Compidora demonstans* Cobb, 1920  
F; E G; R [20, 35, 42]

**References**

1. Багатурия Н. Л. Сообщ. АН ГССР. т. 63, №1, 1971, 217-220.
2. Багатурия Н. Л. Сообщ. АН ГССР. т. 69, №3, 1973, 705-708.
3. Багатурия Н. Л. Эколого-фаунистический обзор нематод капусты. Автореферат канд. диссертации. Тбилиси, 1975, 1-31.
4. Багатурия Н. Л., Элиава И. Я. Сообщ. АН ГССР. т. 41, №1, 1966, 169-172.
5. Багатурия Н. Л., Элиава И., Элиашвили Т. С. Сообщ. АН ГССР. т. 93, №1, 1979, с.197-200.
6. Гендзехадзе Л. Ш., Элиашвили Т. С. X Всес. совещание по нематодным болезням с. х. культур. Воронеж, 1987 20-23.
7. Джапарашвили Н. И., Элиава И. Я. Материалы к фауне Грузии, Вып. I, „Мецниереба“, Тбилиси, 1966, 20-23.
8. Джапарашвили Н. И. Гидробиология и ихтиология внутренних водоемов Грузии. Вып. III, Сионское водохранилище. „Мецниереба“, Тбилиси, 1972, 73-78.
9. Джапарашвили Н. И. Гидробиологический режим и ихтиофауна р. Куры. „Мецниереба“, Тбилиси, 1980, 138-141.
10. Джимшелеишвили Н. Г. Почвенные нематоды виноградников Имерети. Автореферат канд. диссертации. Тбилиси, 1999, 1-28.
11. Жгенти Л. Т., Элиава И. Я., Гиголашвили М. Г., Кучава М. А. Труды ИН-та зоологии АН Грузии, т. XXII, 2004, 38-40.
12. Животное население типичных биоценозов Колхидской низменности. „Мецниереба“, Тбилиси, 1984, 1-388.
13. Кикнадзе Г. А., Элиава И. Я. Фауна и экология некоторых группы насекомых и клещей Грузии. „Мецниереба“, Тбилиси, 1985, 89-98.
14. Кирьянова Е. С. Рефераты н.- т. Работ за 1945 г. Отделение биологических наук АН СССР, М., 1947, 181, 182.
15. Кирьянова Е. С. Труды Зоологического института АН СССР, т. 9, вып. 2, 1951, 479-507.
16. Кирьянова Е. С. Труды проблемных и тематических совещаний (Сборник работ по нематодам с. х. растений), М. Л., 1954, 9-47.
17. Кирьянова Е. С. Животный мир СССР, т. 5, 1958, 477-485.
18. Кирьянова Е. С. Некоторые проблемы нематодологии растений и насекомых. Изд. СГУ, Самарканд, 1961, 161 стр.

19. Курашвили Б. Е., Камалов Н. Г., Элиава И. Я. Гельминты человека, животных и растений в Грузии (Справочник), „Мецниереба“, Тбилиси, 1965, 1-95.
20. Кучава М. А., Гиголашвили М. Г., Элиава И. Я. Труды Ин-та зоологии АН Грузии, т. 20, Тбилиси, 49-57.
21. Тулаганов А. Т. Сборник работ по нематодам с. х. растений. М. – Л. 1939, 167-208.
22. Цкитишвили Т. Д. Сообщ. АН ГССР, т. 54, №3, 1969, 733-735.
23. Цкитишвили Т. Д. Паразитологический сборник Ин-та зоологии АН ГССР, вып 2, 1971, 149-153.
24. Цкитишвили Т. Д. Паризитологический сборник Ин-та зоологии АН ГССР, вып 5, 1983, 114-118.
25. Элиава И. Я. Труды Ин-та зоологии АН ГССР, т. 16, 1958, 323-340.
26. Элиава И. Я. Сообщ. АН ГССР, т. 24, №3, 1960, 335-342.
27. Элиава И. Я. Вопросы фитогельминтологии., М., 1961, 230-233.
28. Элиава И. Я. Нематодофауна культурных пасленовых., Восточной Грузии. Автореферат канд. диссерт. Тбилиси, 1962, 1-20.
29. Элиава И. Я. Сообщ. АН ГССР, т. 42, №3, 1966, 721-728.
30. Элиава И. Я. Материалы к фауне Грузии, вып. 1, 1966, 5-7.
31. Элиава И. Я. Проблемы эволюционной морфологии гельминтов растений. (Труды Гельминтологической лаборатории, т. 18) 1967, 145-150.
32. Элиава И. Я., Багатурия Н. Л. Сообщ. АН ГССР, т. 52, №3, 1968, 735-740.
33. Элиава И. Я., Багатурия Н. Л. Паразитологический сборник Ин-та зоологии АН ГССР, вып. 2, „Мецниереба“, Тбилиси, 1971, 85-89.
34. Элиава И. Я., Элиашвили Т. С. Паразитологический сборник Ин-та зоологии АН ГССР, вып. 3, Тбилиси, 1973, 168-184.
35. Элиава И. Я., Элиашвили Т. С., Багатурия Н. Л., Цкитишвили Т. Д. Фауна коричневых почв и горных черноземов Грузии. „Мецниереба“, Тбилиси, 1979, 50-97.
36. Элиава И. Я., Элиашвили Т. С., Багатурия Н. Л. Ibidem, 98-129.
37. Элиашвили Т. С. Сообщ. АН ГССР, т. 61, №1, 1974, 213-216.
38. Элиашвили Т. С. Материалы к фауне Грузии, вып. 5, Тбилиси, 1975, 14-20.
39. Элиашвили Т. С. Сообщ. АН ГССР, т. 124, №2, 1986, 421-424.
40. Элиашвили Т. С., Алиев Р. А., Элиава И. Я. Сообщ. АН ГССР, т. 86, №2, 1977, 469-472.
41. Brzeski M. Przegląd Zoologiczny, V (2), 1961, 137-138.
42. Eliava I., Bagathuria N., Kvavadze E., Gigolashvili M., Tskitishvili T. Proceedings of the Institute of Zoology Academy of Sci. of Georgia, v. XXI, 2002, 44-45 (Summary).
43. Eliava I., Jgenti L. Bull. of the Georgian Nat. Acad. of Sciences, 173, №3, 2006, p. 596-597.
44. Eliava I., Kuchava M. Bull. Georg. Acad. Sci., 63, №1, 2001, 188-190.
45. Jimshelishvili N. Scientific works of Kutaisi state Technical University, №7, 2000, 28-32 (Summary).
46. Jimshelishvili N., Bagathuria N., Eliava I. Bulletin of the Georgian Academy of Sci., v. 160, № 2, 1999, 48-50.
47. Jimshelishvili N., Kuchava M., Bagathuria N. Scientific works of Kutaisi stade Technical University, № 8, 2000, 22-25 (Summary).
48. Kuchava M., Bagathuria N., Eliava I., Murvanidze T. Proceedings of the Institute of Zoology Academy of of Sci. of Geogria, V. XXII, 2004, 230-241 (Summary).
49. Kvavadze E., Bagathuria N., Eliava I., Didmanidze E., Murvanidze M., Darejanashvili SH., Arabuli T., Gurgenidze k., Japoshvili G., Bardjadze Sh., Gigolashvili M., Tscitishvili E., Proceedings of the Institute of Zoology Academy of Sci. of Geogria, V. XXII, 2004, 249-268, (Summary).
50. Tskitishvili E. Soil population of Nematodes of Gombori ridge (East. Georgia). // Proc. Georgian Academy Sci., Biol., Ser. B Vol. 4, No. 3, 2006.

**LIST OF FREE, PLANT PARASITIC AND INSECT PARASITIC  
NEMATODES OF GEORGIA. PART V.  
ORDERS: ENOPLIDA CHITWOOD, 1933; CHROMADORIDA,  
CHITWOOD, 1933; MONHYSTERIDA DE CONICK ET SCHUURMANS  
STEKHOVEN, 1933; MONONCHIDA JAIRAJPURI, 1969.**

**I. I. Eliava<sup>1</sup>, T. D. Tskitishvili<sup>2</sup>, N. L. Bagathuria<sup>3</sup>, M. A. Kuchava<sup>4</sup>, E. T. Tskitishvili<sup>5</sup>**

**1,2,3,4,5 – Institute of Zoology, e-mail: ekatskitishvili@mail.ru**

**Abstract:** In this article are given the List of species of five Orders of Nematodes registered in Georgia. To Order *Enoplida* belongings 46 species. to Order *Chromadoryda* – 1, to Order *Monhysterida* – 7, to Order *Areolaimida* – 28, to Order *Mononchida* – 25. In this Orders are nematodes different tropical specialization, but lack plant parasites.

Key word: Plant parasites, five Orders, Georgia.

**Abbreviations:** **P** – predator; **B** – Bacteriophage or Algophage; **EG** – Eastern Georgia; **WG** – Western Georgia; **Fr** – Frequent; **R** – Rare.

**Order Enoplida Chitwood, 1933**

**Family Aulolaimidae Jairjpuri et Hooper, 1968**

1. *Aulolaimus* Adrassy; Eliava et Eliashvili, 1973  
B; EG; R [14, 27]
2. *A. costatus* Adrassy, 1967  
B; EG; R [2, 14, 27, 28, 34,]
3. *A. filiformis* (Timm, 1957) Jairajpuri et Hooper, 1968  
B; EG; R [29]
4. *A. Meyli* Loof, 1961  
B; EG; R [3]
5. *A. nannocephalus* Adrassy, 1972  
B; EG; R [28]
6. *A. pxycephalus* de Man, 1880  
B; EG; Fr [13, 14, 29, 36]

**Family Bastianidae De Conick, 1935**

7. *Bastiania gracilis* de Man, 1876  
B; EG a. WG; R [13, 22, 28, 38]  
Family Pristomatolaimidae Mokletsky, 1922
8. *Pristomatolaimus dolichurus* de Man, 1880  
B; EG a. WG; Fr [10, 18, 28, 32, 33 ]
9. *P. intermedius* (Butschli; 1873) de  
B; EG a. WG; Fr [2, 13, 14, 17, 22, 32, 33 ]
10. *P. parvus* Milne, 1963  
B; EG; R [14, 31, 32, 33]

**Family Ironidae de Man, 1876**

11. *Ironus ignarus* Bastian, 1885  
P; WG; R [5]
12. *I. longicaudatus* de Man, 1884  
P; EG a. WG, R [5]

### Family Tobrilidae De Conick, 1965

13. *Tobrilus abberans* (W. Schneider, 1925) Andrassy, 1959  
B; EG a. WG; Fr [5, 6, 38, 39, 40, 41]
14. *T. gracilis* (Bastian, 1865) Andrassy, 1959  
B; EG a. WG; R [10, 41]
15. *T. zacopanensis* (Stefanski, 1924) Andrassy, 1959  
B; WG; Fr [3]
16. *Epitobrilus setosus* (Altherr, 1963) Tsalolichin, 1981  
B; EG; R [16, 39]

### Family Tripylidae de Man, 1876

17. *Tripyla affinis* de Man, 1880  
B;EG a. WG; Fr [16, 17, 18, 30, 39]
18. *T. filicaudata* da Man, 1880  
B; EG; R [13, 16, 17, 38, 39]
19. *T. glomerans* Bastian, 1865  
B; EG a. WG; R [5, 13, 16, 38, 39]
20. *T. longicaudata* Nesterov, 1979  
B; EG a. WG; R [16, 37, 39, 41]
21. *T. papillata* Butschli, 1873  
B; EG a. WG; R [17, 18,]
22. *T. setifera* Butschli, 1873  
B; EG a. WG; R 16, 36, 41]
23. *T. tenius* Brzeski, 1964  
B; EG a. WG; R [ 34, 341]
24. *Tripylina arenikola* (de Man, 1880) Brzeski,1963  
B; EG a. WG;Fr [13,14,16,18,28,29,36,39,40,41]
25. *T. sheri* Brzeski, 1963  
B; EG; R [13, 14]
26. *Paratripyla intermedia* (Butschli, 1873), Brzeski, 1964  
B; EG; R [13, 20]
27. *Trishistoma monohistera* (de Man, 1880) Schoormans- Stekhoven, 1951  
B; EG; R [16]

### Family Alaimidae Mikoletzky, 1922

28. *Alaimus acutus* Thorne, 1939  
B; EG; R [ 16, 29]
29. *A. arcuatus* Thorne, 1939  
B; EG a. WG; R [2,28, 29]
30. *A. glissus* Thorne, 1939  
B; EG; R [2, 28, 32, 33]
31. *A. macer* Andrassy, 1958  
B; EG; R [ 13, 14, 28, 29, 36, 41]
32. *A. meyli* Andrassy, 1961  
B; EG a. WG; R [16,28, 29, 39]
33. *A. minor* Cobb, 1893  
B; EG; Fr [ 2, 13, 14, 28, 29, 30 36, 39, 41]
34. *A. mikronatus* Altherr, 1950  
B; EG; R [ 28, 31]
35. *A. parvus* Thorne, 1939  
B; EG a. WG; Fr [2, 13,16,28, 29,32, 33, 39]
36. *A. primitivus* de Man, 1880  
B; EG a. WG; Fr [ 14,16,28, 29, 30, 33, 36, 39, 41]

37. *A. protimus* Thorne, 1939  
B; EG; R [ 28]
38. *A. thomugadi* Maupas, 1900  
B; EG; R [ 28, 29]
39. *Amphidelus coronatus* Andrassy, 1957  
B; EG; R [ 36]
40. *A. elegans* (de Man, 1921) Thorne, 1939  
B; EG; R [ 9]
41. *Paramphidelus dolochus* (de Man, 1921) Thorne, 1939  
B; EG a. WG; R [9, 10, 17]
42. *p. effilatus* (Schuurmans Stekhoven, 1951) Andrassy, 1977  
B; EG; R [8]
43. *P. hortensis* (Andrassy, 1961) Andrassy, 1977  
B; EG a. WG; Fr [13, 14, 17, 28]
44. *P. paramonovi* (Eliashvili, 1971) Andrassy, 1977  
B; EG; R [9, 28, 30, 32]
45. *P. pseudobulbosus* (Altherr, 1953) Andrassy, 1977  
B; EG; R [2, 14, 28, 32, 33, 34]
46. *P. Tasmaniensis* (Allgen, 1929) Andrassy, 1977  
B; EG; R [9, 28, 29]
47. *P. uniformis* (Thorne, 1939) Andrassy, 1977  
B; EG; R [14, 28, 32, 36]

#### **Order Chromadorida Chitwood, 1933**

##### **Family Cyatholaimidae Filipjev, 1918**

48. *Achromadora ruricola* (de Man, 1880) Micoletzky, 1925  
B; EG; R [2, 36]

#### **Order Monchysterida De Conick et Schuurmans Stekhoven, 1933**

##### **Family Monhysteridae de Man, 1876**

49. *Eumonchistera disper* (Bastian, 1865) Andrassy, 1981  
B; EG; R [10]
50. *E. filiformis* (Bastian, 1885) Andrassy, 1984  
B; EG a. WG; R [1, 2, 7, 10, 17, 33]
51. *e. vulgaris* (de Mam, 1880) Andrassy, 1984  
B; EG a. WG; Fr [2, 14, 15, 17, 18, 21, 22, 28, 41]
52. *Geomonchystera tripyloides* (Andrassy, 1968) Andrassy, 1981  
B; EG; R [2]
53. *G. villosa* (Butschli, 1873) Andrassy, 1981  
B; EG a. WG; Fr [1, 2, 9, 14, 16, 17, 33, 35, 37, 39]
54. *Monchystrella balbifera* (de Man, 1880) Schneider, 1939  
B; EG a. WG; R [10]

##### **Family Xialidae Chitwood, 1951**

55. *Theristus agilis* (de Man, 1880) Andrassy, 1977  
B; EG; R [14, 16, 17, 18, 40]



### **Order Areolaimidate Coninck, 1935**

#### **Family Rhabdolaimidae Chitwood, 1950**

56. *Rhabdolaimus terrestris* de Man, 1880  
B; EG; R [10]

#### **Family Anaplectidae Zeii, 1993**

57. *Anaplectus granulosus* (Bastian, 1865) De Coninck et Schuurmans – Stekhoven, 1932  
B; EG a. WG; Fr [1, 2, 9, 10, 14, 17, 18, 19, 20, 22, 24, 25, 28, 29, 32, 34, 38, 39, 41]  
58. *A. submerses* (Hirschmann, 1952) Meggenti, 1961  
B; EG a. WG; R [2, 20, 28, 38, 40]

#### **Family Plectidae Orley, 1880**

59. *Plectus accuminatus* Bastian, 1865  
B; EG a. WG; R [9, 16, 17, 18, 39]  
60. *P. annulatus* Maggenti, 1961  
B; EG a. WG; R [2, 16, 29, 38, 40]  
61. *P. elongates* Maggenti, 1961  
B; EG a. WG; Fr [7, 9, 14, 17, 20, 22, 28, 39, 41]  
62. *P. longicaudatus* Butschli, 1873  
B; EG a. WG; Fr [7, 8, 9, 10, 11, 12, 14, 16, 18, 22, 23, 24, 28, 39, 41]  
63. *P. parietinus* Bastian, 1865  
B; EG a. WG; Fr [1, 2, 5, 7, 9, 14, 18, 28, 32, 34, 38, 39]  
64. *P. parvus* Bastian, 1865  
B; EG a. WG; R [1, 2, 16, 18, 28, 39]  
65. *P. rizophilus* de Man, 1880  
B; EG a. WG; R [2, 16, 18, 28, 39]  
66. *P. varians* Maggenti, 1961  
B; EG a. WG; R [2, 7, 9, 17, 18, 32]  
67. *Ceratoplectus armatus* (Butschli, 1873) Andrassy, 1984  
B; EG; R [1, 2, 14, 28]  
68. *C. assimilis* (Maggenti, 1961) Andrassy, 1984  
B; EG a. WG; R [1, 2, 16, 28, 38, 41]  
69. *C. cornus* (Maggenti, 1961) Andrassy, 1984  
B; EG; R [29]  
70. *Tylosephalus auriculatus* de Man, 1880  
B; EG a. WG; R [1, 2, 7, 10, 14, 16, 29, 32]  
71. *Wilsonema otophorum* de Man, 1880  
B; EG; R [28, 32]

#### **Family Cylindrolaimidae Mikoletzky, 1922**

72. *Cylindrolaimus communis* de Man, 1880  
B; EG; Fr [2, 9, 16, 28, 32, 38, 39, 40]  
73. *C. monochystera* Schneider, 1937  
B; EG; R [16, 41]

#### **Family Leptolaimidae Orley, 1880**

74. *Chronogaster gracilis* (Cobb, 1913) Andrassy, 1959  
B; EG; R [7]

**Family Halaphanolaimidae De Coninck et Schuurmans Stekhoven, 1933**

75. *Aphanolaimus affentus* de Man, 1880  
B; EG;R [8,9]

**Order Mononchida Jairajpuri, 1969**

**Family Mononchidae Chitwood, 1937**

76. *Clacus papillatus* (Bastian, 1855) Jairajpuri, 1970  
P; EG a. WG; Fr [1, 2, 13, 16, 18, 25, 28, 29, 32, 33, 38, 39, 40]  
77. *Comansus parvus* (de Man, 1880) Jairajpuri et Khan, 1977  
P; EG a. WG; Fr [2,7, 15, 16, 18, 22, 24, 33, 39]  
78. *Mononchus trunkatus* Bastian, 1885  
P; EG ; R[3, 4, 7, 38]  
79. *M. tunbridgensis* Bastian, 1885  
P; EG ; R[22, 24]  
80. *Prionchulus auritus* Andrassy, 1985  
P; EG ; R[16, 41]  
81. *P. longus* (Thorne, 1929) Andrassy, 1958  
P; EG a. WG; R [16, 18, 38]  
82. *P. muskorum* (Jairajpuri, 1845) Wu et Hoepli, 1929  
P; EG ; R[16, 27, 37]  
83. *P. veskus* Eroshenko, 1971  
P; EG ; R[16, 40]

**Family Milonchulidae Jairajpuri, 1969**

84. *Mylonchulus brachyuris* (Butscli, 1873) Andrassy, 1958  
P; EG ; R[2, 16, 40]  
85. *M. brevicaudatus* (Cobb, 1917) Andrassy, 1954  
P; EG a. WG; R [2, 16, 18, 20, 29, 32, 40]  
86. *M. contractus* Jairajpuri, 1971  
P; EG ; R[38]  
87. *M. index* (Cobb, 1906) Andrassy, 1958  
P; EG a. WG; R [2, 16, 20, 28, 35, 38 40]  
88. *M. lacustris* (Cobb, 1915) Andrassy, 1958  
P; WG ; R [18, 20, 39]  
89. *M. obliquus* (Cobb, 1917) Andrassy, 1958  
P; EG ; R[28, 32, 33]  
90. *M. rotundicaudatus* (Skwarra, 1921) Andrassy, 1958  
P; EG ; R[16, 40]  
91. *M. signaturellus* Mulvey, 1961  
P; WG ; R[20]  
92. *M. sigmaturus* (Cobb, 1917) Altherr, 1953  
P; WG ; R[20]

**Family Anatonchidae Jairajpuri, 1969**

93. *Anatonchus alleni* Mulvey, 1961  
P; EG a. WG; R [16, 18, 41]  
94. *A. ginglimodontus* Mulvey, 1961  
P; EG ; R[16, 40]  
95. *A. subacutus* Mulvey, 1961  
P; EG ; R[16, 40]  
96. *A. tridentatus* (de Man, 1876) De Coninck, 1938  
P; EG a. WG; R [16, 18, 24, 28, 40]

97. *Miconchus exilis* (Cobb, 1917) Andrassy, 1958  
P; EG ; R [29].
98. *M. pararapax* Mulvey et Iensen, 1967  
P; EG ; R[38].

#### **Family Jotonchidae Jairajpuri, 1969**

99. *Iotonchus geminus* Heyns et Lagerwey, 1965  
P; EG ; R[16, 40].
100. *I. kvavadzei* Eliava, Bagathuria, Chuchulashvili, 2005  
P; EG ; R [37].

#### **References**

1. **Багатурия Н. Л.** Сообщения АН ГССР, т. 63, №1, 1971, 217-220
2. **Багатурия Н. Л.** Эколого-фаунистический обзор нематод капусты, сахарной свеклы и огурца в Картли (Восточная Грузия). Автореферат кандидатской диссертации. Тбилиси, 1975, 3-31
3. **Джапарашвили Н. И.** Гидробиология и ихтиология внутренних водоемов Грузии. Вып. III. Сионское водохранилище. „Мецниереба,, Тбилиси, 1972Б 73-78.
4. **Джапарашвили Н. И.** Гидробиологический режим и ихтиофауна р. Куры. „Мецниереба,, Тбилиси, 1980, 138-141.
5. **Джапарашвили Н. И., Элиава И. Я.** Материалы к фауне Грузии. Вып I, „Мецниереба,, Тбилиси, 1966, 20-23.
6. **Жгенти Л. Г., Элиава И. Я., Гиголашвили М. Г., Кучава М. А.** Труды Института зоологии АН ГССР, Т. XXII, 2004, 38-40.
7. Животное население типичных биоценозов Колхидской низменности. „Мецниереба,, Тбилиси, 1980, 3-338.
8. **Кикнадзе Г. А., Элиава И. Я.** Сообщения АН ГССР, Т.114, №.1, 1984. 161-164.
9. **Кикнадзе Г. А., Элиава И. Я.** Фауна и экология некоторых групп насекомых и клещей Грузии. „Мецниереба,, Тбилиси, 1985, 89-98.
10. **Кирьянова Е. С.** Рефераты н.и. работ за 1947г. Отделение биол. наук АН СССР, М., 1949, 181-182.
11. **Кирьянова Е. С.** Труды проблемных и тематических совещаний. Вып. III (Сборник работ по нематодам сельскохозяйственных растений 3). Изд. АН СССР, М.-Л., 1954, 9-47.
12. **Кирьянова Е. С.** Животный мир СССР, Т.5. Горные области европейской части СССР. VII Черви- Vermes. Круглые черви - растительноядные и почвенные нематоды – Nematodes. Изд. АН СССР, М.-Л.
13. **Кучава М. А., Гиголашвили М. Г., Элиава И. Я.** Труды Института зоологии АН ГССР, Т. XX, 2000, 49-57.
14. Наблюдения и исследования на Марткопском физико-географическом стационаре ТГУ. III квартал 1972г. Изд. ТГУ, Тбилиси, 1974, 28-31.
15. **Тулаганов А. Т.,** Сборник работ по нематодам сельскохозяйственных растений. М.-Л. 1939, 167-208.
16. **Цкитишвили Э. Т.** Фауна и экология почвенных нематод Гомборского хребта. Автореферат кандидатской диссертации. Тбилиси, 2006, 23-31.
17. **Цкитишвили Т. Д.** Нематодофауна главнейших цитрусовых Аджарии. Автореферат кандидатской диссертации. Тбилиси, 1971, 3-14.
18. **Цкитишвили Т. Д.** Паразитологический сборник Института зоологии АН ГССР, Вып. II, 1971, 149-153.
19. **Цкитишвили Т. Д.** Паразитологический сборник Института зоологии АН ГССР, Вып. III , 1973, 155-158.
20. **Цкитишвили Т. Д.** Паразитологический сборник Института зоологии АН ГССР, Вып. V, 1983, 114-119.

21. Элиава И. Я. Труды Института зоологии АН ГССР, Т.16, 1958, 323-340.
22. Элиава И. Я. Сообщения АН ГССР, Т.24, №3, 1960, 335-342.
23. Элиава И. Я. Вопросы фитогельминтологии. Изд. АН СССР, М., 1961, 230-233.
24. Элиава И. Я. Нематодофауна культурных пасленовых Восточной Грузии. Автореферат кандидатской диссертации. Тбилиси, 1962, 3-20.
25. Элиава И. Я. Материалы к фауне Грузии, Вып. I., „Мецниереба,, Тбилиси, 1966, 5-10.
26. Элиава И. Я., Элиашвили Т. С. Сообщения АН ГССР, Т.69, №2, 1973, 485-488.
27. Элиава И. Я., Элиашвили Т. С. Паразитологический сборник Института зоологии АН ГССР, Вып. III , „Мецниереба,, Тбилиси 1973, 168-184.
28. Элиава И. Я., Элиашвили Т. С., Багатурия Н. Л., Цкитишвили Т. Д. Фауна беспозвоночных коричневых почв и горных черноземов Грузии. „Мецниереба,, Тбилиси 1979, 50-79.
29. Элиава И. Я., Элиашвили Т. С., Багатурия Н. Л., *ibidem*, 98-129.
30. Элиашвили Т. С. Сообщения АН ГССР, Т.61, №1, 1971, 213-216.
31. Элиашвили Т. С. Сообщения АН ГССР, Т.66, №3, 1972, 705-708.
32. Элиашвили Т. С. Нематоды почв Мухранской и Самгорской равнины (Восточная Грузия). Автореферат кандидатской диссертации. Тбилиси, 1974, 3-31.
33. Элиашвили Т. С. Материалы к фауне Грузии, Вып. V., „Мецниереба,, Тбилиси, 1975, 14-20.
34. Элиашвили Т. С. Фауна и экология беспозвоночных животных Грузии. „Мецниереба,, Тбилиси, 1983, 254-258.
35. Brzeski M. Przegad zoologiczky, V.2, 1961, 137-138.
36. Eliava I. I. Bagathuria N. L. Kvavadze Er. Sh. and all. Proceedings of the Institute of Zoology (Georgian Academy of Sci.), Vo. XXI, 2002, 44-54.
37. Eliva I., Bagathuria N., Chchulashvili N. Bulletin of the Georgian Academy of Sci. , Vol. 172, №1, 2005, 138-140.
38. Kvavadze Er., Bagathuria N., Eliva I. and all. Proceedings of the Institute of Zoology (Georgian Academy of Sci.), Vo. XXII, 2004, 230-241.
39. Kvavadze Er., Bagathuria N., Eliva I., Didmanidze E. and all. *Ibidem*, 249-268.
40. Tskitishvili E. Proceedings of the Georgian Academy of Sci., Biol. Series (B), Vol. 4, No.3 2006.
41. Zhgenti L. Proceedings of the Georgian Academy of Sci., Biol. Series (B), Vol. 4, No.4 2006, 62-66.

## SOME DATA ABOUT NEMATODOFAUNA OF POTATO AND DISTRIBUTION OF POTATO STEM NEMATODE IN SOUTHERN GEORGIA

E. Tskitishvili,<sup>1</sup> T. Tskitishvili,<sup>2</sup> M. Kuchava,<sup>3</sup> N. Tsibadze<sup>4</sup>

1,2,3,4 – Institute of Zoology, e-mail: ekatskitishvili@mail.ru

**Abstract.** For the purpose of finding-out of present position of distribution potato stem nematodes, research in several areas of potato growing in Southern Georgia has been conducted. It has appeared that the specific structure of nematode tubers and soil sharply differed. Our data specifies that invasion a new crop occurs from a landing material. Researches have shown, that potato stem nematode widespread in studied territory, that specifies in the obligation of the further studying of distribution and monitoring of this parasite.

**Key words:** Potato stem nematoda, distribution, Southern Georgia

Among significant parasites of potato the potato stem nematode has wide spreading in Georgia (Eliava, 1967).

Last years data about *Ditylenchoses* of potato was not published in Georgia. Information neither about distribution scales of *Ditylenchoses*, nor about real harmfulness of parasite does not existed. This indicates inadequate estimation of potato stem nematodes.

Previously conducted investigations on studying *dytylenchoses* in Georgia has shown, that in some potato-growing regions (Dmanisi, Tsalka) tubers invasion in nests, was on the average reached 18 %. Invasion was estimated visually, which not guaranteed sufficient accuracy.

For the purpose of explanation of present position during expedition in Ahaltsihske, Aspindza and Ninotsminda regions, in autumn 2007 y. material had been collected in 10 points using routeing method.

In each point were taken samples from 3 nests (from each nest on 5 tubers by random sampling) and from soil, on 200 cubic cm by the same principle. Nematodes from tubers and soil were separated on laboratory conditions with a method dipped in water sieves. The exposition equalled to 72 hours.

Character of gathering of a material was dictated by our interest. Our goal was to estimate tubers infection extensiveness and to determine basic mechanism of tubers infection of a new crop. The result of tubers and soil nematodes fauna analysis was unexpected for us. The specific composition tubers and soil nematodes sharply differed (see Tab. 1).

№	Soil nematodes	Atskuri	Agara	Aspindza	Mugareti	Tsnisi	Mamtsvara	Ninotsminda	Djigrasheni	Ninotsminda (near lake)	Khospio
		1	2	3	4	5	6	7	8	9	10
1	<i>Anaplectus granulosis</i>							+	+	+	+
2	<i>Clarcus</i> sp.							+			
3	<i>Comansus parvus</i>							+			
4	<i>Prionchulus</i> sp.									+	
5	<i>Mylonchulus brachiuris</i>					+					
6	<i>M. brevicaudatus</i>				+						
7	<i>Mylonchulus</i> sp.				+						
8	<i>Mesodorylaimus bastiani</i>									+	+
9	<i>M. mesonictius</i>							+			
10	<i>Mesodorylaimus</i> sp.							+	+	+	+

11	Thornenema sp.					+			+		+
12	Eudorylaimus carteri							+			
13	Eudorylaimus sp.	+	+		+	+		+	+		+
14	Tacamangai sp.										+
15	Ecumenicus monohystera	+	+								
16	Ecumenicus sp.		+								
17	Discolaimus laevinae	+	+			+					
18	D. major	+									
19	Discolaimus sp.								+		
20	Aporcelaimellus adriani			+				+			
21	A. krigeri										+
22	A. paraobtusicaudatus										+
23	Aporcelaimellus sp.	+	+	+	+	+	+	+	+	+	+
24	Enchodelus sp.				+						
25	Xiphinema brevicole					+					
26	Xiphinema sp.				+						
27	Belondira tenuidens					+					
28	Pristionchus lherithieri	+							+		
29	Mesorabditis monohystera								+	+	
30	Mesorabditis sp.	+									
31	Rhabditis sp.		+	+	+			+			
32	Cephalobus dubius					+					
33	C. persegnis						+			+	+
34	Cephalobus sp.					+					+
35	Eucephalobus mucronatus			+		+			+		
36	E. striatus	+		+		+		+			
37	Eucephalobus sp.	+	+								
38	Chiloplacus sp.										+
39	Acrobeloides sp.								+		
40	Tylenchus sp.				+						
41	Filenchus vulgaris				+						
42	Filenchus sp.				+						
43	Tylenchorhynchus sp.	+			+		+			+	
44	Helicotylenchus digonicus	+				+				+	+
45	H. diversicaudatum									+	
46	Helicotylenchus sp.	+					+	+		+	+
47	Pratylenchus sp.				+						
48	Aphelenchus avenae						+				
49	Aphelenchus sp.				+						
	<b>Tuber nematodes</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
50	Ditylenchus destructor	+	+	+		+	+	+	+	+	+
51	Pristionchus lherithieri	+		+	+						
52	Aphelenchus avenae				+		+				
53	Rhabditis sp.	+	+							+	

In a material there were 50 forms of nematode, from which 25 forms are identified as species. From total number of species 49 have appeared only in soil, while in tubers it has been noted only 4 (*Ditylenchus destructor*, *Pristionchus lherithieri*, *Aphelenchus avenae*, *Rhabditis* sp.). Potato stem nematode was found in all tubers of all nests, *P. lherithieri* only in three nests in separate tubers, *A. avenae* and in several tubers from two points. *Rhabditis* sp. have been noted for soil too.

In soil tests the potato stem nematode never was found that allows us to suppose, that infection of tubers of a new crop occurred from a seed material. Tubers of a new crop visually were healthy and *Ditylenchus destructor* replacement in soil did not take place.

Taking into account, that the point of view about infection of tubers both by a landing material and from soil is accepted by researchers (Korab, 1952, Paramonov A.A. Briushkova F.I. 1956), we suppose, that in our case an infection source was the landing material only. It should be noted, that many species registered by us in soil, usually penetrate in plants tissues (in roots) and in these cases are habitual phytobiontes.

Our material testifies the potato stem nematodes wide spreading in the investigation regions of Southern Georgia. Since harmfulness increases proportionally to distribution of the parasite, it is necessary to give more attention to agrotechnical actions, reducing danger of infection of a potato with landing material.

In this case the sorting of tubers used as a landing material, can be the most effective (Paramonov A.A. Briushkova F.I. 1956). Visually healthy tubers should be used for landing. Certainly it does not guarantee a complete elimination of infection of a new crop, but considerably will lower danger of infection.

Studying of distribution and monitoring of this parasite in potato growing regions in Southern Georgia should be continued.

#### **References:**

1. Korab I.I. Scientific of a note of Belotserkovsk agriculture Inst, III (I-IV), 1952, 133-143 (Russ).
2. Paramonov A.A., Brjushkova F.I. Potato stem nematoda and a measure of struggle against it. Publ. Acad.of scien.. The USSR, 1956, 111c. (in Russian).
3. Eliava I.A. Material to studying of nematodofauna of potato in Easern Georgia. Georgian animals and plants helmintofauna, 1967, 111-116 (in Russian).

## FIRST FIND OF JOTONCHUS ZSCHOKKEI (MENZEL, 1913) ALTHERR, 1955 (MONONCHIDA) AND MESODORYLAIMUS DERNI LOOF, 1969 (DORYLAIMIDA) IN GEORGIA

Bagathuria N.<sup>1</sup>, Tskitishvili E.<sup>2</sup>.

1,2 –Institute of Zoology, e-mail:ekatskitishvili@mail.ru

**Abstract.** At studing the soil, developed under crook-stem beechen forest in Tavkvetila (Javakheti, Eastern Georgia), 41 nematodes form have been recorded, from which two species Jotonchus zschokkei (Family Jotonchidae) and Mesodorylaimus dorni (Family Dorylaimidae) is marked as a new for Georgian fauna. Therefore we found expedient to give the redescription, original pictures and measurements in this article.

**Key words:** cuticle, spear, spicula, supplement.

**Jotonchus zschokkei (Menzel, 1913) Altherr, 1955 (Fig. 1)**

**Female:** L = 2,6-2,7mm; a = 20-26; b = 3,9-4; c = 23-24,9; v = 68-71 %;

**Male:** L = 2,5mm; a = 17,8; b = 3,2; c = 22,2

Body strongly curved like C. The head slightly set off from body contours. Papills are well appreciable. Funnel shaped small amphids situated at the level of the anterior third section of buccal cavity. Buccal cavity about one-half times as long as wide. Dorsal tooth lie in the posterior third of buccal cavity. The denticles situated nerly basal. Oesofagus 551,6mkm long.

Ovaries paired, simmetric, in one of a uterus is elongated egg (159X100mkm)

Tal conoid, long is more then anal diameter, ventrally curved with slightiy rounded terminus. Spicula moderately slender, 126 mkm long. Accessory piece bipartite. The member of convex-conoid, contiguous supplements 24. Series begins at once over cloaca.

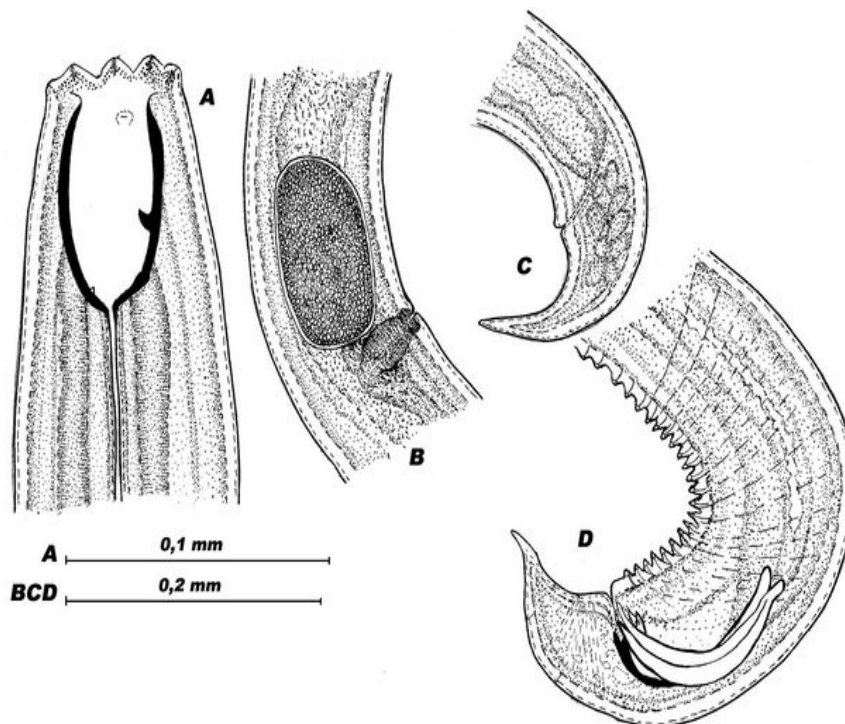


Fig.1. Jotonchus zschokkei (Menzel, 1913) Altherr, 1955

A- Female had; B- Vulva region; C- Female tail; D- Male tail, spicules and supplements.



**Mesodorylaimus dorni Loof, 1969 (Fig. 2)**

**Female: L = 1,47-1,48mm; a = 37,6-40; b = 4,9-5; c = 6,3; v = 46%;**

**Male: L = 1,2-1,3mm; a = 27-31; b = 4,4-4,6; c = 48-52**

Body outstretched. Cuticle smooth, at the level of spear 2,2mkm thick. Had 8,8 mkm width, slightly set off from body contour. Amphids aperture equal  $\frac{1}{2}$  body diameter. Spear 13,2 mkm long and one-half times more, than labial diameter, orifice equal of  $\frac{1}{3}$  of spear length. Oesofagus muscular, enlarged behind the middle, cardia conical. Nerve ring just in 35% the oesofagus.

Vulva longitudinal. Vagina strongly sclerotized, its width equal  $\frac{1}{2}$  of body diameter. Ovaries paired, curved. Distance between vulva and anus 2,3 times as long as tail. Tail length 11 times, rectum 1,4 times and prerectum 3 times more, than anal body diameter. The tail is narrowed gradually, last part whip shaped, with slightly rounded terminus.

Tale of males short, convex-conoid, dorsally widely approximated, almost to cylindrical. Spicules like dorylaimid, 38,5 mkm long. Length of accessory piece 12 mkm. Supplements 10-14, contiguous.

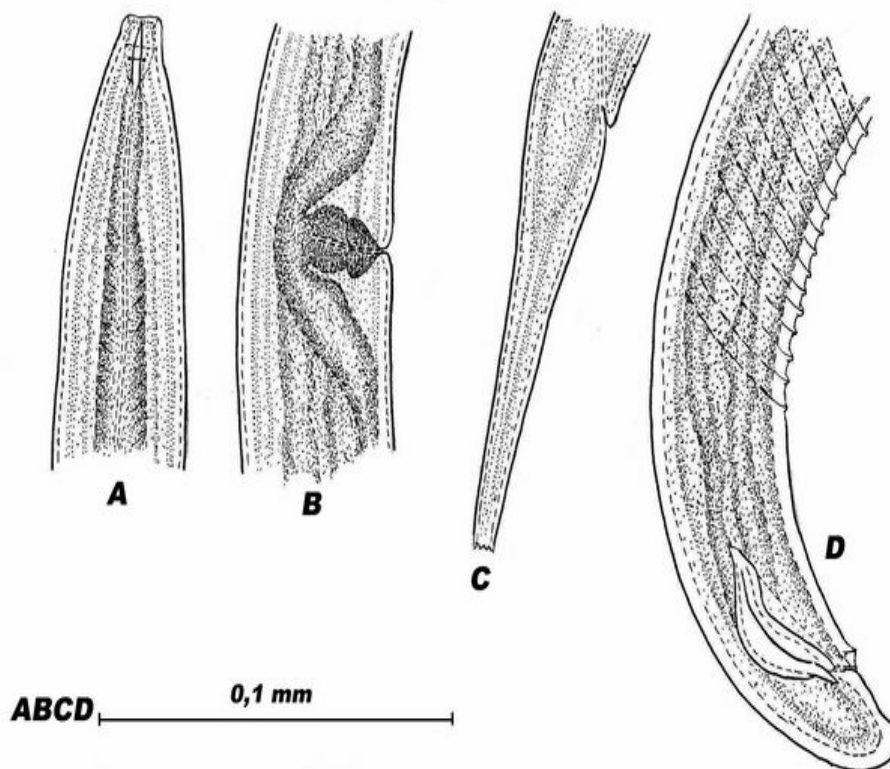


Fig.2. *Mesodorylaimus dorni* Loof, 1969

A- Female head; B-Vulva region; C- Female tail; D- Male tail, spicules and supplement

## References

- I. J. Eliava, N.L. Bagathuria, E. Sh. Kvavadze, M. G. Gigolashvili, T. D. Tskitishvili Nematodofauna of Tbilisi and its Environs. Proceedings of the Institute of Zoology Vol. XXI,2002, 44-54.
- E. Kvavadze, N. Bagathuria, I. Eliava, E. Didmanidze, M. Murvanidze and oth. To the Study of Biodiversity of Invertebrate Animals of Mariamjvari Reserve. Proceedings of the Institute of Zoology Vol. XXII, 2004. 249-268.
- Loof P. A. A., Taxonomy of some species of the genus *Mesodorylaimus* Andrassy, 1959 (Dorylaimoidea, Nematologica, 1969, Vol. 15, 2, p. 253-254.
- Mulvey R. H. The Mononchidae: A family of predaceous nematodes IV.genus *Jotonchus* (Enoplida: Mononchidae Entomology Research Institute, Research Branch, Canada Department of Agriculture, Ottawa Recived July 19, 1962.

## COMBINED APPLICATION OF LOCAL ENTOMOPATHOGENIC NEMATODES AND BACTERIAL PREPARATIONS AGAINST *HYPONOMEUTA MALINELLUS* AND *ANTHONOMUS POMORUM*

O. Gorgadze

Institute of Zoology, E-meil:oleggorgadze@yahoo.com

**Abstract.** Results of studies of entomopathogenic nematodes (*Steinernema disparica*, *S. gurgistana*) and bacterial preparations (*Bacillus thuringiensis*, *Gomelin*) against *Hyponomeuta malinellus* (Lepidoptera: Hyponomeutidae) and *Anthonomus pomorum* (Coleoptera: Curculionidae) are discussed in this work. Both laboratory and field experiments determined that the effectiveness of nematode suspension against pest insects considerably increases (from 25 to 30%) during their application in combination with bactpreparations.

**Key words:** Entomopathogenic Nematodes, *Hyponomeuta malinellus*, *Anthonomus pomorum*, *Bacillus thuringiensis*, *Gomelin*.

### Introduction

Today great attention is paid to work out methods of biological control of forest and agricultural plant pests and to their application in practice. Recently in many countries of the world Entomopathogenic (EPN) nematodes (Steinernematidae, Heterorhabditidae, Mermitidae et al) are used as one of the means of biological control (Kaya, 1985; Ishibashi et al., 1991).

Effectiveness of nematodes against pest insects is high in laboratory experiments, but in field conditions is comparatively low (Gorgadze, 2000). High effectiveness of action of nematodes together with such entomopathogenic microorganisms as: *Bacillus thuringiensis* (Bt), *Entobacterin*, *Beauveria bassiana* et al., (Komionek, 1978; Koppehofer and Kaya, 1997; Schroer et al., 2005) is known.

*Hyponomeuta malinellus* (Lepidoptera: Hyponomeutidae) and *Anthonomus pomorum* (Coleoptera: Curculionidae) were used as objectives of the experiments. *H. malinellus* is monophagous and is considered as one of the most dangerous pests among garden pests. It mainly damages leaves of apple trees, also floral bract and green shoots. *A. pomorum* damages branches and buds of quince, apple and pear. It can reduce productivity from 60 to 80% (Batiashvili, 1959).

Our aim was to test EPN nematodes and bactpreparations against *H. malinellus* and *A. pomorum* in combination and separately.

### Materials and methods

For lab experiments the adult insects and worms of *H. malinellus* and *A. pomorum* were collected in orchard of private sectors in Saguramo, Tsilkani and Thesami (Mtskheta region)

We used cellophane (2, 5 x 4) and umbrella to collect insects and gauze sacks for their transportation.

For the invasion of pest insects in the lab conditions, jars of 0, 5 L capacity were used. In each jar some apple leaves and certain number of insects was placed.

*Steinernema gurgistana* and *S. disparica* nematode suspension of equal titer (350 nem. in 1 ml water) were used separately and in combination with the bactpreparations (*Bacillus thuringiensis*, *Gomelin*) against pests placed in the jar.

Field experiments were carried out in orchards of private sectors, in the village Thesami. Nematode suspension of equal high concentration (titer-1000 nematodes in 1ml water) was used in all field experiments.

Together with nematodes, from bactpreparations only 0, 5% *B. thuringiensis* suspension was tested in experiments. Apple trees intensively inhibited with worms of the pest were chosen and were cultivated with suspension of different concentration. Hand apparatus of OBX-14 type was used for sprinkling.

Determination of nematode suspension titer and concentration of bactpreparations was carried out according to accepted methods (Veremchuk, 1986; Popov, 1963), but accounting of insect mortality was made according to Abbot formula (Abbot, 1925).

## Results

Using *S. disparica* suspension separately (350 nem. in 1ml water) the mortality percentage of *H. malinellus* worms was 55, 7% on average (table 1.). By adding 0,3% *B. thuringiensis* (*Bt*) solution in the same dose of nematode suspension, the effectiveness of *H. malinellus* worms' mortality increases 86,5% on average, whereas the effectiveness of *Bt* separately on the pests mentioned above did not exceed 28,5%.

High effectiveness (80,8%) is also marked in case of using nematode *S. disparica* and *Gomelin* suspension combined (350 nem. in 1ml water +0,3% *Gomelin*), but when only 0,3% *Gomelin* was used in the test the mortality of *H. malinellus* worms was up to 32,3%.

Testing *S. gurgistana* together with the same bactpreparations (0, 3% *Bt* and 3% *Gomelin*) and with the same dose of nematodes (350 nem. in 1ml water) against *H. malinellus* the high results (88, 5%) were also obtained.

Action of marked combined preparations was found out rather effective also during their use against *A. pomorum*. Doses of preparations and sequence in the noted tests were the same as in tests carried out on *H. malinellus*. Using combined suspension (350 nem. of *S. disparica* in 1 ml water+0, 3% *Bt*) the mortality of *A. pomorum* was up to 91, 5%, and in combination with *Gomelin*– 83, 5%.

Within the period of combination of nematode *S. gurgistana* suspension with *Bt*, mortality of the *A. pomorum* was 94, 5%, and 92, 2% in combination with *Gomelin*.

As for field tests, using combined suspension (1000 nem. in 1ml water+0,5% *Bt*) in it, the high percentage of pest insects' mortality was also marked (see table 1), whereas the effectiveness of separate nematodes on pests didn't exceed 70,5% on average. In this case using 0, 5% *Bt* in combination with nematodes enhances pathogenic action of nematobacterial complex on pest insects and increases effectiveness on average 20, 5%.

### Results of action of nematodes and bacterial preparations against pest insects

Table 1

Variants of the experiment	Mortality of pest in %	
	<i>H. malinellus</i>	<i>A. pomorum</i>
<b>Lab. experiments</b>		
<b><i>S. disparica</i></b>		
350 nem. in 1 ml water	55, 7	57,3
350 nem. in 1 ml water+Bt(0,3%)	86,5	91,5
Bt (0,3%)	28,6	30,5
350 nem. in 1 ml water+Gomelin(0,3%)	80,8	83,5
Gomelin(0,3%)	32,3	25,5
<b><i>S. gurgistana</i></b>		
350 nem. in 1 ml water	59,1	60,8
350 nem. in 1 ml water+Bt(0,3%)	88,5	94,5
Bt (0,3%)	24,8	27,5
350 nem. in 1 ml water+Gomelin(0,3%)	85,5	92,2
Control (water)	2	1
<b>Field experiments</b>		
<b><i>S. disparica</i></b>		
1000 nem. in 1ml water	68,5	70,3
1000 nem. in 1ml water+Bt (0,5%)	85,7	89,6
Bt (0,5%)	19,3	17,7
<b><i>S. gurgistana</i></b>		
1000 nem. in 1ml water	70,9	73,6
1000 nem. in 1 ml water+Bt (0,5%)	88,5	91,4
Control (water)	0	2

## Conclusion

From the results of carried out experiments we can conclude, that the effectiveness of nematode suspensions consider increases (from 25 to 30) in case of using them together in combination with bacterial preparations. Sepsis hastens in insect's body. This process causes death of the insect in short time and increases percent of mortality accordingly.

## References

- Abbot W. S.** (1925) A method of computing the effectiveness of an insecticide. *S. of Econ. Entomologi*, 18: 265-267.
- Batiashvili, I. D.** (1959) Pests of the continental and subtropical fruit cultures. Izd. Gruz. ordena Trud. Krasn. Znam. Selskokhoz. inst-ta. Tbilisi, pp: 455 (in Russian).
- Gorgadze, O. A.** (2000) Using the nematode *Steinernema thesami* and *steinermema carpocapsae* strain "agriotos"(Steinernematidae) against the american white butterfly (*Hyphantria cunea Drury*). Proceedings of the Instit. of Zoology, Vol. XX, "Metsn." Tbilisi. Pp: 64-66 [in Georgian with English summary].
- Ishibashi, N., Choi, D. R.** (1991) Biological Control of soil pests by mixed application of entomopathogenic and fungivorous nematodes. *J. of Nematologi*, 23 :175-181.
- Kaya, H. K.** (1985) Entomogenous nematodes for insect control in IPM systems. In „Biological Control in Agricultural IPM Systems” (M. Hoy and D.C. Herzog. Eds.), Academic Press, New York. Pp: 283-302.
- Komionek, M.** (1978) Combined effect of *Neoaplectana carpocapsae Weiser* nematodes and the fungi *Beauveria bassiana bals.* on *Galleria mellonella* caterpillars. 4<sup>th</sup> Int. Congr. Parasitol., Warsawa. Pp: 77-78.
- Koppehofer, A. M. and. Kaya, H.K.** (1997) Additive and synergistic interaction between entomopathogenic nematodes and *Bacillus thuringiensis* for scarab grub control. *Biological Control*. 8:131-137.
- Popov, P.V.** (1963) Easy way to calculate dilution. *J. Plant protection*. 10: 37-38 [in Russian].
- Schoer, S., Sulistyanto, D. and Ehlers, R.-U.** (2005) Control of *Plutella xylostella* using polymer-formulated *Steinernema carpocapsae* and *Bacillus thuringiensis* in cabbage fields. Blackwell Verlag, Berlin JEN, 129, 4:198-204.
- Veremchuk, G.V.** (1986) Methodical recommendations on laboratory cultivation of (*Galleria mellonella*) and application of entomopathogenic nematodes. Leningrad. Pp:19 [in Russian].

## NEW DATA ABOUT TRICHINELLOSIS IN SOME REGIONS OF GEORGIA

\* L.Arabuli,<sup>1</sup> L.Murvanidze,<sup>2</sup> L. Zirakishvili<sup>3</sup>

1,2 - Institute of Zoology, e-mail - lela.arabuli@yahoo.com

3- virsaladze scientific research Institute of Medical Parasitology and Tropical Medicine

### Abstract

To study trichinellosis of pigs material was collected from different regions of Georgia in 2002-2007: Akhmeta, Tianeti, Dusheti, Lagodekhi, Dedoplistskaro, Telavi, Gardabani (Martkopi), Mtskheta, Chiatura, Senaki. 259 specimens were researched in total. Peak of invasion was marked in Dusheti, Akhmeta, Senaki and Gardabani regions. Free care of pigs and their contact with carrion of different animals and garbage assist to spread trichinellosis in these regions.

**Key words:** Trichinellosis, epizootology, natural and synantropic pesthole.

### Introduction

Zooantroponosis and among them trichinellosis take an important place among the human and mammal disease. This disease is caused by the parasite of trichinella genus. It is one of the world-wide spread parasites. The number of human disease regularly increases, caused by using raw or insufficiently processed meat of pig, horse and other animals (Dupouy-Camet 1998, 1999; Nokler 2003). Natural and synantropic pesthole and strong connection between them is typical for the disease assisted by different nutritional connections among species (Rodonaia et al. 1967; Kurashvili et al. 1971; Bessonov 1972).

Wild and domestic pigs and bear take leading role in trichinellosis epidemiology in Georgian conditions (Maruashvili 1958; Kurashvili et al. 1971; Maruashvili, Zirakishvili et al. 1988). The main link of synantropic pesthole is a domestic pig. Products of the invaded slaughtered pigs are sources of disease in human and synantropic animals (Kurashvili et al. 1971; Bessonov 1972; Maruashvili, Zirakishvili et al. 1988). That's why studying trichinellosis of pig has a great practical importance.

In results of researches carried in different times in Georgia several cases of trichinellosis of pigs were marked. In 1966-1971 as a result of studying the spread of trichinellosis of animals trichinella was registered in 0,02% of the studied pigs (Kurashvili, Rodonaia et al 1971). High percentage index of trichinellosis in domestic pigs was marked in Tianeti, Sagarejo, Gardabani and Tetri tskaro regions in 1990-1996 (Gugushvili, Ramishvili, 1997).

In Georgia clinical-epidemiological matter of man trichinellosis was studied in 1985 and the links between synantropic and natural pestholes during the course of the trichinellosis were established (Iashvili, 1995)

### Material and methods

In order to study trichinellosis prevalence 259 domestic pigs were investigated in 2002-2007. Materials were collected from the following regions: Akhmeta, Lagodekhi, Dusheti, Dedoplistskaro, Tianeti, Mtsketa, Chiatura, Senaki, Gardabani (tab.1).

Research was carried out by using of compressor trichinelloscope and methods of artificial digestion.

### Discussion

High extensiveness of trichinellosis in pigs was revealed in Tianeti, Dusheti, Akhmeta, Senaki and Gardabani regions, but the peak of invasion was marked in Tianeti region.

Comparatively high rate of invasion in pigs was marked in Tianeti, Akhmeta and Gardabani (Martkopi) regions. By means of the method of artificial digestion total amount of larvae in 1 kg

Invasion of pigs with trichinellosis in Georgia 2002 -2007

Researched region	Total number of researched pigs	The number of invaded pigs
Akhmeta	59	3
Tianeti	31	6
Dusheti	38	3
Lagodekhi	16	-
Dedoplis Tskaro	5	-
Telavi	10	-
Gardabani (Martkopi)	36	4
Mtskheta	24	1
Chiatura	19	1
Senaki	21	4
In total	259	21

of muscle was counted, which made up 58 specimens within the highest rate of invasion and within the lowest rate of invasion 2-3 larvae in 1 kg of muscle was marked.

According to the results of our researches, disease of pigs with trichinellosis was marked during the whole year, though the peak of the extensiveness falls on winter, it is comparatively low in spring and in autumn and in summer the single occasion of pigs with trichinellosis was marked. The noted dynamics of disease can be explained by the seasonal slaughter of pigs. Here with the late of autumn and winter are hunting periods and the great number of dead bodies of the wild animals is thrown away near the inhabited locality and the pigs feed with them. In spring they are released to feed in the forest where they find carrion of different animals free from snow cover and became invaded. This agent of invasion is excluded in summer as dead bodies of the animals are buried because of their rot and odor nuisance. Herewith mouse like rodents inhabited

near the pigpens in winter participate in invasion spreading out, in summer they go to the fields and forests and pigs have no contact with them.

### Results

Thus the main source of the invasion of pigs is the carrion of predators. Also mouse like rodents - especially grey rat carries out epidemiological role in the pesthole of trichinellosis of pigs.

One of the favorable factors of disease is uncontrolled places of garbage collection, which often becomes the reason of the origin of local pesthole.

Invaded pigs and the products of their slaughter in case of lack of supervision often become the source of disease of man and animals of different species (cat,dog, mouse and others) and assist to trichinellosis spreading.

As trichinellosis belongs to zoonosis, we were interested in spreading trichinellosis among inhabitants in regions of carried out researches, the data of National Centre of Assignment Control of 2004-2006 were used. Comparing both data (pig and human trichinellosis) the authentic correlation among trichinella invasion was marked pointing out weakness of veterinary and medical centre calculation. It's necessary to strengthen veterinary control of pork realization, especially in private sectors of food items.

For prevention of pigs trichinellosis it is necessary not to let them feed by casual food and to move them to the fodder system.

### References

1. Bessonov A.S., (1972). Epizootology (epidemiology) and prevention of trichinellosis (part one). Vilnius, Mintis

2. Dupouy-Camet J., Ancell T., Fourestie V., Boiveau P., Soule S. (1998) Trichinellosis Encycl. Med.chir.(Elsevier Paris) Maladies Infect – 8-10
3. Dupouy-Camet J. (1999) Its human trichinellosis on emerging zoonosis in the European-community? Helminthologia 36-3, 201-204
4. Epidemiology of Trichinella – <http://www.trichinella.org./index-synopsi>
5. Gugushvili M.S., Ramishvili L.G., Glonti N.G., (1997) To the matter of trichinellosis prevalence and improvement of its laboratorial diagnostics. Coll. Of Scient. Proc.II, p.269-270
6. Iashvili N. (1995) Disease of man with trichinellosis and the measures of its reduction in Georgia. Author.thes.GMS.Tbilisi
7. Kurashvili B., Rodonaia T., Matsaberidze G., Gurchiani K., Savateeva I., Japaridze I., Petriashvili L., (1971) Trichinellosis of animals in Georgia. Parasitological collection. II, Tbilisi, Metsniereba, p.19-48
8. Maruashvili G. (1958) Man trichinellosis in Georgia – Tbilisi, Sabchota Sakartvelo
9. Maruashvili G.M., Zirakishvili L.M., Matikashvili T.M., Zenaishvili O.P., Kursikashvili L.S., Kveladze M.V. (1988) About some peculiarities of epidemiology of trichinellosis on the present-day stage in Georgian SSR. Mat. Of V intern.conf.about problems of trichinellosis of man and animals. Moscou p.96-98
10. Nokler K. (2003) Trichinella prevalence in the domestic and sylvatic cycle and its importance as foodborne pathogen. Helminthologia. 40,2 103-108
11. Rodonaia T., Matsaberidze G. (1967) Trichinellosis and struggle against it.Tbilisi, Metsniereba.



## THE RESULTS OF ECOLOGICAL-PARASITOLOGICAL STUDY OF *PSEVDORASBORA PARVA* POPULATED IN KUMISI RESERVOIR AND BASALETI LAKE

E. Kakalova,<sup>1</sup> \*L. Shonia<sup>2</sup>

1,2 - Institute of Zoology, e-mail – lela\_shonia@rambler.ru

**Abstract.** An ecological-parasitological study of so called weed fish *Pseudorasbora parva* accidentally invaded together with *Ctenopharyngodon idella* in eighties in Georgia was carried out. The material was received from Kumisi reservoir and Basaleti Lake. Today *Pseudorasbora parva* populates in Basaleti Lake, Kumisi and Jandara reservoirs as well as in the rivers Mtkvari, Aragvi and Narekvavi. In the material obtained from Basaleti Lake the helminths *Diplostomum Spataceum* which populate of eye in vitreous body of this fish were registered.

**Key words:** helminthes, expansion, invasion.

The study of dwarf-weed fishes has been carried out in the period of 2001-2005 in Basaleti lake and Kumisi reservoir. It was the first attempt for the newly estimation of dwarf fishes place in the ecosystem, as well as for the establishment of the possibilities of their rational usage and defence. One of these dwarf fishes *Pseudorasbora parva* not long ago became an inhabitant of fresh waters. It is encountered in Basaleti Lake, Kumisi and Jandara reservoirs and in the rivers Mtkvari, Aragvi and Narekvavi. Its expansion to the west is conditioned by its ecological plasticity and high possibilities: it appears to be a thermophile form, and can exist in such an environment where many species could not in any lake, different rivers and bogs. The *Pseudorasbora parva* has a simple age structure (1+–3+). It appears to be a lithophilous, is spawning on 60-70 cm depth on any object on the bottom and is less exacting to the nutritious base and main characteristics of the environment [3, 4].

During foundation of new species in the ecosystem the *Pseudorasbora parva* is subjected to the influence of any factor of the environment. Among these factors one of the biotic factors appears to be the living organisms spread in the ecosystem. They may be predators, parasites, etc.

The goal of our investigation was to establish the connections of *Pseudorasbora parva* to parasitic organisms.

### Material and methods

With the aim to study the *Pseudorasbora parva* total of 238 copies of this fish were obtained from Basaleti lake and Kumisi reservoir (135 specimens from Kumisi reservoir and 103 specimens from north-eastern bank of Basaleti lake).

For the isolation of parasitogenic protozoans and other ectoparasites the scrapes of skin and gills were treated while for helminthes a wide used method in parasitology of total parasitological dissection was used. The parasitic protozoans were not determined in our material, while out of 103 dissected fishes of Basaleti Lake material a digenetic trematode *Diplostomum Spataceum* was observed in vitreous body of the eye of 36 copies. Earlier it was found in the fishes of Kumisi Lake, particularly in carps and silver carps (*Hypophthalmichthys*) [2]. At present it does not occur in Kumisi reservoir. This fact may be explained by a high mineralization of the water (3,77 g/l) which is evoked by a high content of sulphates ( $\text{SO}_4^{2-}$ ) and other chemical components.

The water in Basaleti Lake belongs to hydrocarbonate class and its mineralization is equal only to 0,44 mg/l.

### Results and discussion

Out of 103 dissected individuals 36 specimens appeared to be invaded that makes 34.9%. It is a rather high index. As is seen in Table 1, most of all (51 copies) were from the 2+ age group. By the extension

of invasion a difference between age groups was minimal. It is interesting that in 1+ and 3+ aged fishes this difference is equal, as well as the amount of dissected fishes of the same age.

As to the intensity of host copies, it was low in 1+ and 2+ aged fishes and is equal to 1-2 parasites. Total of 4 copies occurred only in one case in 2+ aged fishes; in 3+ aged fishes out of 9 invaded fishes there were 3-5 parasites in 4 ones. As it is known in parasitology the extension and intensity of the invasion significantly depends on the age of the host. The young forms are relatively invaded and in the course of times they have been loaded with parasites [1]. It is also rightly for the fishes. The higher invasion of 3+ aged fishes copies may be explained by this fact, however it is not sharply expressed.

Table 1

Results of parasitological study of *Pseudorasbora parva* in Basaleti Lake

Age of fishes	Dissected copies	Invaded ones	extensiveness of invasion in %
1+	26	9	34.6
2+	51	18	35.3
3+	26	9	34.6

### References

1. Dogel V. 1962 (in Russian). General Parasitology,
2. Kurashvili B. et al. 1973. Ecological-parasitological Study of Kumisi reservoir fishes. Parasitological collection, of Instytute of Zoology. Tbilisi "Metcniereba", Vol.III, pp.14-44. Tbilisi .
3. Shonia L., Kokosadze T. 2006. Biological characteristics of *Pseudorasbora parva*. Immigrant in Basaleti Lake . Proceeidngs of Georgian Academy of Sciences, ser. boil. B. V. 4, No 3. pp.153-155
4. Shonia L., Kokosadze T. 2006. Reproduction of *Pseudorasbora parva*. Proceeidngs of Georgian Academy of Sciences, ser. boil. B. V. 4, No 4. pp. 127-130.

# THE ANNOTATED LIST OF AMPHIBIAN HELMINTHS OF GEORGIA

L. Murvanidze,<sup>1</sup> K. Nikolaishvili,<sup>2</sup> Ts. Lomidze<sup>3</sup>

1,2,3 - Institute of Zoology, e-mail: lali.murvanidze@hotmail.com

**Abstract.** In the following manuscript, according to the literature data, in 7 species of Amphibians are registered 45 species of helminthes. 2 species of them belong to the class *Monogenoidea*, 2 – to the class *Cestoda*, 20 – to Trematoda, 18 – to *Nematoda* and 3 species - to *Acanthocephala*.

**Key words:** Amphibian, Helminthes, Georgia

## Introduction

The territory of Georgia inhabits 12 species of Amphibians. The studies on their helminthofauna are conducted since 30 th years of XX century. Currently in 7 species of Amphibians are registered 45 species of helminthes, which are presented in every class of parasitic helminthes.

2 species of them belong to the class *Monogenoidea*, 2 – to the class *Cestoda*, 20 – to *Trematoda*, 18- to *Nematoda* and 3 species –to *Acanthocephala*.

**Abbreviations:** EG-East Georgia; WG-West Georgia.

## The Annotated list of Amphibian Helminths

### Class *Monogenoidea* (Beneden) Bychowsky, 1937

Family *Iagotrematidae* Mane- Garzon et Gil.1962

Genus *Euzetrema* Combes, 1965

#### 1. *E. caucasica* Timofeeva at Sharpilo, 1979

Host: *Mertesiella caucasica*

Distribution: EG - Akhaldaba; WG - Bakhmaro, Timofeeva, Sharpilo, 1979 ; Petriashvili et al, 1985.

Family *Polystomatidae* (Carus, 1863)

Genus *Polystoma* Zeder, 1800

#### 2. *P. integerrimum* (Frohlich,1789)

Host: *Bufo viridis*, *Bufo bufo* (*Bufo verrucosissimus*), *Rana ridibunda*, *R. macrocnemis*

Distribution: EG - Samgori, Tbilisi Sea, Jamdari Lake, Baret Lake, Santa Lake (Minor Caucasus), Cross Pass, Kasbekhi, Gvelethi (Georgian Military Road), Tba Lake: WG – Tkibuli Reserv Dinnik, 1926; Chiaberashvili, Mchedlidze,1961; Kalabekov, 1973a, 1975; Kurashvili et al., 1975; Petriashvili et al., 1985; Giorgadze, 1985; Nikolaishvili et al., 2007).

### Class *Cestoda*

Family *Ophiotaeniidae* Freze, 1963

Genus *Batrachotaenia* Rudin, 1917

#### 3. *B. ranae* (Yamaguti, 1938)

Host: *Rana ridibunda*

Distribution: WG - Batumi (Freze, 1965; Rijikov et al., 1980; Petriashvili et al.,1985).

Family *Nematotaenidae* Luhe, 1910

Genus *Nematoenia* Luhe,1910

#### 4. *N. dispar*, Goeze, 1782

Host: *Rana ridibunda*, *R. macrocnemis*, *Bufo viridis*, *Bufo bufo*

Distriburion: EG - Cross Pass, Baret Lake, Santa Lake(Minor caucasus), Aragvi Basin, Gveleti(Georgian Military Road); WG - : Ozurgeti (Dinnik, 1926; Kalabekov, 1973b; Burtikashvili et al.,1978; Pijikov, 1980; Burtikashvili, Getzadze, 1981; Petriashvili et al.,1985; Nikolaishvili et al., 2007).

**Class Trematoda**

Family *Gorgoderidae* Looss, 1901

Genus *Gorgodera* Looss, 1899

**5. *G. cygnoides* (Zeder, 1800)**

Host: *Rana ridibunda*, *Bufo viridis*

Distribution: EG - Bazaleti Lake, Kumisi Reservoir, Tbilisi Reservoir; WG – Tkibuli Reserv (Petriashvili 1964; Kalabekov,1975; Giorgadze, 1985; Kurashvili et al.,1991).

**6. *G. asiatica* (Skarb., 1950) (Pigulevsky,1952)**

Host: *Rana ridibunda*, *R. macrocnemis*

Distibution: EG - Bazaleti Lake, Jandara Lake, Borjomi, Achaldaba, Kumisi Reser., Aragvi River Bazin, WG – Ozurgeti, Macharadze, Tkibuli Reserv (Chiaberashvili, Mchedlidze, 1961; Petriashvili et al., 1964; Kurashvili et al., 1973; Kurashvili et al., 1975; Burtikashvili, Getzadze, 1981; Giorgadze, 1985; Kurashvili et al., 1991).

**7. *G. dollfusi* Pigulevsky, 1945**

Host: *Rana ridibunda*, *Bufo viridis*, *Bufo bufo*

Distribution: EG - Martkhopi, Aragvi River Bazin (Kurashvili et al., 1977; Burtikashvili et al., 1978; Burtikashvili, Getzadze, 1981; Petriashvili et al., 1985) .

**8. *G. pagenstecheri* Ssinizin,1905**

Host: *Rana ridibunda* , *R. macrocnemis*

Distribution: EG - Tbilisi Botanic garden, Kodjori, Achaldaba, Santa Lake (Minor Caucasus); WG - Sukhumi, Ozurgeti, Tkibuli Reserv (Chiaberashvili, Mchedlidze,1961; Rijikov et al., 1980; Petriashvili et al., 1985; Giorgadze 1985; Kurashvili et al., 1991; Nikolaishvili et al., 2007).

Genus *Gorgoderina* (Looss, 1902)

**9. *G. vitelliloba* (Olsson, 1876)**

Host: *Rana ridibunda* . *R. macrocnemis*

Distribution: EG - Tbilisi, Samgory, Kazbegi, Jandari Lake WG - Samtredia, Macharadze, Bebesiri Lake , Tkibuli Reserv (Chiaberashvili, Mchedlidze, 1961; Kalabekov, 1972; Kalabekov, 1973a,b; Kalabekov, 1975; Kurashvili et al, 1975; Rijikov et al.,1980; Petriashvili, et al., 1985; Giorgadze, 1985).

Family *Diplodiscidae* Skrjabin,1949

Genus *Diplodiscus* Diesing, 1836

**10. *D. subclavatus* (Pall. 1760)**

Host: *Rana ridibunda*, *R. macrocnemis*, *Bufo viridis*

Distribution: EG - Samgory, Bazaleti Lake, Gvilethi(Georgian Military Road), Tba Lake, Borjomi, Kodjori, Aragvi River Bazin; WG – Macharadze, Tkibuli Reserv (Dinnik, 1926; Chiaberashvili, Mchedlidze, 1961; Petriashvili, 1964; Rijikov et al., 1980; Burtikashvili, Getzadze, 1981; Petriashvili et al., 1985; Giorgadze, 1985).

**11. *D. mehrai* ( Paude,1937)**

Host: *Rana ridibunda*

Distribution: EG - Bazaleti Lake, Samgori, Aragvi River Bazin (Chiaberashvili,Mchedlidze,1961; Petriashvili, 1964; Rijikov et al., 1980; Burtikashvili, Getzadze, 1981; Petriashvili et al., 1985).

Family *Plagiorchidae* Luhe, 1901

Genus *Dolichosaccus* Johnston,1912

**12. *D. rastellus* (Olsson, 1876)**

Host: *Rana ridibunda*, *R. macrocnemis*

Distribution: Central Caucasus (Georgia) (Kalabekov, 1975; Petriashvili et al.,1985).

Genus *Haplometra* Looss, 1899

**13. *H. brevicaeca* Timon David,1962**

Host: *Rana macrocnemis*

Distribution: EG - Santa Lake (Minor Caucasus), Cross Pass , Kazbegi (Kalabekov, 1972 ; Kalabekov 1973a; Kalabekov 1973d; Kalabekov 1975; Petriashvili et al., 1985; Nikolaishvili et al., 2007).

Genus *Opisthoglyphe* Looss, 1899

**14. *O. ranae* ( Froelich, 1791)**

Host: *Rana ridibunda*, *R. macrocnemis*, *Bufo bufo*, *B. viridis*, *Hyla arborea*

Distribution: EG - Samgori, Borjomi, Tbilisi Botanic garden, Kodjori, Aragvi River Basin; WG - Bebesiri Lake, Lanchkhuti, Macharadze, Samtredia, Tkibuli reserv (Chiaberashvili, Mchedlidze, 1961; Djavelidze, 1964; Burtikashvili, Getzadze, 1981; Petriashvili et al., 1985; Giorgadze, 1985; Kurashvili et al. 1991).

Genus *Pneumonoeces* Looss, 1902

Syn.: *Haematoloechus*

**15. *P. variegates* (Rud. 1819)**

Host: *Rana ridibunda*, *R. macrocnemis*, *Bufo viridis*, *Bufo bufo*.

Distribution: EG - Samgori, Bazaleti Lake, Tbilisi surroundings, Kumisi reservoir, Aragvi River Basin, Jandara Lake WG – Ozurgeti, Tkibuli reserv (Chiaberashvili, Mchedlidze, 1961; Petriashvili, 1964; Burtikashvili, Kurashvili et al., 1973 ; 1975, 1991; Rijikov et al., 1980; Getzadze, 1981; Petriashvili et al., 1985; Giorgadze, 1985).

**16. *P. asper* (Looss, 1899)**

Host: *Rana ridibunda*, *Bufo bufo*

Distribution: EG - Aragvi River Basin (Burtikashvili et al., 1978; Burtikashvili, Getzadze, 1981; Petriashvili et al., 1985).

Family *Brachycoelidae*, Jonston, 1912

Genus *Brachycoelium* (Dujardin, 1845)

**17. *B. salamandrae* (Froelich, 1789)**

Host: *Mertensiella caucasica*

Distribution: EG - Bakuriani (Rijikov et al, 1980; Petriashvili et al., 1985).

Family *Cephalogonimidae* Looss, 1899

Genus *Cephalogonimus* Poirier, 1886

**18. *C. retusus* (Dujardin, 1845)**

Host: *Rana ridibunda*

Distribution: EG - Samgori, Bazaleti Lake, Aragvi River Basin; WG – Tkibuli reserv.

Chiaberashvili Mchedlidze, 1961; Petriashvili, 1964; Rijikov et al., 1980; Burtikashvili, Getzadze, 1981; (Petriashvili et al. 1985; Giorgadze 1985).

**19. *Cephalogonimus* sp.**

Host: *Rana ridibunda*

Distribution: EG - Iori River, Sartichala, Tabatskuri Lake (Djavelidze, Chiaberashvili 1985).

Family *Pleurogenidae* Looss, 1899

Genus *Pleurogenes* Looss, 1896

**20. *P. claviger* (Rud., 1819)**

Host: *Rana ridibunda* . *R. macrocnemis*

Distribution: WG - Bebesiri Lake, Gudauta (Gamtsemlidze, 1941; Chiaberashvili, Mchedlidze, 1961; Petriashvili et al., 1985).

**21. *P. intermedius* Issaïtchikow, 1926**

Host: *Rana ridibunda* , *R. macrocnemis*, *Bufo viridis*

Distribution: EG - Borjomi, Achaldaba (Kurashvili et al., 1991).

Genus *Pleurogenoides* Travassos, 1921

**22. *P. medians* Olsson, 1876**

Host: *Rana ridibunda*, *R. macrocnemis*,

Distribution: EG - Bazaleti Lake, Martkhopi, Aragvi River Basin (Petriashvili, 1964; Kurashvili et al., 1977; Rijikov et al., 1980; Burtikashvili, Getzadze, 1981; Petriashvili et al., 1985).

Genus *Prosotocus* Looss, 1899

**23. *P. confusus* (Looss,1894)**

Syn.: *P. fulleborni* Travassos, 1930

Host: *Rana ridibunda*, *R. macrocnemis*

Distribution: EG - Bazaleti Lake, Kumisi Reservoir, Aragvi River Basin; WG - Samtredia, Macharadze (Chiaberashvili, Mchedlidze, 1961; Petriashvili, 1964; Kurashvili et al., 1973; Rijikov et al., 1980; Burtikashvili, Getzadze, 1981; Petriashvili et al., 1985).

Genus *Codonocephalus* Diesing, 1850

**24. *C. urnigerus* (Rud., 1819) larvae (metacercaria)**

Host: *Rana ridibunda*

Distribution: EG – Samgori; WG - Samtredia, Macharadze, Bebesiri Lake (Chiaberashvili, Mchedlidze, 1961; Petriashvili et al., 1985).

**Class *Acanthocephala* (Rudolphi, 1808)**

Family *Echinorhynchidae* Cobbold, 1876

Genus *Acanthocephalus* Koelrenther, 1771

**25. *A. ranae* Schrank, 1788**

Host: *Rana ridibunda*, *R. macrocnemis*

Distribution: EG - Aragvi River Basin (Burtikashvili et al., 1978; Rijikov, 1980; Burtikashvili, Getzadze, 1981; Petriashvili et al., 1985).

Genus *Pseudoacanthocephalus* Petrotchenko, 1956

**26. *P. bufonis* (Schiple, 1903)**

Host: *Bufo viridis*, *B. bufo*, *Rana ridibunda*, *R. macrocnemis*

Distribution: EG - Bazaleti Lake, Jandara Lake, Tbilisi Botanic Garden, Kodjori, Aragvi River Basin; WG – Ozurgeti, Tkibuli Reserv (Petriashvili 1964; Kurashvili et al., 1975; Rijikov et al., 1980; Burtikashvili, Getzadze, 1981; Petriashvili et al. 1985; Giorgadze, 1985; Kurashvili et al., 1991).

**27. *P. caucasicus* (Petrotschenko, 1953)**

Host: *Rana macrocnemis*

Distribution: Central Caucasus (Georgia), Cross Pass (Major Caucasus) (Kalabekov, 1973a, 1975; Petriashvili et al., 1985; Nikolaishvili et al., 2007).

**Class *Nematoda* Rudolphi, 1808**

Family *Rhabdiasidae* Railliet, 1915

Genus *Rabdi* Stiles at Hassal, 1905

**28. *R. bufonis* (Schrank, 1788)**

Host: *Rana ridibunda*, *R. macrocnemis*, *Bufo viridis*, *B. Bufo*, *Hyla arborea*

Distribution: EG - Kumisi Reserv., Bazaleti Lake, Jandari Lake, Martkopi, Aragvi River Basin; WG - Gudauta, Tkibuli Reserv (Gamtsemlidze, 1941; Kurashvili et al., 1973, 1975, 1977, 1991; Petriashvili 1964; Rijikov et al., 1980; Burtikashvili, Getzadze, 1981; Petriashvili et al., 1985; Giorgadze, 1985).

Family *Strongyloididae* Chitwood et McIntosh 1934

Genus *Strongyloides* Grassi, 1879

**29. *Stongyloides* sp.**

Host: *Rana ridibunda*

Distribution: WG - Chokhatauri, Tkibuli Reserv (Rijikov et al., 1980; Petriashvili et al., 1985; Giorgadze, 1985).

Family *Trichostrongylidae* (Leiper, 1908, Subfam.) Leiper, 1912

Genus *Mertensinema* Sharpilo, 1976

**30. *M. iberica*, Sharpilo, 1976**

Host: *Mertensiella caucasica*

Distribution: WG – Bachmaro (Sharpilo, 1976; Rijikov et al., 1980; Petriashvili et al., 1985).

Genus *Oswaldocruzia* Travassos, 1917

**31. *O. filiformis* (Goeze, 1782)**

Syn.: *O. goeze*

Host: *Bufo bufo*, *B. viridis*, *Hyla arborea*, *Rana ridibunda*, *R. macrocnemis*  
Distribution: EG - Baretí and Santa Lakes, Cross Pass(Major Caucasus), Aragvi River Basin Gvelethi (Georgian Military Road), Tba Lake (Centr. Caucasus); WG - Ozurgeti, Gudauta., Tkibuli Reserv (Dinnik,1926; Gamtsemlidze 1941; Kalabekov, 1975; Burtikashvili ,Getzadze,1981; Petriashvili et al., 1985; Giorgadze, 1985; Kurashvili et al., 1991; Nikolaishvili et al., 2008).

Family *Subulascarididae* Freitas et Dobbin,1957

Genus *Chabaudgolvania* Freitas, 1958

**32. *Ch. terdentatum* (Linstow, 1890)**

Host: *Triturus vittatus*

Distribution: EG – Borjomi ( Rijikov et al., 1980; Petriashvili et al, 1985).

Family *Cosmocercidae* (Railliet et Henry, 1916, Subfam.)

Travassos,1925

Genus *Aplectana* Railliet et Henry,1916

**33. *A. caucasica* Sharpilo, 1978**

Host: *Mertensiella caucasica*

Distribution: WG - Bachmaro (Sharpilo 1978; Rijikov et al.,1980; Petriashvili et al.,1985).

Genus *Cosmocerca* Diesing,1861

**34. *C. commutata* (Diesing, 1851)**

Host: *Rana ridibunda*, *Bufo viridis*

Distribution: EG – Jandari Lake; WG - Tkibuli Reserv (Kurashvili et al., 1975; Giorgadze, 1985).

**35. *C. ornata* (Dujardin,1845)**

Host: *Rana ridibunda*, *R. macrocnemis*, *Bufo viridis*, *B. bufo*

Distribution: EG - Bazaleti Lake, Kumisi Reservoir, Martkhopi, Tbilisi Botanik Garden, Mtscheta, Aragvi River Basin; WG – Ozurgeti (Petriashvili, 1964; Kurashvili et al., 1973, 1975, 1977; Rijikov et al., 1980; Burtikashvili , Getzadze, 1981; Petriashvili et al., 1985; Kurashvili et al., 1991).

Genus *Neoxysomatium* Ballesteros Marquez,1945

**36. *N. causicum* Sharpilo, 1974**

Host: *Triturus vittatus*

Distribution: EG – Bakuriani (Rijikov et al., 1980; Petriashvili et al., 1985).

Genus *Neoraillietnema* Ballesteros Marquez, 1945

**37. *N. praeputiale* (Skrjabin, 1916)**

Host: *Rana ridibunda*, *R. macrocnemis*

Distribution: Centr. Caucasus (Georgia) (Kalabekov, 1973a,1975; Rijikov et al., 1980; Petriashvili et al., 1985).

Genus *Oxysomatium* Railliet et Henry,1913

**38. *O. longispiculum* Railliet et Henry, 1913**

Host: *Rana ridibunda*, *R. macrocnemis*, *Bufo bufo*

Distribution: WG - Gudauta (Gamtsemlidze,1941; Petriashvili et al., 1985).

Family *Oxyuridae* Cobbold, 1864

Genus *Thelandros* Wede, 1862

**39. *T. tba* ( Dinnik, 1930) Volgar, 1959**

Host: Tadpole of *Rana ridibunda* , *R. macrocnemis*, *Bufo viridis*, *Hyla arborea*

Distribution: Centr. Caucasus, Gvelethi (Georgian Military Road) (Dinnik,1926, 1930; Petriashvili, 1964; Rijikov et al., 1980).

Family *Gnathostomatidae* Railliet, 1895

Genus *Gnathostoma* Owen, 1836

**40. *G. hispidium* Fedschenko,1872 larvae**

Host: *Rana ridibunda*

Distribution: EG - Bazaleti Lake, Aragvi River Basin (Petriashvili, 1964; Rijikov et al., 1980; Burtikashvili, Getzadze, 1981; Petriashvili et al., 1985).

Family *Spiruridae* Oerly, 1885  
Genus *Ascarops* Beneden, 1873

**41. *A. strongylina* (Rud, 1819) larvae**

Host: *Rana ridibunda*

Distribution: EG - Bazaleti Lake, Aragvi River Basin. WG – Tkibuli Reserv (Petriashvili, 1964; Rijikov et al., 1980; Burtikashvili, Getzadze, 1981; Petriashvili et al., 1985; Giorgadze, 1985).

Genus *Physocephalus* Diening 1861

**42. *P. sexalatus* (Molin, 1860) larvae**

Host: *Rana ridibunda*

Distribution: EG - Bazaleti Lake, Aragvi River Basin; WG - , Ozurgeti (Petriashvili, 1964; Rijikov et al., 1980; Burtikashvili, Getzadze, 1981; Petriashvili et al., 1985; Kurashvili et al., 1991).

***Agamospirura* Group Larvae**

Genus *Spirocerca* Railliet et Henry, 1911

**43. *A. magna* Sharpilo, 1963**

Host: *Bufo viridis*

Distribution: EG - Akhaldaba, Lagodekhi, Tbilisi surroundings, Qvemoboshuri (Gori), (Petriashvili 1964; Rijikov et al., 1980; Petriashvili et al., 1985).

**44. *Agamospirura* sp. larva**

Host: *Rana ridibunda*

Distribution: EG - Bazaleti Lake, Aragvi River Basin (Petriashvili, 1964; Burtikashvili, Getzadze, 1981).

Family *Oswaldofilariidae* (Chabaud et Choquet, 1953, Subfam)  
Sonin, 1966

Genus *Icosiella* Seurat, 1917

**45. *I. neglecta* (Diesing, 1851)**

Host: *Rana ridibunda*

Distribution: Bazaleti Lake, Aragvi River Basin (Petriashvili, 1964; Rijikov et al., 1980; Burtikashvili, Getzadze, 1981; Petriashvili et al., 1985).

## References

1. Burtikashvili L., Getzadze L., Gogebashvili I., Devdariani Ts., Jankarashvili E., Japaridze L., Kakulia G., Kvavadze E., Kurashvili B., Maglakelidze L., Matzaberidze G., Mikeladze L., Petriashvili L., Ramishvili N., Rodonaya T., Sagdieva P., Suladze L., Eliava I. (1978) Results of Ecologo-Parasitological investigations of Animals of the Aragvi River Basin. 213 pp. Mecniereba, Tbilisi (in Georgian).
2. Burtikashvili L, Getzadze L. (1981) To the study of parasitofauna of the Amphibians of Aragvi River Basin. Mater. III Zakavkazskoi konf. po parasitologii. 37-38. Baku. (in Russian).
3. Chiaberashvili E., Mchedlidze G. (1961) Materials of the study Trematodofauna of Amphibians spread in Georgia: Thes. of Georg. Zootec. Veter. Stud. Inst. Scien. Res., 46-49 (in Georgian).
4. Djavelidze G. (1964) The results of the study of *Opisthoglyphe ranae* (Froehlich). Bull. AN GSSR, 34, N1, 157-165 (in Russian).
5. Djavelidze G, Chiaberashvili E. (1985) Additional data of the cycle of development of the trematoda *Cephalogonimus* sp. (fem. *Cephalogonimidae* Nikoll., 1914) Bull. AN GSSR, 117, N1 137-140 (in Russian).
6. Dinnik J. A. (1926) Helminth parasites of *Rana macrocnemis* Berg. in Gvileti environs at the Northern Caucasian Hydrobiological stationary (village Gvileti at the Georgian Military Road). Raboti Sev.-Caucaz. Hydrobiol. Stantsii pri Gorskoi S/CH Inst., I, vip. 2, 46-53 (in Russian).



7. Dinnik J. A. (1930) Materials to the study of fauna of parasitic helminthes of Caucasian fresh waters. Raboti Sev-Caucaz. Hydrobiol. Stantsii .,3, vip.,1-3, 87-90 (in Russian).
8. Gamtsemldize S. (1941) To the characteristic of fauna of parasitic helminths of Mammalias of Georgian SSR. Trudi Tbil. Gos. Universiteta, XXI, 123-187.(in Russian).
9. Giorgadze J. (1985) Helminthofauna of fishes and amfphibians of Tkibuli Reservoir. The fauna and ecology of some groups of the insects and mites of Georgia. Tbilisi, "Metsniereba", 82-88.
10. Kalabekov A. L. (1972) Metacercaries and mezocercaries of Iranian longlegged wood frog(*Rana macrocnemis* Boul.)on the northern slopes of Central Caucasus. Problems of parasitplogy. Trudi 7-th nauchn. Conf. parasitol. USSR, Kiev, Naukova Dumka , part.I, 326-328.
11. Kalabekov A. L. (1973a) Fauna of helminths of Iranian longlegged wood frog ( *Rana macrocnemis* Boul.) on the northern slopes of Central Caucasus. in Collection of zoological works. Orjonikidze, 35-46 (in Russian).
12. Kalabekov A.L. (1973b) Cycle of development of *Haplometra brevicaeca* Timon-David, 1962 (*Trematoda, Plagiorchiidae*) in Collection of zoological works. Orjonikidze, 19-33 (in Russian).
13. Kalabekov A.L. (1975) Helminths of Iranian longleggend wood ( fauna, ecology and life cycles). Avtoreferat dissert. kand. boil. nauk., Orjonokidze.
14. Kurashvili B., Japaridze L., Petriashvili L., Gogebashvili I., Savateeva I., Ramishvili N., Chikovani M., Burtikashvili L., Koiava L. (1973) ` Ekologo-parasitological study of the animals of Kumisi Reservoir. In Parasitological collection, III, 14-44, Metsniereba, Tbilisi. (in Georgian).
15. Kurashvili B., Andguladze V., Giorgadze J., Jordania L., (1975) An ecological- helminthological study of the animals of Jandara Lake. Materals to the study of Georgian fauna. N 5, Tbilisi "Metsniereba" 156-176 .
16. Kurashvili B., Rodonaia T.,Matsaberidze G., Kakulia G., Eliava I., Ramishvili N., Mikeladze L., Burtikashvili L., Devdariani Ts., Djaparidze L., Petriashvili L., Getzadze L. (1977) Animal parasites in vicinity of Martkopy stationary. In Parasitological collection, IY, 51-78, Metsniereba, Tbilisi ( in Russian).
17. Kurashvili B., Rodonaia T., Matsaberidze G., Gogebashvili I., Eliava I., Ramishvili N., Kvavadze E., Burtikashvili L., Suladze L., Mikeladze L., Djaparidze L., Petriashvili L., Sagdieva P., Djankarashvili E., Getzadze L. (1991) Parasitological studies in biocenoses and cattle-beeding farms of the Minor Caucasus in Georgia, 3-191, Metsniereba ,Tbilisi (in Georgian).
18. Nikolaishvili K., Petriashvili L., Lomidze Ts., Melashvili N. (2007) The results of Study of Water-Soluble Proteins of Helminths of *Rana macrocnemis* (Boul) . Bull.of the Georgian Academy of Sciences., Vol. 175,no 4, 118-120.
19. Petriashvili L. (1964) Helminth fauna of *Rana ridibunda* Pall. In conditions of Bazaleti Lake Bull. of AN Georgia, XXXYI, 2, 457-462 (in Georgian).
20. Petriashvili L., Giorgadze J., Getzadze L., Matsaberidze K. (1985) Materials to the study of amphibian helminths of Georgia. Mater. IY Zakavkazskoi konf. po parasitologii. Metsniereba,Tbilisi, 172-174 (in Russian).
21. Rijikov K.M., Sharpilo V.P., Shevchenko N.N. (1980) Helminths of amphibiens of the fauna USSR, Nauka, Moskva, 276 .(in Russian).
22. Timofeeva T. A., Sharpilo V.P.(1979) *Euretrema caucasica* sp. nov. (*Monogenoidea, Polyopisthocotylidae*)- parasit of caucasian salamander. Parasitologia, 13, N 5, 516-521.(in Russian)
23. Freze V.I.(1965) Osnovi tsestodologii, 5, 392 , Nauka, Moskva(in Russian).
24. Sharpilo V.P. (1976) *Mertensinema iberica* gen., sp.n. *Nematoda, Trichostrongylidae Mertensinematinae subfam.n.*- parasit of caucasian salamander . Vestnik zoologii, 5, 87-90 (in Russian).
25. Sharpilo V.P. (1978) Helminths of the relict animals. I. *Aplectana caucasica* sp.n.(*Nematoda, Cosmocercidae*) – parasit of caucasian salamander. Vestnik zoologii, 2, 82-84. (in Russian).

## TO THE STUDY OF HELMINTHOFAUNA OF IRANIAN LONGLEGGED WOOD FROG *RANA MACROCNEMIS* (BOUL.)

K. Nikolaishvili<sup>1</sup>, Ts. Lomidze<sup>2</sup>, N. Melashvili<sup>3</sup>, L. Petriashvili<sup>4</sup>

1,2,3,4 Institute of Zoology, e-mail: izoo@caucasus.net

Helminthofauna of Iranian longlegged wood frog *Rana macrocnemis* of the Cross Pass (Greater Caucasus) and the territory of Santa and Barety lakes (Tsalka, Minor Caucasus) has been studied.

It is established, that the frogs of the Cross Pass (subalpine zone) are mainly invased by acanthocephales. The helminthes of various classes in amphibians inhabiting the territory near lakes (mountain-steppe zone) were revealed (monogeneis, trematodes, cestodes, nematodes).

Evidently, connection of helminthofauna of *Rana macrocnemis* with the habitat conditions, nutrition, height of spread, were also related to the variety of its secondary hosts parasites.

**Key words:** Georgia, *Rana macrocnemis*, helminthofauna

### Introduction

Notes on helminthofauna of tailless amphibians of Georgia, particularly of Iranian longlegged wood frog can be found in ecological-parasitological investigations of animals of the country (Kurashvili et al. 1973, 1977, 1991). Helminthes of *Rana macrocnemis* were studied from the collection of animals inhabited predominantly on the territory of the Kolkhida lowland (Chiaberashvili, Mchedlidze, 1961), in the forest zone of the Trialety mountain ridge (basin of the river Aragvi) (Burtikashvili et al. 1978), Akhaldaba and Borjomi (Kurashvili et al. 1991) in steppe (lake Kumisi, Samgory irrigative system) (Kurashvili et al. 1973, Chiaberashvili, Mchedlidze, 1961), in foothill-steppe and foothill zones (Martkopi) (Kurashvili et al. 1977) i.e. at the altitude of 1000m above sea level. In whole 14 species of helminthes were registered. Data on the helminthofauna of *R. macrocnemis* of the alpine zone of Georgia were impossible to find (Kalabekov, 1973).

It is known that Iranian longlegged wood frog is usually numerous in alpine zones, in Borjomi-Bakuriani region, at the altitude of 1500-1700 m above sea level. It enters the alpine meadow zones, goes up to mountains at the altitude of 3200m above the sea level (Animals Life, 1985).

In September 1999, we had an opportunity to make comparative analysis of the helminthofauna of Iranian longlegged wood frog of two different mountain regions.

### Material and methods

Eight of the amphibians were caught on the Cross Pass (Greater Caucasus) at the altitude of 2379 m above the sea level, and 15 exemplars - not far from Tsalka on the territories of Santa and Barety lakes (Minor Caucasus) at the altitude of 1700 and 1500 m above sea levels accordingly. Age of the frogs vary from 3 to 5 years.

Parasitological material was fixed. Slides were made according the methods existing in helminthology.

### Results and discussion

As a result of the whole helminthological dissection the 7 species of helminthes were found in *R. macrocnemis*, particularly: 2 species from trematode classes, 1 from monogeneis, 1 from cestodes, 2 from nematodes (1 species is not determined), 1 from acanthocephales.

Common and specific species represented the fauna of the parasitic worms of the Iranian longlegged wood frog. It is particularly diverse from specimens caught on the Bareti and Santa lakes. Trematodes, monogeneis, cestodes and nematodes were found here. The obtained data are given in table 1.

Localization of helminthes in organs of the Iranian longlegged wood frog on the Cross Pass and the environs of Baretly and Santa lakes.

Territory/Organs	Lungs	Intestines	Urinary bladder
<b>The Cross Pass</b> 8/5%.* EI -62,5%	–	<b>Cestodes</b> Nematotenia dispar <b>Nematodes</b> Oswaldocruzia filiformis <b>Acanthocephales</b> Pseudoacanthocephala caucasicus	–
<b>Environs of the Baretly lake</b> 6-3% EI - 50%	<b>Nematodes</b> (Species not determined)	<b>Cestodes</b> Nematotenia dispar <b>Nematodes</b> Oswaldocruzia filiformis	<b>Monogeneis</b> Polystoma integerrimum
<b>Environs of the Santa lake</b> 9-7% EI – 77.7%	<b>Trematodes</b> Haplometra brevicaca <b>Nematodes</b> (species not determined)	<b>Cestodes</b> Nematotenia dispar <b>Nematodes</b> Oswaldocruzia filiformis	<b>Trematodes</b> Gordodera pagentecheri <b>Monogeneis</b> Polystoma integerrimum

\* - Quantity of the investigated animals in the numerator; quantity of the invaded animals in the denominator; EI – extensiveness of the invasion in %.

It is evident in the table 1, that intestines of amphibians inhabiting the Cross Pass are only affected by helminthes. From investigated eight amphibians five were infected. Extensiveness of the invasion made up 62,5 %. All five ones have acanthocephalans (proboscis worms) *Pseudoacanthocephala caucasicus*. This species are known to the given host only (Rizhikov et al.1980). In the intestine of one male except acanthocephala cestode *Nematotenia dispar* and nematode *Oswaldocruzia filiformis* were revealed, which are also met in toads too. Trematodes and monogeneis were absent.

Helminthofauna of frogs from the environs of the Baretly and Santa lakes was also identical. From six frogs caught at the Baretly lake, half were infected and extensiveness of the invasion comprised 50 %. Extensiveness of *R. macrocnemis* invasion from the environs of the Santa lake turned out higher and reached 77,7 %, seven out of nine specimen were infected. Helminthes were found in all tested organs.

Mixed invasion of nematodes and trematodes had place in lungs. Trematodes *Haplometra brevicaca* were revealed. Here we rely on Kalabekov's (1975b) data, which described cycle of development of this trematode in Iranian longlegged wood frog and pointed to the localization of maritae in lungs. He pointed to the total infection of these amphibians on the Northern slopes of the Central Caucasus. *H. brevicaca* is specific species for *R. macrocnemis* (Rizikov et al.1980). Nematodes were also located in the lungs (species are not defined).

Mixed invasion of cestodes and nematodes was also occurred in the intestine. These were *Nematotenia dispar* and nematode *Oswaldocruzia filiformis* cestodes mentioned above.

Monogeneis *Polystoma integerrimum* and trematodes *Gordodera pagentecheri* inhabited in the urinary bladder, were encountered frequently in the Transcaucasus, lake- and Iranian longlegged wood frogs (Chiaberashvili, Mchedlidze, 1961, Petriashvili et al.1985). It should be noted that combined presence of nematodes and monogeneis in one and the same urinary bladder was not noticed. Acanthocephales were not discovered in any of these frogs. Infection by *R. macrocnemis* helminthes is given in percentage in the table 2

Infection of *R. macrocnemis* by helminthes in %

	<b>Trematodes</b>	<b>Monogeneis</b>	<b>Cestodes</b>	<b>Nematodes</b>	<b>Acanthocephales</b>
The Cross Pass	–	–	20	20 (intestine)	100
Environs of the Baretly and Santa lakes	40 (lungs) 10 (urinary bladder)	40 (urinary bladder)	30	40 (lungs) 20 (intestine)	-

From numbers given in the table 2 is evident, that the infection of *R. macrocnemis* from the Cross Pass cestodes and nematodes was 20 %, but with acanthocephales – 100 %.

The Iranian longlegged wood frogs from the territory of lakes were infected with trematodes of lungs by 40% and with trematodes of the urinary bladder by 10%. 40% had occasion to the monogenes of urinary bladder and nematodes of lungs. Infection by cestodes in intestine was equal to 30 %, but by nematodes to 20 %.

Obtained data make possible to conclude that dominant helminthes in Iranian longlegged wood frogs from the Cross Pass are acanthocephales whereas trematodes, monogeneis, nematodes and cestodes approximately equally find the final host (*R. macrocnemis*) on the territory of those alpine lakes.

Similar climatic and geographical conditions of Baretly and Santa lakes (mountain-steppe zone), rich fauna of invertebrate animals, nutrition, probably create favorable conditions for spreading the invasion and provide both similarity and variety of species composition of the helminthes *R. macrocnemis* at this height.

As for the Iranian longlegged wood frogs dwelling in the subalpine zone of the Cross Pass, as it was already noted, their helminthofauna is significantly poor and is represented in essence by acanthocephales of one species. Attention is paid to the fact of the absence of monogeneis and trematodes.

High altitude, severe climatic conditions, high humidity limit the circle of the secondary hosts (mollusks, larvae of dragonflies, coleoptera) and probably prevent the realization of the cycle of the development of other classes of the parasitic worms.

Several authors (Chiaberashvili, Mchedlidze 1961; Petriashvili et al., 1985) marked the abundance of species of trematodes in Iranian longlegged wood frog. But as it shown in the results of our work in the conditions of alpine zone the number of trematodes species were strongly limited in mountain-steppe zone and absent in subalpine zone.

We compared the results of our work to the data of Kalabekov (1973a), who studied helminthofauna of *R. macrocnemis* from the south slopes of Central Caucasus and Cross Pass and discovered some common patterns in the allocation of helminthes in vertical landscape-climatic zones. By the raising of the locality above the sea-level the species composition of helminthes is impoverished.

The revealed helminthes are identical to the species of *R. macrocnemis* registered by Kalabekov (1973a), and of *R. camerany* and *R. macrocnemis* by Petriashvili et al. (1985), and to the materials summarized in monographs of Rizhikov et al. (1980) for Iranian longlegged wood frog.

Obtained data allows to conclude that helminthofauna of *R. macrocnemis* varies according to the altitude and habitat places of animals. It's noticeably poor in frogs residing in subalpine zone of Greater Caucasus in comparison to those inhabiting in mountain-steppe in the Minor Caucasus.

We suppose that the given material will enlarge our conception about the fauna of parasitic worms of Iranian longlegged wood frog from alpine zone.

Acknowledgement: Parasitologic material was graciously granted by Dr. D. Tarkhnishvili, for that we express our gratitude.

### References

1. Kurashvili B., Japaridze L., Petriashvili L., Gogebashvili I., Savateeva I., Ramishvili N., Chikovani M., Burtikashvili L., Koiava L. (1973) In: Parasitological collection, III, Metsniereba, Tbilisi, Pp:14-44 (in Georgian).
2. Kurashvili B., Rodonaia T., Matsaberidze G., Kakulia G., Eliava I., Ramishvili N., Mikeladze L., Burtikashvili L., Devdariani T., Japaridze L., Petriashvili L., Getsadze L. (1977) Parasites of animals of the Martkopi station environs. In: Parasitological collection IV., Metsniereba, Tbilisi. Pp: 51-78 (in Georgian).

3. Kurashvili B., Rodonaia T., Matsaberidze G., Gogebashvili I., Eliava I., Ramishvili N., Kvavadze E., Burtikashvili L., Suladze L., Mikeladze L., Japaridze L., Petriashvili L., Sagdieva P., Jankarashvili E., Getsadze L. (1991) Parasitological researches of the biocenosis of Minor Caucasus and live farming of the environs of Georgia., Metsniereba, Tbilisi, Pp: 21-23 (in Georgian).
4. Chiaberashvili E., Mchedlidze G. (1961) Materials to the study Trematodofauna of amphibians spread in Georgia : Thes. of Georg. Zootec. Veter. Inst. Scien. Res., Pp: 46-49 (in Georgian).
5. Burtikashvili L., Getsadze L., Gogebashvili I., Devdariani Ts., Jankarashvili E., Kakulia G., Kvavadze E., Kurashvili B., Maglakelidze L., Matsaberidze G., Mikeladze L., Petriashvili L., Ramishvili N., Rodonaia T., Sagdieva P., Suladze L., Eliava I. (1978) The results of the ecologic – parasitological researches of the Aragvi river basin., Metsniereba, Tbilisi., Pp: 13, 35–42, 129, 172 (in Georgian).
6. Animas Life (edt. Bannikov A.G.) (1985) Prosveshchenie, Moscow, 5:98–100 (in Russian).
7. Rizhikov K. M., Sharpilo V. P., Shevchenko N. N. (1980) In book: Helminths of the amphibians of the USSR fauna., Nauka. M., Pp: 255 – 256 (in Russian).
8. Kalabekov A.L. (1973a) In: Collection of zoological works. Orjonikidze, Pp: 35-46 (in Russian).
9. Kalabekov A.L. (1973b) In: Collection of zoological works, Orjonikidze, Pp:19-33 (in Russian).
10. Kalabekov A.L. (1975) Cycles of the development of some amphibian trematodes. In book: Problems of parasitology, part I., Materials of the VIII scient. Conf. of parasitol. USSR, Naukova Dumka, Kiev, Pp: 205–207 (in Russian).
11. Petriashvili L., Giorgadze D., Getsadze L., Matsaberidze K. (1985) Materials to the study helminthes of the amphibians of Georgia. Materials of IV Transcaucasian Conf. of parasitologists, Metsniereba, Tbilisi, Pp: 172–174 (in Russian).

## THE ANNOTATED LIST OF REPTILE HELMINTHES OF GEORGIA

\* L. Murvanidze,<sup>1</sup> Ts. Lomidze,<sup>2</sup> K. Nikolaishvili,<sup>3</sup> E. Jankarashvili<sup>4</sup>

1,2,3-Institute of Zoology, e-mail lali.murvanidze@hotmail.com ,  
4-Tbilisi Zoological parc

**Abstract:** In the following manuscript, according to the literature data, the annotated list of the helminthes registered in the Reptile is published. In 16 species of Reptiles in different regions of Georgia were registered 60 species of helminthes with 14 species of *Trematoda*, 6 – *Cestoda*, 3 – *Acanthocephala* and 37 – *Nematoda*.

**Key words:** Reptile, Helminthes, Georgia

### Introduction

The first researches on the reptile helminthes of Georgia were carried by Rijikov (Rijikov, 1951) and Sharpilo (Sharpilo, 1962). In the followings years Georgian scientists – L. Petriashvili (Petriashvili, 1966), B. Kurashvili (Kurashvili, Petriashvili, 1973) and E. Jankarashvili (Jankarashvili 1978, 1985 a, b, 1998) were also working in this direction. In 2002 and 2004 the list of protists of reptiles was published (Chikovani, Burtikashvili, 2002; Gogebashvili, Burtikashvili, 2004).

In the following manuscript, according to the literature data, the annotated list of the helminthes registered in this group of animals is published.

16 species of helminthes were studied: **Tortoise** (*Testudines*): *Testudo graeca* L; *Emys orbicularis*.

**Lizard** (*Sauria*): *Agama caucasica* (Echw); *Ophisaurus apodus* (Pall); *Anguis fragilis* L; *Eremias velox* (Pall.); *Lacerta strigata* Eichw.; *L. saxicola* Eversm., *L. caucasica* Meh.; *L. rudis* Bedr., *L. dahlia* Darevsky, L. derjugini Nik. **Snake** (*Serpentes*): *Natrix natrix* L., *N. tessellata* (Laur); *Coluber jugularis* (L); *C. najadum* (Echw); *Coronella austriaca* Laur.; *Vipera lebetina obtusa* Dwigubski.

In the reptiles studied in different regions of Georgia 60 species of helminthes were registered with 14 species of *Trematoda*, 6 - *Cestoda*, 3 - *Acanthocephala* and 37- *Nematoda*.

Abbreviations: EG – East Georgia; WG – West Georgia.

### The Annotated list of Reptile Helminthes

#### Class *Trematoda*

Family *Diplodiscidae* Skrjabin, 1949

Genus *Diplodiscus* Diesing, 1836

#### 1. *D. subclavatus* (Pall, 1760)

Host: *Natrix natrix*

Distribution: EG - Bazaleti Lake, Tbilisi surroundings, Dzinvali, Khazbegi; WG - Khobi, Zugdidi, Batumi surroundings (Petriashvili L., 1966; Jankarashvili E, 1985).

Family *Encyclometridae* Mehra, 1931

Genus *Encyclometra* Baylis et Cannon, 1924

#### 2. *E. colubrimurorum* (Rud., 1819)

Host: *Natrix natrix*

Distribution: EG - Tbilisi surroundings, Dzinvali, Khazbegi; WG - Khobi, Zugdidi, Batumi surroundings (Kakhaber Lake) (Jankarashvili, 1985).

Family *Telorchidae* Looss, 1898

Genus *Telorchis* Luhe, 1899

#### 3. *T. assula* (Dujardin, 1849)

Host: *Natrix natrix*, *N. tessellata*, *Emys orbicularis*

Distribution: EG - Lagodekhi, Borjomi, Bazaleti Lake, Jandara Lake, Tbilisi, Dzinvali, Khazbegi; WG - Khobi, Zugdidi, Batumi surroundings (Sharpilo, 1962; Petriashvili, 1966; Kurashvili et al. 1975, Jankarashvili, 1985; Kurashvili et al, 1991).

**4. *T. stossichi* Goldberger, 1911**

Host: *Emys orbicularis*

Distribution: EG - Bazaleti Lake, Jandara Lake (Petriashvili, 1966; Kurashvili et al., 1975, Jankarashvili, 1978).

**5. *T. sp.***

Host: *Lacerta strigata*

Distribution: EG – Jandara Lake (Kurashvili et al., 1975).

Family *Brachylaemidae* Stiles et Hassall, 1898

Genus *Brachylaemus* Dujardin, 1845

**6. *Brachylaemus sp.***

Host: *Lacerta strigata*

Distribution: EG - Khashuri (Sharpilo, 1962).

Family *Plagiorchidae* Luhe, 1901

Genus *Leptophallus* Luhe, 1909

**7. *L. nigrovenosus* (Bellingham, 1844)**

Host: *Natrix natrix*

Distribution: EG - Lagodekhi, Tbilisi surroundings, Dzinvali, Khazbegi; WG - Khobi, Zugdidi, Batumi surroundings (Sharpilo, 1962; Jankarashvili, 1985;).

Genus *Paralepoderma* Dollfus, 1950

**8. *P. cloacicola* (Luhe, 1909)**

Host: *Natrix natrix*, *N. tessellata*

Distribution: EG - Borjomi, Tbilisi surroundings, Dzinvali, Khazbegi; WG - Khobi, Zugdidi, Bathumi surroundings (Sharpilo, 1962; Jankarashvili, 1985; Kurashvili et al, 1991).

Genus *Macrodera* Looss, 1809

**9. *M. longicollis* (Abildgaard, 1788)**

Host: *Natrix natrix*, *N. tessellata*

Distribution: EG - Borjomi surroundings, Bazaleti Lake, Tbilisi surroundings, Dzinvali, Khazbegi; WG - Khobi, Zugdidi, Batumi surroundings (Sharpilo, 1962; Petriashvili, 1966; Jankarashvili, 1985; Kurashvili et al., 1991).

Genus *Opisthioglyphe* Looss, 1899

**10. *O. ranae* (Frolich, 1791)**

Host: *Natrix natrix*

Distribution: EG - Tbilisi surroundings, Dzinvali, Khazbegi; WG - Khobi, Zugdidi, Batumi surroundings (Jankarashvili, 1985).

Family *Strigeidae* Railliet, 1919

Genus *Strigea* Abildgaard, 1790

**11. *S. strigis* (Schrank, 1788) larvae**

Syn.: *Tetracotile strigis* (Schrank, 1788) larvae: Petriashvili, 1966

Host: *Natrix natrix*, *N. tessellata*

Distribution: EG - Bazaleti Lake, Tbilisi surroundings, Dzinvali, Khazbegi WG - Khobi, Zugdidi, Batumi surroundings (Petriashvili, 1966; Jankarashvili, 1985).

Family *Alariidae* Hall et Wigdor, 1918

Genus *Alaria* Schrank, 1788

**12. *A. alata* (Goeze, 1782), larvae**

Host: *Natrix tessellata*

Distribution: EG - Borjomi environs (Sharpilo, 1962).

Family *Diplostomatidae* Poirier, 1886

Genus *Neodiplostomum* Railliet, 1919

**13. *N. spathoides* Dubois, 1937, larvae**

Syn.: *Neodiplostomum minor* Dubinina, 1950; Petriashvili, 1966

Host: *Natrix natrix*, *N. tessellata*

Distribution: EG - Bazaleti Lake, Tbilisi surroundings, Dzinvali, Khazbegi; WG - Khobi, Zugdidi, Batumi surroundings (Petriashvili, 1966; Jankarashvili, 1985).

Family *Prohemistomatidae* Luntz, 1935

**14. *Szidatia joyeuxi* (Nuches, 1929)**

Host: *Natrix natrix*

Distribution: WG - Khobi, Zugdidi (Anaklia) (Jankarashvili, 1985; Jankarashvili, Sharpilo, 1985; Jankarashvili et al., 1998).

**Class Cestoda**

Family *Ophiotaeniidae* Frese, 1963

Genus *Ophiotaenia* La Rue, 1911

**15. *O. europea* Odening, 1963**

Syn.: *O. racemosa* (Rud.1814) : Sharpilo, 1962

Host: *Natrix natrix*, *N. tessellata*

Distribution: EG - Lagodekhi, Bazaleti Lake, Tbilisi surroundings, Dzinvali, Khazbegi; WG - Khobi, Zugdidi, Batumi surroundings (- Sharpilo, 1962; Petriashvili, 1966; Kurashvili et al., 1973; Jankarashvili, 1985).

Family *Nematotaeniidae* Luhe, 1910

Genus *Nematotaenia* Luhe, 1911

**16. *N. tarentolae* Lopez-Neyra, 1944**

Syn.: *Nematotaenia* sp.: Sharpilo, 1962

Host: *Lacerta saxicola*, *L. dahli*

Distribution: EG - Borjomi surroundings, Kojori (Sharpilo, 1962, Kurashvili et al., 1991).

Family *Linstowiidae* Mola, 1924

Genus *Oochoristica* Luhe, 1898

**17. *O. tuberculata* (Rud.1819)**

Syn.: *Oochoristica* sp.: Sharpilo, 1962

Host: *Agama caucasica*, *Lacerta strigata*

Distribution: EG - Gracali surroundings, Borjomi (Sharpilo, 1962; 1976).

**18. *O. sobolevi* (Spasski, 1951)**

Host: *Vipera lebetina*

Distribution: EG - Shiraqi (Kurshvili, Petriashvili, 1973).

Family *Mesocestoididae* Fuhrmann, 1907

Genus *Mesocestoides* Voillant, 1863

**19. *M. lineatus* (Goeze, 1782) larvae**

Host: *Natrix natrix*

Distribution: EG - Tbilisi surroundings, Dzinvali, Khazbegi; WG - Khobi, Zugdidi, Batumi surroundings (Kakhaber Lake) (Jankarashvili, 1985; Jankarashvili et al., 1998).

**20. *M. sp.* (*Tetrathyridium*)**

Host: *Vipera lebetina*

Distribution: EG - Shiraqi (Kurashvili, Petriashvili, 1973).



**Class *Acanthocephala* Rud. 1808**

Family *Giganthorhynchiidae* Hamann, 1892

Genus *Centrorhynchus* Luhe, 1911

**21.C. *spinosus* (Kaiser, 1893) larvae**

Syn.: *Centrorhynchus* sp.: Sharpilo 1962

Host: *Coluber najadum*, *Lacerta strigata*

Distribution: EG - Lagodekhi (Sharpilo, 1962; 1976).

Genus *Sphaerirostris* (Golvan, 1956)

**22. *S. teres* (Rud. 1819)**

Syn.: *Centrorhynchus cinctus*: Sharpilo, 1962

Host: *Coluber najadum*

Distribution: EG - Lagodekhi (Sharpilo, 1962; 1976).

Family *Oligacanthorhynchidae* Southwell et Macfic, 1925

Genus *Macracanthorhynchus* Travassos, 1917

**23. *M. catulinus* Kostylew, 1927, larvae**

Host: *Agama caucasica*, *Lacerta strigata*

Distribution: EG - Gracali environs (Sharpilo, 1962; 1976).

**Klass *Nematoda***

Family *Rhabdiasidae* Railliet, 1915

Genus *Rhabdias* Stiles et Hassall, 1905

**24. *R. fuscovenosus* (Railliet, 1899)**

Host: *Natrix natrix*, *N. tessellata*

Distribution: EG - Bazaleti Lake, Borjomi, Lagodekhi, Kumisi, Bogdanovka, Tbilisi surroundings (Sharpilo, 1962; Petriashvili, 1966; Kurashvili et al., 1973; 1991).

Genus *Entomelas* Travassos, 1930

**25. *E. entomelas* (Dujardin, 1845)**

Host: *Anguis fragilis*

Distribution: EG - Lagodekhi (Sharpilo, 1962).

Genus *Paraentomelas* Gen. Nov.

**26. *P. dujardini* (Maupas, 1916)**

Host: *Anguis fragilis*

Distribution: EG – Mtskheta, WG - Chiatura, Goderdzi Pass (Sharpilo, 1976, Kurashvili et al., 1991).

Genus *Hexadontophorus* Kreis, 1940

**27. *H. ophisouri* Kreis, 1940**

Host: *Ophisaurus apodus*

Distribution: EG - Tbilisi surroundings, Akhaldaba (Kurashvili et al., 1991).

Family *Strongyloididae* Chitwood et McIntosh, 1934

Genus *Strongyloides* Grassi, 1879

**28. *S. darevski* sp. nov.**

Syn.: *Strongyloides* sp.: Sharpilo, 1973

Host: *Lacerta saxicola*, *L. rudis*

Distribution: EG - Tbilisi, Akhaldaba, Akhalkalaki (Sharpilo, 1973; Kurashvili et al, 1991).

Family *Trichostrongylidae* Leiper, 19081

Genus *Oswaldocruzia* Travassos, 1917

**29. *O. goezei* Skrjabin et Schulz, 1952**

Host: *Anguis fragilis*, *Natrix natrix*, *Lacerta saxicola*, *L. rudis*, *L. caucasica*, *L. derjugini*

Distribution: EG - Lagodekhi, Akhaldaba, Tbilisi, Mleta, Dzinvali, Pasanauri(Aragvi Basin)  
(Burtikashvili et al., 1978; Jankarashvili, 1978; Kurashvili et al., 1991; Sharpilo, 1962).

Family *Diaphanocephalidae* Travassos, 1920  
Genus *Kalicephalus* Molin, 1961

**30. *K. viperae* (Rud. 1819)**

Syn.: *Kalicephalus* sp.:Sharpilo, 1962

Host: *Coluber Jugularis*, *Vipera lebetina*

Distribution: EG - Tbilisi, Shiraqi (Sharpilo, 1962; Kurashvili, Petriashvili, 1973).

Family *Angusticaecidae* Mosgovoy, 1951  
Genus *Angusticaecum* Baylis, 1920

**31. *A. holopterum* (Rud.1819)**

Host: *Testudo graeca*, *Emys orbicularis*

Distribution: EG - Grakhali, Aragvi Basin(Saguramo Reserve) (Sharpilo,1962; Burtikashvili et al., 1978; Jankarashvili, 1978).

Family *Oxyuridae* Cobbold, 1864  
Genus *Tachygonetria* Wedl. 1862

**32. *Tachygonetria* sp.**

Host: *Testudo graeca*

Distribution: EG - Lagodekhi surroundings (Sharpilo, 1992).

**33. *T. pusilla* Seurat, 1918**

Host: *Testudo graeca*

Distribution: EG - Saguramo Reserve(Jankarashvili, 1978).

**34. *T. robusta* (Drasche, 1884)**

Host: *Testudo graeca*

Distribution: EG - Saguramo Reserve (Burtikashvili et al., 1978; Jankarashvili, 1978).

Genus *Mehdiella* Seurat, 1918

**35. *M. microstoma* (Drasche, 1884)**

Host: *Testudo graeca*

Distribution: EG - Saguramo Reserve (Burtikashvili et al., 1978; Jankarashvili, 1978).

**36. *M. stylosa* (Thapar, 1925)**

Host: *Testudo graeca*

Distribution: EG - Saguramo Reserve (Burtikashvili et al., 1978; Jankarashvili, 1978).

**37. *M. uncinata* (Drasche, 1884)**

Host: *Testudo graeca*

Distribution: EG - Saguramo Reserve (Burtikashvili et al., 1978; Jankarashvili, 1978).

Genus *Thaparia* Ortlepp, 1933

**38. *T. thapari* (Dubinina, 1949)**

Host: *Testudo graeca*

Distribution: EG - Saguramo Reserve (Jankarashvili, 1978).

Genus *Parapharyngodon* Chatterji, 1933

**39. *P. cinctus* (Linstow, 1897)**

Host: *Agama caucasica*

Distribution: EG - Borjomi, Gracali (Sharpilo, 1962).

**40. *P. brevicaudatus* (Bogdanov et Markov, 1955)**

Host: *Agama caucasica*

Distribution: EG - Borjomi (Sharpilo,1976; Kurashvili et al., 1991).

**41. *P. szezerebaki* Radchenko et Sharpilo, 1975**

Host: *Agama caucasica*

Distribution: EG - Borjomi surroundings (Radchenko, Sharpilo, 1975).

Genus *Thelandros* Wedl., 1862

**42. *T. markovi* Radchenko et Sharpilo, 1975**

Host: *Agama caucasica*

Distribution: EG - Akhaltsikhe, Borjomi, Akhaldaba, Tbilisi surroundings (Radchenko, Sharpilo 1975; Kurashvili et al., 1991).

**43. *T. popovi* Makov et Bogdanov, 1963**

Host: *Agama caucasica*

Distribution: EG - Akhaltsikhe, Borjomi, Khashuri (Sharpilo, 1976; Kurashvili et al., 1991).

Family *Pharyngodonidae* Travassos, 1919

Genus *Spauligodon* Skrjabin et al., 1960

**44. *S. eremiasi* Markov et Bogdanov, 1961**

Syn.: *S. laevicauda*: Sharpilo, 1962

Host: *Eremias velox*

Distribution: EG - Gracali (Sharpilo, 1962).

**45. *S. saxicolae* Sharpilo, 1961**

Host: *Lacerta strigata*, *L. saxicola*, *L. rudis*, *Coluber jugularis*

Distribution: EG - Borjomi, Akhaldaba, Aragvi River Basin (Dzinvali, Mletha) WG – Chaqvisthavi (Sharpilo, 1962; Burtikashvili et al., 1978; Kurashvili et al., 1991).

**46. *S. sp.***

Host: *Lacerta strigata*

Distribution: EG - Lagodekhi (Sharpilo, 1962).

Family *Kathlaniidae* Lane, 1914

Genus *Spironoura* Leidi, 1856

**47. *S. armenica* (Massino, 1924)**

Host: *Emys orbicularis*

Distribution: EG - Bazaleti Lake, Jandara Lake (Petriashvili, 1966, Kurashvili et al., 1975).

Family *Cosmocercidae* Railliet, 1916

Genus *Neoxysomatium* Balestros Marquez, 1945

**48. *N. caucasicum* Sharpilo, 1974**

Syn.: *N. brevicaudatum* : Sharpilo, 1962

Host: *Anguis fragilis*

Distribution: EG - Mtskheta, Lagodekhi, Bakhuriani WG - Sukhumi, Chiatura, Goderdzi Pass (Sharpilo, 1962; 1974; Kurashvili et al., 1991).

Family *Gnathostomatidae* Railliet, 1985

Genus *Spiroxys* Schneider, 1866

**49. *S. contortus* (Rud., 1819)**

Host: *Emys orbicularis*

Distribution: EG - Bazaleti Lake, Lagodekhi, Tbilisi (Petriashvili, 1966; Sharpilo, 1976).

Family *Spiruridae* Oerley, 1885

Genus *Ascarops* Beneden, 1873

**50. *A. strongilina* (Rud., 1814) larvae**

Host: *Emys orbicularis*, *Agama caucasica*, *Natrix natrix*, *N. tessellata*, *Vipera lebetina*

Distribution: EG - Bazaleti Lake, Tbilisi surroundings, Akhaldaba, Shiraqi (Petriashvili, 1966; Kurashvili, Petriashvili, 1973; Jankarashvili, 1985; Kurashvili et al., 1991).

Genus *Physocephalus* Diesing, 1861

**51. *P. sexalatus* (Molin, 1860) larvae**

Host: *Emys orbicularis*, *Agama caucasica*, *Eremias velox*, *Coluber jugularis*, *Lacerta saxicola*, *L. strigata*, *Natrix natrix*, *Vipera lebetina*

Distribution: EG – Akhaldaba, Akhaltsikhe, Gracali, Lagodekhi, Bazaleti Lake, Tbilisi, Shiraqi (Sharpilo 1962; Petriashvili, 1966; Kurashvili, Petriashvili, 1973; Jankarashvili, 1985; Kurashvili et al., 1991).

Genus *Spirocerca* Raillet et Henry, 1911

**52. *S. lupi* (Rud. 1819) larvae**

Host: *Agama caucasica*, *Lacerta saxicola*, *Coluber jugularis*, *Vipera lebetina*

Distribution: EG - Tbilisi surroundings, Akhaldaba, Gracali, Shiraqi (Kurashvili, Petriashvili, 1973; Kurashvili et al., 1991; Sharpilo, 1962).

Family *Gongylonematidae* Hall, 1916

Genus *Gongylonema* Molin, 1857

**53. *Gongylonema* sp., larvae**

Host: *Lacerta strigata*

Distribution: EG - Akhaldaba (Sharpilo, 1976; Jankarashvili, 1978).

Family *Rictulariidae* Hall, 1913

Genus *Rictularia* Froelich, 1802

**54. *Rictularia* sp., larvae**

Host: *Vipera lebetina*

Distribution: EG - Shiraqi (Kurashvili, Petriashvili, 1973).

Family *Physalopteridae* Railliet, 1893

Genus *Physaloptera* Rudolphi, 1819

**55. *P. clausa* (Rud. 1819), larvae**

Host: *Lacerta strigata*

Distribution: EG - Lagodekhi, Tbilisi surroundings (Sharpilo, 1976; Kurashvili et al., 1991).

Genus *Abbreviata* Travassos, 1919

**56. *A. kazachstanica* Markov et Parasskiff, 1956**

Host: *Ophisaurus apodus*, *Coluber jugularis*

Distribution: EG - Tbilisi surroundings (Sharpilo, 1962; Kurashvili et al., 1991).

*Spirurate larvae* from *Agamospirura* group

**57. *Agamospirura* sp.**

Host: *Natrix natrix*, *Coluber jugularis*

Distribution: EG - Lagodekhi, Tbilisi surroundings (Sharpilo, 1962).

**58. *A. magna* Sharpilo, 1963**

Host: *Lacerta strigata*, *Coluber najadum*, *Coronella austriaca*

Distribution: EG - Akhaldaba, Lagodekhi (Sharpilo, 1976; Kurashvili et al., 1991).

**59. *A. minuta* Sharpilo, 1963**

Host: *Anguis fragilis*

Distribution: EG - Lagodekhi, WG - Sukhumi (Sharpilo, 1976).

Family *Oswaldofilariidae* Chabaud et Choquet, 1953

Genus *Foleyella* Seurat, 1917

**60. *F. candezei* (Fraipont, 1882)**

Host: *Agama caucasica*

Distribution: EG - Akhaldaba (Sharpilo, 1976; Jankarashvili, 1978).

## References

1. Burtkashvili L, Getzadze L, Gogebashvili I., L, Devdariani Ts., Djankarashvili E., Japaridze L., Kakulia G., Kvavadze E., Kurashvili B., Matzaberidze G., Mikeladze L., Petriashvili L., Ramishvili

- N., Rodonaya T., Sagdieva P., Suladze L. (1978) Results of Ekologo-parazitological investigations of Animals of the Aragvi river basin. Academy of science, Georgia SSR, Institute of Zoology. Tbilisi, 212 p.
2. Chikovani M. and Burtikashvili L. (2002) Parasitic protozoa of amphibians and reptiles of East Georgia. Proceedings of the Institute of Zoology, Tbilisi, Metsniereba, Vol. XXI, 13-17.
  3. Gogebashvili I. and Burtikashvili L. (2004) Parasitic Protozoa of Georgian vertebrate animals. Proceedings of the Institute of Zoology, Tbilisi, Universal Vol. XXII, 3-20.
  4. Jankarashvili E. (1978) Materials to the study of Helminthofauna Reptiles of East Georgia. III naychn. konf. molodich naychn. sotrudnikov I specialistov (15-16 apr. 1977) Kratkoe sodernj. Dokladov. Tbilisi, 34-39 (in Russian).
  5. Jankarashvili E. (1985a) Materials to the study of Helminthofauna of Grass Snake of Georgia. Mater. IY zakavkz. Konf. Po parasitol., Tbilisi, 308-309 (in Russian).
  6. Jankarashvili E. and Sharpilo V.P. (1985b) *Szidatia joyeuxi* (Vuches, 1929) (*Trematoda, Prochemistomatidae*) – New species of Trematods in Fauna USSR. Soobsh. AN GSSR, 117, 417-419 (in Russian).
  7. Jankarashvili E., Zarkua G., Salakaia S. (1998) To the study the Helminthofauna Reptiles of Georgia. Georgia Academy of Sciences. Actual Problems of parasitology in Georgia . Tbilisi, Vol. IX, 90-93 (in Georgian).
  8. Kurashvili B., Djaparidze L., Petriashvili L., Gogebashvili I., Savvateeva I., Ramishvili N., Chikovani M., Burtikashvili L., Koiava L. (1973) Ekologo- parazitological study of the Animals of Kumisi Reservoir. Parasitological Collection, Metsniereba, Tbilisi, III, 14-44 (in Georgian).
  9. Kurashvili B. and Petriashvili L. (1973) For cognition of the heminthofauna of Transcaucasian *Vipera lebetina Obtusa* Dwigubsky, 1832, in Georgia. Parasitological Collection, III, 85-89 ( in Georgian).
  10. Kurashvili B., Andguladze V., Goirgadze J., Jordania L. (1975) An ecological- helminthological study of the animals of Jandara Lake. Materials to the study of Georgian fauna, N 5, Tbilisi, “Metsniereba”, 156- 176.
  11. Kurashvili B., Rodonaia T., Matzaberidze G., Gogebashvili I., Eliava I., Ramishvili N., Kvavadze E., Burtikashvili L., Suladze L., Mikeladze L., Djaparidze L., Petriashvili L., Sagdieva P., Jankarashvili E., Getzadze L. (1991) Parasitological studies in biocenoses and cattle-breeding farms of the Minor Caucasus in Georgia. Metsniereba, Tbilisi, 190 pp. (in Georgian).
  12. Petriashvili L. (1966) The ecological-helminthological study of vertebrate animals of Bazaleti Lake. Reptills hemothofauna. Bull. of Ac. Sci. Georgia. 41, 173-179 (in Georgian).
  13. Padchenko N. and Sharpilo V. (1975) Two new species of oxyurates (*Nematoda, Oxyuridae*) parasites of Agamas from Middle Asia and the Caucasus. V kn.: parasi i parazitozi jivotnich i cheloveka, Kiev, Naukova Dumka, 201-205 (in Russian).
  14. Rijikov k. (1951) The work of the 268 th helminthological expedition of 1948 in Western Georgia. Trudi gelmitologicheskoi laboratorii AH SSSR, Y, 252-260.
  15. Sharpilo V. (1962) To the study of helminthofauna of racers of Transcaucasus. Zbornik prac zoologicheskogo muzeiu AN USSR, 31, 63-69 (in Ukr.).
  16. Sharpilo V. (1973) Foundings of the representatives of the genus *Strongyloides* Grassi, 1879 (*Nematoda, Strongyloididae*) in racers of the Northern Transcaucasus and Central Asia. Donovan. AN USSR, ser. Biol., 11, 1047-1049 (in Ukr.).
  17. Sharpilo V. (1974) A new member of the Genus *Neoxysomadium Ballesteros* Marquez, 1945 (*Nematoda, Cosmocercidae*) – A parasite of slow worms of the Caucasus. Parasitology, 8, 112-115 (in Russian).
  18. Sharpilo V. (1976) The parasitic helminths of reptiles of fauna of USSR. Kiev, Naukova Dumka, 286 pp. (in Russian) .

## DATA OF ECOLOGICAL AND PARASITOLOGICAL RESEARCHES OF THE KUMISI RESERVOIR FISH

E. Kakalovi

Institute of Zoology

**Abstract:** Results of parasitological researches of the Kumisi reservoir in 2005 are discussed. 6 species of parasites are registered in 5 species of fish. Among them: 1- protozoa, 5-helminthes. Dominant species is trematode *Diplostomum spathaceum*, its metacercaria was marked almost in every species of fish. Among the ecological agents the salinity of water is determinant, especially surplus of Glauber's salt in reservoir, which affects both parasites and their hosts.

**Key words:** Fish, Parasite, Kumisi reservoir

### Introduction

The increase of fish productivity in reservoir depends not only on fishery, but also on medical-preventive measures, which must be worked out on the basis of parasitological studies of the reservoir. The attention is paid to the studies of fish parasitofauna dynamics problems, its formation, as most of the fish is the secondary hosts between parasites of man and animals.

Kumisi reservoir is one of the most important and interesting one among reservoirs of Georgia according to the composition of species of parasites inhabited the given place and according to the diversity of agents effecting on the formation of parasitofauna. First ecological & parasitological studies of animals of the Kumisi reservoir were carried out in 1969-1971 (Kurashvili B. et al 1973). In 7 species of the 429 studied fish 12 species of parasites were registered. Among them: 7- protozoa, 3-trematodes, 1-cestodes and 1-crustaceas.

Ecological and parasitological studies of fish spread in Kumisi and Tbilisi reservoirs were carried out in 2001-2003 (Kakalova E. et al 2004). 110 individuals of 6 species of fish from Kumisi reservoir were studied. Among them 10% was invaded with 3 species of parasites.

### Material and methods

Parasitofauna of fish of the Kumisi reservoir was studied in dynamics in 2005. Material was collected during the whole year-twice a month. According to dissection method 139 fish were studied. Among them: 63-silver carp, 33-carp, 5- grass carp, 31-crucian carp, and 7-khramuli. Method of study was varied. In order to study trichogynes the Clain's method of nitric acid impregnation with silver was used. Trematodes, cestodes and acantocephales were fixed in 70<sup>0</sup> alcohol.

### Results and discussion

Parasitofauna of fish of the Kumisi reservoir is represented by 6 species of parasites; among them 1- protozoa and 5-helminthes.

#### Protozoa

1. *Trichodinella epizootica* (Raabe, 1950)

Host - carp

Invasion frequency – 2 cases from 33

Intensity – 5 in. in one visual field, 3 in. in another (8×7)

#### Trematoda

2. *Diplostomum spathaceum* (Rud, 1818)

Host – silver carp, carp, crucian carp, grass carp.

Invasion frequency – 63 cases from 20 in silver carp

7 cases from 33 in carp

5 cases from 31 in crucian carp

1 case from 5 in Grass carp

Intensity - 219 specimens in silver carp

52 specimens in carp

36 specimens in crucian carp  
18 specimens in grass carp

*Monogenoidea*

3. *Dactylogyrus anchoratus* (Dujardin 1845)

Host – silver carp

Invasion frequency -1 case

Intensity – 1 specimen

4. *Gyrodactylus elegans* (Norman, 1832)

Host - carp

Invasion frequency – 1 case from 33

Intensity – 1 specimen

*Cestoda*

5. *Bothriocephalus gowkonkensis* (Ych, 1955)

Host – grass carp

Invasion frequency 1 case from 5

Intensity – 1 specimen

*Acantocephala*

Host - Khramuli

Invasion frequency 1 case from 7

Intensity – 2 specimens

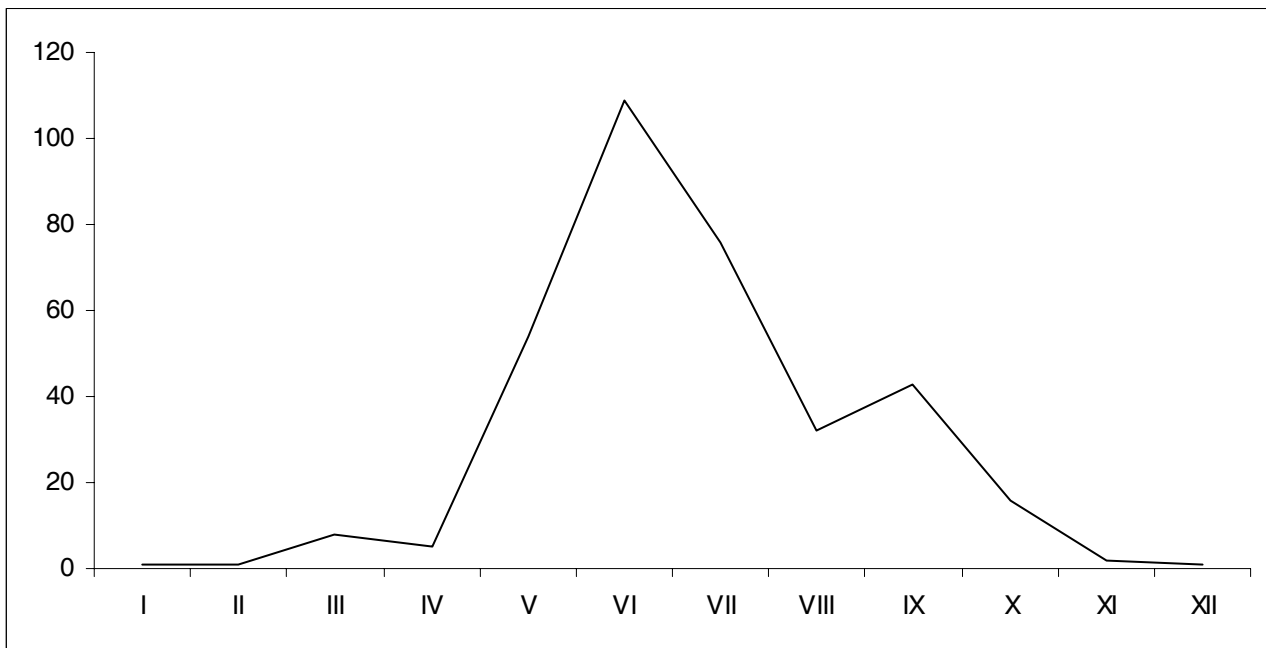


Fig. 1. The quantitative dynamics of the fish parasitofauna in Kumise Reservoir

Chemical composition of aquatic environment, especially its salinity has a great influence on parasitofauna of fish of the Kumisi reservoir. Salinity factor has a negative influence both on the parasites of direct development and the parasites, development of which goes with the help of secondary host.

The Kumisi reservoir is very interesting from this point of view, because it belongs to the water of sulphate category, Na group (dominates Glauber's salt) (Kakalova et al 2004). Concentration of salinity in the reservoir is variable; it depends on rising and lowering of the water level in the reservoir, which is stipulated by the amount of annual precipitation and one of tributaries of the Kumisi reservoir -Algety .

In comparison with the data of 1969-1971 years the parasitofauna of fish is impoverished. In 70th Kumisi reservoir was supplied with water of the Mtkvari River, which caused the decrease of salinity concentration

(Kurashvili B. et al 1973). Surplus of salinity is one of the strong limited factors not only for parasite development but also for the existence of host fish.

Seasonality affects the dynamics of parasitofauna. The Degree of invasion of fish with parasites varies in different year. According to the obtained data the quantity of species of parasites and the intensity of invasion are immense in spring and summer. The Invasion intensity reaches peak in May, but the less is during winter. (Fig. 1)

Parasitological research of the Kumisi reservoir showed, that parasitofauna is relatively impoverished.

Dominante trematodes - from *Diplostomatidae* family ( Poireir 1886) ( metacercaria of *Diplostomum spathaceum* ),which are noted in every species of studied fish. Helminthes having the epidemiological importance are not marked in fish of the Kumisi reservoir.

### References

1. Bauer O.N. Interrelations between parasites and hosts (fish). Main problems of parasitology of fish 1958 P. of the Len. University p 90-108.
2. Bauer O.N. Stoljarov V.P. Formation of parasitofauna and parasitic diseases of fish in reservoirs. The basic problems of parasitology of fish 1958. P. of the Len. University p. 247-255 .
3. Gogebashvili I.V. Parasitic protozoa of fish of the Mtkvari river basin (within Tbilisi). 1970 Thesis.
4. Kakalova E. Kurashvili B.Tsishkarishvili L. Metacercaria of *Diplostimum spathaceum* Trematode in fish of the Kumisi and Tbilisi reservoirs. 2004 Bulletin. Geo Acad. of Sciences p. 593-597.
5. Kurashvili B.E. Dominant parasites of fish in Georgia, USSR. Parasitic al multicellular 1987. Nauka. V 3 p.583.
6. Kurashvilui B. Japaridze L. Petriashvili L. Gogebashvili I.Savateeva I. Ramishvili N. Chikovani M. Burtikashvili L. Koiava L. Ecological & parasitological researches of animals of the Kumisi reservoir. 1973 Parasitological Collection. v 3 . Met. Tbilisi.
7. Skrjabin K.N. Trematodes of animals and man. Foundations of trematodology 1960. Nauka v.3 p 583.
8. Shcherbina A.K. Diseases of fish 1973 Urozhai Kiev p.402.



## TO THE STUDY OF THE ACAROIDEA MITES (ACARIFORMES) OF THE NORTH-EAST TURKEY

G.Sh. Kajaia

Tbilisi State University, e-mail: Giorgi@jordania.ge

**Abstract.** 18 species of Acaroidea Mites are registred. Typical sinanthrops confined only to forming habitats are 5 species, typical field species -9 and synantropic-fild species – 4.

**Key words:** Acaroidea Mites, North-East Turkey, distibution

Until the middle nineties of the last century Acaroidea mites were not studied specially in the North-East Turkey. Zakhvatkin (1941) in Turkey mentions only one species - *Sennertia zhelochovtsevi* A.Z, which according to his words is connected to tree bees. In the report about stored food mites Hughes (1961) indicates presence of two species in Turkey -- *Tyrolichus lini* Ouds and *Aleuroglyphus ovatus* (Tr), out of which the second species appears also in the key of mites, inhabiting in the soil (Giljarov, 1975). However the location of these species in Turkey is not marked in any cases by the authors.

Acarological researches in the North-East Turkey were carried out in June-July 1996 and also in the first part of September 2004 during the complex expedition, organized by I.Javakhishvili Tbilisi State University. Material was collected mainly in Chokhuri, Kars, also partly in the Southern part of the Erzurum vilayet, located at the of the Black Sea coast (Georgia), Armenia and Iran. Significant part of this territory is represented by branches of the Eastern-Pontiac Mountains and Northern mountainsides of the Armenian upland. Average height of the region reaches 1000m above the sea level.

Material was collected both in synanthropic (i.e. in stored material and habitats connected to farming activity of man) conditions and in various field habitats according to the methods known in literature (Zakhvatkin, 1941; Kajaia, 1975).

From 132 collections 22 were carried out in grain and seeds, 19 - in bulbs and storage roots (in both cases in habitations of the local population environs of Artvin, Ardagan, Cagizman, Jusufeli: village Alti-Parmak, near the Parkhal church); 21- in remains of grain and flour of the private water mills (environs of Borchkha, Shavshat, Gjele, Bakhchilar); 18- in accumulations of hay and straw, in pastures and stock farms (at lakesides of the lakes Childir and Khozafin, in upper reaches of the rivers Chokhur and Kura); 20 - in the soil and forest (shrubby) litter (environs of Artvin, Artaan, Jusufeli (village Alti-Parmak); 17 - in dead vegetative accumulations of mountain steppes (environs of Childir, Gjele, Kars, area of Adakoli- near the Artanudje fortress; 15 - in the holes of rodents, mainly - *Apodemus silvaticus* L. (environs of Shavshat, Childir, Kars, Bakhchilar).

Revealed species and their distribution by habitats are given in the table. As shown in the table 18 species of Acaroidea are revealed in the North-East of Turkey so far. Typical synanthrops confined only to farming habitats are 5 species, typical field species - 9 and synanthropic-field species - 4.

Great quantity of mites (first of all *A. siro*, *T. putrescentiae*, then *Gl. destructor*) were met in the remains of flour, in chinks and cracks of the walls and floors of the water mills (about 50 specimens on 1kg garbage); less quantity (20-30 specimens) – in grain and seeds (*A. siro*, *Gl. destructor*), in hay and straw on pastures and stock farms (*A. farris*), in individual cases also in bulbs (*Rh. echinopus*) and vegetative accumulations of holes of rodents (*A. farris* then *T. putrescentiae*), in all the rest habitats quantity of mites did not exceed 10 specimens on 1kg of material

**Acaroidea distribution by places of habitat**

**Table**

Species \ Places of habitat	Grain, seeds	Bulbs, storage roots	Remains of grain and flour in the mills	Soil, forest litter	Hay and straw on pastures and stock farms	Vegetative accumulations of mountain steppes	Holes of rodents
<b>Acarus siro L.</b>	+		+				
<b>A.farris (Ouds)</b>				+	+	+	+
<b>Aleuroglyphus oratus(Tt)</b>	+		+				
<b>Tyrophagus putrescentiae(Schrk)</b>	+		+	+	+	+	+
<b>T.silvester A.Z.</b>			+	+			
<b>T.longior (Gerv.)</b>					+		
<b>Mycetoglyphus fungivorus Ouds</b>		+				+	
<b>Forcellinia diamesa A.Z.</b>				+			
<b>Paraforcellinia saljanica Kadzh.</b>							+
<b>Acotyledon batsilevi A.Z.</b>					+	+	
<b>Rhizoglyphus echinopus ( F. et.R)</b>		+					
<b>Schwiebea talpa Ouds.</b>				+			
<b>S. sp</b>							+
<b>Thyreophagus entomophagus (Lab)</b>							+
<b>Glycyphagus destructor (Schrk.)</b>	+		+				
<b>Gl. domesticus (Deg.)</b>	+		+		+		
<b>Gl. fustifer Ouds.</b>	+						
<b>Gl. ornatus Kram.</b>							+

From the species given in the table, *A. farris* and *T. putrescentiae* are known in literature (Hughes, 1961; Giljarov, 1975; Kadjaia, 1975) as cosmopolitan, evrybiotic species, in Turkey they were revealed in most of the inspected places of habitat. Widely distributed, but relatively stenobitic are: *A. siro*, *Al. ovatus*, *Rh. echinopus*, *Gl. destructor*, after them - other *Tyrophagus* and *Glycyphagus*. Geographic and ecological areas of the rest species are more limited.

The researched territory is close to some regions of the Caucasus by orographical peculiarities. In spite of the fact that the Caucasus is completely studied (Kajaia, 1975) from the point of view of Acaroidea fauna and ecology it is also appropriate to carry out some comparisons of these regions. So in the Caucasus 15 species of *Acaroidea* are registered in grain and seeds, in Turkey – only 6. However in both cases *A. siro*,

*Gl. destructor* and less *T. putrescentiae* are most usual for this environment. For bulbs and storage roots these indicators conform to 8 (for the Caucasus) and 2 (for Turkey), in both regions only *Rh.echinopus* is characterized by high occurrence.

Many species of the genera *Sancassania* (*Caloglyphus*), *Chortoglyphus*, *Ctenoglyphus*, *Gohieria* are more or less common in farming environs of the Caucasus, in Turkey they are not revealed yet. In return, *M.fungivorus* is registered in bulbs and storage roots, known in the Caucasus mainly in natural conditions.

Field stations from the point of view of habitat conditions of mites are unequal. In this relation, holes of rodents known in literature as “reserves” of many species distinguished. According to all data from the Caucasus (Kajaia, 1975), these places of habitats are steadily mastered by mites, as “their life activity here is less depended on climatic conditions.”

The similar picture is observed in Turkey. As it is seen from data of the table, obviously other field places of habitats exceed on variety of the holes of rodents, but occurrence of *A. farris* and *T. putrescentiae* in this environment is significantly high then in all of the rest. According to our observations quantity of *A. farris* in holes often 2-3 times exceed other places of habitat.

Among the species given in the table, from the taxonomic point of view attention must be paid to the representatives of genera *Forcellinia* and *Paraforcellinia*. The first is registered in the forest litter, environs of Jusufeli (village Alti-Parmak). Collected information from the Caucasus, indicates that populations of *F. diamesa* from different points of areas are not morphologically identical (Kajaia, 1995). Data on Turkey verify this conclusion. The same can be said about *P. saljanica*, revealed in the Caucasus on Mugan steppe (village Seljani, Azerbaijan).

#### References:

1. Zakhvatkin A.A 1941 Tyroglyphoidea mites. Fauna of the USSR Arachnids. Vol. VI. Pub. house Of the AS of the USSR. p.1-475 (in Russian).
2. Giljarov M.S. 1975. Key of the mites inhabiting in the soil. Nauka p.416-476 (in Russian).
3. Kadjaia G.Sh. 1975 Test of ecological and morphological analyses of acarids of the Caucasus. Tbilisi, Metsniereba, p. 1-170 (In Russian).
4. Hughes A.M. 1961 The mites of stored food//Technical Bull. No9.London. P.1-296.
5. Kadjaia G. Sh. 1995 Geographical variability in the Caucasian species of the genus *Forcellinia* (*Acari, Acaridae*). Zoosystematica Rossica, 3(2). P.235-236 (in Russian).

## THE PSEUDOSCORPIONS (ARACHNIDA: PSEUDOSCORPIONS) OF GEORGIA

E. Kvavadze<sup>1</sup>, T. Arabuli<sup>2</sup>, M. Murvanidze<sup>3</sup>

1,2,3 – Institute of Zoology, e-mail: [ekvavadze@mail.ru](mailto:ekvavadze@mail.ru)

**Abstract.** The annotated list of Pseudoscorpions of Georgia is given that unites 41 species and one subspecies. Critical analyses of information on Pseudoscorpions of Georgia is provided is given 5 species (*Neobisium amicitta* Kobachidze, *N. saqartvelosi* Kobachidze, *Allowithius thbilissicus* Kobachidze, *Withius lomanderi* Kobachidze and *Rhacochelifer schirakiensis* Kobachidze) are considered of the *nomen nudum*.

**Key words:** Georgia, Pseudoscorpions, *Nomen nudum*.

### Introduction.

The first data about the Pseudoscorpions of Georgia is given in works of L. Koch (1878), L. Dadey (1889), M. Beier (1940). D. Kobachidze (1943, 1960-1966) has published several manuscripts about the Pseudoscorpions. Most of the species and subspecies that he had described are transferred into the synonyms by W. Schawaller (1983) and W. Schawaller, S. Dashdamirov (1988).

Here should be also mentioned that different manuscripts of D. Kobachidze show different number of pseudoscorpion species. Accordingly, there is no information about exact number of pseudoscorpion species in Georgia.

**Abbreviations:** EG – East Georgia; WG – West Georgia.

### Materials and Methods.

The literature data on pseudoscorpions distribution in Georgia was searched.

After the critical analysis of above mentioned manuscripts is established that currently the fauna of pseudoscorpions of Georgia is presented by 41 species and 1 subspecies.

### Checklist of the pseudoscorpions (*Pseudoscorpiones*) of Georgia

#### Superfamily - *Chthoniinea*

#### Family - *Chthoniidae*

#### Genus - *Chthonius*

1. *Ch.(K.) schelkovnikovi* Redikordzev, 1930

Syn: *Chthonius (K.) schelkovnikovi ssp. Redikorzevi* Kobachidze, 1961

**Distribution:** E.G.: Forest near to Gremi (Kobachidze, 1961c; Schawaller, Dashdamirov, 1988).

2. *Ch. ponticus* Beier, 1964

**Distribution:** W.G.: Batumi Botanical Garden (Schawaller, 1983).

3. *Ch. tetrachelatus* (Preyssler, 1790)

**Distribution:** W.G.: Sukhumi Botanical Garden; Gudauta; Gumista Reserve; Djvari near Zugdidi; Batumi Botanical Garden; Chakvi; Tsikhisdziri near Kobuleti; Ajameti (Bagdadi); near Mestia; Tskadisi (Ambrolauri); V. Mukhura near Tkibuli.

E.G.: Baniskhevi (Borjomi); Bakuriani; Tbilisi Distr.; Saguramo Reserve; Near Mtskheta; Zedazeni; Mariamjvari Reserve near Sagarejo; Pass Gombori (near Kobadze); Batsara Reserve near Akhmeta; V. Kargaji near Signagi; Chiauri near to Lagodekhi; Lagodekhi Reserve. (Kobachidze, 1960b, 1961c, 1966; Schawaller, 1983; Schawaller, Dashdamirov, 1988).

4. *Ch. (C.) satapliensis* Schawaller et Dashdamirov, 1988

**Distribution:** W.G.: Sataplia Reserve near Kutaisi (Schawaller, Dashdamirov, 1988).

5. *Ch. australus* Beier, 1934

**Distribution:** W.G.: Batumi Botanical Garden (Kobachidze, 1964c, 1966)

#### Superfamily - *Neobisiinea*

#### Family - *Neobisiidae*

#### Genus - *Neobisium*

**6. *N. anatolicum* Beier, 1949**

**Distribution:**W.G.: Kherkhvashi near Mestia. E.G.: Safarlo near to Bolnisi; Patara Dmanisi. (Schawaller, Dashdamirov,1988).

**7. *N. crassifemoratum* Beier, 1929**

**Distribution:**W.G.: Sukhumi Cave Kelassuri; Ritsa Lake Distr.; Anchkho Pass; Amtkeli Lake Distr.; Tsebelda; Pskhu; Rike near Zugdidi; Mestia Distr.; Adjara, 6 km. V. Khulo; Kintrishi Reserve, Zeraboseli; Chokhatauri Distr.; Nabeglavi; Bakhmaro; Ambrolauri, V. Tskidisi; V. Mukhura near Tkibuli; Mtashava pass near V. Mukhura. E. G.: Surami near Rikoti Pass; Adigeni Distr.; Borjomi Reserv, Baniskhevi Valley; Borjomi Distr.; Nedzura valley; E of pass Djvari betw. Gomi and Sachkhere; Vashlovani Reserve. (Kobakhidze, 1964c,1966; Schawaller, 1983; Schawaller, Dashdamirov,1988).

**8. *N. erythrodactylum* (L. Koch, 1873).**

Syn.: *Neobissium kelassuriense* Kobakhidze, 1960; *Neobissium erythrodactylum mediteraneum* (Beier, 1949)

**Distribution:**W.G.: Gumista Reserve; Gudauta Distr.; Myussera Reserve; Sukhumi Distr.; Tsebelda; Feria near Batumi; Mestia Distr.; Khaishura Valley; Ridge Nakerala near Tkibuli; Mtashava Pass near Tkibuli; E.G.; Vellage near Borjomi; Bakuriani; Tskhra-Tskaro Pass, 15 km. V. of Adigeni; Villaje Mugalno near Dmanisi; E of Pass Djvari between Gomi and Sachkere; Kartli Ridge, Pass Sabaduri; Saguramo Reserve near of Mtskheta; Zedazeni; Tskhneti near of Tbilisi; Algeti Reserve villege of Manglisi; Safarlo near of Patara Dmanisi; Mariamjvari Reserve near of Sagaredjo; Shuamta near Telavi; Batsara Reserve 16 km. of Akhmeta; Kvareli Distr.; Lagodekhi Reserve. (Kobakhidze, 1960d, 1964c,1966; Schawaller, 1983; Schawaller, Dashdamirov,1988).

**9. *N. fuscimanum* (C.L. Koch, 1834)**

Syn.: *Neobissium batumi* Kobakhidze, 1960

**Distribution:**W.G.: Batumi Botanical Garden; Kintrishi Reserve; Zeraboseli; Sataplia Reserve. E.G.: Rikoti Pass; Borjomiu Distr.; Nedzura Valley; Borjomi Reserve; Baniskhevi Valley; S. of Bakuriani; Tskhra-Tskaro Pass; 15 km. v. Adigeni; E. of Pass Djvari between Gomi and Sachkhere. (Kobakhidze, 1960c, 1964c,1966; Schawaller, 1983; Schawaller, Dashdamirov,1988).

**10. *N. Kobakhidzei* Beier, 1961**

**Distribution:**W.G.: Abkhazeti, Gumista Reserve; Myussera Reserve; Nasakirali near Ozurgeti; Tsikhisdziri near Kobuleti; Lebarde near Martvili; Mestia Distr.; Sataplia Reserve near Kutaisi. E.G.: Surami Ridge; Baniskhevi Valley; Borjomi Reserve, E.of Pass Djvari between Gomi and Sachkhere. (Kobakhidze, 1964 c,1966; Schawaller, 1983; Schawaller, Dashdamirov,1988).

**11. *N.granulatum* Beier, 1937**

**Distribution:**W.G.:Shovi near Oni (Dadey, 1889; Kobakhidze, 1964c,1966).

**12. *N. sylvaticum* (C.L. Koch, 1935)**

**Distribution:**W.G.: Lake Ritsa Distr.; Myussera Reserve; Kintrishi Reserve; Zeraboseli; Chokhatauri Distr.; Nabeglavi; Bakhmaro; Sataplia Reserve; Ambrolauri Distr.; Nikortsminda; Nakerala Pass; E.G.: S of Bakuriani; Vashlovani Reserve; Lagodekhi Reserve; (Kobakhidze, 1960b, 1964c,1966; Schawaller, Dashdamirov,1988).

**13. *N. labinskyi* Beier, 1937**

**Distribution:**W.G.: Sukhumi Distr. in Cave Kelassuri; Kintrishi Reserve, Zeraboseli; Sataplia Reserve; Tskaltubo in Cave Tetra. E. G.: Village Shenako and Omalo (Akhmeta). (Kobakhidze, 1964c,1966; Schawaller, 1983; Schawaller, Dashdamirov,1988).

**14. *N. validum* (L. Koch, 1873)**

Syn.: *Obisium caucasicum* Beier, 1928; *Neobisium turcicum* Beier, 1949; *Neobisium banikhevi* Kobakhidze, 1960.

**Distribution:**W.G.: Lake Ritsa Distr.; Pass Anchkho SE of Lake Ritsa; Gudauta Distr.; Myussera Reserve; Pskhu; Batumi Botanical Garden; Kintrishi Reserve; Zeraboseli; Khulo Distr.; 6km. of Danisparauli; Martvili Distr.; Lebarde; Tkibuli Distr. Village Mukhura. E.G.:Borjomi Distr. Village Rveli; Tbilisi Distr.; Tbilisi botanical Garden; Village Omalo (Achmeta); Lagodechi Reserve. (Kobakhidze, 1960a, 1964c,1966; Schawaller, 1983; Schawaller, Dashdamirov,1988).

**15. *N. cephalonicum* (Daday, 1889)**

**Distribution:**W.G.: Svaneti, near to Mestia. E.G.:Village Kojori near to Tbilisi. (Kobakhidze, 1966).

**16. *N.brevidigitalum* Beier, 1928**

**Distribution:**W.G.: Village Koruldashi near to Lentekhi. E.G.:Siraki, Vashlovani Reserve. (Kobakhidze, 1964,1966).

**17. *N.doderoi* (Simon, 1896)**

**Distribution:**W.G.: Shovi near Oni (Kobakhidze, 1966).

**18. *N.musscorum* (Leach, 1817)**

**Distribution:** E.G.: Borjomi (C.L. Koch,1878; Kobakhidze, 1966).

**19. *N. simile* (C.L. Koch, 1873)**

**Distribution:**W.G.: Gagra. (Kobakhidze, 1966).

**20. *N. (Blothrus) birsteini* (Lapschoff,1940)**

**Distribution:**W.G.:Gudauta Distr., in Cave Tarkiladze. (Lapschoff,1940; Kobakhidze, 1966).

**21. *N. (B) verae* (Lapschoff,1940)**

**Distribution:**W.G.: Racha,in Cave Gogoleti (Lapschoff, 1940; Kobakhidze, 1964c, 1966).

**Genus-Roncus**

**22. *R. microphthalmus* (Daday, 1889)**

**Distribution:**W.G.: Lake Ritsa Distr., Mestia Distr., Khaishura Valley near Khaishi; 40 km. W of Khaishi; 10 km. N of Djari near Zugdidi; Nasakirali near Ozurgeti; Kutaisi Distr., Sataplia Reserve. E.G.: Ricoti Pass; Pass Djvari between Gomi and Sachkhere; Batsara Reserve; Babaneuri Reserve; Forest N of Kvareli (Kobakhidze, 1964c,1966; Schawaller, Dashdamirov,1988).

**23. *R. corimanus* Beier, 1951**

Syn.: *Roncus glaber* Beier, 1951

**Distribution:**W.G.: Abkhazeti, Gumista Reserve; 10 km. N of Djvari, near Zugdidi; Nasakirali near Ozurgeti (Kobakhidze, 1964c,1966; Schawaller, 1983; Schawaller, Dashdamirov,1988).

**24. *R. lubricus* C.L. Koch, 1878**

**Distribution:**W.G.: Svaneti (Beier, 1928; Kobakhidze, 1960).

**Genus-Microbisisium**

**25. *M. manicatum* (C.L. Koch, 1878)**

**Distribution:** E.G.: Borjomi; Village Tsikhis-Djvari near Bakuriani (C.L.Koch 1878; Kobakhidze, 1966).

**Genus-Microcreagris**

**26. *M. caucasica* Beier, 1961**

**Distribution:**W.G.: Nasakirali near to Ozurgeti (Beier, 1961; Kobakhidze, 1966).

**Superfamily-Cheliferinea**

**Family-Atemnidae**

**Genus-Atemnus**

**27. *A. politus* (Simon, 1878)**

**Distribution:** E.G.: Shiraki; Vashlovani Reserve (Kobakhidze, 1962; Schawaller, Dashdamirov,1988).

**Family-Chernetidae**

**Genus-Allochernes**

**28. *A. microti* Beier, 1961**

**Distribution:** E.G.: Shiraki; Zilcha ( Kobakhidze, 1964c, 1966).

**29. *A. wideri* (C.L. Koch, 1843) *trascaucasicus* Kobakhidze, 1964**

**Distribution:** E.G.: Lagodekhi State Reseve ( Kobakhidze, 1964c, 1966).

**Genus-Lamprochernes**

**30. *L. chyzeri* (Tomosvary, 1882)**

**Distribution:** E.G.: Lagodekhi Reseve ( Kobakhidze, 1964c, 1966).

**31. *L. nodusus* (Schrank, 1803)**

**Distribution:** E.G.: Bakuriani ( Kobakhidze, 1966).

**Genus-Dinocheirus**

**32. *D. panzeri* (C.L. Koch, 1837)**

Syn.: *Toxochernes panzeri caucasicus* Kobakhidze, 1963

**Distribution:** E.G.: Rveli near to borjomi; Mugalno near to Dmanisi. (Kobakhidze, 1963; Schawaller, Dashdamirov, 1988).

#### **Genus-*Chernes***

**33. *Ch. hahnii* (L. Koch, 1839)**

**Distribution:** E.G.: Pass Magalakhari between Akhmeta and Tianeti; N of Kvareli. (Schawaller, Dashdamirov, 1988).

**34. *Ch. cimicoides* (Fabricius, 1793)**

Syn.: *Chernes cimicoides caucasicus* Kobakhidze, 1965

**Distribution:** W.G.: Village Koruldashi near to Lentekhi; E.G.: Tskhinvali; Algeti Reserve (Kobakhidze, 1964c, 1965a, 1966; Schawaller, Dashdamirov, 1988).

**35. *Ch. horvati* Daday, 1889**

**Distribution:** W.G.: Village Chala near to Ozurgeti (Kobakhidze, 1964c, 1966).

#### **Genus-*Dendrochernes***

**36. *D. cyrneus* (C.L. Koch, 1873)**

**Distribution:** W.G.: Gudauta, Koruldashi near Lentekhi; Batumi. E.G.: Saguramo Reserve, Zedazeni; Tbilisi; Pass Gombori near Tetrtsklebi; Lagodechi Reserve (Reck, 1941; Kobakhidze, 1961a, 1963; Schawaller, Dashdamirov, 1988).

#### **Family-*Withiidae***

##### **Genus-*Withius***

**37. *W. hispanus* (L. Koch, 1837)**

**Distribution:** W.G.: Kobuleti (Kobakhidze, 1964c, 1966).

#### **Family-*Cheliferidae***

##### **Genus-*Hysterochelifer***

**38. *H. meridianus* (L. Koch, 1839)**

**Distribution:** E.G.: Tbilisi; Iori Vallay; Kasris Tskali near to Dedophtis-Tskaro (Kobakhidze, 1964c, 1966; Schawaller, Dashdamirov, 1988).

#### **Genus-*Chelifer***

**39. *Ch. cancroids* (Linnaeus, 1758)**

**Distribution:** W.G.: Sokhumi-Kelocssuri; Khobi V. Zenigobi. E.G.: Borjomi-Likani; V. Tsikhisdjvari; Tbilisi; Lagodekhi (Kobakhidze, 1961b, 1964c, 1966).

#### **Genus-*Dactylochelifer***

**40. *D. latrelei* (Leach, 1817)**

**Distribution:** W.G.: Anaklia; Zugdidi; Ledzava; Kobuleti; Batumi; Oni; Shovi (Kobakhidze, 1964b, 1964c, 1966; Schawaller, 1983; Schawaller, Dashdamirov, 1988).

**41. *D. gruberi* Beier,**

**Distribution:** W.G.: Ajara, 6 km. V. Khulo (Schawaller, 1983).

#### **Genus-*Pachychelifer***

**42. *P. caucasicus* Beier, 1961**

**Distribution:** W.G.: Abkhasia; Ledzava; Bichvinta; Batumi (Kobakhidze, 1964c, 1966).

#### **Results and Discussion:**

The exact number of species of Pseudoscorpions of Georgia is not yet known. The reason is indicating of only Latin names of so called new species in some manuscripts. For example, in the article of D. Kobakhidze published in 1964, three names of new species (*Withius lomanderi* Kobakhidze, *Allowithius thbilissicus* Kobakhidze, *Rhacochelifer schirakiensis* Kobakhidze) are given without any description. The same situation is observed in the following manuscript of Kobakhidze (1965), where Latin names of two more new species (*Neobisium saqartvelosi* Kobakhidze and *N. amicittae* Kobakhidze) are given. In the last work of Kobakhidze (1966), that discusses issues of inventory of fauna of Pseudoscorpions of Georgia, these five species are not mentioned any more. Accordingly, we can conclude, that these five species represent *nomen nudum*.

According to the literature data, following species of Pseudoscorpions of Georgia *Chthonius (K.) schelkovnikovi ssp. redikorzevi* Kobachidze, 1961, *Neobisium kellassuriense* Kobachidze, 1960, *N. batumi* Kobachidze, 1960, *Roncus glaber* Beier, 1961 and *Dinocheirus caucasicus* Kobachidze 1963 are currently considered as synonyms (Schwaller, 1983; Schwaller, Dashdamirov, 1988).

After revising of fauna of Georgia, we can state, that it is represented by 41 species and one subspecies. 24 species from them are found in Eastern Georgia and 31 species – in Western Georgia (tab.1).

List of Pseudoscorpions of Georgia

Table 1

N	Species	West Georgia	East georgia
	1	2	3
1	<i>Ch.(K) schelkovnikovi</i> Redikordzev, 1930		+
2	<i>Ch. ponticus</i> Beier, 1964	+	
3	<i>Ch. (E) tetrachelatus</i> (Preysler, 1790)	+	+
4	<i>Ch.(C) satapliensis</i> Schawaller, Dashdamirov,1988	+	
5	<i>Ch. australus</i> Beier, 1934	+	
6	<i>Neobisium anatolicum</i> Beier, 1949	+	+
7	<i>N. crassifemoratum</i> Beier, 1928	+	+
8	<i>N. erythroductylum</i> (L. Koch, 1873)	+	+
9	<i>N. fuscimanum</i> (C.L. Koch, 1834)	+	+
10	<i>N. kobakhidzei</i> Beier, 1961	+	+
11	<i>N.granulatum</i> Beier, 1937	+	+
12	<i>N. sylvaticum</i> (C.L. Koch, 1835)	+	
13	<i>N. labinskyi</i> Beier, 1937	+	+
14	<i>N. validum</i> (L. Koch, 1873)	+	+
15	<i>N. cephalonicum</i> (Daday, 1889)	+	+
16	<i>N.brevidigitalum</i> Beier, 1928	+	
17	<i>N.doderoi</i> (Simon, 1896)	+	
18	<i>N.muscorum</i> (Leach, 1817)		+
19	<i>N. simile</i> (C.L. Koch, 1873)	+	
20	<i>N. (Blothrus) birsteini</i> (Lapschoff,1940)	+	
21	<i>N. (B) verae</i> (Lapschoff,1940)	+	
22	<i>Roncus microphthalmus</i> (Daday, 1889)	+	+
23	<i>R. corimanus</i> Beier, 1951	+	
24	<i>R. lubricus</i> L. koch, 1873	+	
25	<i>Microbisium manicatum</i> (C.L. koch, 1878)		+
26	<i>M. caucasica</i> Beier, 1961	+	
27	<i>Atemnus politus</i> (Simon, 1878)		+
28	<i>Allochernes microti</i> Beier, 1961		+
29	<i>A. wideri</i> (C.L. koch, 1843) <i>trascaucasicus</i> ; Kobakhidze, 1964		+
30	<i>Lamprochernes chyzeri</i> (Tomosvary, 1882)		+
31	<i>L. nodusus</i> (Schrank, 1803)		+
32	<i>Dinocheirus panzeri</i> (C.L. Koch, 1837)		+
33	<i>Chernes hahnii</i> (C.L. Koch, 1839)		+
34	<i>Ch. cimicoides</i> (Fabricius, 1773)	+	+
35	<i>Ch. horvati</i> Daday, 1889	+	
36	<i>Dendrochernes cyrneus</i> (L. Koch, 1873)	+	+
37	<i>Withius hispanus</i> (C.L. Koch, 1837)	+	
38	<i>Hysterohelifer meridianus</i> (L. Koch, 1839)		+
39	<i>Chelifer cancroids</i> (Linnaeus, 1758)	+	+
40	<i>Dactylochelifer latrelei</i> (Leach, 1817)	+	
41	<i>D. gruberi</i> Beier, 1969	+	
42	<i>Pachychelifer caucasicus</i> Beier, 1961	+	
	<b>Total Numbers of Species</b>	<b>31</b>	<b>24</b>



11 species are found only in Eastern Georgia (26,19%) and 18 species – only in Western Georgia (42,86%).  
13 species are common for the whole territory of Georgia.

### References

- Beier M. 1928. Die Pseudoscorpione des Winer Naturhistorischen Museum. 1. Hemictenodactyli. Ann. Naturh. Mus. Wien, XLII, 285-314.
- Beier M. 1937. Zwei neue neobisium (Pseudoscorpione) aus dem Kaukasus. Zool. Anz. 117, 107-109.
- Beier M. 1961. Über Kaukasische Pseudoscorpione -Ann. Naturh. Mus. Wien, 64,146-153.
- Dadey J. 1889. Adatok a Kaukasz Alscorpio-faunájának ismeretéhez. Termes. Füzetek, XII, 16-22.
- Kobakhidze D. 1943. An analysis of land biocenosis of the central part of Colchis lowland. Proc. of the Inst. of zool. the Acad. of Sc. GSSR, t.v. 5-188 (in Russian).
- Kobakhidze D. 1960a. A new pseudoscorpione species from Baniskhevi. Proc. of the Inst. of zool. the Acad. of Sc. GSSR, XVII, 239-240 (in Russian).
- Kobakhidze D. 1960b. Mamerialian Zur Hohenstufenverbreitung der Pseudoscorpidea in der Georgischen SSR, Zeitschr.der.Arbeitsgemeinschaft ostlerr. Entomologen; 12 jhg. Nr. 2, 103-106.
- Kobakhidze D. 1960c. A new pseudoscorpion species from Batumi Botanical Garden. Bull. of the Acad. of Sc. of Georgian SSR, XXIV, 4, 455-456 (in Georgian).
- Kobakhidze D. 1960d. A new pseudoscorpione species from Kelassuri. Bull. of the Acad. of Sc. of Georgian SSR, XXV, 4, 457-459 (in Georgian).
- Kobakhidze D. 1961a. About locality of the pseudoscorpion *Dendrochernes cyrneus* (C.L. Koch) in Georgian SSR. Proc. of the Inst. of Zoo. Georgian Acad. of Sc. XVIII, 209-211 (in Russian)
- Kobakhidze D. 1961b. About distribution of pseudoscorpion *Chelifer caneroides* the territory of Georgia. Bull. of the Acad. of Sc. of Georgian SSR, XXVII, 4, 171-172 (in Georgian)
- Kobakhidze D. 1961c. Die Stadarte des *Chthonius tetetrachelatus* (Preijler) in den verschiedenen Landschafts typen der Georgiischen SSR. Zool. Anz.Bd. 167, H5/6, 166-169.
- Kobakhidze D. 1962. About locality of the pseudoscorpion *Atemnus pontieus* (Sim) in Georgia. Bull. of Georgian Acad. of Sc. XXIX, 2, 197-198 (in Russian)
- Kobakhidze D. 1963. A new pseudoscorpion subspecies (*Toxochernes panzeri caucasicus* Kobakhidze, ssp. n) from caucasus. Bull. of the Acad. of Sc. of the Georgian SSR, XXX, 5, 645-648 (in Russian)
- Kobakhidze D. 1964a. A new pseudoscorpion subspecies *Allochernes winderi transcaucasicus* Kobakhidze, ssp. n. from transcaucasia. Bull. of the Acad. of Sc. of the Georgian SSR, XXXIII, 2, 449-452 (in Russian)
- Kobakhidze D. 1964b. To the landshapte-stationaring distribution of *Daetylochelifer latrellei* in the condicions of Georgia. . Bull. of the Acad. of Sc. of the Georgian SSR, XXXIV, 2, 445-448 (in Russian)
- Kobakhidze D. 1964c. Pseudoscorpione (*Pseudoscorpiones*) Animmal Kingdom of Georgia, II. Tbilisi, Metsniereba, 30-47 (in Georgian)
- Kobakhidze D. 1965a. A new pseudoscorpion subspecies *Chernes cimicoides caucasicus* Kobakhidze, ssp. from Caucasus. Bull. of the Acad. of Sc. of the Georgian SSR, XXXVII, 2, 441-443 (in Russian)
- Kobakhidze D. 1965b. Ecological and Zoological characteristis of *Pseudoscorpionidea* from Georgian SSR. Rev. Ecol. Biol. II, 4, 541-543.
- Kobakhidze D. 1966. The materials for found inventory of pseudoscorpions of Georgian SSR. Bull. of the Acad. of Sc. of the Georgian SSR, XLI, 3, 701-708 (in Russian)
- Koch L. 1878. Kaukasische Arachniden in Dr. O. Schneders. Naturwissenschaftliche Beitrage zur Kenntniss der Kaukasuslander, p. 38.
- Lapschoff I. 1940. Die Hohen-Pseudoscorpiones Transkaukasens. Bull. In Soc. Nat.Moscou, S. Biologique, XLIX, (3-4)
- Redikordzev V. 1930. Contribution a l'etude de la Fauna des Pseudoscorpions du Caucase. Bull. Mus. Georgie, 6, 97-106.
- Reck G. 1941. To the study of the mate and Soil fauna of beech forest in Lagodekhi Reserve "Lagodekhi Reserve", 1, 47-79 (in Russian).
- Schawaller W. Pseudoscorpione aus dem Kaukasus (*Arachnida*). Stuttgarter Beitr. Zur Naturk. Ser.A.Nr. 362, 1-24.
- Schwaller W.; Dashdamirov S. 1988. Pseudoscorpione aus dem Kaukasus, Teil 2 (*Arachnida*). Stuttgarter Beitr. Zur Naturk. Ser.A.Nr. 415.

## QUANTITATIVE DYNAMIC OF *CENOPALPUS PULCHER* (ACARI: TENUIPALPIDAE) ON THE QUINCE (*CYDONIA OBLONGA*)

T. Arabuli<sup>1</sup>; M. Tskitishvili<sup>2</sup>

LEPL Institute of Zoology, e-mail: tea\_arabuli@yahoo.com<sup>1</sup>

### Abstract

Fruit pest Flat Scarlet Mite *Cenopalpus pulcher* quantitative dynamic were studied on Quince-tree in Tbilisi. In accordance with investigation proceeded in 2006 three peaks of quantities of eggs, nymphs and adults of the *Cenopalpus pulcher* were registered. During the year three generations of pest mites were developed.

**Key words:** Quantitative dynamic, *Cenopalpus pulcher*, *Tenuipalpidae*, *Cydonia oblonga*, Pest mite.

### Introduction

The Quince-tree as a cultivated plant is well-known more than 4000 years. It is proved that Quince-tree wild grown from ancient time in Caucasians and South Asia. *Cydonia* Mill is a monotype genus, and includes only one species *Cydonia oblonga*.

*Cenopalpus pulcher* (*Tenuipalpidae* family) is very dangerous pest for the fruit trees and for Quince-tree as well. It's damages plant organs, which later restricts the vitality and reflects at the quantity and quality of the harvest.

Because Quince takes important place among of cultivated fruit trees in Georgia, it has to be protected. In connection with that it was decided to investigate the quantitative dynamic of Quince pest mite – Flat Scarlet Mite *Cenopalpus pulcher*.

*Cenopalpus pulcher* is widely-distributed pest, it is registered in many countries; among of it is: Holland, Germany, Egypt, Turkey, Caucasus, Middle East, Ukraine and Russia (Vasiliev, Livshits, 1958; Livshits, 1960); Kazakhstan (Vainshtain, 1958; 1960), Tadjikistan (Lindt, 1956; Mitrofanov, Strunkova, 1979). It is also spread in western Europe, North Africa and in Transcaucasia (Reck, 1953, 1954, 1976); and it is well-known in whole Georgia (Batiashvili, 1959; Batiashvili, Bagdavdze, Elerdashvili, 1959).

Till today, in Georgia it the quantitative dynamic of Quince pest mite – Flat Scarlet Mite (*Cenopalpus pulcher*) was not investigated. But in scientific information about distribution of above mentioned mites on other plants in Georgia exists. (Reck, 1953; Batiashvili, 1959; Tskitishvili, 1970, 2000), and the biology of Flat Scarlet mite in Oak forest (Batiashvili, Bagdavdze, Elerdashvili, 1959) also has investigated. The quantitative dynamic of Quince pest mite – *Cenopalpus pulcher* is researched in Ukraine (Livshits, 1960).

### Materials and Methods

For investigation of quantitative dynamic of pest mite-*Cenopalpus pulcher* has been selected a Quince tree in Tbilisi, on Tchavtchavadze avenue (garden of Hospital No.9). Observing of the mites and it's predators has been proceed ten-day periodically from May 2006 till December 2006.

Collection of materials was proceeded in accordance with well-known method (Reck, 1959; Vainshtain, 1960). Every collecting day, from Quince tree which was selected for observation, 30 middle size leaves were picked up. After transportation in Laboratory each leaf was observed by the binocular microscope. On each leaf the disks with 283,6 mm<sup>2</sup> area were put. The quantities of *Cenopalpus pulcher* on each step of development: adults, nymphs, eggs and predator mites was counted and average quantity of exemplars per disk was calculated.

Based on the investigation the tables and graphical schedules of quantitative changes on different stages of pest mites and it's predator mites (adults, nymphs and eggs) was created.

## Results and Discussion

The adult females of *Cenopalpus pulcher* in winter time stay in cracks of trees bark, and on the tree buds they stay in colonies. It has to be mentioned that pest mites can endure even low temperatures, for example in accordance with Batiashvili's researches (1959) at minus 16,6<sup>0</sup>C die about 20-25% of the pest mites. After hibernation pest mites become active at the end of April – beginning of May.

In order to investigate the quantitative dynamic of the pest mites *Cenopalpus pulcher* sampling started in May (11.05.2006). At that time the quantity of over wintered adult females was 0.63 individuals. After ten days their quantity increased up to 0.99 exemplars. From the end of May quantity of the adult pest mites was sensitively reduced and this process continued and reached the minimum in first ten-day period of June. At this time was found only 0,07 exemplars. It can be explained by the fact that at this time the maximum quantity of the predator mites was registered. In the middle of June it was registered just very slight increasing of the quantity of the adult pest mites. But in first ten-days period of July quite high quantity of pest mites (1,68 exemplars) was investigated. Ten days later the quantity of pest mites was increased again. Started from the end of July and beginning of August, due to increasing of ambient temperature and reducing of the humidity depression of the adult pest mites was observed, which was continued to first ten-days period of September. After that, quantity of pest mites increased and those process continued till second ten-day period of October (18.10.2006) were reached the peak (2,57 exemplars). It was the highest point of whole year. At that time the total quantity of pest mites on 30 leaves was 1102 exemplars, and maximum determined quantity from one leaf was 99 exemplars. After above mentioned maximum peak, the quantity of the adult pest mites on the leaves was reduced step-by-step and at the end of November nearly none of adult pest mite was registered. (Fig.1)

During whole year, the eggs of *Cenopalpus pulcher* were determined on the leaves. In May the quantity of eggs was 0,21. Such high quantity of eggs shows that in 2006 was an optimum conditions for the pest mites and they earlier became active after hibernation and started to lay eggs. Based on the literature data (Batiashvili, Bagdavadze, Elerdashvili, 1959.; Livshits, 1960) it is known, that *Cenopalpus pulcher* starts to overcome from hibernation when the ambient average temperature reaches 8-9<sup>0</sup>C, so, we can think that pest mites start to lay eggs at the end of April. Quantity of eggs was increased in second ten-day period of May. At the end of May was total laying of eggs and was determined the peak (0,55 exemplars). In June quantity of eggs were reduced. Together with reduction of quantity of eggs was determined increasing of quantity of nymph's. From the end of June the quantity of eggs increased again and by 20<sup>th</sup> of June were registered 2,34 exemplars – the biggest quantity of eggs during the year. In first ten-day period of August were determined the minimum quantity of eggs (0,58 exemplars.) But ten days later quantity of eggs was increased again and stayed at the same level as in first ten-day period of September. From the middle of September reduction of eggs quantities was determined, and those reduction intensively continued till end of November. (Fig.1).

During the observation of the dynamic of *Cenopalpus pulcher* nymphs were registered three well marked peaks, which corresponds to literature data (Livshits, 1960), but increasing periods are different. Particularly, first maximum quantity of nymphs was determined in June, after that was quite well-seen reduction, this event, from one side can be explained by the high quantity of predator mites, and from other side by the increasing of quantity of adult exemplars. Following increase of nymphs quantities was determined at the end of July, and third increase of quantities was in second ten-day period of September. Those were kept with slight differences till middle of October. After that, quantity of nymphs was reduced, as the quantities of adult mites and eggs. (Fig.1).

Regarding the predator mites (*Acari: Pytosiidae*) has to be mentioned, that their quantities during the year were low in comparison with quantities of pest mites. The highest quantities of predator mites (0,43 exemplars, 0,44 exemplars) were fixed in second and third ten-day periods of May, which negatively reflected on each step of development of *Cenopalpus pulcher* pest mites and reduced the quantity of adult exemplars and eggs as well. After that, quantitative increase was fixed only at the end of June, and here we can also say that quantity of adults and nymphs was reduced, and increasing of the quantities of eggs was stopped. At the beginning of July the quantity of predator mites was sensitively reduced. None of predator mites were determined at the end of July, second and third ten-day period of September, second ten-day period of October and on first ten-day period of November. In connection with that, possible to say that in further period the quantity of pest mites did not regulate the quantity of their predator mites.

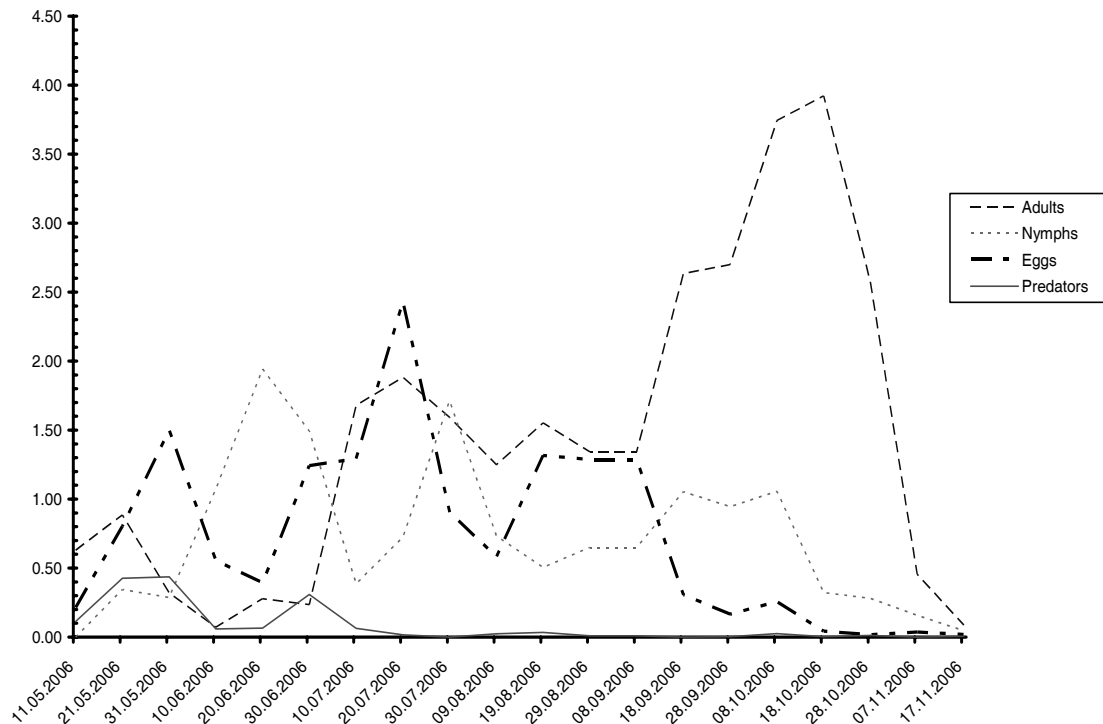


fig. 1.

During the observation on the quantitative dynamic of pest mites *Cenopalpus pulcher* was determined that in 2006 the pest mites started to go out hibernation at the end of April and to lay eggs at the beginning of May. It was 40-50 days between of each generation. But it was observed that in the period from July to August due to high temperatures the mites are oppressed and more time for their development (60-70 days) was taken. It was registered three periods of massive laying eggs, increasing of the quantities of nymphs and adults. So that we can say, that during the year, three generations of pest mites were developed. Although, based on the literature data only one generation of *Cenopalpus pulcher* can develop during the year in West Germany (Dosse, 1955), in Ukraine (Livshits, 1960) two, in Georgia (Batiashvili, Bagdavadze, Elerdashvili, 1959) four.

## Reference

1. Batiashvili I., Bagdavadze A., Elerdashvili N. 1959. Pest Mites of fruit plants in East Georgia. Works of Georgian agricultural Institute t. L, 215-234.
2. Batiashvili I.D. 1959. Vrediteli kontinentalnix I subtropicheskix plodovix kultur. Izdatelstvo Gruzinskogo sel'skokhoziajstvennogo Instituta , 118-120 (in Russian).
3. Lindt I.I., 1956. K biologii klesha ploskotelki-Brevipalpus oudemansi. Geijskes (Acariformes, Pseudoleptidae) v Tadjikistane. Dokl. AH Tadj. CCR, 19: 31-35 (in Russian).
4. Livshits I.Z., 1960. Pladovaia ploskotelka. *Cenopalpus pulcher* Can. at Fanz. (Acarina, Tenuipalpidae). Trudi Gosudarstvennogo Nikitskogo Botanicheskogo Sada. Tom XXXIII, 127-156 (in Russian).
5. Mitrofanov B.I., Strunkova Z.I., 1979. Opredelitel Kleshei Ploskotelok. Trudi Gosudarstvennogo Nikitskogo Botanicheskogo Sada. 3-147 (in Russian).
6. Reck G.F., 1953. K Izuchenii Fauni Tetranychovix kleshei Gruzii. Tr. instituta Zoologii. AN Gruz. SSR, XI: 167-180 (in Russian).
7. Reck, 1959. Opredelitel Tetranychovix Kleshei. AN Gruz. SSR, 3-151(in Russian).
8. Reck, 1976. Katalog Akarofauni Gruzinskoi SSR. Akademia Nauk Gruzinskoi SSR. 55-66 (in Russian).
9. Tskitishvili M., 1970. Tetranychoidnie Kleshi (Tetranychoida) Drevesno-Kustarnikovoii Rastsitselnosti G. Tbilisi. Institut Zoologii AN Gruz. SSR. 3-169 (in Russian).
10. Tskitishvili M., 2000. Catalogue of Tetranychoida mites in Georgia. Proceedings of the Institute of Zoology. Metsniereba. Vol. XX. pp. 95-100.
11. Vasilev B.P., Livshits I.Z., 1958. Vrediteli plodovix kultur. Sel'hozgiz. 1-390 (in Russian).
12. Vainshtain B. A., 1958; Materiali po fauni I sistematike tetranychovix kleshei (*Acariformes, tetranychoida*). Entomologicheskoe obozrenie XXXVII, 2.
13. Vainshtein B. A., 1960. Tetranychovix kleshi Kazaxstana. Trudi nauchno- issledovatel'skogo instituta zashiti rastenii. (in Russian).

## THE WEEVIL BEETLES (*BHYCHITIDAE*, *ATTELABIDAE*, *APIONIDAE*, *NOPOPHYDAE*, *DRYOPHTHORIDAE*, *CURCULIONIDAE*) OF GEORGIA

A. Cholokava †

Institute of Zoology, e-mail: izoo@caucasus.net

**Abstract:** Data about weevil beetles of Georgia have been met since the second part of the XIX century (Proceedings of Kolenati 1859, Schnaider, Leder 1878, Reiter 1916 et al). Weevil beetles were studied by many researches in the first part of the XX century, but their purposeful, planning study began in 1960 and is still going on. At present 901 species and subspecies of weevil beetles were revealed in Georgia, which is the highest rate in Eurasia. High endemism of weevil beetles of Georgia must be noted (28,5%), by which genera of *Otiorhynchus* and *Plintus* are marked out.

**Key Words:** weevil beetles, endemisms, species, Georgia

Most of the weevil beetles are phytophage, but other are phytosaprophage. Among them are pests of crops, plantation of trees and other plants and vegetable products. They can be used to struggle against weeds. Specimens of weevil beetles are characterized by wide habitat, endemism and great practical significance. Landscape of Georgia, variety of vegetation, climatic conditions determine the diversity of animals and among them the diversity of weevil beetle species.

Following abbreviation is used in the text: EG- East Georgia, WG- West Georgia, SG- South Georgia (in South Georgia only Meskhet- Javakheti is implied particularly Akhaltsikhe, Adigeni, Aspindza, Akhalkalaki and Ninotsminda districts).

If the species is registered nearly in 6-7 points then the list of these points was given, but in other cases the places of collection are not indicated. In some cases when required by some species synonyms are given.

To carry out this work we were helped by B. Korotaev, main research worker of the Institute of Zoology of the Academy of Sciences of Russia, for what we thank him.

### *RHYNCHITIDAE*

1. *Auletobius constrictus* Reitter, 1881  
Syn. *Auletes constrictus*  
Distribution: EG [141].
2. *Lasiorhynchites sericeus* (Herbst, 1797)  
Syn. *Rhynchites sericeus*  
Distribution: EG [29, 31, 50, 105, 140].
3. *L. cavifrons* (Gyllenhal, 1833)  
Distribution: EG [26, 29, 31, 140, 141].
4. *L. olivaceus* (Gyllenhal, 1833)  
Distribution: EG: Tbilisi vicinity; Karsani [41].
5. *Temnocerus tomentosus* (Gyllenhal, 1839)  
Syn. *Pselaphorhynchites tomentosus*; *Rhynchites tomentosus*  
Distribution: EG; WG; SG [31, 125, 140, 141, 144].
6. *Neocoenorhinus germanicus* (Herbst, 1797)  
Syn. *Coenorhinus germanicus*  
Distribution: EG; WG; SG [31, 36, 38, 145].
7. *N. aeneovirens* (Marsham, 1802)  
Syn. *Coenorhinus aeneovirens*; *Rhynchites aeneovirens*  
Distribution: EG [29, 140, 141, 144].
8. *N. livescens* Voss, 1929  
Distribution: WG: Abkhazia; Bzyb River [36, 50, 125].
9. *N. pauxillus* Germar, 1824

- Distribution: EG; WG; SG [9, 13, 15, 23, 29, 31, 36, 37, 38, 41, 48, 97, 105, 118, 134, 140, 143, 145].
10. ***Tatianaerhynchites aequatus*** (Linnaeus, 1767)  
Syn. *Rhynchites aequatus*; *Coenorrhinus aequatus*  
Distribution: EG; WG; SG [26, 29, 31, 38, 48, 49, 64, 86, 118, 134, 140].
  11. ***Teretriorhynchites pubescens*** (Fabricius, 1775)  
Syn. *Rhynchites parellinus* Gyllenhal; *Rh. pubescens*, *Haplorhynchites pubescens*  
Distribution: EG; SG [25, 29, 105, 118, 125, 140].
  12. ***T. coeruleus*** (De Geer, 1775)  
Syn. *Rhynchites coeruleus*; *Rhynchites conicus* JLL; *Haplorhynchites coeruleus*  
Distribution: EG; WG [9, 23, 31, 36, 38, 48, 49, 64, 105, 115, 118, 121, 134, 140, 143, 148].
  13. ***Rhynchites auratus*** (Scopoli, 1763)  
Distribution: EG; WG; SG [9, 13, 26, 28, 29, 31, 36, 38, 47, 48, 49, 86, 103, 115, 118, 140, 143, 145, 148].
  14. ***Rh. giganteus*** Krynický, 1832  
Syn. *Rhynchites versicolor* Costa, 1839  
Distribution: EG; WG; SG [9, 13, 23, 29, 31, 36, 38, 47, 48, 49, 86, 103, 105, 115, 140, 148].
  15. ***Rh. lenaeus*** (Faust, 1891.)  
Distribution: EG: Tbilisi vicinity, Tbilisi, Kartli-Mereti, Skra [13, 29, 41, 79, 115, 140].
  16. ***Rh. bacchus*** (Linnaeus, 1758)  
Distribution: EG; WG; SG [9, 13, 23, 26, 29, 31, 36, 38, 47, 48, 64, 85, 86, 115, 118, 121, 134, 140, 143, 145, 148].
  17. ***Byctiscus betulae*** (Linnaeus, 1758)  
Syn. *Rhynchites alni* Müller; *Rhynchites betuleti* F.; *Rhinomacer betulae*  
Distribution: EG; WG; SG [1, 9, 13, 29, 31, 36, 38, 41, 47, 48, 62, 67, 70, 82, 85, 86, 101, 105, 115, 118, 121, 134, 140, 143, 145, 148].
  18. ***Chonostropheus seminiger*** (Reitter, 1880)  
Syn. *Rhynchites seminiger*; *Deporaus seminiger*  
Distribution: EG; SG [41, 85, 125, 140, 141].
  19. ***Deporaus betulae*** (Linnaeus, 1758)  
Syn. *Rhynchites betulae*  
Distribution: EG; WG [38, 41, 140, 148].

#### **ATTELABIDAE**

20. ***Attelabus sulcifrons*** (Argod, 1895)  
Distribution: EG; WG: Tbilisi, Borjomi [2, 29, 31, 125].
21. ***A. nitens*** (Scopoli, 1763)  
Distribution: EG; WG: [1, 26, 28, 29, 31, 36, 45, 48, 64, 85, 86, 122].

#### **APIONIDAE**

22. ***Onychapion pumilio*** (Desbrochers, 1893)  
Syn. *Apion pumilio*  
Distribution: EG: Rustavi - flood land forest [41, 47, 48, 49].
23. ***Acentrotypus brunnipes*** (Boheman, 1839)  
Syn. *Apion brunipes*  
Distribution: Georgia [139].
24. ***Taphrotopium sulcifrons*** (Herbst, 1797)  
Syn. *Apion sulcifrons*  
Distribution: EG; SG: Kojori, Aspindza, Vardzia [29, 34, 35, 41, 47].
25. ***Omphalapion buddebergi*** (Bedel, 1887)  
Syn. *Apion buddebergi*  
Distribution: EG: Tusheti - Omalo; Gombori Range; Tetrisklebi village [41].
26. ***O. dispar*** (Germar, 1817)  
Distribution: WG: Goderdzi Pass to Batumi [41, 140].
27. ***O. hookerorum*** (Kirby, 1808)

- Syn. *Apion hookeri*  
Distribution: EG; WG: Tbilisi, Gokhnari, Ambrolauri [31,41].
28. *O. laevigatum* (Paykull, 1792)  
Distribution: EG; WG: Tbilisi - Lisi Lake vicinity; Gombori Pass - Tetrisklebi village; Abkhazia - Nahari Pass, Sakeni; Racha – Oni [29, 38, 41, 147].
29. ***Diplapion confluens*** (Kirby, 1808)  
Syn. *Apion confluens*  
Distribution: EG: Gurjaani, Telavi, Lagodekhi, Pshaveli [41, 49].
30. *D. stolidum* (Germar, 1817)  
Distribution: EG; WG [38, 41, 145, 147].
31. *D. detritum* (Mulsant et Rey, 1858)  
Distribution: EG; WG [25, 38, 41, 127, 147].
32. ***Ceratapion onopordi*** (Kirby, 1808)  
Syn. *Apion onopordi*  
Distribution: EG; WG; SG [29, 31, 37, 38, 41, 105, 118, 147].
33. *C. scalptum caviceps* (Desbrochers, 1870)  
Distribution: EG: Akhmeta, Mejriskhevi, Dmanisi [41].
34. *C. basicorne* (Illiger, 1807)  
Syn. *Apion distans* Desbr; *Apion alliariae* Hbst.  
Distribution: EG; WG: [19, 23, 37, 38, 41, 78, 138, 143, 147].
35. *C. gibbirostre* (Gyllenhal, 1813)  
Syn. *Apion carduorum* Kirby; *Apion cyaneum* De Geer  
Distribution: EG; WG; SG [25, 28, 29, 41, 64, 118, 127].
36. *C. cylindricolle* (Gyllenhal, 1839)  
Distribution: EG: Tbilisi, Telavi [41].
37. *C. beckeri* (Desbrochers, 1875)  
Distribution: EG: Lilo Station, Telavi, Signaghi, Akhmeta, Dedoplistskaro - Gamarjveba village [41].
38. *C. kazakhstanicum* (Ter-Minassian, 1969). Wanat, 1995  
Distribution: EG: Tbilisi [138].
39. *C. kasbekianum* (Gerstaecker, 1854)  
Distribution: EG: Tbilisi, Kazbegi [41].
40. ***Aspidapion aeneum*** (Fabricius, 1775)  
Syn. *Apion aeneum*  
Distribution: EG; WG; SG [25, 29, 31, 35, 37, 38, 41, 52, 64, 86, 105, 118, 121, 127, 147].
41. *A. radiolus* (Kirby, 1808)  
Distribution: EG; WG; SG [26, 27, 29, 31, 35, 36, 41, 64, 86, 97, 118, 127, 131, 137, 145, 147].
42. *A. validum* (Germar, 1817)  
Distribution: EG; WG; SG [29, 31, 35, 37, 38, 41, 52, 127, 147].
43. ***Alocentron curvirostre*** (Gyllenhal, 1833)  
Syn. *Apion curvirostre*  
Distribution: EG; WG; SG [29, 31, 35, 41, 52, 67, 105, 118, 127].
44. ***Pseudapion fulvirostre*** (Gyllenhal, 1833)  
Syn. *Apion fulvirostre*  
Distribution: EG; SG [31, 41].
45. *P. rufirostre* (Fabricius, 1775)  
Distribution: EG; WG [26, 27, 37, 38, 41, 52, 147].
46. ***Rhopalapion longirostre*** (Olivier, 1807)  
Syn. *Apion longirostre*  
Distribution: EG; WG [28, 29, 31, 35, 37, 38, 41, 52, 64, 67, 81, 85, 97, 105, 118, 127, 147].
47. ***Malvapion malvae*** (Fabricius, 1775)  
Syn. *Apion malvae*  
Distribution: EG; WG; SG [29, 31, 35, 37, 41, 64, 105, 147].
48. *M. minimum* (Herbst, 1797)  
Distribution: EG; WG; SG [31, 38, 41, 47, 48, 52, 118, 147].
49. ***Squamapion atomarium*** (Kirby, 1808)  
Syn. *Apion atomarium*

- Distribution: EG; WG [29, 37, 38, 41, 118, 147].
50. *S. oblivium* (Schilsky, 1902)  
Distribution: EG: Vaziani, Dmanisi [41].
51. *S. elongatum* (Germar, 1817)  
Distribution: EG; WG; SG [29, 31, 38, 41, 127, 147].
52. *S. flavimanum* (Gyllenhal, 1833)  
Distribution: EG; WG [37, 38, 41, 118, 127, 147].
53. *S. cineraceum* (Wencker, 1864)  
Syn. *Apion millum* Bach  
Distribution: EG: Tbilisi, Telavi [29, 64].
54. *Kalcapion pallipes* (Kirby, 1808)  
Syn. *Apion pallipes*  
Distribution: EW: Abkhazia - Gagra, Achadara [41].
55. *K. semivittatum* (Gyllenhal, 1833)  
Distribution: EG: Tbilisi - Shida Kartli [49, 51, 63].
56. *Taeniapion urticarium* (Herbst, 1784)  
Syn. *Apion urticarium*  
Distribution: EG; WG; SG [31, 38, 41, 105, 127, 147].
57. *Metapion squamosum* (Faust, 1884)  
Syn. *Apion squamosum*  
Distribution: Tbilisi [29, 41].
58. *M. oculare* (Gyllenhal, 1833)  
Syn. *Apion kolenatii* Schoenh.  
Distribution: Georgia [127<sup>a</sup>].
59. *Trichopterapion holosericeum* (Gyllenhal)  
Syn. *Apion holosericeum*  
Distribution: EG; WG [26, 27, 29, 31, 41, 47, 48, 49, 52, 64, 97, 118, 129, 143, 145, 147].
60. *Exapion elongatulum* (Desbrochers, 1891)  
Syn. *Apion elongatulum*  
Distribution: EG; SG: Telavi, Akhmeta, Akhaltsikhe [41].
61. *Pseudoprotapion astragali* (Paykull, 1800)  
Syn. *Apion astragali*  
Distribution: EG; SG [25, 31, 41, 118].
62. *P. elegantulum* (Germar, 1818)  
Distribution: EG; WG; SG [12, 24, 25, 29, 31, 35, 37, 38, 41, 47, 63, 118, 145, 147].
63. *Protapion trifolii* (Linnaeus, 1768)  
Syn. *Apion trifolii*; *Apion aestivum* Germar  
Distribution: EG; WG; SG [39, 41, 47, 52, 64, 106, 118, 147].
64. *P. apricans* (Herbst, 1797)  
Distribution: EG; WG; SG [16, 23, 24, 25, 29, 31, 35, 37, 38, 41, 47, 52, 64, 67, 72, 118, 105, 127, 145, 147, 149].
65. *P. assimile* (Kirby, 1808)  
Distribution: EG: Borjomi, Lagodekhi-Tsodna [47, 118].
66. *P. dissimile* (Germar, 1817)  
Distribution: EG; WG: Abkhazia, Azhara, Sagarejo, Tbilisi, Vere River, gorge, Sioni [26, 35, 38, 41, 47, 52, 147].
67. *P. filirostre* (Kirby, 1808)  
Distribution: EG; WG; SG [23, 24, 25, 28, 29, 31, 35, 37, 38, 41, 47, 118, 127, 143, 145, 147].
68. *P. fulvipes* (Geoffroy, 1785)  
Syn. *Apion fulvipes* Pk.  
Distribution: EG; WG; SG [23, 24, 25, 26, 27, 29, 31, 38, 41, 64, 77, 85, 86, 97, 118, 121, 135, 147].
69. *P. nigritarse* (Kirby, 1808)  
Distribution: EG; WG [23, 25, 29, 31, 37, 38, 41, 47, 105, 118, 127, 145, 147].
70. *P. ononicola* (Bach, 1854)  
Distribution: EG: Tianeti, Tbilisi [29, 41, 64, 118].
71. *P. schoenherri* (Boheman, 1839)  
Distribution: EG; WG [29, 31, 41, 63, 127].



72. *P. varipes* (Germar, 1817)  
Distribution: EG; WG; SG [16, 23, 29, 31, 35, 37, 38, 41, 43, 45, 47, 67, 106, 118, 127, 147].
73. **Phrissotrichum** *tubiferum* (Gyllenhal, 1833)  
Syn. *Apion tubiferum*  
Distribution: WG: Abkhazia, Pitsunda [50, 129].
74. **Pseudoperapion** *brevirostre* (Herbst, 1797)  
Syn. *Apion brevirostre*  
Distribution: EG; WG [29, 41].
75. *P. simum* (Germar, 1817)  
Syn. *Apion simum*  
Distribution: EG: Gurjaani - Alazani River flood land forest, Kvareli - Duruji River gorge [31, 41, 47].
76. **Aizobius** *sedi* (Germar, 1818)  
Syn. *Apion sedi*  
Distribution: EG: Tusheti - Jvarboseli; Lagodekhi Reserve [26, 27, 41, 51].
77. **Perapion** *chioneum* (Khnzorian, 1957)  
Distribution: EG: Rustavi - floodland forest [41, 49, 51].
78. *P. curtirostre* (Germar, 1817)  
Distribution: EG; SG: Tusheti - Omalo, Bolnisi, Dmanisi, Adigeni [25, 31, 41].
79. *P. kuraense* (Bajtenov, 1982)  
Distribution: WG: Racha [10].
80. *P. oblongum* (Gyllenhal, 1839)  
Distribution: EG; WG; SG [31, 38, 41, 52, 127, 147].
81. *P. violaceum* (Kirby, 1808)  
Distribution: WG [37, 38, 41, 147].
82. **Apion** *frumentarium* (Linnaeus, 1758)  
Syn. *Apion miniatum* Germar, 1792  
Distribution: EG; WG [29, 31, 35, 37, 38, 64, 127, 147].
83. *A. haematodes* (Kirby, 1808)  
Syn. *Apion miniatum*  
Distribution: EG; WG; SG [28, 31, 41, 85, 105, 118, 127, 147].
84. *A. graecum* (Desbrochers, 1897)  
Syn. *Apion kaspariani* Korotyaev, 1988  
Distribution: EG: Atskuri, Akhaltsikhe [88].
85. *A. cruentatum* (Walton, 1844)  
Distribution: EG: Tusheti - Omalo, Jvarboseli, Shenako; Shida Kartli – Gori [41, 67].
86. *A. rubiginosum* (Grill, 1893)  
Syn. *Apion sanguineum* Da Geer, 1775  
Distribution: EG; WG; SG: Tusheti - Omalo, Jvarboseli; Abkhazia - Kindghi; Meskheti – Atskuri [25, 31, 37, 38, 41, 47].
87. **Catapion** *caucasicum* (Hochhuth, 1847)  
Syn. *Apion caucasicum*  
Distribution: Georgia [127].
88. *C. jaffense* (Desbrochers, 1896)  
Syn. *Apion ononiphagum* Schatzmayr, 1920  
Distribution: WG: Racha – Oni [41, 52].
89. *C. schneideri* (Tournier, 1878) Schilsky, 1906  
Syn. *Apion koenigi* Desbrochers, 1897, *Apion schilsky*, 1906  
Distribution: EG; SG: Tbilisi, Vashlovani Reserve, Aspindza [41, 116, 139, 127].
90. *C. pubescens* (Kirby, 1811)  
Distribution: EG; WG [41, 52, 127].
91. *C. seniculus* (Kirby, 1808)  
Distribution: EG; WG; SG [19, 23, 25, 29, 31, 35, 38, 41, 47, 52, 64, 97, 105, 118, 127, 145, 147].
92. *C. burdigalense* (Wencker, 1858)  
Distribution: EG: Tbilisi vicinity - Teleti; Saguramo, Bolnisi [41, 52].
93. **Betulapion** *simile* (Kirby, 1811)  
Syn. *Trichapion simile*; *Apion simile*

Distribution: EG: Tusheti – Omalo [41,52].

94. ***Stenopterapion intermedium*** (Eppelsheim, 1875)  
Syn. *Apion intermedium*  
Distribution: EG; WG [41, 52, 118].
95. *S. tenue* (Kirby, 1808)  
Distribution: EG; WG [29, 38, 41, 52, 118, 147].
96. *S. meliloti* (Kirby, 1808)  
Distribution: EG; WG [26, 27, 38, 41, 52, 147].
97. ***Ischnopterapion loti*** (Kirby, 1808)  
Syn. *Apion loti*  
Distribution: EG; WG [31, 38, 41, 64, 147].
98. *I. fallens* (Marseul, 1889)  
Syn. *Apion fallax* Wencker, 1864  
Distribution: EG; WG; SG [41].
99. ***Synapion ebeninum*** (Kirby, 1808)  
Syn. *Apion ebeninum*  
Distribution: EG; WG [38, 41, 52, 147].
100. ***Holotrichapion ononis*** (Kirby, 1808)  
Syn. *Apion ononis*  
Distribution: Tianeti [41, 50, 118].
101. *H. pullum* (Gyllenhal, 1833)  
Syn. *Apion aestimatum* Faust, 1891: Korotyaev, 1999  
Distribution: EG; WG; SG [19, 28, 29, 31, 35, 41, 63, 64, 92, 106, 127, 143, 145, 147].
102. *H. gracilicolle* (Gyllenhal, 1839)  
Distribution: EG [26, 27, 29, 41, 49, 51, 127].
103. ***Hemitrichapion reflexum*** (Gyllenhal, 1833)  
Syn. *Apion reflexum*  
Distribution: EG; SG [41, 31].
104. *H. strictum* (Desbrochers, 1896)  
Distribution: Georgia [127].
105. *H. lethierryi* (Desbrochers, 1870)  
Syn. *Apion juniperi* Boh.  
Distribution: EG; SG: Tbilisi, Akhalkalaki [31, 41, 63, 118].
106. *H. pavidum* (Germar, 1817)  
Distribution: EG; WG; SG [29, 31, 38, 41, 105, 118, 147].
107. ***Mesotrichapion punctirostre*** (Gyllenhal, 1839)  
Syn. *Apion reflexum*  
Distribution: EG [29, 41, 63].
108. *M. armeniacum* (Desbrochers, 1896)  
Distribution: EG: Tbilisi [127].
109. ***Cyanapion alcyoneum*** (Germar, 1817)  
Syn. *Apion alcyoneum*  
Distribution: EG: Tetrtskaro [41].
110. *C. columbinum* (Germar, 1817)  
Distribution: EG: Gori-Mejvriskhevi, Dmanisi [41, 67].
111. *C. spencii* (Kirby, 1808)  
Distribution: EG: Tetrtskaro [41, 31].
112. *C. afer* (Gyllenhal, 1833)  
Distribution: EG: Tetrtskaro, Gokhnari village [41].
113. *C. gyllenhalii* (Kirby, 1808)  
Distribution: EG; WG [25, 37, 38, 41, 118, 147].
114. ***Oxystoma cerdo*** (Gerstaecker, 1854)  
Syn. *Apion cerdo*  
Distribution: EG; WG; SG [26, 31, 38, 41, 52, 127].
115. *O. craccae* (Linnaeus, 1767)  
Distribution: EG; WG [26, 29, 31, 37, 38, 41, 52, 127, 145, 147].

116. *O. fausti* (Desbrochers, 1889)  
Distribution: EG: Zekari Pass to Akhaltsikhe [41, 50].
117. *O. ochropus* (Germar, 1818)  
Distribution: EG; WG; SG [27, 31, 37, 38, 41, 118, 147].
118. *O. opeticum* (Bach, 1854)  
Distribution: EG; WG; SG: Dmanisi - Mtisdziri village; Abkhazia - Tsebelda, Gentsvishi, Chkhalta, Aspindza [31, 37, 41, 118, 147].
119. *O. pomonae* (Fabricius, 1798)  
Distribution: EG; WG [26, 29, 31, 35, 38, 41, 47, 64, 85, 86, 97, 121, 127, 131, 145, 147].
120. *O. subulatum* (Kirby, 1808)  
Distribution: EG; WG; SG: Borjomi, Kojori, Lagodekhi, Tetrtskaro, Oni, Adigeni [31, 41, 118, 127].
121. ***Chlorapion cognatum*** (Hochhuth, 1851)  
Syn. *Apion cognatum*  
Distribution: EG: Dmanisi - Mtisdziri village [41, 118].
122. *Ch. virens* (Herbst, 1797)  
Distribution: EG; SG: Meskhet-Javakheti - Akhaltsikhe, Vale, Aspindza, Ninotsminda, Akhalkalaki, Dmanisi [41, 47].
123. ***Eutrichapion viciae*** (Paykull, 1800)  
Syn. *Apion viciae*  
Distribution: EG; WG; SG [25, 29, 31, 38, 41, 47, 52, 64, 145, 147].
124. *E. ervi* (Kirby, 1808)  
Distribution: EG; WG [25, 37, 38, 41, 118, 143, 145, 147].
125. *E. vorax* (Herbst, 1797)  
Distribution: EG; WG; SG [31, 41, 38, 147].
126. *E. punctigerum* (Paykull, 1792)  
Distribution: EG; WG; SG [16, 23, 29, 31, 35, 38, 41, 47, 81, 118, 147].

#### **NANOPHYIDAE**

127. ***Nanomimus circumscriptus*** (Aube, 1864)  
Syn. *Nanophyes circumscriptus*  
Distribution: WG: Ochamchire, Paliastomi Lake vicinity [41, 52].
128. ***Nanophyes marmoratus*** (Goeze, 1777)  
Syn. *Nanophyes lytri* Fabr.  
Distribution: EG; WG [37, 38, 41, 52, 77, 105, 118].
129. *N. brevis* (Boheman, 1845)  
Distribution: WG: Kobuleti [41, 36].
130. *N. caucasicus* (Pic, 1897)  
Distribution: WG: Abkhazia - Adzyubzha, Gudava, Gulripsh, Etseri (Gali district); Kolkheti Lowland [37, 38, 41, 85, 77].
131. ***Pericartiellus flavidus*** (Aube, 1850)  
Syn. *Nanophyes flavidus*  
Distribution: EG: Tusheti - Omalo, Shenako, Jvarboseli [25, 41].
132. ***Dieckmanniellus nitidulus*** (Gyllenhal, 1838)  
Syn. *Nanophyes nitidulus*  
Distribution: EG; WG [36, 37, 38, 41, 48, 52].
133. ***Corimalia fausti*** (Reitter, 1890)  
Distribution: EG: Rustavi [41].
134. *C. helenae* (Korotyaev et Zherichin, 1996)  
Syn. *Corimalia languida* (Boheman, 18450; *Nanophyes longuidus* Gyll. *Nanophyes longuidus* Boh.; *Nanophyes languida* Boh.  
Distribution: EG: Rustavi, Gurjaani flood land forest [41, 48, 49].
135. *C. sp. pr. aliena* (Faust, 1890)  
Distribution: EG: Ksani River gorge [41, 48, 49].
136. ***Hypophyes minutissimus*** (Tournier, 1867)  
Syn. *Nanophyes minutissimus*; *Corimalia minutissimus*

Distribution: EG: Mtskheta, Rustavi, Shiraki - Lekistskali River gorge; Gurjaani - Alazani River (right shore); Tbilisi vicinity [27, 28, 29, 41, 48, 49, 64].

137. *Allomalía quadrivirgata* (Costa, 1863)  
Syn. *Nanophyes quadrivirgatus*; *Corimalia quadrivirgata*  
Distribution: EG [27, 28, 29, 41, 48, 49, 64, 118].

**DRYOPHTORIDAE**  
***Dryophthorinae***

138. *Dryophthorus corticalis* (Paykull, 1792)  
Distribution: WG: Upper and Svaneti, Abkhazia, Tkvarcheli [38, 41, 70].

***Rhynchophorinae***

139. *Sphenophorus abbreviatus* (Fabricius, 1787)  
Distribution: EG: Kakheti game-preserve Inoboti [41,49].
140. *Sitophilus granarius* (Linnaeus, 1758)  
Syn. *Calandra granaria*  
Distribution: Cosmopolite - throughout Georgia [71, 118].
141. *S. oryzae* (Linnaeus, 1763)  
Distribution: Cosmopolite - throughout Georgia [64, 71].
142. *S. gotschi* (Hochhuth, 1847)  
Distribution: Kolkheti - Kheta village [41].

**CURCULIONIDAE**  
***Brachicerinae***

143. *Brachicerus quadrisulcatus* Fischer de Waldheim, 1830  
Syn. *Brachicerus cinereus* (non Olivier, 1807); *Brachicerus sinuatus* (non Olivier, 1807); *Brachicerus junix* (non Jichtenstein, 1796); *Brachicerus junix* Ficht; *Brachicerus lutosus* Gyllenhal, 1833  
Distribution: EG: Tbilisi environs - Lilo, Dighomi [8, 29, 41, 49, 64].
144. *B. mlokosevitschi* Arzanov, 2005  
Distribution: EG: Lagodekhi; Eldari (near Iori Rive), Signaghi [8].
145. *B. lutosus* Gyllenhal, 1833  
Syn. *Brachicerus lutosus* Gyllenhal in Schoenherr, 1833; *Brachicerus cinereus* (non Olivier, 1807): Bedel, 1874  
Distribution: EG: Mtskheta, Lagodekhi, Borjomi [8].

***Entiminae***

146. *Otiorhynchus kirschi* Stierlin, 1876  
Distribution: EG [25, 29, 41, 64, 97, 105, 118].
147. *O. virgo* Reitter, 1913  
Distribution: EG; WG; SG: Borjomi, Tsagveri, Gori, Akhaltsikhe, Svaneti [31, 41, 94, 113].
148. *O. echinatoides* Reitter, 1913  
Distribution: WG: Batumi [41, 50].
149. *O. weisei* Reitter, 1913  
Distribution: EG: Manglisi [41].
150. *O. incivilis* Faldermann, 1838  
Syn. *Otiorhynchus radschensis* Stierlin  
Distribution: EG; WG [41, 105].
151. *O. balcanicus* Stierlin, 1883  
Distribution: EG: Borjomi, Tbilisi vicinity, Tsodoreti [41].
152. *O. caucasicus* Stierlin, 1883  
Syn. *Otiorhynchus schönherri* Stierlin  
Distribution: EG; WG; SG [31, 38, 41, 105, 118, 144].

153. *O. fortiscapus* L. Arnoldi, 1972  
Distribution: WG: New Athon, Ritsa Lake, Nokalakevi, Tekhuri River gorge, Racha-Nakerali Mount [4, 38, 41, 45].
154. *O. ritsae* L. Arnoldi, 1972  
Distribution: WG: Abkhazia - Ritsa Lake, Klichy River gorge, Sakeni [4, 38, 41, 47, 50, 145].
155. *O. glolae* L. Arnoldi, 1972  
Distribution: WG: Racha – Glola [4, 41, 50].
156. *O. cylindricus* Stierlin, 1877  
Syn. *Otiorynchus subparallelus* Stierlin  
Distribution: WG: Surami Range, Abkhazia-Klichy River gorge [37, 38, 41, 105, 118].
157. *O. conspicibilis* Faldermann, 1838  
Distribution: WG: Adjara, Batumi vicinity, Meskhety Range, Goderdzi Pass - Kintrishi Reserve, Sakornia Mount; Bakhmaro - Muchuta, Likhi Range, Ozurgeti, Makharadze, Shemokmedi village game-preserve – Napotskvara [41, 60].
158. *O. granulatostratus granulatostratus* Stierlin, 1876  
Syn. *Otiorynchus ronchettinus* Reitter, 1909  
Distribution: EG; WG: Gudauri, Kazbegi, Kutaisi [41.60, 118, 105].
159. *O. granulatostratus mamisonicus* Davidian et Yunakov, 2002  
Distribution: WG: Racha - Mamisoni Pass [50,60].
160. *O. chauldoiri* Hochhuth, 1851  
Distribution: EG; WG [25, 31, 37, 38, 41, 60, 81, 85, 118, 105].
161. *O. quadratopunctatus* Stierlin, 1867  
Distribution: WG: Askhi massive, Svaneti, Lebarde [41, 50, 60].
162. *O. teberdensis* Reitter, 1909  
Distribution: WG: Klukhori Pass to Abkhazia [41].
163. *O. costulatus* Formanek, 1922  
Syn. *Otiorynchus sp. prope gracilipes* Reitter, 1895  
Distribution: WG: Adjara, Imereti-Meskhety Range, Bakhmaro-Muchuta, Abkhazia-Chkhalta Range [41, 47].
164. *O. simulans* Stierlin, 1883  
Distribution: EG; WG [13, 18, 23, 29, 38, 41, 48, 118, 105].
165. *O. turca* Boheman, 1843  
Distribution: WG: Adjara - Batumi, Chakvi, Keda district; Zendili village, Kobuleti - Achi village [18, 36, 41, 47, 142].
166. *O. tiflensis* Reitter, 1913  
Distribution: WG: Adjara [5, 11, 82, 97, 140, 142].
167. *O. rosti* Stierlin, 1891  
Distribution: WG: Abkhazia [105, 112].
168. *O. abchasicus* Rost, 1892  
Distribution: WG: Abkhazia – Sakeni [41, 38, 105, 112].
169. *O. aurosquamulatus* Retowski, 1888  
Distribution: WG: Southern Abkhazia, Gagra Range - Mamzishkha Mount [6, 41].
170. *O. carbonarius* Hochhuth, 1847  
Distribution: EG [41, 81, 105, 118].
171. *O. subcoriaceus* Reitter, 1882  
Distribution: WG [37, 38, 41, 50, 105, 112].
172. *O. carbonicolor* Reitter, 1913  
Distribution: EG; WG [37, 41].
173. *O. tatarchani* Reitter, 1882  
Syn. *Otiorynchus felicitinae* Reitter, 1895  
Distribution: WG [38, 41, 47, 105, 143].
174. *O. albinae* Formanek, 1922  
Distribution: WG: Southern Abkhazia [6, 41].
175. *O. sculptirostris* Hochhuth, 1847  
Distribution: EG; WG; SG: Atskuri, Mtskheta, Zekari Pass [41].
176. *O. koenigi koenigi* Faust, 1883  
Distribution: WG: Abkhazia - Arabika – Gagra [41, 50, 60, 105].

177. *O. koenigi validiscapus* Stierlin, 1894, stat. n  
Distribution: WG: Abkhazia...Mengrelia [60].
178. *O. pseudomecops* Reitter, 1913  
Distribution: EG: Borjomi [4, 50, 112].
179. *O. globicollis* Hochhuth, 1847  
Distribution: EG: [25, 41, 50, 105, 118].
180. *O. pilifer* Stierlin, 1896  
Distribution: EG: Transcaucasus (Central part) – Georgia [6, 105, 112].
181. *O. faldermanni* Hochhuth, 1847  
Distribution: EG; SG [31, 41, 105, 118].
182. *O. subbidentatus* Stierlin, 1895  
Distribution: WG: Abkhazia - Gagra Range; Mamzishkha Mount [41, 105, 112].
183. *O. scopularis* Hochhuth, 1847  
Distribution: EG; WG; SG [25, 27, 28, 29, 31, 38, 41, 85, 86, 94, 145].
184. *O. carceliformis* Stierlin, 1895  
Distribution: WG: Abkhazia - Gagra Range; Mamzishkha Mount [41, 105].
185. *O. erinaceus* Stierlin, 1883  
Distribution: EG; WG; SG [41, 81, 85, 105, 149].
186. *O. elongatus* Hochhuth, 1847  
Distribution: SG: Akhalkalaki, Ninotsminda [25, 41].
187. *O. moestificus* Schoenherr, 1832  
Syn. *Otiorynchus beckeri* Stierlin  
Distribution: EG: Tusheti - Omalo, Jvarboseli; Kazbegi, Truso gorge [41, 105, 118].
188. *O. sp. pr. abagoensis* Reitter, 1888  
Syn. *Otiorynchus abagoensis*  
Distribution: WG: Abkhazia - Abago, Gagra [41, 50].
189. *O. lederi* Stierlin, 1876  
Distribution: EG; SG [29, 31, 41, 64, 81, 85, 118].
190. *O. erivanensis* Reitter, 1894  
Distribution: EG; SG: Lagodekhi Reserve - Kochalo Mount, Paravani Lake vicinity, Goderzi Pass to Akhaltsikhe [31, 41, 81].
191. *O. nasutus* Stierlin, 1876  
Distribution: EG; WG [31, 41, 81, 85, 118].
192. *O. subsquamulatus* Stierlin, 1883  
Distribution: EG; WG: Abkhazia - Sukhumi, Sakeni, Borjomi [41].
193. *O. pseudomias* Hochhuth, 1847  
Distribution: EG; WG [6, 29, 41, 47, 64, 81, 118, 149].
194. *O. decoratus* Stierlin, 1883  
Distribution: EG: Borjomi, Bakuriani, Surami, Khashuri district – Shuamta [41, 105, 118].
195. *O. osseticus* Korotyaev, 1992  
Distribution: EG; WG: Java district - Akhalshenda Mount, Bakuriani, Amrbolauri [41, 92].
196. *O. reitteri* Stierlin, 1883  
Distribution: EG; WG: [29, 31, 41, 118, 145, 147].
197. *O. schamylianus* Reitter, 1888  
Distribution: WG: Abkhazia - Avadkhara, Ritsa Lake vicinity, Klichy River gorge, Khetskvara River gorge, Sakeni [41].
198. *O. granulatus* Reitter, 1913  
Distribution: WG: Abkhazia - Gagra Range; Alpine zone, Gagra, New Athos [41, 112].
199. *O. brachialis* Boheman, 1843  
Distribution: EG; WG [6, 31, 41, 118].
200. *O. sp. n. pr. brachialis* Boheman, 1843  
Distribution: WG: Abkhazia - Gagra Range; Mamzishkha Mount [41].
201. *O. tbatanicus* Reitter, 1913  
Distribution: EG; WG: Tabana, Sukhumi Mount, Kura River valley, Arabika Mount, Marukhi Pass, Tsana [6, 41, 112, 113].
202. *O. dentitibia* Reitter, 1888  
Distribution: EG; WG [6, 25, 31, 38, 41, 47].

203. *O. helenae* Reitter, 1913  
Distribution: EG: Tusheti - Omalo, Kobi [37, 41].
204. *O. dispar* Stierlin, 1883  
Distribution: EG; WG: Gudauri, Kazbegi, Jvari Pass, Svaneti, Kintrishi [41, 105].
205. *O. ovalipennis* Boheman, 1843  
Distribution: EG; WG [26, 27, 28, 29, 41, 49, 64, 85, 86, 96, 137].
206. *O. apschuanus* Reitter, 1913  
Distribution: WG [41, 113].
207. *O. swaneticus* Reitter, 1883  
Distribution: WG: Askhi massive, Latpari, Donguz-Orun (Nakra) Pass, Tsana, Bego [41, 105, 113].
208. *O. sieversii* Faust, 1888  
Syn. *Otiorhynchus fulliformis* Reitter; *Otiorhynchus suramensis* Reitter  
Distribution: EG: Lagodekhi, Surami, Manglisi, Signaghi, Tbilisi [31, 38, 47, 112, 113].
209. *O. bidentatus* Stierlin, 1883  
Distribution: EG; Wg; SG [6, 31, 37, 38, 64, 105].
210. *O. reclinatus* Reitter, 1913  
Syn. *Otiorhynchus bogatschevi*; L. Arnoldi; nomen nudum: Кобахидзе, 1956  
Distribution: EG: Lagodekhi Reserve - Kochalo Mount, Tusheti - Omalo, Kvareli - Shavi Klde [37, 41, 81, 85, 113].
211. *O. pulvinatus* Hochhuth, 1847  
Syn. *Otiorhynchus raddei* Stierlin  
Distribution: EG: Kazbegi, Surami Range, Kura River valley [6, 41, 105, 118].
212. *O. cinereus* Stierlin, 1883  
Distribution: EG: Lagodekhi Reserve, Kakheti, Tskratskaro Pass [41, 81, 149].
213. *O. ovatus* (Linnaeus, 1758)  
Distribution: WG: Abkhazia, Bzyb River gorge [41, 142].
214. *O. histrio* Gyllenhal, 1834  
Distribution: EG; Wg [31, 41].
215. *O. anthracinus* (Scopoli, 1763)  
Distribution: WG: Klukhori Pass (southern slope) [41].
216. *O. ligustici* (Linnaeus, 1758)  
Distribution: EG; Wg; SG [6, 16, 29, 31, 34, 41, 82, 165, 118, 130].
217. *O. ligusticiformis* Formanek, 1926  
Distribution: EG: Tbilisi [41].
218. *O. armeniacus* Hochhuth, 1847  
Syn. *Otiorhynchus abnormicollis* Reitter, 1913  
Distribution: Wg; SG: Abkhazia, Svaneti, Bakhmaro - Muchuta, Goderzi Pass to Adigeni [41, 113].
219. *O. velutinus* Germar, 1824  
Syn. *Otiorhynchus exilis* Boheman  
Distribution: Wg; SG [31, 41, 118].
220. *O. schneideri* Stierlin, 1876  
Distribution: EG: Bakuriani, Tskhatskaro Pass [31, 118].
221. *O. caroli* Stierlin, 1893  
Distribution: WG: Batumi Botanical Garden, Gulripshi – Gentsvishi [37, 41].
222. *O. gumistiensis* Davidian et Arzanov, 2002  
Distribution: WG: Abkhazia - Gumista Reserve [61].
223. *O. georgianus* Magnano, 1999  
Distribution: WG: Tsageri [98].
224. *O. pseudosuramensis* Magnano, 1999  
Distribution: WG: Tbilisi [98].
225. *O. atrohippus* Davidian et Yunakov, 2002  
Distribution: WG: Abkhazia - Sankharo Pass [61].
226. *O. viridiporus* Davidian et V. Savitsky, 2002  
Distribution: WG: Abkhazia - Avahara Mount, eastern slope, Jampali River and Kahshara River sources [61].
227. *O. romantsovi* Davidian et V. Savitsky, 2002  
Distribution: WG: Abkhazia - Gagra district, Akh-Lag Mount area, Arabika Mount slope [61].

228. *O. schapovalovi* Davidian et Yunakov, 2002  
Distribution: WG: Abkhazia, Arabika Mount slope, Khashupse River gorge to Gagra River [61].
229. *O. avtandili* Davidian et Yunakov, 2002  
Distribution: WG: Adjara - Imereti (Meskheta) Range, Gomismta Mount; Bakhmaro - Muchuta (Cholokava) vicinity [61].
230. *O. mlkosevitschi* Korotyaev, 2002  
Distribution: EG: Lagodekhi [61].
231. *O. kovali* Davidian et Yunakov, 2002  
Distribution: WG: Abkhazia - Gagra Range, Mamzishkha Mount, Zomnik Mount, Arabika Mount slope [60].
232. *O. alexeevi* Korotyaev et Davidian, 2002  
Distribution: EG: Tusheti - Khakhabo (Cholokawa) [60].
233. *O. tshistyakovae* Davidian et Yunakov, 2002  
Distribution: WG: Samegrelo Range, Kvemo Svaneti, Tsekuri Mount [60].
234. *O. dvaleticus* Davidian et Yunakov, 2002  
Distribution: EG: Java district, Akhalshenda Mount, Dvaleti Range, Khalasta Mount [60].
235. *O. belousovi* Davidian et Yunakov, 2002  
Distribution: EG: Dvaleti Range, Khalasta Mount [60].
236. *O. tatyanae* Davidian et Yunakov, 2002  
Distribution: EG: South Osetia, Racha Range, Lebeurismta Mount [60].
237. *O. svetgaricus* Davidian et Yunakov, 2002  
Distribution: WG: Zemo Svaneti, environ to Mestia [60].
238. *O. depressus* Stierlin, 1875  
Distribution: EG; WG: Meskheta Range, Gombori Mount, Sakornia Mount, Khulo district, Taginuri Mount [60].
239. *O. abashae* Davidian et Yunakov, 2002  
Distribution: WG: Askhi massive, Svaneti, Natakhshdudi Pass (Egrisi Range, Chkhorotsku district), Lechkhumi Range [60].
240. *O. maganicus* Davidian et Yunakov, 2002  
Distribution: WG: MSamegrelo Range, Magana River head, Enguri River tributary, Khvira Mount, Barjashi village (Mestia district), Jvari Reservoir [60].
241. *O. titae* Davidian et Yunakov, 2002  
Distribution: WG: Western Svaneti, Shtavleri Range, Pass from Tita village to Nakra village [60].
242. *O. akibae* Davidian et Yunakov, 2002  
Distribution: EG: Abkhazia, Arabika Range, Apchica Mount [60].
243. *O. madinae* (Davidian et Yunakov, 2002)  
Distribution: WG: Mengrelia, Askhi massive [60].
244. *O. terrifer* Stierlin, 1884  
Distribution: Georgia [139].
245. *O. kasbekianus* Stierlin, 1876  
Distribution: Georgia [139].
246. *O. phreatus* Reitter, 1914  
Distribution: Georgia [114, 139].
247. *O. impressiceps* Reitter, 1888  
Distribution: Georgia [108].
248. *O. fulliformis* Reitter, 1914  
Distribution: Georgia [114, 139].
249. *O. suramensis* Reitter, 1914  
Distribution: WG: Surami [114, 139].
250. *Troglorrhynchus myops* Reitter, 1888  
Distribution: WG: Lechkhumi [113].
251. *T. argus* Reitter, 1896  
Distribution: EG; WG: Surami Range, Meskheta Range, Borjomi, Sukhumi [41].
252. *T. inaliparum* Rost, 1893  
Distribution: WG: Abkhazia, Gagra [41].
253. *Troglorrhynchus* sp.  
Distribution: WG: Abkhazia, Tsimura [41].



- 254. *Meiranella caucasica*** Stierlin, 1876  
Distribution: EG; WG: Manglisi, Shubara, Sukhumi, Chini [41, 61].
- 255. *M. brevisetis*** Reitter, nomen nudum  
Distribution: SG: Meskheta Plateau [41, 50].
- 256. *Trachyphloeus alternans*** Gyllenhal, 1834  
Distribution: EG [29, 31, 34, 41, 118].
- 257. *T. spinimanus*** Germar, 1824  
Distribution: EG; SG: Tbilisi, Dedoplistskaro, Vardzia [29, 31, 41].
- 258. *T. aristatus*** Gyllenhal, 1834  
Distribution: EG: Dmanisi district, Mtisdziri village [50, 118].
- 259. *Omius verruca*** Steven, 1829  
Syn. *Mylacus verruca*  
Distribution: EG: Samgori, Martkopi [29, 41, 50, 51].
- 260. *O. rotundatus*** Fabricius, 1792  
Distribution: EG [29, 34, 41, 50, 51, 67].
- 261. *O. globosus*** Gyllenhal, 1834  
Distribution: EG: Kazbegi [41].
- 262. *Urometopus longicornis*** (Stierlin, 1893)  
Distribution: WG: Abkhazia, Batumi [38, 41, 50, 65].
- 263. *U. rosti*** (Reitter, 1896)  
Syn. *Omius rosti*  
Distribution: WG: Abkhazia, Gudauta, Gagra Range, Mamzishkha Mount [41, 50, 105].
- 264. *U. imereticus*** (Reitter, 1897)  
Distribution: WG: Imereti, Svaneti, Racha – Ambrolauri [41, 65, 109].
- 265. *U. swaneticus*** (Reitter, 1897)  
Distribution: WG: Svaneti [41, 65, 109].
- 266. *U. mingrelicus*** (Reitter, 1888)  
Distribution: EG; WG; SG: Samegrelo, Meskheta Plateau, Surami Pass; Abkhazia, Gagra, Khodzjali [31, 37, 41, 65, 108, 145].
- 267. *U. georgicus*** (Reitter, 1888)  
Syn. *Omius georgicus*  
Distribution: EG; WG [31, 37, 38, 41, 65, 105, 109, 124].
- 268. *U. strigifrons*** (Gyllenhal, 1834)  
Syn. *Omius strigifrons*  
Distribution: EG: Borjomi, Shavnabada, Surami, Tsalka, Central Caucasus [29, 31, 108, 118].
- 269. *U. inflatus*** (Kolenati, 1858)  
Distribution: EG: Meskheta Plateau, Surami [31, 65, 109, 124].
- 270. *Aomus reitteri*** Stierlin, 1885  
Syn. *Phyllobius reitteri* Stierlin Described from Abastumani as *Phyllobius* Reitteri  
Distribution: WG; SG: Svaneti, Ritsa, Tsagveri, Akhaltsikhe, Atskuri, Abastumani, Adigeni [41, 47].
- 271. *Nastus (Neonastus) fumatus*** Germar, 1824  
Distribution: WG: Racha, Tsagveri, Okureshi [41, 105].
- 272. *N. (Nastus) fausti fausti*** Reitter, 1888  
Syn. *Nastus circassicus* Reitter, 1888; *Nastus Lederi*, 1888  
Distribution: WG: Abkhazia, Gagra, Mamzishkha Mount [7, 85].
- 273. *N. (N.) fausti tayae*** Arzanov et Davidian, 1995  
Distribution: WG: Abkhazia, Bzyb Range, Napra Mount [7].
- 274. *N. (N.) devians*** Faust, 1883  
Distribution: EG; WG: Lebarde, Zekari Pass, Meskheta Range, Gomi Mount, Sakornia Mount [7, 31, 41, 85].
- 275. *N. (N.) lajlensis*** Arzanov et Davidian, 1995  
Distribution: WG: Upper Svaneti, Svaneti Range, Laila Mount [7].
- 276. *N. (N.) stierlini*** Faust, 1883  
Distribution: EG: Kazbegi Mount, Jvari Pass, Gudauri, Tusheti, Omalo [7, 41].
- 277. *N. (N.) nubeculosus*** Schoenherr, 1832  
Syn. *Liophloeus nubeculosus*; *Liophloeus Kirschi* Tournier; *Nastus trapezicollis* Faus, 1883

- Distribution: EG [7, 41, 118] P. S. According Arzanov and Davidyan the synonymity was defined on the basis of study of types *Liophloeus nubeculus* Schonnh. and *Nastus trapezicollis* Faust [7].
278. *N. (N.) albinae albinae* Formanek, 1909  
Distribution: WG: Abkhazia, Samegrelo, Svaneti [7].
279. *Pseudomylocerus caucasicus* Stierlin, 1883  
Syn. *Phyllobius caucasicus*  
Distribution: EG [41, 47].
280. *P. schneideri* Schilsky, 1811  
Syn. *Phyllobius sinitatus fabricius*, 1801; *Phyllobius Schneideri*  
Distribution: EG; WG; SG [13, 17, 19, 20, 23, 26, 29, 31, 34, 38, 41, 47, 48, 49, 77, 82, 84, 85, 86, 97, 105, 115, 118, 121, 131, 135, 143, 144, 145].
281. *Phyllobius (Parnemoicus) armeniacus* Kirsch, 1878  
Distribution: EG; WG; SG [26, 29, 31, 38, 41, 47, 52, 105, 118].
282. *Ph. (Alsus) brevis* Gyllenhal, 1834  
Syn. *Phyllobius sulcirostris* Bh., v. *cinereus* Gyll.  
Distribution: EG; SG [29, 31, 41, 64, 118].
283. *Ph. (?Osmichanes) vespertilio* Faust, 1884  
Distribution: EG [26, 27, 29, 31, 41, 47].
284. *Ph. (Oedecnemidius) pictus* Steven, 1829  
Distribution: EG [16, 26, 27, 29, 31, 41, 82, 97, 121].
285. *Ph. (Phyllobius) pyri* Linnaeus, 1758  
Distribution: EG; WG; SG [13, 29, 31, 38, 41, 48, 64, 70, 73, 86, 97, 105, 118, 134, 145].
286. *Ph. (Ph.) parviceps* Desbrochers, 1873  
Distribution: EG Lagodekhi Reserve [41, 50, 52].
287. *Ph. (Pterygorrhynchus) maculicornis* Germar, 1824  
Distribution: EG; WG; SG [31, 41, 118, 114].
288. *Ph. (Dieletus) mediatius* Reitter, 1888  
Syn. *Phyllobius argentatus ssp. mediatius*; *Ph. argentatus*  
Distribution: EG; WG; SG [26, 27, 29, 31, 36, 38, 41, 47, 48, 49, 52, 64, 70, 85, 86, 97, 105, 115, 118, 143, 145].
289. *Ph. (Metaphyllobius) deyrollei* Tournier, 1880  
Distribution: EG; WG [26, 27, 29, 31, 38, 41, 64, 86, 145].
290. *Ph. (M.) circassicus* Reitter, 1888  
Distribution: EG; WG: Mtskheta, Kobuleti, Senaki - Nokalakevi, Gagra, Amtkeli Lake vicinity, Sakeni [41, 47].
291. *Ph. (M.) derjugini* Smirnov, 1913  
Distribution: EG; WG [38, 41, 120, 145].
292. *Ph. (Ectomogaster) fulvago* Steven, 1829  
Distribution: EG; WG; SG [29, 31, 38, 41, 48, 64, 105, 145].
293. *Ptochus circumcinctus* Boheman, 1834  
Distribution: EG: Sighnaghi, Khirsa [31, 41, 50, 118].
294. *P. setosus* Boheman, 1834  
Distribution: EG [29, 31, 41, 49].
295. *P. porcellus* Boheman, 1834  
Distribution: EG; SG [28, 29, 31, 41, 118].
296. *Chloebius immeritus* Boheman, 1826  
Distribution: EG: Gurjaani, Shiraki - Lekistskali River gorge, Telavi, Akhmeta, Sagarejo – [24, 28, 41, 48, 49].
297. *Ch. steveni* Boheman, 1843  
Distribution: EG [26, 28, 41, 64, 83, 85].
298. *Polydrusus (Eustolus) pterygomalis* Boheman, 1840  
Distribution: EG; WG; SG [23, 25, 26, 29, 31, 36, 41, 47, 48, 86, 97, 105, 118, 145].
299. *P. (E.) corruscus* Germar, 1824  
Distribution: EG: Tbilisi, Manglisi [29, 31, 41, 64].
300. *P. (Scythodrusus) inustus* Germar, 1824  
Distribution: EG; WG; SG [13, 15, 16, 23, 25, 26, 28, 31, 38, 41, 47, 48, 49, 52, 64, 85, 86, 97, 105, 115, 118, 129, 132, 134, 143, 144, 145, 150].

301. *P. (S.) pilifer* Hochhuth, 1847  
Distribution: EG [13, 15, 23, 28, 29, 32, 38, 41, 83, 85, 97].
302. *P. (Polydrusus) rufulus* Hochhuth, 1847  
Syn. *Polydrusus reitteri* Kirsch  
Distribution: EG; WG; SG [41, 118].
303. *P. (Eudipnus) mollis* (Stroem, 1768)  
Distribution: EG; WG; SG [27, 29, 31, 38, 41, 47, 48, 64, 70, 86, 97, 105, 121, 143, 145, 150].
304. *Eusomus ovulum* Germar, 1824  
Distribution: EG; SG [29, 31, 34, 41, 52, 118].
305. *Euidosomus pilosus* (Schoenherr, 1832)  
Syn. *Eusomus pilosus*  
Distribution: SG: Ninotsminda - Saghamo Lake vicinity [41].
306. *Sciaphilus asperatus* (Bonsdorff, 1785)  
Syn. *Sciaphylus muricatus* Fabricius  
Distribution: EG; WG; SG [23, 24, 25, 31, 41, 52, 81, 85, 105, 118].
307. *Parafoucartia squamulata* (Herbst, 1795)  
Syn. *Foucartia squamulata*  
Distribution: EG; SG: Tsalka, Trialeti village, Tbilisi, Vardzia, Akhalkalaki [31, 41, 118].
308. *Brachyderes incanus* (Linnaeus, 1758)  
Distribution: EG; WG; SG: Abastumani, Tsemi, Borjomi Reserve, Ritsa Lake vicinity, Avadhara, Gvandra River gorge [31, 38, 41, 145].
309. *Strophomorphus porcellus* (Schoenherr, 1832)  
Distribution: EG; WG; SG [29, 31, 34, 38, 41, 52, 64].
310. *S. ponticus* Pelletier, 1999  
Distribution: Georgia [104].
311. *Pholicodes (Pseudopholicodes) albidus* Boheman, 1840  
Syn. *Pholicodes lateralis* Faust, 1886  
Distribution: EG: Tbilisi, Kojori [41, 55].
312. *Ph. (Ph.) vittatus* Schilsky, 1912  
Distribution: EG [41, 55].
313. *Ph. (Ph.) pusillus* Stierlin, 1885  
Distribution: EG; SG [55].
314. *Ph. (Ph.) pancaucasicus* Davidian, 1992  
Syn. *Pholicodes trivialis* Boheman, 1834  
Distribution: EG; WG; SG [25, 38, 41, 55].
315. *Ph. (Ph.) armeniacus* Davidian, 1992  
Distribution: EG: Borjomi, Bakuriani, Dmanisi, Tskhratskaro Pass, Javakheti Range (Cholokava) [55].
316. *Ph. (Ph.) semicalvus* Reitter, 1880  
Distribution: EG; SG [29, 31, 38, 41, 55, 64].
317. *Ph. (Ph.) bogossicus* Davidian, 1992  
Distribution: EG: Diklo Mount (peak in Piriqiti Range, Akhmeta district), mountainous Tusheti - Alazani River gorge, Omalo, Ketrissi village in Kazbegi district (Cholokava) [55].
318. *Ph. (Ph.) inexpectatus* Davidian, 1992  
Distribution: WG: Mengrelia, Askhi massive [55].
319. *Ph. (Ph.) moestificus* Davidian, 1992  
Distribution: WG: Tusheti - Jvarboseli; Lagodekhi, Bakuriani, Tsalka (Cholokava, Abdurakhmanov) [55].
320. *Ph. (Ph.) plebejus* Schoenherr, 1826  
Syn. *Pholicodes trivialis* Boheman, 1824  
Distribution: EG; WG [29, 31, 32, 38, 41, 49, 51, 105, 118].
321. *Ph. (Ph.) pubimicans* Reitter, 1895  
Distribution: EG; WG; SG [31, 41, 55, 81].
322. *Ph. (Ph.) lepidopterus* Boheman, 1839  
Distribution: EG; WG: Cholokava [55].
323. *Ph. (Ph.) glaucinus* Faust, 1886  
Distribution: EG; SG: Samkviralo Mount, Aspindza [31, 41].

324. *Ph. (Ph.). rosti* Stierlin, 1893  
Syn. *Pholicodes brachideres*  
Distribution: EG; WG; SG: Abkhazia, Bakuriani, Lomi Mount, Zekari Pass to Akhaltsikhe [31, 41, 105].
325. *Pantomorus cervinus* Boheman, 1840  
Syn. *Pantomorus fulleri* Horn.  
Distribution: WG [36, 38, 41, 50, 52, 119, 135, 143].
326. *Sitona gemellatus* Gyllenhal, 1834  
Distribution: EG; WG [38, 41, 47, 77, 85].
327. *S. cambricus* Stephens, 1831  
Distribution: WG: Abkhazia - Gindze, Etseri (Gali district) [31, 38, 41].
328. *S. lineatus* (Linnaeus, 1758)  
Distribution: EG; WG [29, 34, 37, 38, 41, 47, 67, 105, 118, 145].
329. *S. suturalis* Stephens, 1831  
Distribution: EG; WG [23, 29, 31, 34, 37, 38, 41, 45, 47, 143, 145].
330. *S. lateralis* Gyllenhal, 1834  
Syn. *Sitona ononidis* Sarp.  
Distribution: EG; WG [29, 37, 38, 41, 45, 47].
331. *S. sulcifrons* (Thunberg, 1798)  
Distribution: EG; WG; SG [23, 31, 41, 45, 66, 77, 85, 118].
332. *S. puncticollis* Stephens, 1832  
Distribution: EG; WG; SG [19, 23, 29, 31, 34, 37, 38, 41, 45, 47, 52, 67, 77, 85, 106, 143].
333. *S. longulus* Gyllenhal, 1834  
Distribution: EG; WG; SG [28, 29, 31, 37, 38, 41, 45, 47, 67, 77, 85, 145].
334. *S. lepidus* Gyllenhal, 1834  
Distribution: EG; WG; SG [16, 23, 25, 29, 41, 43, 45, 67, 105, 118, 145].  
Syn. *Sitona flavescen* Marsham, 1802
335. *S. callosus* Gyllenhal, 1834  
Distribution: EG; WG; SG [29, 31, 37, 38, 41, 45, 52, 145].
336. *S. languidus* Gyllenhal, 1834  
Distribution: EG; WG; SG [25, 31, 37, 41, 45, 52].
337. *S. waterhausei* Walton, 1846  
Distribution: WG: Abkhazia, Zemo Yashtkhva, New Athos, Tsebelda [37, 41, 45, 52].
338. *S. macularius* Marsham, 1802  
Syn. *Sitona crinitus* (Herbst, 1795); *a. seriesetosus* Fahrs.  
Distribution: EG; WG; SG [16, 20, 23, 27, 28, 29, 31, 34, 37, 38, 41, 45, 47, 105, 118, 149].
339. *S. crinitoides* Reitter, 1903  
Distribution: EG; WG; SG [31, 41, 45].
340. *S. hispidulus* (Fabricius, 1776)  
Syn. *Sitona foedus* Gyllenhal, 1834 var. *tibillus* Gyll.  
Distribution: EG; WG; SG [16, 20, 23, 29, 31, 34, 37, 38, 41, 43, 45, 86, 118, 147].
341. *S. cylindricollis* Fahraeus, 1840  
Distribution: EG; WG; SG [37, 41, 45, 47].
342. *S. concavirostris* Hochhuth, 1851  
Distribution: EG; WG; SG [19, 29, 31, 34, 38, 41, 45].
343. *S. humeralis* Stephens, 1831  
Syn. *Sitona promtus* Schh.; Var. *discoideus* Gyll.; *Sitona discoideus* Gyll.  
Distribution: EG; WG; SG [16, 20, 23, 28, 29, 31, 37, 38, 41, 45, 105, 118, 145].
344. *Mesagroicus pilifer* Boheman, 1833  
Distribution: EG; WG; SG: Bethania, Vardzia, Gagra [29, 31, 41, 64].
345. *M. poriventrus* Reitter, 1903  
Distribution: EG: Borjomi [41].
346. *Psallidium maxillosum* (Fabricius, 1792)  
Distribution: EG; SG [29, 31, 41, 52, 67, 82, 105, 118, 130].
347. *Xylinophorus scobinatus* (Kolenati, 1856)  
Distribution: EG; SG [31, 41].

348. *Chlorophanus vittatus* Ménériés, 1832  
Syn. *Chlorophanus voluptificus* Gyll., *Ch. caudatus* Fars., *Ch. graminicola* Gyll., *Ch. viridis* L.  
Distribution: EG; WG; SG [13, 15, 23, 26, 28, 29, 31, 36, 38, 41, 47, 48, 49, 52, 70, 73, 93, 97, 85, 86, 116, 118, 132, 143, 145].
349. *Esamus mniszehi* Hochhuth, 1851  
Distribution: EG: Tbilisi, Lagodekhi [41, 48, 49].
350. *E. subpilosus* Reitter, 1903  
Syn. *Asemus subpilosus*  
Distribution: EG: Tbilisi Botanical Garden [29, 41, 64].
351. *Tanimecus dilaticollis* Gyllenhal, 1834  
Distribution: EG: Telavi, Gardabani [23, 41, 49, 51, 52, 71].
352. *T. pubirostris* Reitter, 1903  
Distribution: EG: Meskheti Range, Vashlovani Reserve, Panitshari Gorge [31, 41, 110].
353. *T. palliatus* (Fabricius, 1787)  
Distribution: EG: Kakheti [52, 142].
354. *Phacephorus argyrostomus* (Gyllenhal, 1840)  
Syn. *Talymecus argyrostomus*  
Distribution: EG: Tetrtskaro, Koda village, Tbilisi, Tbilisi vicinity, Avchala, Kartli [29, 51, 52, 64, 105, 118, 152].
355. *Graptus armeniacus* (Hochhuth, 1847)  
Syn. *Alophus agrestis* Boheman, 1842  
Distribution: EG; SG: Tabatskuri Lake vicinity, Akhalkalaki, Tserovani [41].
356. *G. circassicus* Solari, 1945  
Syn. *Alopus Kaufmanni* Stierlin, 1884  
Distribution: WG; SG: Abkhazia, Avadkhara; Gareji Pass to Akhaltsikhe [41].
357. *Haptomerus schneideri* (Kirsch, 1878)  
Distribution: EG; SG: Tbilisi, Dedoplistskaro, Tsalka-Avranlo village, Vardzia, Ninotsminda [29, 31, 41].

#### *Lixinae*

358. *Rhinocyllus oblongus* Capiomont, 1873  
Distribution: EG: Tbilisi, Manglisi [29, 31, 41, 46].
359. *Rh. conicus* (Froehlich, 1792)  
Var. *antiodontalgicus* Gerb., Var. *schoenherri* Cap.  
Distribution: EG; SG: [29, 31, 41, 46, 105, 118].
360. *Bangasternus orientalis* (Capiomont et Leprieur, 1873)  
Distribution: EG; WG; SG [28, 29, 31, 34, 41, 46, 64, 67, 83, 85, 105].
361. *Microlarinus rhinocylloides* (Hochhuth, 1847)  
Distribution: EG; SG: Meskheti Range, Tbilisi [29, 31, 41, 46, 109].
362. *Eustenopus villosus* (Boheman, 1843)  
Syn. *Larinus villosus* Schonh.  
Distribution: WG: Mengrelia [46, 104].
363. *Larinus sibiricus* Gyllenhal, 1836  
Distribution: EG; SG: Shiraki, Vardzia, Aspindza [31, 41, 46].
364. *L. onopordi* (Fabricius, 1787)  
Distribution: EG: Vashlovani Reserve, Dighomi, Tsalka [29, 31, 41, 46].
365. *L. inaequalicollis* Capiomont et Leprieur, 1874  
Distribution: EG [29, 31, 41, 46, 80].
366. *L. latus* Herbst, 1784  
Distribution: EG; SG [28, 29, 31, 34, 41, 46, 118].
367. *L. adpersus* Hochhuth, 1847  
Distribution: EG: Tbilisi, Karsani, Tskhratskaro Pass [29, 31, 41, 46, 126].
368. *L. jaceae* (Fabricius, 1775)  
Distribution: EG; WG; SG [25, 29, 31, 34, 38, 41, 46, 47, 64, 67, 105, 118].
369. *L. rectinasus* Petri, 1907  
Distribution: EG; WG: Lagodekhi Reserve, Tskneti, Mtskheta, Sakeni [41, 46, 81].

370. *L. sturnus* (Schaller, 1783)  
Syn. *Larinus conspersus* Boh.  
Distribution: EG; WG; SG [25, 29, 31, 38, 41, 46, 64, 66, 105, 118].
371. *L. planus* (Fabricius, 1792)  
Syn. *Larinus corlinae* Ol.  
Distribution: EG; WG; SG [29, 31, 34, 41, 46, 64, 118].
372. *L. immitis* Gyllenhal, 1836  
Syn. *Larinus immitis* Schoenherr  
Distribution: EG: Tbilisi, Lagodekhi [29, 41, 46, 104, 126].
373. *L. centaureae* (Olivier, 1807)  
Distribution: EG: Lagodekhi, Eldari along Iori River, Tbilisi, Ujarma [28, 41, 46].
374. *L. turbinatus* Gyllenhal, 1836  
Distribution: EG; WG [25, 28, 31, 34, 38, 41, 67, 105, 118].
375. *L. darsi* Capiomont et Leprieur, 1874  
Syn. *Larinus darsi* Redtenb.  
Distribution: EG; SG: Tbilisi environs, Lagodekhi, Gardabani, Vardzia [29, 31, 41, 46, 104].
376. *L. syriacus* Gyllenhal, 1836  
Distribution: EG: Tbilisi, Gori, Eldari, Signaghi, Kumisi [24, 41, 46, 52].
377. *L. flavescens* Germar, 1824  
Distribution: EG: Borjomi [31, 46, 105].
378. *L. nubeculosus* Gyllenhal, 1836  
Distribution: SG: Akhalkalaki [31, 41, 46].
379. *L. curtus* Hochhuth, 1851  
Distribution: EG [28, 29, 41, 46, 49, 51, 83, 85, 104].
380. *L. bardus* Gyllenhal, 1836  
Distribution: EG; SG: Shiraki, Kareli, Akhaltsikhe [28, 31, 41, 46].
381. *Larinus lederi* Faust, 1889  
Distribution: EG: Manglisi, Kojori [28, 31, 41, 46].
382. *L. vitellinus* Gyllenhal, 1836  
Distribution: EG: Manglisi, Okrokana [31, 41, 46].
383. *L. serratulae* Capiomont et Leprieur, 1874  
Distribution: EG: Vashlovani Reserve [41, 46, 47, 48, 83].
384. *L. ? australis* Capiomont, 1874  
Distribution: EG: Dmanisi district, Mtisgziri village [118].
385. *L. obtusus* Gyllenhal, 1836  
Distribution: EG: Mtskheta, Tbilisi [29, 46, 51, 52, 64].
386. *L. minutus* Gyllenhal, 1836  
Distribution: EG: Mtskheta, Tbilisi, Telavi, Akhmeta - Bakhtrioni vicinity, Alazani River left bank [29, 34, 41, 46, 64].
387. *Lixus iridis* Olivier, 1807  
Distribution: EG; WG; SG [31, 36, 37, 38, 46, 67, 77, 118, 145].
388. *L. myagri* Olivier, 1807  
Distribution: EG; SG: Borjomi, Tsaghveri, Khertvisi [31, 41, 46, 105].
389. *L. subtilis* Boheman, 1836  
Distribution: EG; WG; SG [23, 28, 29, 31, 34, 36, 41, 46, 67, 85, 130, 105, 145].
390. *L. incanescens* Boheman, 1836  
Distribution: EG; SG: Tbilisi vicinity - Soghanlughu, Krtsanisi; Rustavi, Shiraki - Kasristskali, Vaslovani Reserve, Khertvisi [28, 31, 41, 46].
391. *L. sinuatus* Motschulsky, 1849  
Distribution: EG: Tsalka, Shiraki, Kareli
392. *L. baculiformis* Petri, 1904  
Distribution: WG: Abkhazia – Machara [41, 46].
393. *L. sanguineus* (Rossi, 1792)  
Distribution: EG: Shida Kartli – Agarebi [41, 46, 51, 52].
394. *L. elegantulus* Boheman, 1843  
Distribution: EG [29, 31, 41, 46, 83, 85].

395. *L. junci* Boheman, 1836  
Distribution: EG: Tbilisi, Mtatsminda [29, 41, 46, 118].
396. *L. albomarginatus* Boheman, 1843  
Syn. *Lixys ascanii* Linnaeus, 1767  
Distribution: EG; SG [23, 29, 31, 41, 46, 105].
397. *L. ochraceus* Boheman, 1843  
Distribution: EG: Kakheti [41].
398. *L. obesus* Petri, 1904  
Distribution: EG; SG: Kojori, Manglisi, Vargzia, Ninotsminda [29, 31, 41, 46].
399. *L. furcatus* (Olivier, 1807)  
ab inops Boheman  
Distribution: EG: Borjomi [31, 41, 46].
400. *L. cylindrus* (Fabricius, 1781)  
Syn. *Larinus cylindricus* Linnaeus, 1781  
Distribution: EG: Manglisi, Tusheti - Omalo, Shiraki, Dedoplistskaro [28, 31, 41, 46].
401. *L. eversmanni* Hochhuth, 1847  
Distribution: EG: Borjomi [41, 46].
402. *L. astrachanicus* Faust, 1883  
Distribution: EG: Shiraki - Zilga on Iori River bank, Dedoplistskaro [28, 41, 46, 49, 83, 85].
403. *L. circumcinctus* Boheman, 1836  
Distribution: EG: Tbilisi, Dedoplistskaro, Gamagjveba village, Samgori - Orkhevi, Lisi Lake vicinity [29, 41, 48, 49, 64, 80, 85, 105].
404. *L. rubicundus flavescens* Boheman, 1836  
Syn. *Lixus flavescens*  
Distribution: EG [29, 34, 41, 46, 49, 81, 83, 85, 105].
405. *L. angustatus* (Fabricius, 1775)  
Syn. *Lixus algeris* auct., nec Linnaeus, 1758  
Distribution: EG; SG [28, 29, 41, 46, 118].
406. *L. speciosus* Miller, 1861  
Distribution: EG: Mtkheta [29, 41, 46, 48, 118].
407. *L. linearis* Olivier, 1807  
as - *Lixus ferrugatus* Olivier, 1808  
Distribution: EG: Tsalka [41, 46, 118].
408. *L. vilis* (Rossi, 1790)  
Distribution: EG: Tbilisi, Bakuriani, Mejvriskhevi [29, 31, 41, 46].
409. *L. punctiventris* Boheman, 1836  
Distribution: EG [28, 29, 34, 36, 41, 46].
410. *L. bardanae* (Fabricius, 1787)  
Distribution: EG: Tbilisi, Tetrizkaro [31, 41, 46].
411. *L. elongatus* (Goeze, 1777)  
Distribution: EG; SG: Mtskheta, Dedoplistskaro, Teleti, Gardabani, Bolnisi, Aspindza - Rustavi village, Atskuri [29, 31, 41, 46, 67].
412. *L. cardui* (Olivier, 1807)  
Distribution: EG; SG [25, 29, 31, 41, 46, 64, 83, 105, 118].
413. *L. scolopax* Boheman, 1836  
Distribution: EG: Shiraki [28, 41, 46, 50, 51].
414. *Chromonotus vittatus* (Zubkov, 1829)  
Syn. *Cleonus 4-vittatus* Roubk.  
Distribution: SG: Atskuri [31, 41, 46, 118].
415. *Ch. confluens* (Fahraeus, 1842)  
Distribution: EG: Mirzaani [41, 46, 50, 51].
416. *Conorhynchus nigrivittis* (Pallas, 1781)  
Distribution: EG: Tbilisi, Gardabani, Kachreti [29, 41, 46, 50, 51].
417. *Temnorhinus hololeucus* (Pallas, 1781)  
Distribution: EG: Shiraki - Lekistskali gorge, Dedoplistskaro - Zemo Kedi [28, 41, 46, 50, 51, 83].

- 418. *Coniocleonus nigrosuturatus*** (Goeze, 1777)  
Syn. *Cleonus abliquus* Eabr., *Cleonus nigrosuturatus*  
Distribution: EG; SG [29, 31, 41, 46, 64, 105, 118].
- 419. *C. crinipes*** (Fahraeus, 1842)  
Distribution: EG: Tbilisi, Lagodekhi, Khashuri [28, 41, 46, 49, 51].
- 420. *Stephanophorus strabus*** (Gyllenhal, 1834)  
Distribution: EG [29, 41, 46, 49].
- 421. *Bothynoderes punctiventris*** (Germar, 1799)  
Distribution: EG: Shida Kartli, Tsnori, Dedoplistskaro, Tbilisi vicinity - Lisi Lake [23, 41, 46, 49, 52, 130].
- 422. *Leucomigus candidatus*** (Pallas, 1781)  
Syn. *Cleonus candidatus*  
Distribution: EG: Tbilisi, Vaslovani Reserve, Lekistskali gorge [28, 29, 41, 46, 83, 85, 105].
- 423. *Chromoderus affinis*** Schrank, 1781  
Syn. *Cleonus fasciatus* Muller, 1776  
Distribution: EG: Borjomi, Skra [31, 41, 46, 105].
- 424. *Leucosomus pedestris*** (Poda, 1761)  
Syn. *Cleonus quadripunctatus* Schrank (= *ophthalmicus* Rossi)  
Distribution: EG: Kojori [31, 41, 46, 105].
- 425. *Liocleonus clathratus*** (Olivier, 1807)  
Syn. *Cleonus clathratus*  
Distribution: EG: WG: Askhi Massive, Eldari along Iori River, Sighnaghi, Lagodekhi, Shiraki - Lekistskali gorge to Kaltani [26, 28, 41, 46, 48, 49, 118].
- 426. *Mecaspis octosignatus*** Gyllenhal, 1834  
Distribution: EG: Shida Kartli [5, 11, 29, 46, 50, 51, 116, 130].
- 427. *M. alternans*** (Herbst, 1795)  
Syn. *Cleonus alternans* Olivier  
Distribution: EG: Borjomi, Telavi – Shuamta [31, 41, 46, 52, 118].
- 428. *Pseudocleonus grammicus*** (Panzer, 1789)  
Distribution: EG: Mtskheta [29, 41, 46, 50, 51].
- 429. *P. marginicollis*** Gyllenhal, 1842  
Distribution: EG; WG: Mtskheta, Napareuli, Dedoplistskaro - Gamarjveba village, Skra, Lebarde [29, 41, 46, 85].
- 430. *Rhabdorrhynchus menetriesi*** (Gyllenhal, 1834)  
Syn. *Cleonus atomarius* Fahraeus  
Distribution: EG: Akhalkalaki [118].
- 431. *Rh. grumi*** Faust, 1896  
Distribution: Tusheti – Omalo [25, 41, 46].
- 432. *Xanthochelus nomas*** (Pallas, 1781)  
Distribution: EG: Shirak-Eldari semi-desert [41, 46, 49, 51].
- 433. *Cyphocleonus cenchrus*** (Pallas, 1781)  
Distribution: EG; WG: Tusheti - Omalo, Tbilisi vicinity - Tabakhmela, Gldani; Racha – Ghebi [29, 41, 46].
- 434. *C. dealbatus*** (Gmelin, 1790)  
Syn. *Cyphocleonus tigrinus* (Panzer, 1789)  
Distribution: EG; WG; Sg [29, 31, 34, 37, 38, 41, 46, 130].
- 435. *C. achates*** (Fahraeus, 1842)  
Syn. *Cleonus achates*  
Distribution: EG: Borjomi, Khvareli, Akhmeta - Pshaveli village [31, 41, 46, 105].
- 436. *Cleonis pigra*** (Scopoli, 1763)  
Syn. *Cleonus sulcirostris* Linnaeus ab. *scutellatus* Boheman; *Cleonus piger*  
Distribution: EG; WG; Sg [29, 31, 34, 37, 38, 41, 46, 105, 118, 130].

#### Cossoninae

- 437. *Cotaster uncipes*** (Boheman, 1838)  
Distribution: EG: Meskheti Range, Surami [31, 105, 118].



438. *Cossonus parallelepipedus* (Herbst, 1795)  
Distribution: WG: Abkhazia - Gvandra River gorge, Sakeni, Shubara [38, 41, 50, 145].
439. *C. linearis* (Fabricius, 1775)  
Distribution: EG; WG: Borjomi, Surami, Martvili - Balda village, Abkhazia – Avadkhara [31, 38, 41, 105, 118].
440. *C. cylindricus* Sahlberg, 1834  
Distribution: EG: Tbilisi Botanical Garden [29, 47, 51, 64].
441. *Pselactus* spadix (Herbst, 1795)  
Distribution: EG: Tbilisi [41, 105].
442. *Rhyncolus elongatus* (Gyllenhal, 1827)  
Syn. *Eremotes elongatus*  
Distribution: EG; WG: Borjomi gorge, Tbilisi, Ujarma; Abkhazia - Klichy River gorge, Kuchba [29, 41, 47, 48, 123].
443. *Rh. ater* (Linnaeus, 1758)  
Distribution: EG; WG: Kojori, Tbilisi, Saguramo, Ritsa Lake vicinity [29, 38, 41, 118].
444. *Rh. patagiatus* Reitter, 1898  
Syn. *Eremotes patagiatus*  
Distribution: EG: Tskhvarichamia [41, 50].
445. *Phloeophagus lignarius* (Marsham, 1802)  
Syn. *Rhyncolus lignarius*  
Distribution: WG: Abkhazia – Kuchba [41, 50].
446. *Ph. cylindrus* Boheman, 1838  
Syn. *Rhyncolus cylindrus*  
Distribution: EG: Tusheti - Omalo, Tbilisi, Mtatsminda [41].
447. *Hexarthrum exiguum* (Boheman, 1838)  
Syn. *Rhyncolus* (*Eromotes*) *culinarius* Germar, 1824  
Distribution: WG: Poti [41, 50].
448. *Stenoscelis submuricatus* (Schoenherr, 1837)  
Syn. *Eromotes submuricatus*  
Distribution: EG: Tbilisi [29, 41, 48, 49].

#### *Bagoinae*

449. *Bagous minutus* Hochhuth, 1847  
Distribution: EG: Lagodekhi, Minor Dmanisi [41, 49, 50].
450. *B. mingrelicus* Tournier, 1874  
Distribution: WG: Mengrelia [41, 49].
451. *B. argillaceus* Gyllenhal, 1836  
Distribution: EG: Gardabani, Tbilisi [29, 41, 50, 64].
452. *B. lutulentus* (Gyllenhal, 1813)  
Syn. *Bagous nigratarsis* Thomson  
Distribution: EG: Borjomi, Telavi [31, 41, 118].
453. *B. robustus* Brisout, 1863  
Distribution: EG; WG: Borjomi, Poti [41, 31, 118].
454. *B. glabrirostris* (Herbst, 1795)  
Distribution: EG: Manglisi [31, 41].
455. *B. brevipennis* Kirsch, 1878  
Distribution: EG: Mtskheta, Borjomi [41, 118].

#### *Erirrhinae*

456. *Arthrostenus ignoratus* Faust, 1884  
Distribution: EG: Gardabani flood land forest [39, 49, 50, 64].
457. *Notaris bimaculatus* (Fabricius, 1787)  
Syn. *Erirrhinus bimaculatus*  
Distribution: EG; WG: Tsalka, Paliastomi Lake vicinity, Khobi [36, 39, 41, 77, 85, 118].

458. *N. acridulus* (Linnaeus, 1758)  
Distribution: WG: Kolkhida [34, 39, 41, 77, 85].
459. *N. scirpi* (Fabricius, 1793)  
Distribution: WG; SG: Adigeni, Lanchkhuti [39, 41, 50].
460. *Thryogenes festucae* (Herbst, 1795)  
Distribution: EG: Tbilisi vicinity - Varketili [39, 41, 49, 50].
461. *Icaris sparganii* (Gyllenhal, 1836)  
Distribution: EG: Tbilisi vicinity - Varketili [29, 41, 49, 50].

### *Curculioninae*

462. *Dorytomus taeniatus* (Fabricius, 1781)  
Syn. *Dorytomus costirostris* (Gyllenhal)  
Distribution: WG; SG [31, 39, 41, 48, 118].
463. *D. dejeani* Faust, 1882  
Distribution: EG: Shida Kartli – Skra [48, 49, 115].
464. *D. edoughensis* Desbrochers, 1875  
Syn. *Dorytomus affinis* Paykull, 1800  
Distribution: EG; SG [25, 26, 29, 31, 38, 39, 41, 47, 48, 86, 115, 145].
465. *D. ictor* (Herbst, 1795)  
Syn. *Dorytomus validirostris* Gyllenhal  
Distribution: EG: Tbilisi, Mtskheta, Ortachala, Rustavi, Ksani [29, 39, 41, 48, 49, 64].
466. *D. minutus* (Gyllenhal, 1836)  
Distribution: EG: Tbilisi vicinity - Tsavkisi, Mtskheta, Sagarejo - Sartichala village, Aragvi gorge - Natakhtari village [39, 41, 48, 49, 64, 90].
467. *D. nebulosus* (Gyllenhal, 1836)  
Distribution: EG: Telavi, Tbilisi vicinity – Tsavkisi [39, 41, 48, 49].
468. *D. schoenherri* Faust, 1882  
Distribution: EG; WG: Mtskheta, Sagarejo - Sartichala village, Shida Kartli, Rustavi, Gardabani; Abkhazia – Gagra [26, 29, 36, 38, 39, 41, 47, 48, 64, 105, 145].
469. *D. longimanus* (Forster, 1771)  
Syn. *Dorytomus vorax* Fabricius  
Distribution: EG; WG; SG [26, 27, 29, 31, 38, 39, 41, 47, 48, 64, 86, 93, 115, 118, 143, 145].
470. *D. tremulae* (Paykull, 1800)  
Distribution: EG: Mtskheta, Rustavi flood land forest along Kura River bank, Gardabani, Aragvi River gorge - Tselisopeli village, Shida Kartli [29, 39, 41, 48, 49, 64, 67].
471. *D. hirtipennis* Bedel, 1884  
Distribution: SG: Aspindza - Kura River gorge; Khertvisi - Kura River gorge [39, 41, 49, 52].
472. *D. melanophthalmus* (Paykull, 1792)  
Syn. *Dorytomus agnathus* Boheman var. *clitellaris* Boheman  
Distribution: EG; WG; Sg [26, 28, 29, 31, 36, 38, 39, 41, 47, 48, 52, 64, 67, 118, 145].
473. *Ellescus scanicus* (Paykull, 1792)  
a. *pallidesignatus* Gyllenhal  
Distribution: EG: Tbilisi, Rustavi, Flood land forest [29, 39, 41, 48, 49, 64].
474. *E. bipunctatus* (Linnaeus, 1758)  
Distribution: Dmanisi - Mtisdziri village, Gombori Range [39, 41, 50, 118].
475. *Ochodontus rubrirostris* Desbrochers, 1897  
Distribution: EG: Tbilisi [49, 68] .
476. *Acentrus histrio* Boheman, 1845  
Distribution: EG; SG: Tbilisi, Tsalka, Dedoplistlaro - Gamarjveba village, Aspingza [29, 31, 39, 41, 105, 118].
477. *Styphlus caelebes* Davidian et V. Savitsky, 2000  
Distribution: WG: Abkhazia, Bzyb Range, Khipsta River head, Carstic funnel [59].
478. *S. manueli* Davidian et V. Savitsky, 2000  
Distribution: EG: Samegrelo - Askhi Plateau [59].
479. *Sharpia deserticola* Faust, 1891  
Distribution: EG: Tbilisi [39, 41, 49, 51].

480. *Smicronyx basalis* Schultze, 1897  
Distribution: EG: Vashlovani Reserve [39, 41, 49].
481. *S. reichi* (Gyllenhal, 1836)  
Distribution: EG: Lagodekhi, Tbilisi, Kartli [29, 39, 41, 49, 63].
482. *S. scops* Tournier, 1874  
Distribution: EG: Dmanisi - Mtisdziri village [50, 118].
483. *S. syriacus* Faust, 1887  
Syn. *Smicronyx ? brevicornis* Solari  
Distribution: EG; SG [39, 41, 63].
484. *S. nebulosus* Tournier, 1874  
Distribution: EG; SG: Tusheti - Omalo, Signaghi; Aspindza [39, 41, 52].
485. *S. jungermanniae* (Reich, 1797)  
Syn. *Smicronyx puncticollis* Tournier, cicur Gyllenhal)  
Distribution: EG; WG; SG [27, 28, 29, 31, 34, 39, 41, , 63,118] .
486. *S. smreczynskii* Solari, 1952  
Distribution: EG; WG: Tsnori, Gurjaani, Tusheti - Omalo, Pshaveli; Abkhazia -Kvitouli, Labra [39, 41]
487. *S. coecus* (Reich, 1797)  
Syn. *Smicronyx politus* Boheman  
Distribution: EG; SG: Borjomi, Akhmeta, Abastumani [31, 39, 41, 52, 118].
488. *Lygniodes enucleator* (Panzer, 1798)  
Distribution: EG [26, 27, 28, 29, 40, 41, 49, 52, 67, 86, 97, 105, 118].
489. *L. muerlei* Ferrari, 1866  
Distribution: EG: Tbilisi vicinity, Tbilisi – Mtatsminda [29, 40, 41, 50, 52, 86, 97].
490. *Tychius quinquepunctatus* (Linnaeus, 1758)  
Syn. *Aoromius quinquepunctatus*  
Distribution: EG; WG; SG [19, 21, 23, 24, 29, 31, 34, 40, 41, 67, 82, 145].
491. *T. astragali* Becker, 1862  
Distribution: EG: Tbilisi - Mtatsminda, Vashlovani Reserve [29, 40, 41, 49, 51].
492. *T. hauseri* Faust, 1889  
Distribution: Georgia [139].
493. *T. polylineatus* Germar, 1824  
Distribution: EG; WG [29, 31, 38, 40, 41, 52].
494. *T. ruscicus* Desbrochers, 1908  
Syn. *Tychius lateralis* Penecke  
Distribution: SG: Vardzia, Atskuri [40, 41].
495. *T. lineatulus* Stephens, 1831  
Distribution: EG: Tusheti - Omalo, Gombori Range -Tetrtsklebi village [40, 41, 47, 52].
496. *T. schneideri* Herbst, 1795  
Distribution: EG: Tbilisi [29, 40, 41, 118].
497. *T. grenieri* Brisout, 1861  
Distribution: EG; SG: Rustavi, Tbilisi, Samgori, Vashlovani Reserve, Kartli, Vardzia [40, 41, 67].
498. *T. lautus* Gyllenhal, 1836  
Distribution: EG; SG: Manglisi, Telavi, Atskuri [31, 40, 41, 118].
499. *T. argentatus* Chevrolat, 1859  
Distribution: EG: Shirak-Eldari, Tbilisi vicinity, Sagarejo [23, 25, 34, 40, 41].
500. *T. trivialis* Boheman, 1843  
Distribution: EG; SG: Akhmeta, Gombori, Aspindza, Vardzia, Khertvisi [41].
501. *T. squamulatus* Gyllenhal, 1836  
Syn. *Tychius flavicollis* Stephens, 1831  
Distribution: EG; WG [16, 28, 29, 31, 38, 40, 41, 106, 118, 145].
502. *T. rufirostris* Gyllenhal, 1836  
Distribution: EG: Vashlovani Reserve - Lekistskali gorge, Ateni gorge [40, 41, 49, 51, 67].
503. *T. beckeri* Tournier, 1873  
Distribution: EG; SG: Tbilisi vicinity - Teleti Mount, Uplistsikhe, Kvakhvrel, Nadarbazevi Lake vicinity, Gori - Natsreti village [31, 40, 41, 67].

- 504.** *T. crassirostris* Kirsch, 1871  
Distribution: EG; WG: Kojori, Tsnori, Bolnisi; Abkhazia - Zemo Yashtkhva, Achadara; Tsageri [40, 41, 118].
- 505.** *T. aureolus* Kiesenwetter, 1851  
Distribution: EG; WG; SG [29, 31, 34, 40, 41, 67].
- 506.** *T. medicaginis* Brisout, 1863  
Distribution: EG; WG; SG [29, 40, 41, 47, 67, 118].
- 507.** *T. brevisculus* Desbrochers, 1873  
Syn. *Tychius micaceus* Rey, 1895 (= *hamatopus* Gyllenhal)  
Distribution: EG; WG; SG [34, 40, 41, 67].
- 508.** *T. flavus* Becker, 1864  
Syn. *Tychius curtus* Brisout  
Distribution: EG; WG; SG [29, 40, 41, 67, 105, 118].
- 509.** *T. junceus* Reich, 1797  
Syn. *Tychius curtus* Brisout  
Distribution: EG; WG; SG [29, 31, 40, 41, 52, 67, 105, 118].
- 510.** *T. meliloti* Stephens, 1831  
Distribution: EG; WG; SG [29, 31, 36, 38, 40, 41, 67, 77, 105, 118, 145].
- 511.** *T. pusillus* Germar, 1842  
Syn. *Tychius pigmaeus* Brisout, 1862  
Distribution: EG: Mtskheta [29, 40, 52].
- 512.** *T. stephensi* Schoenherr, 1836  
Syn. *Tychius tomentosus* (Herbst, 1836)  
Distribution: EG; WG; SG [16, 19, 23, 31, 38, 40, 41, 47, 67, 118].
- 513.** *T. reitteri* Faust, 1889  
Syn. *Lepidotychius reitteri*  
Distribution: EG: Vardzia, Khertvisi [40, 41].
- 514.** *T. picirostris* (Fabricius, 1787)  
Syn. *Miccotrogus picirostris*  
Distribution: EG; WG; SG [34, 38, 40, 41, 67, 118, 145].
- 515.** *T. festivus* Faust, 1884  
Syn. *Miccotrogus lederi* Faust  
Distribution: EG; WG: Tbilisi, Gurjaani, Telavi; Racha-Utsera [40, 41, 124].
- 516.** *T. cuprifer* (Panzer, 1799)  
Syn. *Miccotrogus cuprifer*  
Distribution: EG; WG; SG [29, 31, 34, 38, 40, 41, 67, 118, 145].
- 517.** *Lepidotychius morawitzi* (Becker, 1864)  
Distribution: EG: Shiraki – Kaltani [28, 40, 41, 49, 51].
- 518.** *L. winkleri* Franz, 1940  
Distribution: EG: Tbilisi, Lekistskali gorge [40, 41, 49, 51].
- 519.** *Sibinia bipunctata* Kirsch, 1870  
Distribution: EG: Tbilisi, Tbilisi vicinity - Gldani, Zekari Pass [29, 31, 40, 41, 118].
- 520.** *S. subirrorata* Faust, 1885  
Distribution: EG: Shiraki - Kaltani, Lekistskali gorge [26, 27, 28, 40, 41, 49, 51].
- 521.** *S. unicolor* Fahraeus, 1843  
Distribution: EG; SG: Tbilisi, Signaghi, Atskuri [31, 40, 41, 118].
- 522.** *S. subelliptica* Desbrochers, 1873  
Distribution: EG; SG: Tusheti - Omalo, Dedoplistskaro - Gamarjveba village, Signagi - Chalaubani village, Kvareli - Duruji River gorge, Akhaltsikhe, Khertvisi [22, 40, 41].
- 523.** *S. primita* (Herbst, 1795)  
Distribution: EG; SG: Borjomi, Tbilisi, Mtskheta - Khekordzi village, Ateni gorge, Upistsikhe, Kvakhvrel, Akhaltsikhe [31, 40, 41, 118].
- 524.** *S. phalerata* Gyllenhal, 1836  
Distribution: EG; SG [29, 31, 40, 41].
- 525.** *S. femoralis* Germar, 1824  
Distribution: Georgia [139].

526. *S. sp. pr. attalica* Gyllenhal, 1836  
as - *Sibinia attelica*  
Distribution: EG: Borjomi, Shiraki [40, 41, 105, 118].
527. *S. pellucens* (Scopoli, 1772)  
Distribution: EG; SG [29, 31, 40, 41, 67, 118].
528. *S. viscaria* (Linnaeus, 1761)  
Distribution: EG; SG [31, 40, 41, 67, 118].
529. *Anthonomus rubripes* Gyllenhal, 1836  
Distribution: EG: Manglisi, Tbilisi - Mtatsminda, Teleti Mount [29, 31, 41, 118].
530. *A. phyllocola* (Herbst, 1795)  
Syn. *Anthonomus varians* (Paykull, 1792)  
Distribution: EG; WG; SG [25, 26, 31, 41, 51, 63, 64, 67, 70, 85, 97].
531. *A. rubi* (Herbst, 1795)  
Distribution: EG; WG; SG [23, 25, 26, 27, 29, 31, 34, 38, 41, 67, 77, 85, 118, 143].
532. *A. pyri* Kollar, 1837  
Syn. *Anthonomus cinctus* Redtenbacher  
Distribution: EG; WG [13, 26, 29, 31, 36, 38, 41, 48, 67, 86, 97, 105, 132, 145].
533. *A. pomorum* (Linnaeus, 1758)  
Distribution: EG; WG; SG [3, 13, 15, 26, 27, 29, 31, 36, 38, 41, 47, 51, 86, 97, 115, 120, 121, 134, 136, 143, 145].
534. *A. foliicola* Ter-Minassian, 1954  
Distribution: EG; SG: Bakuriani, TeTritskaro - Gokhnari village, Adigeni [41, 49].
535. *A. pedicularius* (Linnaeus, 1758)  
Distribution: EG; WG [25, 26, 29, 36, 38, 41, 47, 49, 64, 67, 83, 105, 118, 145, 147].
536. *A. koenigi* Pic, 1912  
Syn. *Anthonomus celtidis* T. M.  
Distribution: EG: Tbilisi, Borjomi, Vashlovani Reserve, Mamachaiskhevi [29, 41, 49, 95, 97, 137].
537. *A. rufus* Gyllenhal, 1836  
Distribution: SG: Khertvisi, Vardzia [41, 49].
538. *Bradybatus kellneri* Bach, 1854  
Distribution: EG: Tbilisi, Lagodekhi, Manglisi [29, 41, 52, 97].
539. *B. grandis* Ter-Minassian, 1946  
Distribution: EG: Kartli [31, 50, 52, 97, 124].
540. *B. grandoides* Dieckmann, 1968  
Distribution: EG: Manglisi [41, 50, 52].
541. *Brachonyx pineti* (Paykull, 1792)  
Distribution: EG; SG: Shida Kartli, Borjomi, Abastumani [31, 41, 50, 97, 124].
542. *Curculio elephas* Gyllenhal, 1836  
Distribution: EG; WG [36, 38, 41, 47, 52, 97, 121, 122, 145].
543. *C. pellitus* Boheman, 1843  
Syn. *Balaninus pellitus*  
Distribution: EG; WG [26, 27, 29, 31, 36, 38, 41, 47, 48, 49, 86, 97, 118, 121, 145].
544. *C. venosus* (Gravenhorst, 1807)  
Distribution: EG; WG [26, 27, 31, 36, 38, 41, 47, 49, 67, 85, 93, 97, 121, 143, 145].
545. *C. villosus* (Fabricius, 1781)  
Distribution: EG: Tbilisi, Tbilisi vicinity – Mukhatgverdi [29, 41, 97].
546. *C. nucum* (Linnaeus, 1758)  
Syn. *Balaninus nucum*  
Distribution: EG; WG; SG [12, 13, 24, 26, 27, 29, 31, 36, 38, 41, 47, 48, 64, 67, 69, 70, 85, 86, 97, 121, 131, 134, 143, 145].
547. *C. glandium* (Marsham, 1802)  
Syn. *Balaninus tessellatus* Fourcr., *Balaninus turbatus*, Gyll., *Balaninus glandium*  
Distribution: EG; WG; SG [12, 13, 26, 27, 28, 29, 31, 36, 38, 41, 47, 48, 49, 64, 67, 85, 86, 93, 97, 105, 118, 121, 131, 143, 145].
548. *C. salicivorus* (Paykull, 1792)  
Syn. *Balanobius salicivorus*  
Distribution: EG; WG; SG [27, 29, 31, 38, 41, 48, 49, 64, 67, 86].

549. *C. pyrrhoceras* (Marsham, 1802)  
Syn. *Balaninus pyrrhoceras*  
Distribution: EG; WG; SG [29, 31, 41, 64, 105, 118].
550. *Mecinus collaris* Germar, 1821  
Distribution: EG: Tbilisi - Krtsanisi; Kartli - Uplistsikhe, Kvakhvrelis [29, 41, 64, 67].
551. *M. pyraeter* (Herbst, 1795)  
Distribution: EG; WG; SG [25, 29, 31, 37, 38, 41, 67, 118, 145].
552. *Gymnetron labile* (Herbst, 1795)  
Distribution: EG; WG; SG [29, 31, 34, 37, 38, 41, 52, 67, 118].
553. *G. pascuorum* (Gyllenhal, 1813)  
Distribution: EG; WG; SG [29, 31, 34, 36, 37, 38, 41, 52, 67, 118].
554. *G. caucasicum* Reitter, 1907  
Distribution: EG; WG: Lagodekhi, Kvareli, Tkibuli [41, 111].
555. *G. rostellum* (Herbst, 1795)  
Distribution: EG; SG: Tusheti - Omalo; Akhaltsikhe - Sapara, Khertvisi, Aspindza - Ota village [41, 31].
556. *G. villosum* Gyllenhal 1838  
Distribution: EG; WG; SG: Dmanisi - Mtsdziri village, Adigeni, Pitsunda [41, 52, 118].
557. *G. melinum* Reitter, 1872  
Distribution: WG: Abkhazia, Kvemo Eshera, Black Sea coast [41, 37, 50].
558. *G. veronicae* Germar, 1821  
Syn. *Gymnetron beccabungae* Linnaeus  
Distribution: EG; WG: Borjomi, Mashavera River gorge, Dmanisi, Kolkheti Lowland [36, 41, 52, 85, 77, 118].
559. *G. furcatum* Desbrochers, 1893  
Distribution: Georgian [139].
560. *G. bipustulatum* (Rossi, 1794)  
Syn. *Gymnetron fuliginosum* Gyllenhal; *Gymnetron spilotum* Germar  
Distribution: EG; SG [29, 31, 41, 67, 105, 118].
561. *Rhinusa asella* Gravenhorst, 1807  
Syn. *Gymnetron asellus* Gravenhorst  
Distribution: EG; WG; SG [29, 31, 37, 38, 41, 105, 118].
562. *Rh. tetra* (Fabricius, 1792)  
Syn. *Gymnetron tetrum* Fab., var. *plagiellus* Gyll.  
Distribution: EG; WG; SG [25, 31, 34, 37, 38, 41, 64, 67, 82, 85, 105, 145].
563. *Rh. hispida* (Brullé, 1832)  
Syn. *Gymnaetron pilosum* Gyllenhal  
Distribution: EG: Borjomi [31, 50, 105].
564. *Rh. netum* (Germar, 1821)  
Syn. *Gymnetron netum*  
Distribution: EG; WG: Tbilisi, Borjomi; Abkhazia – Gentsvishi [29, 41, 64, 105, 118].
565. *Miarus longirostris* (Gyllenhal, 1838)  
Distribution: EG; WG; SG [25, 29, 31, 37, 38, 41, 67, 118].
566. *M. graminis* (Gyllenhal, 1813)  
Distribution: EG; WG; SG [29, 31, 37, 38, 41, 67, 118].
567. *M. micros* (Germar, 1831)  
Distribution: EG: Borjomi, Tsilkani [31, 41, 118].
568. *M. dentiventris* Reitter, 1907  
Distribution: EG; WG [29, 37, 38, 41, 67].
569. *M. ajugae* (Herbst, 1795)  
Syn. *Miarus campanulae* Linnaeus  
Distribution: EG; WG [34, 29, 31, 37, 38, 41, 81, 85, 105, 118].
570. *Cionus goricus* Schultze, 1896  
Distribution: EG: Schultze (1896:292) described on 1 individuals collected by Kernige in Gori district; Tana River gorge, Borjomi [105, 108].
571. *C. caucasicus* Reitter, 1888  
Distribution: EG; WG; SG [31, 38, 41, 108].

- 572.** *C. tuberculatus* (Scopoli, 1763)  
Distribution: WG: Abkhazia - Gentsvishi, Avadkhara; Bakhmaro - Muchuta, Anaklia [41, 52].
- 573.** *C. scrophulariae* (Linnaeus, 1758)  
a. *ferrugatus* Reitter  
Distribution: EG [25, 29, 31, 34, 36, 41, 52, 64, 81, 118].
- 574.** *C. hortulanus* (Geoffroy, 1785)  
Syn. *Cionus hortulanus* Marsham  
Distribution: EG; WG; SG [25, 29, 31, 37, 38, 41, 67, 85, 118].
- 575.** *C. olivieri* Rosenschoeld, 1838  
Distribution: WG; SG: Abkhazia - Nahara Pass, Namkhvari Mount, Sakeni; Khertvisi, Vardzia [31, 38, 41].
- 576.** *C. thapsus* (Fabricius, 1792)  
Syn. *Cionus similis* Müll., *Cionus thapsus* Fabr.  
Distribution: EG; SG [25, 31, 37, 38, 41, 118].
- 577.** *C. olens* (Fabricius, 1792)  
Distribution: EG: Kojori [118].
- 578.** *Cleopus solani* (Fabricius, 1792)  
Distribution: EG; SG: Lagodekhi - Kochalo Miunt, Vardzia [41, 52].
- 579.** *Rhynchaenus quercus* (Linnaeus, 1758)  
Syn. *Orchestes quercus*  
Distribution: EG; WG; SG [27, 28, 29, 31, 36, 38, 41, 43, 45, 47, 77, 85, 93, 97, 121].
- 580.** *Rh. rufus* (Schrank, 1781)  
Distribution: WG: Abkhazia - New Athos, Gagra - Zhoe-Kvara River gorge; Senaki [38, 41, 42, 47, 52].
- 581.** *Rh. alni* (Linnaeus, 1758)  
Distribution: EG; WG: Abkhazia - Gentsvishi, Ochamchire, Gali, Khojali; Kvemor Khorga [41, 42, 97, 145].
- 582.** *Rh. saltator* (Geoffroy, 1785)  
Distribution: EG: Shida Kartli [48, 44, 97].
- 583.** *Rh. quedenfeldti* Gerhardt, 1865  
Distribution: EG; WG: Lagodekhi Reserve, Gardabani, Rustavi, Khorga village, New Athos [26, 29, 38, 41, 42, 97, 81, 145, 149].
- 584.** *Rh. pilosus* (Fabricius, 1781)  
Distribution: WG: Abkhazia - Nahara Pass, Tsalenjikha, Ajameti [36, 38, 41, 42, 85, 93, 97, 145].
- 585.** *Rh. avellanae* (Donovan, 1797)  
Distribution: SG: Telavi - Shuamta, Gombori Range (North slopes), Zemo Bodbe village, Sagarejo – Satave [26, 27, 41, 42, 47].
- 586.** *Rh. fagi* (Linnaeus, 1758)  
Syn. *Orchestes fagi*  
Distribution: EG; WG; SG [23, 24, 26, 27, 31, 38, 41, 42, 81, 85, 97, 118].
- 587.** *Rh. testaceus* (Muller, 1778)  
Syn. *Orchestes testaceus*  
Distribution: EG; WG [36, 41, 42, 48, 49, 105].
- 588.** **Tachyerges** rufitarsis (Germar, 1821)  
Syn. *Rhynchaenus rufitarsis*  
Distribution: EG: Kartli, Manglisi [41, 42, 50].
- 589.** *T. salicis* (Linnaeus, 1758)  
Syn. *Rhynchaenus salicis*  
Distribution: EG; WG; SG [26, 27, 29, 31, 38, 41, 42, 47, 48, 49, 45].
- 590.** *T. stigma* (Germar, 1821)  
Syn. *Rhynchaenus stigma*  
Distribution: EG; SG: Sagarejo - Tvaltkhevi River gorge, Tetrtskaro - Akhalsopeli village, Mejriskhevi, Tkviavi, Baniskhevi, Aspindza [26, 27, 31, 41, 42, 47, 48].
- 591.** *Isochnus populicola* Silfverberg, 1977  
Syn. *Rhynchaenus populi* (Fabricius, 1792)  
Distribution: SG: Aspindza, Vardzia, Khertvisi [31, 41, 42, 47, 50].

- 592.** *Pseudorchestes pratensis* (Germar, 1821)  
Syn. *Orchestes pratensis*; *Rhynchaenus pratensis*  
Distribution: EG; WG: Tbilisi, Kolkheti - reclaimed region, Khobi, Abkhazia - Gindze – Etseri [29, 38, 41, 42, 77, 86, 118].
- 593.** *P. cinereus* (Fahraeus, 1843)  
Syn. *Rhynchaenus cinereus*  
Distribution: EG: Vashlovani Reserve, Sighnaghi, Chalaubani village, Akhmeta, Teleti Mount [28, 29, 41, 42, 83].
- 594.** *P. sp. pr. xeranthemi* Korotyaev, 1992  
Syn. *Rhynchaenus sp. smreczynckii* Diekmann, 1958  
Distribution: EG: Bolnisi [41, 49, 51].
- 595.** *Rhamphus pulicarius* (Herbst, 1795)  
Distribution: SG; WG: Tbilisi, Tkvarcheli, Ochamchire - Ilori village [29, 38, 41, 42, 51, 52, 64].
- 596.** *Rh. subaeneus* Illiger, 1807  
Distribution: EG: Akhmeta [41, 42].
- 597.** *Rh. oxyacanthae* (Marsham, 1802)  
Distribution: EG: Sighnaghi - Zemo Bodbe [41, 42].

#### *Anoplinae*

- 598.** *Anoplus plantaris* (Naezen, 1794)  
Distribution: WG: Batumi [51, 105].
- 599.** *A. roboris* Suffrian, 1840  
Distribution: WG: Lechkhumi [105].
- 600.** *A. setulosus* Kirsch, 1870  
Distribution: EG; WG: Surami, Chaladidi, Menji, Zemo Azhara, Chokhatauri [36, 38, 41, 47, 118].

#### *Acalyptinae*

- 601.** *Acalyptus carpini* (Fabricius, 1792)  
Distribution: EG: Didi Liakhvi River gorge [41, 48, 49].

#### *Molytinae*

- 602.** *Pissodes piceae* (Illiger, 1807)  
Distribution: EG; WG; SG [31, 41, 47, 67, 77, 86, 93, 94, 97, 105, 118, 121, 123, 145].
- 603.** *P. notatus* (Fabricius, 1787)  
Distribution: EG; WG; SG [25, 26, 29, 31, 38, 41, 52, 85, 93, 94, 97, 122, 123, 145].
- 604.** *P. pini caucasicus* Roubal, 1919  
Syn. *Pissods pini*  
Distribution: EG; WG; SG [31, 27, 38, 41, 47, 52, 64, 85, 93, 94, 97, 105, 118, 121, 123, 145].
- 605.** *P. validirostris* Gyllenhal, 1843  
Distribution: EG; WG: Borjomi gorge, Borjomi, Tsagveri, Martvili [31, 41, 47, 85, 97, 102].
- 606.** *P. harcyniae* (Herbst, 1795)  
Distribution: EG: Borjomi, Bakuriani [41, 47, 50].
- 607.** *P. piniphilus* (Herbst, 1795)  
Distribution: EG: Borjomi gorge, Bakani 8 March [41, 47, 50].
- 608.** *Magdalis nitidipennis* Boheman, 1843  
Distribution: EG; WG; SG [14, 15, 23, 29, 31, 35, 38, 41, 47, 48, 145].
- 609.** *M. ruficornis* (Linnaeus, 1758)  
Distribution: EG; WG; SG: Tbilisi, Vale, Sxvilisi, Kvitouli, Kelasuri [29, 31, 35, 36, 38, 41, 47, 145].
- 610.** *M. flavicornis* (Gyllenhal, 1836)  
Distribution: EG; WG [27, 29, 35, 38, 41, 86, 97, 121, 122, 145].
- 611.** *M. quercicola* Weise, 1872  
Distribution: EG: Tbilisi [29, 35, 47, 64].



612. *M. barbicornis* (Latreille, 1804)  
Distribution: EG; WG [29, 35, 36, 38, 41, 47, 145].
613. *M. cerasi* (Linnaeus, 1758)  
Distribution: EG; WG [24, 26, 35, 38, 41, 47, 64, 67, 121].
614. *M. armigera* (Geoffroy, 1785)  
Syn. *Magdalis aterrima* Fabricius  
Distribution: EG; WG [26, 29, 35, 41, 48, 67, 86, 97, 118].
615. *M. carbonaria* (Linnaeus, 1758)  
Distribution: EG; WG: Gori, Lagodekhi, Tsaghveri, Sioni, Abkhazia - Azhakva village [41, 47, 48, 35].
616. *M. fallax* Kirsch, 1877  
Distribution: WG: Lailashi - Tsageri district [118].
617. *M. caucasica* Tournier, 1872  
Syn. *M. fallax* Kirsch, 1877  
Distribution: WG: [35, 38, 41, 97, 121].
618. *M. memnonia* (Gyllenhal, 1837)  
Distribution: EG; WG: Tbilisi, Dighomi, Ateni, Nadarbazevi Mount vicinity, Kiketi, Sioni, Pitsunda [35, 41, 47, 145].
619. *M. linearis* (Gyllenhal, 1827)  
Distribution: EG: Java forest farm [35, 41, 47, 50].
620. *M. phlegmatica* (Herbst, 1797)  
Distribution: EG; SG: Tsaghveri, Tsemi, Abastumani [31, 35, 41, 47, 50, 94, 97].
621. *M. rufa* (Germar, 1824)  
Distribution: EG: Borjomi, Tbilisi vicinity, Tbilisi - Khudadovi Forest Park, Dzveli village, Okrokana [29, 35, 41, 47, 86, 97, 105].
622. *M. coeruleipennis* Desbrochers, 1870  
Distribution: EG; SG [29, 31, 35, 41, 47, 67, 94, 97].
623. *M. frontalis* (Gyllenhal, 1827)  
Distribution: EG; SG: Tbilisi - Khudadovi Forest Park, Sioni, Tbilisi, Lisi Lake vicinity, Akhaltsikhe [29, 35, 41, 97, 124].
624. *Trachodes hystrix* Gyllenhal, 1836  
Distribution: EG; WG [35, 36, 38, 41, 67, 105, 118].
625. *T. ovatus* Weise, 1879  
Distribution: EG; WG: Manglisi, Borjomi, Tsodreti; Abkhazia; Shubara, Khashupse River gorge, Mendeleevka village [36, 38, 41, 145].
626. *T. oblongus* Reitter, 1888  
Distribution: EG: Lagodekhi Reserve [38, 41, 50].
627. *T. elongatus* Reitter, 1888  
Distribution: EG: Lagodekhi Reserve, Lagodekhistskali River gorge [41, 86].
628. *Trachodes* sp.  
Distribution: WG: Bakhmaro – Muchuta [41].
629. *Lepyrus palustris* (Sopoli, 1763)  
Distribution: EG: Gardabani, Mtskheta, Dmanisi, Majvriskhevi [26, 29, 41, 48, 49, 64].
630. *L. causicus* Korotyaev, 1994  
Distribution: WG: Egrissi Range, Tekhuri River head; Bzyb Range, Turkish Hat Mount [91].
631. *Hylobius abietis* (Linnaeus)  
Distribution: EG; WG; SG [25, 26, 31, 38, 41, 52, 67, 85, 93, 94, 97, 105, 118, 121, 123, 145].
632. *H. transversovittatus* (Goeze, 1777)  
Syn. *Hylobius fatuus* Rossi  
Distribution: EG; WG: Dmanisi district, Mtisdziri village, Kolkheti, Alder forest along Pichore River [36, 77, 85, 118].
633. *H. pinastri* (Gyllenhal, 1813)  
Distribution: WG: Klukhori Pass to Abkhazia [41, 47].
634. *H. verrucipennis* Boheman, 1834  
Distribution: EG; WG; SG [25, 27, 31, 37, 38, 41, 85, 94, 97, 105, 121].

635. *Liparus coronatus* (Goeze, 1777)  
Distribution: EG; SG: Kojori, Khrami River gorge, Akhalkalaki, Tbilisi – Soghanlughu [29, 31, 41, 118].
636. *Plinthus caucasicus* (Desbrochers, 1875)  
Syn. *Plinthus grusinus* Reitter  
Distribution: EG; WG [38, 41, 56, 68, 81, 99, 139].
637. *P. kodorensis* Meregalli, 1985  
Syn. *ssp. caucasicus* Meregalli, 1985  
Distribution: EG; WG: Abkhazia, Kodori Rover gorge, Boundary of Georgia and Dagestan, Kakheti, Tbilisi [56, 99].
638. *P. schneideri* (Tournier, 1878)  
Syn. *Meleus schneideri*  
Distribution: EG: Khevsureti [118].
639. *P. faldermanni* Faust, 1884  
Distribution: EG [41, 56, 99].
640. *P. causticus* (Faust, 1888)  
Distribution: EG; WG: Tetrtskaro - Koda village; Imereti, Racha - Dolomisi Mount top, Utsera village, Ghebi village [99, 105].
641. *P. intermedius* Meregalli, 1985  
Distribution: WG: Racha - Mamisoni Pass, Glola village [99].
642. *P. silphoides* (Herbst, 1795)  
Syn. *Meleus silphoides*; *Plinthus dolosus* Fst, 1884  
Distribution: EG [25, 38, 99, 105, 118].
643. *P. illotus illotus* Gyllenhal, 1834  
Syn. *Meleus illotus illotus*; *Plinthus dolosus* Faust.  
Distribution: EG; WG; SG [31, 41, 69, 85, 99, 105, 118].
644. *P. richterae* Davidian, 1995  
Syn. *M. illotus diversesculpus* Meregalli, 1985  
Distribution: EG; WG; SG [56, 58, 99].
645. *P. amplicolis* Meregalli, 1985  
Distribution: WG: Abkhazia - Gagra [99].
646. *P. fausti* (Reitter, 1884)  
Syn. *Plinthus gebiensis*  
Distribution: EG; WG: Tbilisi, Svaneti-Lathpari; Racha- Gebi, Glola [56, 59, 139].
647. *P. helenae* Davidian, 1992  
Distribution: WG: Samegrelo - Magani River gorge (Tsalenjikha district), Khvira Mount, Shteneshti, Askhi plateau [55, 56].
648. *P. confusus confusus* Meregalli, 1985  
Distribution: WG: Abkhazia, Avadhara Resort, Psou River gorge, Mzymta River head; Svaneti. Adjara - Imereti Range [56, 99].
649. *P. confusus gagrensis* Meregalli, 1985  
Syn. *Plinthus abkhasicus gagrensis*  
Distribution: WG: Abkhazia, Gagra, Arabika Mount, Mamzyshkha Mount [56, 99].
650. *P. confusus ochraceus* Meregalli, 1985  
Syn. *Plinthus abkhasicus ochraceus*  
Distribution: WG: Abkhazia - Sukhumi, Kodori Range, Khojali Mount, Apchikva Mount, Akiba Range, Tapra River gorge (Okumi River inflow), Ochkhakue Range [56, 99].
651. *P. confusus abkhasicus* Meregalli, 1985  
Syn. *Plinthus abkhasicus abkhasicus*  
Distribution: WG: Abkhazia - Otkhara, Tsipsara, Kapshra [56, 99].
652. *P. confusus avtandili* Davidian, 1993  
Distribution: WG: Abkhazia Range - Lakhta Mount southern slopes, Abkhazia Range - Shoudidi River head, Kulamb River head, Jampal River basin, Chamagvara River, Kapshara River [56].
653. *P. confusus gusarovi* Davidian, 1993  
Distribution: WG: Abkhazia - Bzyb Range, Dzikhva Mount [56].
654. *P. korotyaevi* Davidian, 1993  
Distribution: WG: Abkhazia - Chedimski Range [56].

- 655.** *P. tinae* Davidian, 1993  
Distribution: WG: Abkhazia Range - Kulamb River head, Amtkeli River head, Shoudidi River head, Chkhalta River, Kodori Range, Apchikva River, Samuzakano Range, Otapi River (Ghalidzga River inflow) [56] .
- 656.** *P. kubanicus* Meregalli, 1985  
Distribution: WG: Svaneti ; Abchazia-Nahari Pass, Riza lake, Upper Sokhumi mountain [57, 99].
- 657.** *P. immunis* (Faust, 1888)  
Distribution: WG; SG: Imereti, Abastumani [57, 99].
- 658.** *P. lederi* Meregalli, 1985  
Distribution: WG: Abkhazia [57].
- 659.** *P. kurnakovi* Meregalli, 1985  
Distribution: WG: Abkhazia - Otkhara River gorge, Bzyb Range, Achibakhu Mount, Napra Mount, Apsty River valley [57, 99].
- 660.** *P. fremuthi* Meregalli, 1985  
Distribution: WG: Abkhazia – Gudauta, Svaneti - Shkhara Mount [99].
- 661.** *P. iasonis* Meregalli, 1985  
Distribution: WG: Abkhazia - Sukhumi, Amtkeli, Gagra Range - Mamzishkha Mount, Bzyb Range - Achibakhu Mount, Khuan village vicinity [57, 99].
- 662.** *P. squamosus* (Reitter, 1889)  
Distribution: WG: Abkhazia - Gagra Range, Arabika Range, Mamzishkha Mount [57, 99].
- 663.** *P. rosti* (Reitter, 1888)  
Distribution: WG: Abkhazia - Gudauta district, Bzyb Range - Otkhara [99].
- 664.** *P. pseudostarcki* Meregalli, 1985  
Distribution: WG: Abkhazia - Gagra Range, Arabika Mount, Meskheta plateau, Ajara-Imereti (Meskheta) Range [99].
- 665.** *P. fallax fallax* Faldrmann, 1838  
Syn. *Meleus fallax*  
Distribution: EG; WG [37, 41, 57, 99, 105, 118].
- 666.** *P. fallax oblongus* Meregalli, 1985  
Distribution: WG [99].
- 667.** *P. starcki starcki* (Faust, 1888)  
Distribution: WG: Svaneti - Karuldash, Tsana; Samegrelo - Lebarde; Abkhazia - Klych River gorge [38, 41].
- 668.** *P. starcki medeae* Meregalli, 1985  
Distribution: WG: Abkhazia -Gagra Range [99].
- 669.** *P. voriseki* Meregalli, 1985  
Syn. *Plinthus voriseki voriseki*  
Distribution: WG: Svaneti [99].
- 670.** *P. argonauta* Meregalli, 1985  
Syn. *Plinthus voriseki scabrior*  
Distribution: WG: Svaneti [57, 99].
- 671.** *P. colchicus* Meregalli, 1985  
Distribution: WG: Svaneti - Khida Pass; Abkhazia - Chkhalta Range; Shoudidi Mount [99].
- 672.** *P. pseudocolchicus* Davidian, 1995  
Distribution: WG: Abkhazia - Kodori Range, Apchikva Mount [57].
- 673.** *P. granulatus* (Reitter, 1884)  
Distribution: WG [57, 99].
- 674.** *P. abdurakmanovi* Davidian, 1995  
Distribution: Abkhazia - Abkhazia Range, Lakhta Mount, Tkvarcheli, Tsarcha River(Okumi River inflow); Gali district, Akiba Range, Oxachkue Range [57].
- 675.** *P. swaneticus swaneticus* (Reitter, 1884)  
Distribution: WG: Svaneti; Lechkhumi - Tsageri, Abkhazia - Pitsunda; Samegrelo - Martvili district, Abasha River valley [50, 55, 68, 99].

676. *P. swaneticus* strejceki Meregall, 1985  
Distribution: EG; WG: Borjomi Reserve, Baniskhevi River bank; Abkhazia - Gagra Range, Zontik Mount, Arabika Mount, Khashupse River inflow, Gudauta district, Ayapsty River valley, Khuti village. P.S. This is unique species from group *Swaneticus*, obtained on Great and Minor Caucasus [55, 57].
677. *P. mingrelicus* Reitter, 1884 [55, 77]  
Syn. *Plinthus depressicollis* Reitter, 1884; *Plintus reticulatus* Meregall, 1985  
Distribution: WG: Svaneti; Lechkhumi - Tsageri, Abkhazia - Bzyb Range, Achibakhu Mount; Samegrelo - Egrisi Range, Tekhuri River head [41, 55, 68, 99].
678. *P. latipennis* Meregalli, 1985  
Distribution: WG; SG: Adjara, Abastumani [99].
679. *P. kovali* Davidian, 1992  
Distribution: WG: Racha Range, Lebeurismta Mount [55].
680. *P. kataevi* Davidian, 1992  
Distribution: WG: Samegrelo - Egrisi Range, Khviria Mount; Magani River head [55].
681. *P. meregallii* Davidian, 1992  
Distribution: WG: Abkhazia - Gagra Range, Mamzishkha Mount, Ashkhabash Mount, Zontik Mount, Achibakhu Mount, Napra Mount [55].
682. *P. orientalis* Davidian, 1991  
Distribution: EG: Lagodekhi district [51].
683. *P. belousovi* Davidian, 1992  
Distribution: WG: Akiba Range, Eits River head, Okhachkue Mount [55].
684. *P. prasolovi* Davidian, 1995  
Distribution: WG: Abkhazia -Chedimskhi Range (Eastern branch of Bzyb Range), Abkhazia Range (Eastern part) [57].
685. *P. abdullaevi* Davidian, 1995  
Distribution: WG: Abkhazia - Bzyb Range, Achibakhi Mount; Chedimskhi Range (Eastern branch of Bzyb Range) [57].
686. *P. zamotailovi* Davidian, 1995  
Distribution: WG: Abkhazia, Abkhazia Range, Pekh Lake vicinity, Shoudidi River head, Kulamb River head - Shoudidi Mount, Kodori Range, Apchikva Mount [57].
687. *Aparopion costatum* (Fahraeus, 1843)  
Distribution: EG; WG; SG: Meskheta Range, Surami, Lagodekhi Reserve, Abkhazia - Shubara village (Sukhumi district) [31, 38, 41, 49, 52, 81, 85, 105]].
688. *Anchonidium ulcerosum* Aube, 1850  
Syn. *Orthochaetes ulcerosus*  
Distribution: EG; WG: Borjomi, Mtskheta, Batumi; Abkhazia - Shubara village [29, 41, 50, 52, 118].
689. *A. perpensum* Faust, 1886  
Distribution: EG: Borjomi [41, 52].
690. *Liosoma reitteri* Bedel, 1884  
Distribution: Georgia [139].
691. *Minyops carinatus* (Linnaeus, 1767)  
Syn. *Plinthus carinatus* Boh.  
Distribution: SG: Atskuri [118].
692. *Mecysolobus karelini* (Boheman, 1844)  
Syn. *Alcides Karelini*  
Distribution: EG: Shida Kartli - Tbilisi, Uplistsikhe, Kekhijvari, Dvani, Mejvriskhevi, Ergneti [29, 41, 52, 53, 64].

#### *Hyperinae*

693. *Graptus armeniacus* Hochhuth, 1847  
Syn. *Alophus agrestis* Boheman, 1842  
Distribution: EG; SG: Tserovani, Tabatskuri, Akhalkalaki [31, 41].
694. *G. circassicus* Solari, 1945  
Syn. *Alophus kaufmani* Stierlin, 1884  
Distribution: WG; SG: Abkhazia - Avahara; Goderdzi Pass to Adigeni [31, 41].

- 695.** *Donus latifrons* (Petri, 1901)  
Syn. *Hypera latifrons*  
Distribution: EG: Tusheti - Omalo [25, 50].
- 696.** *D. lydia* (Petri, 1901)  
Syn. *Hypera lydia*  
Distribution: WG: Svaneti -Koruldashi; Abkhazia - Nahara Pass, Nahari village [37, 38, 41].
- 697.** *D. circassicola* (Reitter, 1888)  
Syn. *Hypera circassicola*  
Distribution: EG; WG: Bakuriani, Svaneti [41].
- 698.** *D. swanetica* (Faust, 1887)  
Syn. *Hypera swanetica*  
Distribution: WG: Svaneti [41, 50].
- 699.** *D. chlorocoma* (Boheman, 1840)  
Syn. *Hypera swanetica*  
Distribution: EG; WG: Bakuriani, Borjomi gorge - Baniskhevi, Zekari Pass to Baghdadi [41].
- 700.** *Donus* sp.  
Syn. *Glanis* sp.  
Distribution: WG: Adjara - Chakvistavi, Batumi - Mtirala Mount, Kobuleti, Achi village [41].
- 701.** *Hypera punctata* (Fabricius, 1775)  
Syn. *Phytonomus punetatus*  
Distribution: EG; WG: Borjomi, Sagarejo, Tbilisi, Karsani, Ajameti, Machara River gorge [19, 29, 34, 38, 41].
- 702.** *H. dauci* (Olivier, 1807)  
Syn. *Phytonomus fasciculatus* (Herbst, 1795)  
Distribution: WG: Borjomi, Kojori, Tbilisi [41, 105, 118].
- 703.** *H. adspersa* (Fabricius, 1792)  
Syn. *Phytonomus adspersus*  
Distribution: WG: Abkhazia - Gvandra, New Athos, Kvemo Eshera, Merkheuli; Samegrelo - Anaklia, Kulevi [36, 37, 38, 41, 77].
- 704.** *H. rumicis* (Linnaeus, 1758)  
Syn. *Phytonomus rumicis*  
Distribution: EG; WG; SG [31, 34, 37, 38, 41, 77, 145].
- 705.** *H. contaminata* (Herbst, 1795)  
Syn. *Phytonomus contaminatus*  
Distribution: WG: Abkhazia - Sukhumi, Kvemo Eshera, Psirtsakha [37, 38, 41].
- 706.** *H. meles* (Fabricius, 1792)  
Syn. *Phytonomus meles*  
Distribution: EG; WG; SG [29, 23, 25, 29, 31, 34, 34, 37, 38, 41, 47, 67<sup>b</sup>, 105, 106, 118, 143, 145].
- 707.** *H. nigrirostris* (Fabricius, 1775)  
Syn. *Phytonomus nigrirostris*  
Distribution: EG; WG [23, 37, 38, 41, 52, 143, 145].
- 708.** *H. arator* (Linnaeus, 1758)  
Syn. *Phytonomus orator*  
Distribution: EG: Lagodekhi, Sagarejo - Khashmi village [41, 51].
- 709.** *H. suspiciosa* (Herbst, 1795)  
Syn. *Phytonomus suspiciosus*; *Phytonomus pedestris* (Paykule, 1792)  
Distribution: EG: Dmanisi, Mtsdziri village, Bakuriani, Tianeti [41, 52, 118].
- 710.** *H. denominanda* (Capiomont, 1868)  
Syn. *Phytonomus denominandus*  
Distribution: EG; SG [31, 41, 52].
- 711.** *H. plantaginis* (De Geer, 1775)  
Syn. *Phytonomus plantaginis*  
Distribution: EG: Bakuriani; Tusheti - Omalo, Khoshaneti, Shenako, Shida Kartli - Mejvriskhevi [29, 41].

- 712.** *H. fuscocinerea* (Marshall, 1802)  
Syn. *Phytonomus murinus* (Fabricius, 1792)  
Distribution: EG; WG: Tbilisi, Tbilisi vicinity - Ortachala, Tsiteltskaro, Tusheti, Tkviavi; Abkhazia - Pitsunda, Sukhumi Mount [34, 37, 38, 41, 52, 145].
- 713.** *H. postica* (Gyllenhal, 1813)  
Syn. *Phytonomus variabilis* (Herbst, 1795)  
Distribution: EG; WG; SG [16, 23, 25, 28, 29, 31, 34, 37, 38, 41, 52, 64, 67, 73, 81, 83, 85, 106, 130, 132, 144, 145, 149].
- 714.** *H. farinosa* (Boheman, 1840)  
Syn. *Phytonomus farinosus*  
Distribution: EG: Mtskheta, Rustavi, Samgori, Tbilisi, Ateni gorge, Uplistsikhe, Ergneti [25, 41, 49, 67, 118].
- 715.** *H. viciae* (Gyllenhal, 1813)  
Syn. *Phytonomus viciae*  
Distribution: EG; SG: Orbeti, Pshaveli village, Stori River gorge, Java, Adigeni, Shida Kartli [31, 41, 67].
- 716.** *H. cumana* (Petri, 1901)  
Syn. *Phytonomus cumanus*  
Distribution: EG; SG: Tbilisi, Dedoplistskaro, Pshaveli village, Stori River gorge, Tsalka, Atskuri [29, 31, 41].
- 717.** *Metadonus consimilis* Faust, 1868  
Distribution: SG: Vardzia [41].
- 718.** *Limobius borealis* (Paykull, 1792)  
Syn. *Limobius dissimilis* Herbst.  
Distribution: EG; SG [29, 31, 41, 105, 118].
- 719.** *Coniatus schrenki* (Gebler, 1841)  
Distribution: EG: Tbilisi, Shiraki [28, 29, 41, 48, 49].
- 720.** *C. splendidulus* (Fabricius, 1781)  
Distribution: EG: Tbilisi, Gardabani, Lekistskali River gorge, Borjomi, Lagodekhi, Rustavi [27, 28, 29, 41, 48, 64, 83, 85, 105, 118].
- 721.** *C. steveni* Capiomont, 1868  
Distribution: EG; SG: Rustavi, Aspindza [29, 41, 48].

### *Cryptorhynchinae*

- 722.** *Gasterocercus depressirostris* (Fabricius, 1792)  
Distribution: WG: Ajameti, Abkhazia - Sukhumi [38, 41, 50, 143].
- 723.** *Camptorrhinus statua* (Rossi, 1790)  
Distribution: WG: Svaneti; Abkhazia - Gagra, Myusera; Tkibuli [38, 41, 50, 93, 145].
- 724.** *C. simplex* Seidlitz, 1867  
Distribution: WG: Abkhazia - Gagra [41, 50].
- 725.** *Cryptorhynchus lapathi* (Linnaeus, 1758)  
Distribution: WG [36, 38, 41, 50, 52, 74, 75, 93, 97, 145].
- 726.** *Acalles chadoiri* Hochhuth, 1847  
Distribution: EG; WG; SG: Meskheta plateau, Abastumani, Svaneti; Tbilisi vicinity - Tsodreti [41, 31, 100].
- 727.** *A. lederi* Meyer, 1896  
Distribution: WG: Svaneti; Abkhazia - Ochamchire, Avadhara [72, 100].
- 728.** *A. reitteri* Meyer, 1896  
Distribution: EG; WG; SG: Manglisi, Tsodreti, Svaneti; Meskheta Range, Abastumani [41, 100].
- 729.** *A. sp. pr. reitteri* Meyer, 1896  
Distribution: EG: Abkhazia - Pskhu River gorge - Aybga, Khashupse River gorge - Mendeleevka village [41, 100].
- 730.** *A. milleri* Reitter, 1883  
Distribution: EG; WG: Meskheta plateau, Lomi Mount, Svaneti [100, 105].
- 731.** *A. caucasicus* Reitter, 1891  
Distribution: EG; WG; SG [31, 41, 100].

732. *A. camelus* (Fabricius, 1792)  
Distribution: WG: Meskheta plateau [41, 50, 105].
733. *A. pinooides* (Marsham, 1802)  
Distribution: EG: Dmanisi - Mtsdziri village, Surami [38, 50, 105, 118].
734. *A. echinatus* Germar, 1824  
Distribution: WG: Abkhazia - Shubara [41].
735. *Acallobrates denticollis* (Germar, 1824)  
Distribution: EG; WG: Meskheta plateau; Borjomi, Tsodoretz [41, 105].
736. *Echinodera hypocrita* (Boheman, 1837)  
Syn. *Accales hypocrita*  
Distribution: EG; WG: Surami, Lomi Mount; Abkhazia - Shubara, Kuchba, Pshitsa River Gorge [38, 41, 118, 145].

### *Baridinae*

737. *Labiaticola despicata* (Faust, 1889)  
Syn. *Baris despicata*  
Distribution: EG; WG: Mtskheta, Ujarma, Meskheta plateau, Gori - Natsreti village [29, 35, 41, 52, 67, 105].
738. *L. atricolor* (Boheman, 1844)  
Syn. *Baris atricolor*  
Distribution: EG: Shiraki, Signaghi district, Zemo Magharo village [28, 35, 41, 52].
739. *L. sibirica* (Faust, 1890)  
Syn. *Baris sibirica*  
Distribution: EG: Shiraki Shavi Mount [28, 35, 41, 51, 52].
740. *Baris artemisiae* (Herbst, 1795)  
Distribution: EG; SG: Aspindza, Vardzia, Uplistsikhe, Kvakhvrel, Gori district - Natsreti village [31, 35, 41, 67].
741. *B. spitzyi* (Hochhuth, 1847)  
Distribution: EG: Vashlovani Reserve [35, 41, 51, 52].
742. *B. limbata* Brisout, 1870  
Distribution: EG: Kojori [35, 41].
743. *B. memnonia* Boheman, 1836  
Distribution: EG: Vashlovani Reserve, Gori district - Nadarbazevi Lake vicinity [35, 41, 49, 51, 67].
744. *B. suffriani* Hochhuth, 1847  
Distribution: EG: Tbilisi [29, 35, 41].
745. *Cosmobaris scolopacea* (Germar, 1824)  
Syn. *Baris scolopacea*  
Distribution: EG; WG; SG [29, 31, 34, 35, 38, 41, 64, 83, 85, 142, 145].
746. *Eremobaris picturata* (Ménétriés, 1849)  
Distribution: EG: Vashlovani Reserve [35, 41, 49, 51, 52].
747. *Melanobaris dalmatina* (Brisout, 1870)  
Syn. *Baris dalmatina*  
Distribution: EG; WG: Martkopi, Sagarejo - Ninotsminda village, Mtskheta, Dmanisi, Lanchkhuti [29, 35, 41, 105, 108].
748. *M. caucasica* (Schultze, 1897)  
Syn. *Baris caucasica*  
Distribution: EG: Signaghi, Ujarma [35, 41].
749. *M. semistriata* (Boheman, 1836)  
Syn. *Baris semistriata*  
Distribution: EG: Tbilisi, Bolnisi, Dedoplistskaro, Eldari [29, 35, 41, 118].
750. *M. hochhuthi* (Faust, 1882)  
Syn. *Baris hochhuthi*  
Distribution: EG; SG: Tbilisi, Mtskheta, Dmanisi, Bolnisi, Bodbe, Atskuri [35, 41].

- 751. *Aulacobaris janthina*** (Boheman, 1836)  
Syn. *Baris janthina*  
Distribution: EG; SG [28, 29, 31, 35, 41, 52, 64, 83, 118].
- 752. *A. lepidii*** (Germar, 1824)  
Syn. *Baris lepidii*  
Distribution: EG; SG: Borjomi, Tbilisi, Martkopi, Misaktsieli, Meskheta [35, 41, 52, 118].
- 753. *A. raisae*** (Korotyaev, 1988)  
Syn. *Baris raisae*  
Distribution: WG: Abkhazia - Gudauta district, Otkhara village [51, 88].
- 754. *A. coerulescens*** (Scopoli, 1763)  
Syn. *Baris coerulescens*  
Distribution: EG; WG; SG [24, 28, 29, 31, 34, 35, 38, 41, 52, 67, 82, 105, 142, 145].
- 755. *A. picicornis*** (Marsham, 1802)  
Syn. *Baris picicornis*  
Distribution: EG: Mtskheta [29, 41, 64].
- 756. *Malvaevora timida*** (Rossi, 1792)  
Syn. *Baris timida*; *Baris nitens* Fabricius  
Distribution: EG; WG; SG [28, 29, 31, 34, 35, 37, 38, 41, 64, 67, 82, 85, 105, 118].
- 757. *Limnobaris t-album*** (Linnaeus, 1758)  
Distribution: EG: Dmanisi [35, 41, 50].
- 758. *L. dolorosa*** (Goeze, 1777)  
Syn. *Limnobaris pilistriata* (Stephens, 1831).  
Distribution: WG: Abkhazia - Ochamchire, Gindze - Etseri [35, 36, 37, 38, 41].
- 759. *L. sculpturata*** Faust, 1885  
Distribution: WG: Kolkheti reclaimed area [36, 50, 77, 85].

#### *Conoderinae*

- 760. *Coryssomerus capucinus*** (Beck, 1817)  
Distribution: WG: Borjomi, Tbilisi, Rustavi, Sagarejo, Aragvispiri [29, 34, 41, 105, 118].

#### *Ceutorhynchinae*

- 761. *Mononychus punctumalbum*** (Herbst, 1784)  
Distribution: EG; WG [29, 36, 37, 38, 41, 89].
- 762. *M. schoenherri*** Kolenati, 1859  
Distribution: EG: Tbilisi, Mtkvari river gorge, Alazani river gorge [49, 86, 89, 104].
- 763. *Pelenomus waltoni*** (Boheman, 1843)  
Syn. *Phytobius waltoni*  
Distribution: WG [36, 37, 38, 41, 89].
- 764. *P. canaliculatus*** (Fahraeus, 1843)  
Distribution: WG: Svaneti [29, 41, 89].
- 765. *P. quadrituberculatus*** (Fabricius, 1787)  
Syn. *Phytobius quadrituberculatus*  
Distribution: EG; WG; SG [28, 29, 31, 42, 52, 89].
- 766. *Neophytobius granatus*** (Gyllenhal, 1836)  
Syn. *Phytobius granatus*  
Distribution: WG: Borjomi, Lagodekhi [41, 89, 105].
- 767. *Rhinoncus perpendicularis subsp. rufofemoratus*** Schultze, 1901  
Syn. *Rhinoncus perpendicularis*  
Distribution: EG; WG [29, 36, 37, 38, 41, 52, 67, 77, 85, 89, 105, 118].
- 768. *Rh. pericarpus*** (Linnaeus, 1758)  
Distribution: EG; WG; SG [31, 36, 37, 38, 41, 67, 77, 85, 89].
- 769. *Rh. bruchoides*** Herbst, 1785  
Distribution: EG; WG [29, 36, 37, 38, 41, 77, 85, 89].



770. *Rh. bosnicus* Schultze, 1900  
Distribution: EG; WG: Bolnisi, Lagodekhi, Gagra, Sokhumi Military Highway from southern ..... to forest line , Oni [41, 89].
771. *Rh. castor* (Fabricius, 1792)  
Distribution: EG: Abkhazeti - Sokhumi [36, 37, 38, 89, 118].
772. *Rutidosoma globulus* (Herbst, 1795)  
Syn. *Scleropterus glolulus*  
Distribution: SG: Akhalkalaki [41, 50, 89, 118].
773. *R. caucasicum* Korotyaev, 1989  
Distribution: SG: Zeraki Pass to Akhaltsikhe [41, 89].
774. *Zacladus geranii* (Paykull, 1800)  
Syn. *Coeliodes affinis*; *Zacladus affinis*  
Distribution: EG; WG; SG [25, 28, 29, 31, 34, 37, 38, 41, 52, 67, 81, 85, 89, 105, 118].
775. *Z. exiguus* (Olivier, 1807)  
Distribution: EG; WG; SG [29, 31, 37, 38, 41, 52, 67, 83, 85, 89].
776. *Z. asperatus* (Gyllenhal, 1837)  
Syn. *Coeliodes asperatus*  
Distribution: EG; SG [31, 41, 67, 89, 105].
777. *Amalus scortillum* (Herbst, 1795)  
Syn. *Amalus haemorrhous*  
Distribution: EG: Tsnori [41, 89].
778. *Phrydiuchus tau* Warner, 1969  
Syn. *Ceutorhynchus topiarius* Germar; *Phrydiuchus topiarius* Germar  
Distribution: EG; WG; SG: Borjomi, Lagodekhi, Karsani, Oni, Vardzia [28, 29, 31, 41, 52, 89, 105].
779. *Ceutorhynchus rapae* Gyllenhal, 1837  
Distribution: EG; SG: Bodbe village, Atskuri [41, 89].
780. *C. roberti* Gyllenhal, 1837  
Distribution: EG: Mashavera river gorge, Madneuli (Kazreti) [41, 89, 118].
781. *C. sergii* Korotyaev, 1989  
Distribution: EG; WG; SG: Bakuriani, Madneuli; Svaneti - Tsana; Racha - Oni; Khertvisi [41, 89].
782. *C. vorisekianus* Colonnelli, 1984  
Distribution: WG: Svaneti, Abkhazeti - Nahari, Avadkhara [41, 89].
783. *C. syrites* Germar, 1824  
Distribution: EG; SG: Tbilisi, Vashlovani Reserve, Akhaltsikhe, Ninotsminda - Saghamo Lake, Vardzia, Saghamo [29, 31, 41, 34, 89].
784. *C. theonae* Korotyaev et Cholokava, 1989  
Distribution: EG: Tbilisi, Madneuli [41, 89].
785. *C. inaffectatus* Gyllenhal, 1837  
Distribution: EG; WG; SG: Tana river, Madneuli, Goderdzi Pass to Batumi, Goderdzi Pass to Akhaltsikhe [41, 89].
786. *C. pseudoarator* Korotyaev, 1989  
Distribution: EG; WG: Dmanisi, Goderdzi Pass to Batumi; Svaneti; Abkhazeti - Avadhara, Gagra Range, Mamzishkha mount [41, 89].
787. *C. granulicollis* Thomson, 1865  
Syn. *Ceutorhynchus gerhadti* Schultze  
Distribution: SG: Ninotsminda, Lake Khanchali [41, 89].
788. *C. coarctatus* Gyllenhal, 1837  
Distribution: EG: Borjomi, Tbilisi - Mtatsminda [41, 89, 118].
789. *C. erivanus* Schultze, 1898  
Distribution: SG: Aspindza [41, 89].
790. *C. constrictus* (Marsham, 1802)  
Distribution: EG: Tbilisi - Mtatsminda [41, 89].
791. *C. assimilis* (Paykull, 1792)  
Syn. *Ceutorhynchus pleurostigma* Marsham, 1802  
Distribution: EG; WG [23, 28, 29, 34, 37, 38, 41, 64, 80, 83, 85, 87, 89].

792. *C. circassicus* Schultze, 1900  
Distribution: WG: Myusera Reserve [41, 89].
793. *C. subpilosus* Brisout, 1869  
Distribution: EG; SG: Tbilisi, Bolnisi, Tana River gorge, Akhaltsikhe, Vale [41, 89].
794. *C. griseus* Brisout, 1863  
Distribution: EG: Bolnisi [41, 48, 49, 89].
795. *C. languidus* Schultze, 1902  
Distribution: EG; SG: Bolnisi, Vardzia, Khertvisi [41, 89].
796. *C. viator* Faust, 1885  
Distribution: EG: Bolnisi [41, 89].
797. *C. cochleariae* Gyllenhal, 1837  
Distribution: WG: Poti [41, 89].
798. *C. filirostris* (Reitter, 1888)  
Syn. *Ceutorhynchus svaneticus* Schiltze, 1892  
Distribution: WG [41, 87, 89].
799. *C. romashovi* Korotyaev, 1989  
Distribution: EG; WG: Bakuriani, Svaneti - Mestia [41, 89].
800. *C. gallorhenanus* Solari, 1949  
Distribution: EG; WG: Tusheti - Omalo, Lagodekhi; Svaneti - Tsana [41, 89].
801. *C. fallax* Boheman, 1845.  
Syn *C. albicans* Solari, 1949  
Distribution: EG; SG [49, 67, 87, 89].
802. *C. turbatus* Schultze, 1903  
Distribution: EG: Lagodekhi, Shiraki -Kasristskali gorge, Dedoplistskaro [28, 37, 41, 49, 89].
803. *C. liliputanus* Schultze, 1898  
Syn. *Ceutorhynchus Krocha* Korotyaev, 1980  
Distribution: EG: Lagodekhi [41, 89].
804. *C. nanus* Gyllenhal, 1837  
Distribution: EG; SG [29, 31, 41, 64, 67, 89, 105, 118].
805. *C. fabrilis* Faust, 1887  
Distribution: EG; SG: Tbilisi, Vashlovani Reserve, Tana River gorge, Vardzia, Gardabani [31, 41, 63, 87, 89].
806. *C. korotyaevi* Colonnelli, 1983  
Syn. *Ceutorhynchus simillimus* Korotyaev, 1980, non Edwards, 1811  
Distribution: SG: Zekari Pass, Akhalkalaki, Abastumani [41, 89].
807. *C. sophiae* Gyllenhal, 1837  
Distribution: EG; WG; SG: Borjomi, Ortachala (Soghanlugh), Ajameti, Akhaltsikhe, Vardzia [31, 41, 89, 118].
808. *C. hirtulus* Germar, 1824  
Distribution: EG: Tbilisi, Ateni gorge, Uplistsikhe [41, 67, 89].
809. *C. avtandili* Korotyaev, 1989  
Distribution: EG: Tbilisi, Bodbe village (Kakheti) [41, 89].
810. *C. carinatus* Gyllenhal, 1837  
Distribution: EG: Tbilisi, Bolnisi, Tsaghveri, Zilcha [41, 89].
811. *C. sulcatus* Brisout, 1869  
Distribution: EG; SG: Shida Kartli - Uplistsikhe, Kvakhvrel, Nadarbazevi Lake vicinity, Natsreti village, Ergneti village, Vardzia [41, 67, 89].
812. *C. pallidactylus* (Marsham, 1802)  
Syn. *Ceutorhynchus quadridenns* (Panzer, 1795)  
Distribution: WG: Abkhazeti - Tkvarcheli [41, 52, 89].
813. *C. picitarsis* Gyllenhal, 1837  
Distribution: EG; SG [29, 31, 38, 41, 52, 67, 87, 89, 105, 118].
814. *C. sulcicollis* (Paykull, 1800)  
Syn. *Ceutorhynchus cyanipennis* Germar  
Distribution: EG; SG [23, 25, 29, 31, 34, 41, 52, 64, 67, 87, 89, 105, 118, 145].
815. *C. chalybaeus* Germar, 1824  
Distribution: EG; SG [31, 41, 52, 67, 89, 118].

816. *C. pervicax* Weise, 1883  
Distribution: WG; SG: Kolkheti Reserve, Akhalkalaki [41, 52, 89].
817. *C. josefi* Dieckmann, 1978  
Distribution: Zekari Pass to Abastumani [41, 50, 63, 89].
818. *C. davidyani* Korotyaev, 1989  
Distribution: EG: Khalatsa Mount near Kvaisi village [41, 50, 89].
819. *C. viridyanus* Gyllenhal, 1837  
Distribution: EG; WG: Shiraki, Eldari, Tusheti - Omalo; Abkhazeti - New Athon [41, 83, 85, 87, 89].
820. *C. erysimi* (Fabricius, 1787)  
Distribution: EG; WG; SG [25, 29, 31, 34, 38, 41, 52, 64, 67, 89, 105, 118, 145].
821. *C. contractus* (Marsham, 1802)  
Distribution: EG; WG; SG [31, 41, 67, 89, 105, 118].
822. *C. levantinus* Schultze, 1898  
Distribution: SG: Zekari Pass to Abastumani [49, 50, 89].
823. *C. aeneicollis* Germar, 1824  
Distribution: EG; SG: Tbilisi, Rustavi - Yaghluja Mount, Krtsanisi, Vashlovani Reserve, Ujarma, Akhaltsikhe [29, 31, 41, 64, 89].
824. *C. aenescens* Schultze, 1895  
Distribution: EG: Vashlovani Reserve, Pantishara gorge [41, 48, 49, 89].
825. *C. typhae* (Fabricius, 1795)  
Syn. *Ceutorhynchus floralis* (Paykull, 1792)  
Distribution: EG; WG; SG [31, 41, 64, 89, 105, 118].
826. *C. kipchak* Korotyaev, 1996  
Syn. *Ceutorhynchus ovulum* Schultze, 1897  
Distribution: EG: Tusheti - Omalo, Jvarboseli, Stephantsminda (Kazbegi), Tsalka [41, 89].
827. *C. pulvinatus* (Gyllenhal, 1837)  
Syn. *Ceutorhynchidius pulvinatus*; *Sirocalus pulvinatus*  
Distribution: EG: Tbilisi, Telavi, Shiraki, Eldari [29, 38, 41, 83, 85, 89, 105].
828. *C. arnoldii* Korotyaev, 1980  
Distribution: EG: Tbilisi, Lisi Lake southern coast [41, 89].
829. *C. sisymbrii* (Dieckmann, 1966)  
Syn. *Ceutorhynchus pyrrhorhynchus* Marsham; *Ceutorhynchidius pyrrhorhynchus*; *Neosirocalus pyrrhorhynchus*  
Distribution: EG; SG [41, 63, 89, 105, 118].
830. *Prisistus faeculentus* (Gyllenhal, 1837)  
Syn. *Ceutorhynchus faeculentus*  
Distribution: EG: Tbilisi, Shiraki - Kasristskali, Shavimta, Eldari, Vashlovani Reserve [29, 41, 64, 89].
831. *P. italicus* (Brisout, 1869)  
Distribution: EG: Vashlovani Reserve [41, 87, 89].
832. *P. caucasicus* (Kirsch, 1879)  
Syn. *Ceutorhynchus caucasicus*; *Ceutorhynchus humeralis humeralis* Gyllenhal, 1837  
Distribution: EG; WG [41, 77, 87, 89, 118].
833. *P. obsoletus* (Germar, 1824)  
Distribution: EG: Tbilisi, Rustavi, Bolnisi [41, 49, 87, 89].
834. *Oprohinus consputus* (Germar, 1824)  
Syn. *Ceutorhynchus consputus*  
Distribution: EG; WG: Tbilisi, Abkhazeti - Zemo Yashtkhva [41, 89].
835. *Ethelcus verrucatus* (Gyllenhal, 1837)  
Syn. *Ceutorhynchus verrucatus*  
Distribution: EG: Tbilisi, Dmanisi - Mtisdziri village [41, 49, 89, 118].
836. *E. denticulatus* (Schränk, 1781)  
Syn. *Ceutorhynchus denticulatus*  
Distribution: EG; SG: Borjomi, Vardzia [31, 41, 89, 105].

- 837. *Glocianus transcaucasicus*** (Korotyaev, 1980)  
Syn. *Ceutorhynchus transcaucasicus*  
Distribution: EG; SG: Tbilisi, Mtskheta, Ninotsminda [87, 89].
- 838. *Glocianus albovittatus*** (Germar, 1824)  
Syn. *Ceutorhynchus albovittatus*  
Distribution: EG: Tbilisi, Vaziani, Lisi Lake [29, 41, 51, 52, 64, 89].
- 839. *G. herbsti*** (Faust, 1895)  
Syn. *Ceutorhynchus herbsti*  
Distribution: EG [41, 67, 87, 89].
- 840. *G. distinctus*** (Brisout, 1870)  
Syn. *Ceutorhynchus matginatus* (Paykull, 1792)  
Distribution: EG [41, 67, 89, 118].
- 841. *G. punctiger*** (Gyllenhal, 1837)  
Syn. *Ceutorhynchus punctiger*  
Distribution: WG: Oni [41, 89].
- 842. *G. brevicollis*** (Schultze, 1896)  
Syn. *Ceutorhynchus brevicollis*, *Ceutorhynchus incisus* Schultze; *Ceutorhynchus lethierryi* Bris.  
Distribution: EG; WG; SG [41, 87, 89, 105, 118].
- 843. *G. polystriatus*** (Schultze, 1893)  
Syn. *Ceutorhynchus polystriatus*  
Distribution: EG; SG: Tbilisi, Samgori, Bolnisi, Shiraki, Bodbe, Akhaltsikhe [31, 41, 87, 89].
- 844. *Parethelcus pollinarius*** (Forster, 1771)  
Syn. *Ceutorhynchus pollinarius*  
Distribution: EG; WG: Manglisi, Lagodekhi, Khobi, Abkhazeti – Eshera.
- 845. *Mogulones abchasicus*** (Faust, 1888)  
Syn. *Ceutorhynchus abchasicus*  
Distribution: EG; WG: Borjomi, Zekari Pass, Tusheti - Khakhabo; Svaneti - Avadhara, Nahari Pass [37, 38, 41, 52, 89, 105].
- 846. *M. fatidicus*** (Gyllenhal, 1837)  
P.S. The synonym of genus *Mogulones* given in the article is *Ceutorhynchus* everywhere  
Distribution: EG; WG; SG [29, 31, 37, 38, 41, 67, 87, 105, 118].
- 847. *M. cruciger*** (Herbst, 1784)  
Syn. *Ceutorhynchus crucifer*, Olivier  
Distribution: EG: Borjomi, Gardabani, Tsalka, Bolnisi, Ateni gorge, Uplistsikhe, Nadarbazevi Lake vicinity, Gori - Natsreti village [41, 64, 67, 89, 105].
- 848. *M. ornatus*** (Gyllenhal, 1837)  
Distribution: WG: Abkhazeti - Gumisti Reserve, Sokhumi, Tsumuri River bank (Gumista River inflow) [41].
- 849. *M. larvatus*** (Schultze, 1896)  
Distribution: WG: Abkhazeti - Gagra Range, Akh-Ag Mount [41].
- 850. *M. t-album*** (Gyllenhal, 1837)  
Distribution: EG; WG [29, 34, 41, 89, 105, 118].
- 851. *M. euphorbiae*** (Brisout, 1866)  
Distribution: EG; WG; SG: Borjomi, Dmanisi - Mtisdziri village, Kiketi, Adjara, Khertvisi [41, 87, 89, 118].
- 852. *M. venedicus*** (Weise, 1879)  
Distribution: EG: Tusheti, Borjomi, Madneuli, Manglisi, Tbilisi, Dedoplistskaro, Vashlovani Reserve [41, 87, 89].
- 853. *M. koenigi*** (Schultze, 1896)  
Distribution: EG; SG: Tana River gorge, Atskuri, Abastumani [41, 89].
- 854. *M. austriacus*** (Brisout, 1869)  
Distribution: EG: Mtskheta - Karsani, Bolnisi [41, 89].
- 855. *M. asperifoliarum*** (Gyllenhal, 1837)  
Distribution: EG; WG; SG [29, 31, 41, 67, 89, 118].
- 856. *M. subasperatus*** (Korotyaev, 1980)  
Distribution: EG: Mtskheta, Vashlovani Reserve, Bolnisi [41, 49, 51, 87, 89].

857. *M. geographicus* (Goeze, 1777)  
Distribution: EG: Borjomi, Tbilisi - Avchala, Krtsanisi [29, 41, 87, 89, 105].
858. *Boragosirocalus rinderae* (Becker, 1864)  
Distribution: EG: Tbilisi [41, 49, 51, 52, 63, 89].
859. *Datonychus arquatus* (Herbst, 1795)  
Syn. *Ceutorhynchus arquatus*  
Distribution: EG: Tsalka [41, 52, 118].
860. *D. melanostictus* (Marsham, 1802)  
Syn. *Ceutorhynchus melanostictus*  
Distribution: EG; SG: Tetrtskaro - Gokhnari village, Goderdzi Pass [41, 89].
861. *D. scabrirostris* (Hochhuth, 1847)  
Syn. *Ceutorhynchus scabrirostris*  
Distribution: EG: Eldari [41, 49, 51, 89].
862. *Hadroplontus litura* (Fabricius, 1775)  
Syn. *Ceutorhynchus litura*  
Distribution: EG: Tana River gorge, Bakuriani [41, 89].
863. *H. trimaculatus* (Fabricius, 1775)  
Syn. *Ceutorhynchus trimaculatus*  
Distribution: EG; SG: Tbilisi, Borjomi, Mughanlo, Atskuri, Uplistsikhe, Kvakhvrel, Dedoplistskaro, Vashlovani Reserve, Manglisi [31, 41, 67, 89, 105, 118].
864. *Microplontus rugulosus* (Herbst, 1875)  
Syn. *Ceutorhynchus rugulosus*  
Distribution: WG: Ambrolauri [41, 89].
865. *Thamiocolus viduatus* (Gyllenhal, 1813)  
Distribution: WG: Poti [41, 89].
866. *Th. longicornis* Dieckmann, 1973  
Distribution: EG: Tetrtskaro, Madneuli (Kazreti) [41, 89].
867. *Th. imperialis* Schultze, (1895)  
Distribution: EG: Lagodekhi [41, 49, 89].
868. *Th. sinapis* (Desbrochers, 1893)  
Distribution: EG: Madneuli (Kazreti) [41, 89].
869. *Th. sahlbergi* (Sahlberg, 1845)  
Distribution: EG: Bodbe village [41, 49, 51, 89].
870. *Th. signatus* (Gyllenhal, 1837)  
Syn. *Ceutorhynchus signatus*  
Distribution: EG: Tsalka, Telavi [41, 89, 118].
871. *Th. roubali* Dieckmann, 1973  
Distribution: EG: Tbilisi, Sagarejo, Telavi [41, 89].
872. *Th. pubicollis* (Gyllenhal, 1837)  
Distribution: SG: Adigeni [41, 50, 89].
873. *Th. paravilis* Dieckmann, 1973  
Distribution: EG: Tetrtskaro, Gokhnari village, Dmanisi [41, 89].
874. *Th. virgatus* (Gyllenhal, 1837)  
Distribution: EG: Kartli, Ateni gorge [41, 49, 50, 67, 89].
875. *Th. nubeculosus* (Gyllenhal, 1837)  
Distribution: EG: Tbilisi [29, 41, 89].
876. *Th. uniformis* (Gyllenhal, 1837)  
Distribution: EG: Tbilisi, Vashlovani Reserve [41, 49, 51, 89].
877. *Coeliastes lamii* (Fabricius, 1792)  
Distribution: EG: Tsalka [41, 50, 52, 105].
878. *Nedyus quadrimaculatus* (Linnaeus, 1758)  
Syn. *Coeliodes quadrimaculatus*; *Cidnorrhinus quadrimaculatus*  
Distribution: EG; WG; SG [31, 38, 41, 89, 105, 118].
879. *Calosirus terminatus* (Herbst, 1795)  
Distribution: EG; WG: Lagodekhi, Bolnisi; Abkhazeti - Kodori River gorge, Tsebelda village [41, 89].

880. *C. ovulum* (Schultze, 1897)  
Syn. *Amalus latibasis* Reitter, 1916  
Distribution: EG: Bakuriani [41, 89, 114].
881. *Sirocalodes depressicollis* (Gyllenhal, 1813)  
Syn. *Sirocalodes nigrinus*, Marsham, 1802  
Distribution: EG: Bakuriani, Shiraki, Pantishari gorge, Stephantsminda (Kazbegi), Sno village, Tserovani, Uplistsikhe, Nadarbazevi Lake vicinity, Gori, Natsreti village [41, 52, 89].
882. *S. quercicola* (Paykull, 1792)  
Syn. *Ceutorhynchus quercicola*  
Distribution: EG: Dmanisi, Mtisdziri village [41, 52, 89, 118].
883. *S. mixtus* (Mulsant et Rey, 1858)  
Distribution: EG: Tbilisi, Gardabani [41, 51, 89].
884. *Stenocarus ruficornis* (Stephens, 1831)  
Syn. *Stenocarus fuliginosus* Marsham, 1802  
Distribution: EG; WG: Shiraki - Lekistskali gorge, Vashlovani Reserve, Abkhazeti - Pitsunda [28, 41, 83, 85, 89].
885. *S. cardui* (Herbst, 1784)  
Syn. *Coeliodes cardui*  
Distribution: EG: Dmanisi - Mtisdziri village, Martkopi, Vashlovani Reserve [41, 87, 89, 105, 118]
886. *S. lituraalba* Desbrochers, 1896  
Distribution: EG: Tbilisi, Martkopi [41, 49, 51, 87, 89].
887. *Coeliodes dryados* (Gmelin, 1790)  
Distribution: EG; WG: Martkopi, Meskheti, Myusera Reserve, Batumi Botanical Garden, Meskheti plateau, Abkhazeti - Gagra [41, 89, 105].
888. *C. strigirostris* Schultze, 1901  
Distribution: EG; WG: [41, 67, 89].
889. *C. ruber* (Marsham, 1802)  
Distribution: EG: Mashavera River gorge, Surami, Tbilisi, Mukhrani [27, 29, 41, 64, 89, 118].
890. *C. cinctus* (Geoffroy, 1785)  
Syn. *Coelides erythroleucus* Gmelin  
Distribution: EG; WG: Telavi - Shuamta, Tbilisi - Mtatsminda, Borjomi, Mukhrani; Svaneti - Lailashi [26, 29, 41, 48, 89, 105].
891. *Coeliodes* sp  
Distribution: WG: Adjara - Makhuntseti village [41, 50, 89].
892. *Pseudocoeliodes rubricus* (Gyllenhal, 1837)  
Syn. *Coelides rubricus*  
Distribution: EG: Lagodekhi, Vashlovani Reserve, Dedoplistskaro (Tsiteltskaro) [28, 41, 49, 87, 89].
893. *Trichosirocalus horridus* (Panzer, 1801)  
Syn. *Ceutorhynchus spinosus* Goeze (= *horridus* Panzer); *Ceuthorrhynchidius horridus*  
Distribution: EG; WG; SG [31, 34, 37, 38, 41, 52, 64, 89, 105, 118].
894. *T. troglodytes* (Fabricius, 1787)  
Syn. *Ceuthorrhynchus troglodytes*  
Distribution: EG; WG; SG [31, 38, 41, 52, 67, 89, 118].
895. *T. barnevillei* (Grenier, 1866)  
Distribution: EG: Tusheti - Omalo, Shenako, Dmanisi [41, 89].
896. *T. campanella* (Schultze, 1895)  
Syn. *Trichosirocalus campanellae* auct, err  
Distribution: WG: Abkhazeti - Kodori River gorge, Dranda, Tsebelda [41, 89].
897. *Neoxyonyx strigatirostris* (Hochhuth, 1847)  
Syn. *Neoxyonyx massageta kirsch*  
Distribution: EG: Tbilisi, Vashlovani Reserve [41, 49, 87, 89].
898. *Theodorinus transcaucasicus* Korotyaev, 1989  
Distribution: EG: Meskheti plateau, Vashlovani Reserve [41, 49, 89].
899. *Platypteronyx auritus* (Kirsch, 1879)  
Syn. *Protoxyonyx auritus*  
Distribution: EG: Tbilisi, Vashlovani Reserve [41, 49, 89].

900. *Protoxyonyx lunatus* (Reitter, 1890)  
Distribution: EG: Tbilisi, Vashlovani Reserve [41, 49, 89].
901. *Platygasteronyx solskyi* (Faust, 1885)  
Distribution: EG: Vashlovani Reserve [41, 49, 87, 89].

### References

1. **Aleksidze N.** (1953) Tbilisi. P. 42 (in Georgian).
2. **Angelov P.** (1981) Fauna of Bulgaria. II. *Coleoptera: Rhynchophora (Urodonidae, Anthribidae, Brentidae, Rhynomaceridae, Attelabidae)* Sofia., Bulgarian Acad. Sci. Pp: 5-112 (in Bulgarian).
3. **Ardasenov A.** (1988) Transactions Agriculture. Soc. No. 9-12 (in Russian).
4. **Arnoldi L.** (1972) Revue d'Entomologie de l'URSS 51 (1): 210-219 (in Russian).
5. **Arnoldi L., Ter-Minasyan V., Solodovnikova V.** (1974) Genus *Curculionidae*. In: Insects and Mites - Crop Pests. 2nd ed. Nauka, L. Pp. 818-293 (in Russian).
6. **Arnoldi L., Krizhanovsky O., Ter-Minasyan, V.** (1958) Coleopterons of Caucasus. In: Animal World of USSR. Vol. V. Ac. Sci. USSR, M.-L. Pp: 384-429 (in Russian).
7. **Arzanov Yu., Davdyan G.** (1995) Revue d'Entomologie de l'URSS 74 (3): 622-629 (in Russian).
8. **Arzanov, Yu.** (2005) Bulletin of Caucasian Entomology. Vol.1 (3).Rostov-on-Don, M. Pp. 65-80 (in Russian).
9. **Bagdavadze A.** (1940) Proceedings Georgian State Agricultural Institute, Series 2 (in Russian).
10. **Bajtenov A.** (1982) Reichenbachia Statliches Museumfurtierkunde in Dresden. Pp. 69-71
11. **Balachowsky A.** (1963) Entomologic applqee A L'agriculture, m.1. Coleopteres-Phytophagoidea (Suite et fin), *Chrisomeledae, Curculionidae, Attelabidae, Scolitidae et Platypodidae*, Paris. Pp. 874-1237
12. **Batiashvili Ir., Smirnova, O.** (1937) Proceedings of Georgian Plant Protect. Exper. Station. Series V. Entomology. No 1 (in Russian).
13. **Batiashvili Ir., Bagdavadze, A.** (1941) Proceedings of Georgian Plant Protect. Exper. Station. Series V. Entomology. No. 2 (in Russian).
14. **Batiashvili Ir., Bagdavadze, A.** (1946) Bulletin of Georgian Ac. Sci. 7(1/2): 61-64 (in Russian).
15. **Batiashvili Ir., Tvalavadze, Yu.** (1948) Proceedings of Plant Protection Institute of Ac. Sci. of Georgia. Vol. 5 (in Georgian).
16. **Batiashvili Ir., Chavchanidze, T., Samyunjeva, E.** (1952) Proceedings of Plant Protection Institute of Ac. Sci. of Georgia. Vol. 8: 59-77 (in Georgian).
17. **Batiashvili Ir., Chavchanidze, T., Khajibeili, Z.** (1952) Proceedings of Plant Protection Institute of Ac. Sci. of Georgia. Vol. 8: 183-192 (in Georgian).
18. **Batiashvili Ir., Dekanoidze, G.** (1968) Proceedings of Plant Protection Institute of Ac. Sci. of Georgia. Vol. 5 : 157-159 (in Georgian).
19. **Chavchanidze T., Samyunjeva, E.** (1954) Proceedings of Plant Protection Institute of Ac. Sci. of Georgia. Vol.10: 67-80 (in Georgian).
20. **Chavchanidze T.** (1954) Tbilisi. Pp. 30-56 (in Georgian).
21. **Chelidze M.** (1951) Proceedings Georgian State Agricultural Institute. Vol. 35: 20-29 (in Georgian).
22. **Chernov Yu.** (1975) In: Soil and Zoological Research Methods. Nauka, M. Pp. 198-208 (in Russian).
23. **Cholokava, A.** (1962) Bulletin of the Academy of Sciences of the Georgian SSR, XXIX: 6. Pp. 715-721 (in Georgia).
24. **Cholokava A.** (1962) Proceedings of XIII Sci. Conf. of Post-graduate Students and Young Scientists. Pp. 145-146 (in Georgian).
25. **Cholokava A.** (1936) Bulletin of the Academy of Sciences of the Georgian SSR, XXXI: 1. Pp. 156-161 (in Georgian).
26. **Cholokava A.** (1964) Bulletin of the Academy of Sciences of the Georgian SSR, XXXIII: 1. Pp. 212-218 (In Georgian).
27. **Cholokava A.** (1964) Ecological and Faunistical Revue of Weevil Beetles (*Coleoptera, Attelabidae, Curculionidae*) of Kakheti. Abstract on Compet. Cand. Biol. Sci. Tbilisi. Pp. 3-20 (in Russian).
28. **Cholokava A.** (1966) Bulletin of the Academy of Sciences of the Georgian SSR, XLII: 3, pp. 713-720 (in Georgian).
29. **Cholokava A.** (1968) Fauna of Tbilisi Suburbs (*Coleoptera, Attelabidae, Curculionidae*). Metsniereba, Tbilisi. Pp. 77-108 (in Georgian).

30. **Cholokava A.** (1973) In: Materials to the Fauna of Georgia. Vol. 3. Metsniereba, Tbilisi. Pp. 127-142 (in Georgian).
31. **Cholokava A.** (1974) In: Materials to the Fauna of Georgia. Vol. 3. Metsniereba, Tbilisi. Pp. 130-168 (in Georgian).
32. **Cholokava A.** (1979) In: Materials of All-Union Meeting of the Scientific Council Devoted to the Biological Basis, Assimilation, Reconstruction and Protection of the Animal World. Metsniereba, Tbilisi. Pp. 118-126 (in Russian).
33. **Cholokava A., Zarkua Z.** et al. (1981) In: Pest Protection and Diseases of Woods. Vol. 2. Metsniereba, Tbilisi. Pp. 54-66 (in Russian).
34. **Cholokava A., Zaitseva I.** et al. (1982) Fauna of Insects and Mites of Saguramo-Gombori Plateau. Metsniereba, Tbilisi. Pp. 3-125 (In Georgian).
35. **Cholokava A., Antadze O., Tarkhnishvili A.** (1984) Problems of Mount Woods Protection. Vol. 32: 47-54 (in Russian).
36. **Cholokava A., Lezhava G. Sepeteadze M.** et al. (1984) Population Structure of Land Invertebrates (Insects, Mollusks) of Kolkheti Lowland. In: Animal Population of Typical Biocenosis of Kolkheti Lowland. Metsniereba, Tbilisi. Pp. 56-105 (in Georgian).
37. **Cholokava A.** (1985) Fauna and Ecology of some Groups of Insects and Mites of Georgia. Metsniereba, Tbilisi. Pp. 46-51 (in Russian).
38. **Cholokava A., Zarkua Z.** (1985) Fauna and Ecology of some Groups of Insects and Mites of Georgia. Metsniereba, Tbilisi. Pp. 52-57 (in Russian).
39. **Cholokava A., Imnadze T.** (1988) Problems of Mount Woods Protection. Vol. 32. (8): 134-148 (in Russian).
40. **Cholokava A.** (1989) Fauna and Ecology of Invertebrates of Georgia. Georgian Institute of Zoology. Metsniereba, Tbilisi. Pp. 53-63 (in Georgian).
41. **Cholokava A.** (1996) Weevil Beetles (*Coleoptera, Attelabidae, Curculionidae*) of Georgia. Abstract on Compet. Dr. Biol. Sci. Tbilisi. Pp. 1-108 (in Russian).
42. **Cholokava A., Zarkua Z.** (2000) Tbilisi. Nauka i Tekhnologia 10-12: 116-120 (in Georgian).
43. **Cholokava A., Zarkua Z., Cholokava I.** (2000) Proceeding of the Institute of Zoology. Vol. XX, Metsniereba, Tbilisi. Pp. 214-219 (in Russian).
44. **Cholokava A.** (2002) In: Materials of XII Meeting of Russian Entomological Society. St-Petersburg. P. 376 (in Russian).
45. **Cholokava A., Zarkua Z., Khubutia DJ., Javelidze I.** (2002) Proceeding of the Institute of Zoology. Vol. XXI, Metsniereba, Tbilisi. Pp. 138-145 (in Russian).
46. **Cholokava A. Zarkua Z., Khubutia DJ.** (2002) Proceeding of the Institute of Zoology. Vol. XXI, Metsniereba, Tbilisi. Pp. 117-130 (in Russian).
47. **Cholokava A.** (2002) Javakhishvili I. Tbilisi state University. Biology and Contemporaneity. In memory of A. Djanashvili. Tbilisi University Pres. Pp. 61-71 (in Russian).
48. **Cholokava A., Gogoberidze L.** (2002) Proceeding of the Institute of Zoology. Vol. XXI, Metsniereba, Tbilisi. Pp. 136-138 (in Russian).
49. **Cholokava A., Zarkua Z., Gogoberidze L.** (2004) Sokhumi University (namd after ccad. L. Vecua) Scientific Works. Vol. VI. "Sokumi" (publishing House). Pp. 318-331 (In Russian).
50. **Cholokava A. Zarkua Z., Khubutia DJ.** (2004) Proceeding of the Institute of Zoology. Vol. XXII, "Universal", Tbilisi. Pp. 111-117 (in Russian).
51. **Cholokava A., Gogoberidze L.** (2004) Proceeding of the Institute of Zoology. Vol. XXII, "Universal", Tbilisi. Pp. 117-120 (in Russian).
52. **Cholokava A., Gogoberidze L.** (2004) Proceeding of the Institute of Zoology. Vol. XXII, "Universal", Tbilisi. Pp. 120-126 (in Russian).
53. **Cholokava A., Gogoberidze L.** (2006) Bulletin of Georgian Ac. Sci. 172(3): 594-595.
54. **Davidian G.** (1992) New data the knowledge of the Weevil ganus *Plintus Germ (Coleoptera, Curculionidae)* from the Caucasus. Nauka, St-Petersburg Branch LXXI (4): 833-846 (in Russian).
55. **Davidian G.** (1992) Reviens of Weefils of the Genus *Pholicodes Schoenher (Coleoptera, Curculionidae)* of thr Fauna of Russia and Nieghbouting Countries. Nauka, St-Petersburg Branch LXXI (3): 599-629 (in Russian).
56. **Davidian G.** (1993) Russian Ac. Sci. Proceeding. Vol. 251 P. 108-122 (in Russian).
57. **Davidian G.** (1995) To the Knowledgr of weeils of the Genus *Plinthus Germ. (Coleoptera, Curculionidae)* from the Caucasus Russian Ac. Sci. Proceeding. of the Zoological Institute. St. Peterburg. Vol. 251 Pp. 96-127 (in Russian).



58. **Davidian G.** (1995) Fauna and Systematics. Proceedings of Zoological Museum of Belarusian University Vol. 1: 200-211 (in Russian).
59. **Davidian G., Savitsky** (2000) Revue d'Entomologie 79 (1): 422-449 (in Russian).
60. **Davidian G., Linakov N.** (2002) Contribution to the knowledge of the Weevil, subgenera *Nilepolemis* RTT, *Otismotilus* RTT. And. *Motilacanus* RTT. Genus *Otiiorhynchus* Germ. (*Coleoptera, Curculionidae*) From the Caucasus and Tyrkey. Revue d'Entomologie 79 (1): Pp. 128-173 (in Russian).
61. **Davidian G., Savitsky, Yunakov N., Arzanov Yu.** (2001) The Kharkov Entomological Society Gazette, (2002), vol. IX, issue 1-2. Pp. 22-46 (in Russian).
62. **Dieckmann L., Smreczynski S.** (1972) Revision der *Ceutorhynchus nanus* Gruppr (*Coleoptera, Curculionidae*). Acta Zool. cracoviensia. Vol. 17 (7): 325-340.
63. **Dieckmann L.** (1977) Beitrage zur In sektenfauna der. DDR: Coleoptera, Curculionidae (*Apininae*). Beitr, Ent, Berlin , 27: 7-143.
64. **Eichler W.** (1930) Chrzaszczce okolis Tyflisu. Polskie pisto ent. Lwow. 9, Zeszyt 1-4:246-252
65. **Formanek R.** (1904-1906) Münch. kol. Ztschr, 2. Pp. 16-28; 151-182.
66. **Gachechiladze M., Razmadze K., Cholokava A.** (1972) Proceedings of I. Lomouri Scientific-Research Institute of Farming of Georgia. Pp. 203-206 (in Georgian).
67. **Ghghoberidze L.** (2006) Abstract on Compet. Cand. Biol. Sci. Tbilisi. Pp. 1-41 (in Russian).
68. **Heyden L., Reitter E., Weise J.** (1906) Catalogus Coleopterum Europal; Casu et Armeniae Rissicae. Berlin, Paskau, Ceen. Pp. 594-705.
69. **Jambazishvili Ya.** (1963) Bulletin of Georgian Ac. Sci. 32(2): 435-440 (in Georgian).
70. **Kalandadze L., Lozoso, D.** (1937) Proceedings of Georgian Plant Protect. Exper. Station. Series V. Entomology. No. 1: 119-127 (in Georgian).
71. **Kalandadze L.** (1957) Proceedings Georgian State Agricultural Institute. Vol. 46: 347-349 (in Georgian).
72. **Kalandadze L., Batiashvili et al.** (1962) Entomology, Part 2 . Tbilisi (in Georgian).
73. **Khachapuridze N.** (1930) Transactions of Plant Protection Sector. Tiflis (in Russian).
74. **Kharazishvili K.** (1959) Bulletin of Agriculture Ac. Sci. of Georgia 2(3): (in Georgian).
75. **Kharazishvili K.** (1963) Proceedings of Plant Protection Institute of Ac. Sci. of Georgia. Vol. 15: 433-466 (in Russian).
76. **Khojevanishvili I.** (1973) Plant Introduction Problems. Metsniereba, Tbilisi. Pp. 79-80 (in Russian).
77. **Kobakhidze D.** (1943) Analysis of the Kolkerti Lowland Central Part Overland Biocenosis. Edited by Ac. Sci. Georgia, Tbilisi. Pp. 5-184 (in Georgian).
78. **Kobakhidze D.** (1947) Proceedings of the Institute of Zoology 7: 137-142 (in Georgian).
79. **Kobakhidze D.** (1950) Proceedings of Tbilisi Pushkin Pedagogical Inst. 8: 138-147 (in Russian).
80. **Kobakhidze D.** (1951) Proceedings of the Institute of Zoology 10: 5-43 (in Georgian).
81. **Kobakhidze D.** (1956) Proceedings of the Institute of Zoology 14: 189-213 (in Georgian).
82. **Kobakhidze D.** (1957) Bulletin of Georgian Ac. Sci. 32 (2): 170-177 (in Russian).
83. **Kobakhidze D.** (1958) Proceedings of the Institute of Zoology 16: 21-70 (in Georgian).
84. **Kobakhidze D.** (1959) Bulletin of Georgian Ac. Sci. 32 (2): 177-261 (in Georgian).
85. **Kobakhidze D.** (1963) Structural Peculiarities of Entomocomplexes of some Landscape Zones of Georgia. Edited by Georgian Ac. Sci. Tbilisi. Pp. 6-89 (in Russian).
86. **Kolenati F.** (1859) Meletemata entomologica Fasc. VIII. Curculionina Caucasi et vicinorum. Bull. Soc. Jmp.№at Mosc., vol. 32 (1): 323-398.
87. **Korotyaev B.** (1980) Materials to the knowledge of *Eeutorhynchinae* (*Coleoptera, Curculionidae*) Mongolia and the USSR Ceugolia and the USSR. Insects of Mongolia. No.7. Nauka, L. Pp. 107-282 (in Russian).
88. **Korotyaev B.** (1987-88) Proceedings of the Institute of Zoology. L. 70: 122-163 (in Russian).
89. **Korotyaev B., Cholokava A.** (1989) Revue d'Entomologie de l'URSS 68 (1): 154-177 (in Russian. English version was published in "Entomological Review". USA, 1989. ISSN 0013-8738).
90. **Korotyaev B.** (1991) New and Little known. Palearctic Weevils (*Coleoptera: Apionidae Curculionidae*) Revue d'Entomologie de l'URSS, 70 (4):875-902 (in Russian).
91. **Korotyaev B.** (1992) New and Little known specier of weevills (*Coleoptera, Curculionidae*) Erom Russian and Neighbourinf countries. Revue d'Entomologie de l'URSS 71 (4): 807-832 (in Russian).
92. **Korotyaev B.** (1994) New data on systematic of Palearctic weevils (*Coleoptera, Curculionidae*) Revue d'Entomologie de l'URSS 73 (4): 870-890 (in Russian).
93. **Lozovoi D.** (1941) Proceedings of the Georgian Zoological Sector of Ac. Sci. USSR 3: 5-230 (in Russian).

94. **Lozovoi D.** (1941) Proceedings of Georgian Plant Protect. Exper. Station. Series V. Entomology. No. 2: 141-166 (in Russian).
95. **Lozovoi D., Imnadze M.** (1950) Bulletin of Tbilisi Botanical Garden 59: 94-161 (in Russian).
96. **Lozovoi D., Imnadze M.** (1952) Bulletin of Tbilisi Botanical Garden 60: 129-136 (in Russian).
97. **Lozovoi D.** (1965) Injurious Insects of wood-meadow plantations of Georgia. Metsniereba, Tbilisi. Pp. 9-223 (in Russian).
98. **Juigi Magnano.** (1999) Gli Otiorhynchus del sottogenere podoropelmus. Reitter, 1912, (*Coleoptera, Curculionidae*). Boll. Mus. civ. St. nat. Verona 23:247-307.
99. **Meregalli M.** (1985) Eevisione delgenere Plinthus German (*Coleoptera, Curculionidae*). et. us. iv. tor. (*Coleoptera, Curculionidae*) Verona. 2<sup>a</sup> Ser., sezione scienza dellavita (A. Biologia) pp. 1-133.
100. **Meyer P.** (1896) Bestimmungs Tabellen der europäischen *Coleoptera: Curculionidae* (Die palearstioschen Cryptorrhynchiden). Polskau, pp.3-56.
101. **Mokrzhetski S.** (1903) Petersburg, Pp. 27-29 (in Russian).
102. **Murusidze B.** (1953) Proceedings Georgian State Agricultural Institute. Vol.111: 279-311 (in Russian).
103. **Nagorny P., Uvarov, B.** (1920) Bureau of Pest Control. Tbilisi. Pp. 19-27 (in Russian).
104. **Pelletier J.** (1999) Zoosystema 21(4): 681-750
105. **Radde G.** (1899) Collections of Caucasian Museum. Vol. 1. Tiflis. Pp. 384-392 (in Russian).
106. **Razmadze K., Kandelaki D.** et al. (1972) Proceedings of the I. Lomouri Scientific-Research Institute of Farming of Georgia. Pp. 199-202 (in Georgian).
107. **Razmadze K., Cholokava A.** (1973) Proceedings I. Lomouri Scientific-Research Institute of Farming of Georgia. Pp. 145-150 (in Georgian).
108. **Reitter E.** (1888) Coleopteren aus circassien. Entom Zeigr. VII, pp.262-263.
109. **Reitter E.** (1897) Dreifsig neue Coleopteren ous russisch Asien und der Mongolei. Dtsch. entomol. z. 1: 200-228.
110. **Reitter E.** (1903) Bestimmungs - Tabellen der euroäischen Coleopteren. Heft (48) Curculionidae 8 Thel. Tanymericini, Paskau, pp. 3-20.
111. **Reitter E.** (1907) Mecinini (*Gymnetrini*). Bestimmungs-Tabellen fur die Curculioniden gruppe der Mecinini (*Gymnetrini*) aus Europa und den angrenzenden Ländern 59 Heft. Brünn, pp.7-50.
112. **Reitter E.** (1912) Bestimmungs-Tabellen der europäischen Coleopteren, *Curculionidae*, Bd. LXVI Heft (66).
113. **Reitter E.** (1913) Bestimmungs-Tabellen der europäischen Coleopteren, *Curculionidae*, Bd. LXX Heft (70).
114. **Reitter E.** (1916) Fauna Germanica. Die Käferdes Deutschen Reiches, Bd. 5 Rhychophora. Stuttgart 343. S+16 Taf.
115. **Rekk H., Savenko R.** (1941) Proceedings of the Georgian Zoological Sector of Ac. Sci. USSR 3: 129-142 (in Russian).
116. **Savenko R.** (1935) List of Agricultural Plant Pests of Transcaucasian Fed. Rep. Tbilisi. Pp. 3-47 (in Russian).
117. **Schilsky J.** (1906) Bestimmungs - Tabellen ffur die Gattung Apio Herbst. In. Küster-kraatz. Die kefer Europas, XLII, Pp. 1-107.
118. **Schneider O., Leder H.** (1878) Beitrage zurkenntniss der Kaukasixchen käfer-fauna. Brünn. 3605+6 Taf. Pp. 259-309
119. **Sikharulidze A.** (1968) Subtropical Cultures. Transactions of Tea and Subtropical Cultures Research Institute. Ozurgeti (Makharadze)-Anaseuli. 3: 112-113 (in Georgian).
120. **Smirnov D.** (1912-13) Proceedings of Russian Entomological Society. St-Petersburg. 40(4): 1-156 (in Russian).
121. **Supatashvili Sh.** (1947) Proceedings of Plant Protection Institute of Ac. Sci. of Georgia 4: 300-305 (in Georgian).
122. **Supatashvili Sh.** (1956) Proceedings of Plant Protection Institute of Ac. Sci. of Georgia 11: 253-287 (in Georgian).
123. **Supatashvili Sh., Mukhashavria A.** et al. (1973) Proceedings of Plant Protection Institute of Ac. Sci. of Georgia 25: 213-222 (in Georgian).
124. **Ter-Minasyan M.** (1946) The Determinant of Weevil beetles (*Curculionidae*) of Armenia. In: Zoological Transactions of Armenian Ac. Sci. Pp. 3-154 (in Russian).
125. **Ter-Minasyan M.** (1950) The Weevil Beetles - Rollers (*Attelabidae*). In: Fauna USSR; Insects - *Coleoptera*. Edited by Ac. Sci. USSR, M.-L. 28(2): 11-223 (in Russian).

126. **Ter-Minasyan M.** (1967) The Weevil Beetles of Subfamily Cleoninae of USSR Fauna - Blossom Weevils and Lixus (Tribe *Lixini*). Nauka, L. Pp. 5-134 (in Russian).
127. **Ter-Minasyan M.** (1972) Revue d'Entomologie de l'URSS 51 (4): 796-805 (in Russian).
128. **Ter-Minasyan M.** (1972) Proceedings of Russian Entomological Society. St-Petersburg. 55: 39-64 (in Russian).
129. **Tulashvili N.** (1947) Proceedings of Plant Protection Institute of Ac. Sci. of Georgia 4 (in Georgian).
130. **Tulashvili N.** (1948) Proceedings of Plant Protection Institute of Ac. Sci. of Georgia 5 (in Georgian).
131. **Tulashvili N.** (1953) Proceedings of Plant Protection Institute of Ac. Sci. of Georgia 9 (in Georgian).
132. **Uvarov B.** (1918) Transaction of Bureau of Pest Control. Tiflis. Pp. 22-35 (in Russian).
133. **Uvarov B.** (1920) Economical Significance of Pests in Agriculture of Georgia. "Kavshiri". No.15-16 (in Georgian).
134. **Uvarov B.** (1920) Agricultural Entomology. Tbilisi (in Georgian).
135. **Vashadze V.** (1962) Pests of Decorative Plantations of Black Sea Coast of Western Georgia (Abkhazia) and their Control. Tbilisi. Pp. 59-67 (in Russian).
136. **Vinokurov G.** (1917) The Weevil Beetle - Blossom Weevil (*Anthonomus pomorum* L.). Tbilisi-Erevan-Caucas. Bureau of Pest Control, Tbilisi. P. 38 (in Russian).
137. Wood Pests = Vrediteli Lesa : Hand-book (1955) A. A. Shtakelberg (ed.). Edited by Ac. Sci. USSR, M.-L. Pp. 580-648 (in Russian).
138. **Wanat M.** (1995) Systematics and phylogeny of the tribe Ceratapiini (Coleoptera: *Curculionidae: Apionidae*). Genus Suppli: 1-406.
139. **Winkler A.** (1924-1932) Catalogus coleopterum regionis palearcticae, Wien. Pp. 1775-1631,
140. **Zaitzev F.** (1917) Proceedings of the Caucasian Museum. Pp. 1-17 (in Russian).
141. **Zaitzev F.** (1937) Proceedings of Georgian Plant Protect. Exper. Station. No 1: 58-70 (in Russian).
142. **Zaitzev F.** (1956) Bulletin of Georgian Ac. Sci. xxxxx :67-105 (in Georgian).
143. **Zarkua Z.** (1970) In: Collected Articles of Lecturers Post-graduate Students of Sukhumi Univ. Sukhumi. Pp. 257-263 (in Georgian).
144. **Zarkua Z.** (1976) Transactions of Tea and Subtropical Cultures Research Institute. Ozurgeti (Makharadze)-Anaseuli. 5-6: 239-243 (in Russian).
145. **Zarkua Z., Cholokava A., Javelidze I.** (1977) In: To the Study of European Spruce Beetle (*Dendroctonus micans*) in Georgia. Vol. 3. Pp. 112-121 (in Russian).
146. **Zarkua Z., Cholokava A., Supatashvili A.** (1980) In: Pest Protection and Diseases of Woods. Vol. 1. Metsniereba, Tbilisi. Pp. 112-119 (in Georgian).
147. **Zarkua Z.** (1983) Proceedings of Sukhumi State University 1: 260-270 (in Georgian).
148. **Zarkua Z.** (1985) Transactions of Tea and Subtropical Cultures Research Institute. Ozurgeti (Makharadze)-Anaseuli. 6: 169-177 (in Russian).
149. **Zhizhilashvili T.** (1941) Inst. of Zoology. Lagodekhi Reserve, vol. I: 95-97(in Russian).
150. **Zhizhilashvili T.** (1947) Inst. of Zoology. vol. 7:155-158 (in Georgian).

**CHECKLIST OF DIVING BEETLES  
(INSECTA, COLEOPTERA, DYTISCIDAE) OF GEORGIA**

**G. Chaladze**

**Institute of zoology, Georgia, E-mail: giorgi.chaladze@gmail.com**

**Abstract.** Last checklist of Diving Beetles of Georgia was published in 1953 by F. Zaitzev and included 80 species; since then taxonomic changes occurred and some new species were registered and described. For this reason, it was necessary to update records. Currently there are 25 genera and 85 species registered in Georgia.

**Key words:** Diving beetles, Coleoptera, Distribution, Georgia.

**Abbreviations:** EG - East Georgia; WG – West Georgia.

**Subfamily Copelatinae Branden, 1885**

**Genus *Liopterus* Dejean, 1833**

1. *L. haemorrhoidalis* (Fabricius, 1787)  
Distribution: Georgia [1].

**Subfamily Laccophilinae Gistel, 1856**

**Genus *Laccophilus* Leach in Brewster, 1815**

2. *L. hyalinus* (De Geer, 1774)  
Distribution: All over Georgia [4].
3. *L. minutus* (Linnaeus, 1758)  
Distribution: All over Georgia [4].
4. *L. poecilus* Klug, 1834  
Distribution: EG: Tbilisi, Baraleti, Dzveli Lake, Manglisi, WG: Anaklia[4, 7, and Personal data]

**Subfamily Hydroporinae Aube, 1836**

**Genus *Hyphydrus* Illiger, 1802**

5. *H. ovatus* (Linnaeus, 1761)  
Distribution: EG: Gvileti, Kodjori, Mukhrovani [3,4].

**Genus *Hydrovatus* Motschulsky, 1853**

6. *H. cuspidatus* (Kunze, 1818)  
Distribution: EG: Gardabani [3,4].

**Genus *Hydroglyphus* Motschulsky, 1853**

7. *H. geminus* (Fabricius, 1792)  
Distribution: All over Georgia [3,4].
8. *H. signatellus* (Klug, 1834)  
Distribution: EG: Tbilisi, Mukhrovani, Gardabani, Akhaltsikhe, Mataniskhevi [4].

**Genus *Hygrotus* Stephens, 1828**

9. *H. armeniacus* (Zaitzev, 1927)  
Distribution: EG: Baraleti [4].
10. *H. confluens* (Fabricius, 1787)  
Distribution: EG: Tbilisi, Gardabani, Mukhrovani, Manglisi, Borjomi [4].
11. *H. enneagrammus* (Ahrens, 1833)  
Distribution: EG: Tbilisi, Gardabani, Mtskheta, Mukhrovani, Manglisi [4].
12. *H. flaviventris* (Motschulsky, 1860)  
Distribution: EG: Tbilisi, Gardabani, Mukhrovani [4].
13. *H. impressopunctatus* (Schaller, 1783)  
Distribution: All over Georgia [4].
14. *H. lernaeus* Schaum, 1857  
Distribution: EG: Lake Kus Tba [3].
15. *H. marklini* (Gyllenhal, 1813)  
Distribution: EG: Bakuriani, Baraleti, Tabatskuri Lake [4].
16. *H. pallidus* (Aube, 1850)  
Distribution: EG: Tbilisi [4,7].
17. *H. inaequalis* (Fabricius, 1776)  
Distribution: All over Georgia [4].

**Genus *Herophydrus* Sharp, 1882**

18. *H. musicus* (Klug, 1834)  
Distribution: EG: Tbilisi, Gardabani, Mukhrovani [4].

**Genus *Deronectes* Sharp, 1882**

19. *D. parvicollis* Schaum, 1864  
Distribution: EG: Tbilisi, Kojori, Bakuriani, Manglisi, Gardabani [4].

**Genus *Nebrioporus* Regimbart, 1906**

20. *N. airumlus* (Kolenati, 1845)  
Distribution: EG: Bakuriani, Borjomi, Mleta, Pasaauri, Gvileti, Gori, Manglisi, Tbilisi, Gardabani [4].
21. *N. suavis* (Sharp, 1882)  
Distribution: EG: Tbilisi [4].

**Genus *Stictotarsus* Zimmermann, 1919**

22. *S. griseostriatus* (DeGeer, 1774)  
Distribution: Bakuriani, Tsemi, Tabatskuri Lake [4].

**Genus *Scarodytes* Gozis, 1914**

23. *S. halensis halensis* (Fabricius, 1787)  
Distribution: EG: Bakuriani, Baraleti, Ktsia, Tsemi, Tabatskuri Lake [4].

**Genus *Oreodytes* Seidlitz, 1887**

24. *O. davisii davisii* (Curtis, 1831)  
Distribution: EG: Mleta [4].

**Genus *Graptodytes* Seidlitz, 1887**

25. *G. bilineatus* Sturm, 1835  
Distribution: WG: Batumi [4].

**Genus *Porhydrus* Guignot, 1945**

26. *P. lineatus* (Fabricius, 1775)  
Distribution: EG: Tbilisi, Mukhrovani [4].

**Genus *Hydroporus* Clairville, 1806**

27. *H. erythrocephalus* (Linnaeus, 1758)  
Distribution: EG: Tsalka, Bakuriani, Tabatskuri Lake [4].
28. *H. angustatus* Sturm, 1835  
Distribution: EG: Tsalka [4].
29. *H. palustris* (Linnaeus, 1761)  
Distribution: EG: Bakuriani, Borjomi, Tabatskuri Lake, Tbadzveli, Tsalka, Manglisi [4].
30. *H. jonicus caucasicus* Zaitzev, 1927  
Distribution: EG: Gvileti [4].
31. *H. ampliatus colchicus* Bilyashiwsky, 2004  
Distribution: Georgia [1].
32. *H. nigellus* Mannerheim, 1853  
Distribution: EG: Ktsia, Bakuriani, Baraleti, Tabatskuri Lake [4].
33. *H. marganatus* Duftschmid, 1805  
Distribution: EG: Baraleti, Ktsia [4].
34. *H. planus* (Fabricius, 1781)  
Distribution: EG: Bakuriani, Baraleti, Tbadzveli, Borjomi, Tbilisi, Gardabani [4].
35. *H. tessellatus* (Drapiez, 1819)  
Distribution: EG: Tbilisi, Saguramo, Lagodekhi, Telavi, Akhaltsikhe, WG: Sukhumi, [4].
36. *H. kozlovskii* Schaum, 1868  
Distribution: EG: Baraleti, Ktsia, Tabatskuri Lake [4].
37. *H. discretus* Fairmare & Brisout, 1859  
Distribution: EG: Baraleti, Ktsia, Surami, gvileti, Mleta, Pasanauri, Lagodekhi [4].
38. *H. georgicus* Bilyashiwsky, 2004  
Distribution: Georgia [1].
39. *H. jacobsoni* Zaitzev, 1927  
Distribution: EG: Bitschuri, Baraleti, Bakuriani, Gvileti, Lagodekhi [2,4].
40. *H. lencoranensis* Fery, 1999  
Distribution: Georgia [1].
41. *H. pubescens* (Gyllenhal, 1808)  
Distribution: Georgia [1].
42. *H. thracicus* Gueorguiev, 1966  
Distribution: EG: Bakuriani [2].
43. *H. transgrediens* Gschwendtner, 1923  
Distribution: Georgia [1].

**Subfamily *Agabinae* Thomson, 1867**

**Genus *Platambus* Thomson, 1859**

44. *P. maculatus* (Linnaeus, 1758)  
Distribution: EG: Mtskheta, Tbilisi [4].
45. *P. lunulatus* (Steven, 1829)  
Distribution: EG: Bakuriani, Borjomi, Abastumani, Pasanauri, Manglisi, Lagodekhi, Mleta, Tbilisi [4].

**Genus *Agabus* Leach, 1817**

46. *A. Caraboides* Sharp, 1882  
Distribution: EG: Baraleti [4].
47. *A. glacialis* Hochhuth, 1846  
Distribution: EG: Khevsureti, Manglisi, Bakuriani, Kodjori, Gvileti, GW: Svaneti [4 and Personal data].

48. *A. biguttatus* (Olivier, 1795)  
Syn.: *Gaurodytes nitidus* Fabricius, 1801  
Distribution: EG: Tbilisi, Qvabiskhevi [7 and Personal data].
49. *A. bipustulatus* (Linnaeus, 1767)  
Syn.: *Gaurodytes solieri* Aube, 1837  
Distribution: EG: Tbilisi [4,7].
50. *A. congener* (Thunberg, 1794)  
Distribution: EG: Bakuriani, Baraleti, Borjomi, Tbadzveli, Ktsia, WG: Gagra [4].
51. *A. bergi* Zaitzev, 1913  
Distribution: EG: Levan-gel Lake [4].
52. *A. amoenus amoenus* Solsky, 1874  
Distribution: EG: Tbilisi [4].
53. *A. nebulosus* (Foster, 1771)  
Distribution: EG: Tbilisi, Kobi, Manglisi, Gvileti, Telavi, Mukhrovani, Tabatskuri Lake [4,7].
54. *A. conspersus* (Marsham, 1802)  
Distribution: EG: Tbilisi, Bazaleti Lake, Mukhrovani, Gardabani [4,7].
55. *A. sturmii* (Gyllenhal in Schonherr, 1808)  
Distribution: EG: Bakuriani, Tabatskuri Lake [4].
56. *A. coxalis schmidti* Zaitzev, 1913  
Distribution: EG: Tabatskuri Lake [4].
57. *A. labiatus* (Brahm, 1791)  
Distribution: EG: Tuman-gel Lake [4,7].
58. *A. undulatus* (Schränk, 1776)  
Distribution: Georgia [1].
59. *A. affinis* (Paykull, 1798)  
Distribution: EG: Tbilisi [7].
60. *A. dilatatus* (Brulle, 1832)  
Distribution: Georgia [1].
61. *A. paludosus* (Fabricius, 1801)  
Distribution: EG: Tsitsamuri [Personal data].

#### **Genus *Ilybius* Erichson, 1832**

62. *I. cinctus* Sharp, 1882  
Distribution: EG: Lake Kus Tba [4].
63. *I. fuliginosus* (Fabricius, 1792)  
Distribution: EG: Baraleti, Borjomi, Manglisi, Gvileti, Tabatskuri Lake, Khevsha [4].
64. *I. satunini* (Zaitzev, 1913)  
Distribution: EG: Bakuriani, Baraleti, Tbadzveli, Ktsia [4].
65. *I. subaeneus* Erichson, 1837  
Distribution: EG: Tavfaravani Lake, Borjomi, Kobi, Mleta, WG: Gagra [4].

#### **Subfamily *Colymbetinae* Erichson, 1837**

#### **Genus *Rhantus* Dejean, 1833**

66. *Rh. frontalis* (Marsham, 1802)  
Syn.: *Rhantus suturalis* Lacordaire, 1835  
Distribution: EG: Tsalka, Borjomi, Baraleti, Manglisi, Mukhrovani [4].
67. *Rh. notaticollis* (Aube, 1837)  
Distribution: WG: Poti [4,6].
68. *Rh. suturalis* (MacLeay, 1825)  
Syn.: *punctatus* Geoffroy, 1785  
Distribution: EG: Tbilisi, Mukhrovani, Mtskheta, Signagi, Gardabani, Pasanauri, WG: Poti [4].

### **Genus *Colymbetes* Clairville, 1806**

69. *C. koenigi* Zaitzev, 1927  
Distribution: EG: Baraleti, Tabatskhuri Lake [4].
70. *C. semenowi* (Jakovlev, 1896)  
Distribution: Georgia [1,5].

### **Subfamily *Dytiscinae* Leach in Brewster, 1815**

#### **Genus *Eretes* Laporte, 1833**

71. *E. griseus* Fabricius, 1781  
Distribution: EG: Baraleti, Tabatskhuri Lake [4].

#### **Genus *Hydaticus* Leach, 1817**

72. *H. transversalis transversalis* Pontoppidan, 1763  
Distribution: WG: Poti, Gagra, Gudauta, Batumi [4].
73. *H. schelkovnikovi* Zaitzev, 1913  
Distribution: EG: Gardabani, WG: Poti, Gagra, Sukhumi, Batumi [4].
74. *H. grammicus* Germar, 1830  
Distribution: EG: Tbilisi, Gardabani, WG: Poti [4,6].

#### **Genus *Graphoderus* Dejean, 1833**

75. *G. cinereus* Linne, 1758  
Distribution: EG: Tbilisi, Manglisi, Bakuriani [4].
76. *G. zonatus* Hoppe, 1795  
Distribution: EG: Tabatskhuri Lake, Borjomi, Manglisi [4].

#### **Genus *Acilius* Leach, 1817**

77. *A. sulcatus* (Linnaeus, 1758)  
Distribution: EG: From Bakuriani to Tbilisi, Gvileti, Gudauri [4].

#### **Genus *Dytiscus* Linnaeus, 1758**

78. *D. dimidiatus* Bergstrasser, 1778  
Distribution: WG: Pichori [6].
79. *D. semisulcatus* O.F.Muller, 1776  
Distribution: WG: Pichori, Batumi [4].
80. *D. lapponicus lapponicus* Gyllenhal, 1808  
Distribution: EG: Tabatskhuri Lake [4].
81. *D. persicus* Wehncke, 1876  
Distribution: Georgia [4].
82. *D. circumcinctus* Ahrens, 1811  
Distribution: EG: Chartali [Personal data].
83. *D. circumflexus* Fabricius, 1801  
Distribution: EG: Tabatskhuri Lake [4].
84. *D. lateralimarginalis torquantus* Fischer von Waldheim, 1829  
Distribution: WG: Poti, Anaklia [4 and Personal data].
85. *D. marginalis marginalis* Linnaeus, 1758  
Distribution: Georgia [1].



## Bibliography

1. Nilssons N.A. 2006. Catalogue of Palaearctic Dytiscidae (web-version [http://www.emg.umu.se/biginst/andersn/cat\\_main.htm](http://www.emg.umu.se/biginst/andersn/cat_main.htm))
2. Shaverdo, H. V. 2004. Revision of the nigrita-group of *Hydroporus* Clairville, 1806 (Insecta: Coleoptera: Dytiscidae). *Annalen des Naturhistorischen Museums in Wien Serie B Botanik und Zoologie* 105 B: 217-263.
3. Зайцев Ф.А. 1927. Плавунцы Кавказа, раб.сев-кав.гидробиол.стан. №2 с.1-42
4. Зайцев Ф. А. 1953. Водные жестокрылие в фауне Грузии. Тр. Зоолу Инст. АН ГССР XI. 87-126.
5. Зайцев Ф.А. 1953. Плавунцовые и вертячки, Фауна СССР. Жесткокрылые, т. 4. М.-Л., 377 с.
6. Кобахидзе Д. Н. 1943. Анализ наземных биоценозов центральной части Колхидской низменности. – Тр. Зоолу Инст. АН ГССР V., 1-181.
7. Якобсон Г.Г. 1915. Жуки России и Западной Европы.. С.-Петербург. с. 1024.

## CHECKLIST OF THE ANTS (*FORMICIDAE* LATREILLE, 1809) OF GEORGIA

N. Gratiashvili<sup>1</sup>, Sh. Barjadze<sup>2</sup>

**1, 2- Institute of Zoology, e-mail: nanagratiashvili@yahoo.com,  
e-mail: shalva1980@yahoo.com**

**Abstract.** The investigation of the ants began from the end of 80s of 19<sup>th</sup> century in Georgia. In the investigation of Georgian ants have contributed Georgian and foreign scientists as well. According to K. Arnol'di, G. Dlussky, A. Forel, T. Jijilashvili, V. Karavaiev, N. Nasonov, M. Ruzsky, B. Seifert, A. Radchenko and G. Arakelian nowadays in Georgia are recorded 142 species of ants, which are united in 4 subfamilies and in 35 genera.

**Key words:** ants, species, Georgia

Family *Formicidae* Latreille, 1809  
Subfamily *Dolichoderinae* Forel, 1878  
Genus *Bothriomyrmex* Emery, 1869

1. *B. communistus* Santschi, 1919

Distribution: **E.G.:** Gardabani, Rustavi (Jijilashvili, 1968); **S.G.:** Akhaldaba, Akhaltsikhe, Borjomi, Chobiskhevi, surroundings of Atskuri, surroundings of Dmanisi (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

2. *B. meridionalis* (Roger, 1863)

Distribution: **E.G.:** Kvishkheti, Mtskheta, Tbilisi (Avchala) (Ruzsky, 1905).

Genus *Dolichoderus* Lund, 1831

3. *D. quadripunctatus* (Linnaeus, 1771)

Syn.: *Dolichoderus unicolor* Ruzs.

Distribution: **E.G.:** Bolnisi, Grakali, grove along the riv. Iori, Kavtiskhevi, Lagodekhi Reserve, Mt. Kochalo, Rustavi, Sartichala, surroundings of Poladauri, Tbilisi (Mushtaidi Garden, surroundings of Tbilisi), Tsodreti (Ruzsky, 1902, 1905; Jijilashvili, 1964b, 1967b, 1966, 1968, 1973, 1974a); **W.G.:** Batumi, Kutaisi, Senaki (Ruzsky, 1905, 1907; Jijilashvili, 1974b); **S.G.:** Adigeni, Akhaldaba, Akhaltsikhe, Aspindza, Baniskhevi, Borjomi, Daba, surroundings of Ota (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

Genus *Liometopum* Mayr, 1861

4. *L. microcephalum* (Panzer, 1798)

Distribution: **E.G.:** surroundings of Tbilisi (Nasonov, 1889; Ruzsky, 1905; Jijilashvili, 1964b); **W.G.:** Bagdati (Ruzsky, 1905); **S.G.:** Zekari Pass (Ruzsky, 1905).

Genus *Tapinoma* Foerster, 1850

5. *T. erraticum* (Latreille, 1798)

Syn.: *Tapinoma nigerimum* Nyl., *Tapinoma tauridis* Em., *Tapinoma tauridis transcaucasicus* Karaw.

Distribution: **E.G.:** Ertatsminda, Grakali, Igoeti, Karsani, Kavtiskhevi, Kianeti, Kojori, Kvareli, Manglisi, Mt. Iaghluja, Patara lilo, Sadakhlo, Sartichala, Satskhenhesi, Shiraki (Kasristskali, Ole gorge, Pantishara gorge, Zilcha), Shulaveri, surroundings of Bolnisi, surroundings of Digomi, surroundings of Gori, surroundings of Jandara Lake, surroundings of Kumisi Lake, surroundings of Mtskheta, surroundings of Taribana, surroundings of Tetrtskaro-Gokhnari, Tbilisi (Dendropark, Saburtalo, Shav nabada, surroundings of Turtle Lake, Tbilisi Sea, Tbilisi Botanical Garden, Vake Park, Vaziani), Tkviavi, Tsodreti, Udabno, Vashlovani Reserve (Ruzsky, 1905; Jijilashvili, 1964a, 1964b, 1966, 1968, 1973, 1974a); **W.G.:** Anaklia, Batumi, Bichvinta Reserve, Chaladidi, Kodori gorge, Kutaisi, Ochamchire, Saghoria, Sataplia, surroundings of Alakhadze, surroundings of Lake Inkiti (Ruzsky, 1905, 1907; Jijilashvili, 1974b); **S.G.:** Abastumani,

Akhaldaba, Akhaltsikhe, Bakuriani, Borjomi, Daba, Dviri, Gomareti, Gujareti, Likani, Rustavi, surroundings of Adigeni, surroundings of Aspindza, surroundings of Sapara, surroundings of Trialeti, Tsaghveri, Tsalka, Vardzia (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

6. *T. karavaievi* Emery, 1925

Distribution: **E.G.:** Dedoplistskaro, Eldari Lowland, Gori, Igoeti, Kianeti, Lekistskali, Mt. Kvernaki, Patara Lilo, Saguramo, Samgori, Sartichala, surroundings of Bolnisi, surroundings of Digomi, surroundings of Iraga, surroundings of Lake Kumisi, Taribana, Tbilisi (Dendropark, Shavnabada, surroundings of Tbilisi Sea, surroundings of Turtle Lake, Tbilisi Botanical Garden, Varketili), Tetrtskaro, Zedazeni (Jijilashvili, 1964 a, b, 1966, 1968, 1973, 1974a); **S.G.:** Adigeni, Aspindza, Bakuriani, Dmanisi, Goderdzi Pass, Gujareti, surroundings of Abastumani, surroundings of Atskuri, surroundings of Kariani, surroundings of Khertvisi, Vardzia (Jijilashvili, 1974a).

Subfamily *Formicinae* Latreille, 1809

Genus *Camponotus* Mayr, 1861

Subgenus *Camponotus* Mayr, 1861

7. *C. (Camponotus) herculeanus* (L., 1758)

Distribution: **E.G.:** Shiraki, Tbilisi (Jijilashvili, 1964b, 1966); **S.G.:** Abastumani, Aspindza, Borjomi, Goderdzi Pass, Kokhtagora, Tskhratskaro, Zekari Pass (Ruzsky, 1905; Karavaiev, 1926; Jijilashvili, 1974a).

8. *C. (Camponotus) vagus* (Scopoli, 1763)

Distribution: **E.G.:** Kvishkheti, Surroundings of Tbilisi (Nasonov, 1889; Ruzsky, 1902; Jijilashvili, 1964b); **W.G.:** Abasha, Akhali Atoni, Batumi, Bichvinta, Kintrishi, Kobuleti, Kutaisi, Oni, Poti, Sokhumi (Ruzsky, 1905, 1907; Karavaiev, 1926).

Subgenus *Colobopsis* Mayr, 1861

9. *C. (Colobopsis) truncatus* (Spinola, 1808)

Distribution: **E.G.:** Kasristskali, Lagodekhi Reserve, Tbilisi (Mushtaidi Garden, Surroundings of Tbilisi) (Ruzsky, 1902; Jijilashvili, 1964b, 1966, 1967b); **W.G.:** Akhali Atoni, Bichvinta (Ruzsky, 1905, 1907; Karavaiev, 1926); **S.G.:** Borjomi Park (Jijilashvili, 1967a).

Subgenus *Myrmentoma* Forel, 1912

10. *C. (Myrmentoma) fallax* (Nylander, 1856)

Syn.: *Camponotus ruzskyi* Em.

Distribution: **E.G.:** Kavtiskhevi, Nichbisi, Sartichala, Shiraki, Tbilisi (Mushtaidi Garden) (Ruzsky, 1905; Jijilashvili, 1964a, b, 1966, 1968); **W.G.:** Anaklia, Grigoleti, Kutaisi, Menji, Nakalakevi, Ochamchire, Sakara, Zugdidi Botanical Garden (Jijilashvili, 1974b); **S.G.:** Tsaghveri (Jijilashvili, 1967a).

11. *C. (Myrmentoma) lateralis* (Olivier, 1792)

Distribution: **E.G.:** Bolnisi, Mtskheta, Vashlovani Reserve (Ruzsky, 1902, 1905; Karavaiev, 1926, Jijilashvili, 1964b, 1966, 1974a); **W.G.:** Akhali Atoni, Bichvinta, Kutaisi, Menji, Saghoria (Ruzsky, 1905, 1907; Karavaiev, 1926; Jijilashvili, 1974b).

12. *C. (Myrmentoma) piceus* (Leach, 1825)

Syn.: *Camponotus atricolor* Nyl., *Camponotus merula* Los.

Distribution: **E.G.:** Dedoplistskaro, Grakali, Karsani, Kianeti, Kitsnisi, Kvishkheti, Lochini gorge, Manglisi, Mtskheta, Pantishara, Rustavi, Sakavre, Samgori, Tbilisi (Lisi Lake, Mtatsminda Park, Surroundings of Tbilisi Sea, Tbilisi Botanical Garden, Tbilisi Dendropark), Tkviavi (Ruzsky, 1902, 1905; Jijilashvili, 1964a, b, 1966, 1968, 1974a); **W.G.:** Batumi, Bichvinta Reserve, Oni, Sokhumi Botanical Garden (Ruzsky, 1905; Karavaiev, 1926; Jijilashvili, 1974b); **S.G.:** Abastumani, Adigeni, Akhaltsikhe, Aspindza, Atskuri, Borjomi, Khertvisi, Likani, Ota, Vardzia (Ruzsky, 1905; Jijilashvili, 1974a).

Subgenus *Tanaemyrmex* Ashmead, 1905

13. *C. (Tanaemyrmex) aethiops* (Latreille, 1798)

Syn.: *Camponotus glaber* Em., *Camponotus sylvaticoethiops* For., *Camponotus sylvaticoides* Dalla Tor.

Distribution: **E.G.:** Bolnisi, Dighomi, Eldari Lowland, Ertatsminda, Gardabani, Igoeti, Iraga, Karsani, Kaspi, Kavtiskhevi, Khachini, Kianeti, Kojori, Lagodekhi Reserve, Lekistskali, Mt. Iaghluja, Mtskheta, Pantishara gorge, Patara Lilo, Patara Shiraki, Shavnabada, Sadakhlo, Sagarejo, Sakavre, Samgori field, Samshvilde, Sartichala, Satskhenhesi, Shiraki (Kasristskali), Skra, Taribana, Tbilisi (Avchala, Lisi Lake, Mtatsminda Park, Mushtaidi Garden, Surroundings of Tbilisi sea, Tbilisi Botanical Garden), Tetrtskaro, Tskneti, Vashlovani Reserve, Vaziani, Zedazeni (Ruzsky, 1905; Jijilashvili, 1964a, b, 1966, 1967b, 1968, 1974a); **W.G.:** Asechka, Batumi, Bjinevi, Chakvi, Chiatura, Gumbra, Jvari, Kodori gorge (Ruzsky, 1905, 1907; Jijilashvili, 1974b); **S.G.:** Abastumani, Akhaldaba, Akhaltsikhe, Aspindza, Atskuri, Borjomi, Daba, Dmanisi, Goderdzi Pass, Gomareti, Likani, Machartskali, Mzetamze, Ota, Patara Tsemi, Tsaghveri, Vardzia, Zekari Pass (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

14. *C. (Tanaemyrmex) sylvaticus* (Olivier, 1792)

Distribution: **W.G.:** Chakvi (Ruzsky, 1905).

15. *C. (Tanaemyrmex) turkestanicus* Emery, 1887

Distribution: **E.G.:** Eldari Lowland (Pantishara gorge) (Jijilashvili, 1964a, b, 1966).

Genus *Cataglyphis* Foerster, 1850

16. *C. aenescens* (Nylander, 1849)

Syn.: *Cataglyphis (Monocombus) aenescens georgica* Arn., *Myrmecocystus cursor tancrei* (For.) var. *caspius* Ruzs.

Distribution: **E.G.:** Canyon Ole, Dedoplistskaro, Eldari Lowland, Gardabani, Gori, Igoeti, Karsani, Kasristskali, Kavtiskhevi, Kitsnisi, Lekistskali, Magharo, Mejvriskhevi, Mtskheta, Patara Lilo, Patara Shiraki, Samgori, Sartichala, Shavimta, Skra, Satskhenhesi, Surroundings of Tbilisi Sea, Taribana, Udabno, Vashlovani Reserve, Vaziani (Jijilashvili, 1964a, b, 1966, 1968; Arnol'di, 1968); **S.G.:** Akhalkalaki, Aspindza, Rustavi, Vardzia (Jijilashvili, 1974a).

17. *C. nigripes* Arnol'di, 1964

Syn.: *Myrmecocystus viaticus setipes* var. *turcomanica* Em.

Distribution: **E.G.:** Eldari Lowland, Gardabani, Kaltani gorge, Karsani, Lekistskali, Pantishara gorge, Shulaveri, Taribana, Tbilisi (Avchala, Saburtalo, Surroundings of Turtle Lake), Udabno, Vashlovani Reserve (Ruzsky, 1905; Arnol'di, 1964; Jijilashvili, 1964b, 1966, 1968).

18. *C. nodus* (Brullé, 1833)

Syn.: *Cataglyphis nodus caucasicola* Arn.

Distribution: **E.G.:** Armazi gorge, Bolnisi, Canyon Ole, Dedoplisthkaro, Dighomi, Eldari Lowland, Gardabani, Kaltani gorge, Khachini, Kumisi, Lekistskali, Mt. Ialghuja, Pantishara gorge, Sadakhlo, Saguramo, Surroundings of Lisi Lake, Surroundings of Shulaveri Lake, Taribana, Tbilisi Botanical Garden, Vashlovani Reserve (Arnol'di, 1964; Jijilashvili, 1964b, 1966, 1968, 1974a).

19. *C. viaticus* (Fabricius, 1787)

Syn.: *Myrmecocystus viaticus* (Fabr.) *desertorum* For.

Distribution: **E.G.:** Mtskheta, Surroundings of Tbilisi (Ruzsky, 1905).

Genus *Formica* L., 1758

20. *F. aquilonia* Yarrow, 1951

Distribution: **S.G.:** Akhaltsikhe, Ota, Sapara, Tadzrisi (Jijilashvili, 1967a, 1974a).

21. *F. candida* Smith, 1878

Syn.: *Formica transcaucasica* Nason.

Distribution: **E.G.:** Kazbegi, Tbilisi (Nasonov, 1889; Ruzsky, 1905).

22. *F. cinerea* Mayr, 1853

Syn.: *Formica cinerea armenica* Ruzs., *Formica imitans* Ruzs.

Distribution: **E.G.:** Bolnisi, Dariali gorge, Dedoplistskaro, Ertatsminda, Gudamakari gorge, Iori gorge, Kakheti Region-without exact locality, Karsani, Kavtiskhevi, Kazreti, Khachini, Khrami gorge,

Lagodekhi Reserve, Larsi, Luri, Manglisi, Mukhrani, Pasanauri, Pitareti, Poladauri, Rveli, Sartichala, Shulaveri, Tbilisi (Avchala, Mushtaidi Garden, Surroundings of the Tbilisi Sea), Tetrtskaro, Tsereti (Ruzsky, 1905; Jijilashvili, 1964a, b, 1966, 1967b, 1968, 1974a); **W.G.:** Akhali Atoni, Anaklia, Anaria, Baghdati, Bank of Inkiti Lake, Batumi, Buknara, Bzipi gorge, Chakvi, Chanistskali gorge, Colkhic Reserve, Darcheli, Gagra, Ghalidzga gorge, Grigoreti, Gulripshi, Ingiri, Kobuleti, Kutaisi, Mt. Urta, Nakalakevi, Natanebi, Ochamchire, Pichora gorge, Poti, Supsa gorge, Surebi, Tsaishi, Tsalenjikha (Nasonov, 1889; Ruzsky, 1905; Jijilashvili, 1974b); **S.G.:** Abastumani, Akhaldaba, Aspindza, Bakuriani, Borjomi Park, Daba, Gomareti, Gorelovka, Gujareti, Gujaretistskali gorge, Khanchali Lake, Khertvisi, Machartskali, Tsaghveri, Tsalka, Vardzia (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

23. *F. cinereofusca* Karavaiev, 1929

Distribution: **W.G.:** Svaneti Region, without exact locality (Karavaiev, 1929).

24. *F. clara* Forel, 1886

Distribution: **E.G.:** surroundings of Tbilisi (Ruzsky, 1905).

25. *F. cunicularia* Latreille, 1798

Syn.: *Formica (Serviformica) cunicularia glauca* Ruzs., *Formica (Serviformica) cunicularia fuscoides* Dluss., *Formica rufibarbis clara* var. *caucasica* Ruzs.

Distribution: **E.G.:** Adzvisi, Bolnisi, Canyon Ole, Dedoplistskaro, Dighomi, Ertatsminda, Gardabani, Grakali, Karsani, Kavtiskhevi, Kazreti, Khachini, Kianeti, Kiketi, Kitsnisi, Kojori, Lagodekhi Reserve, Lochini gorge, Loshkineti, Luri, Magharo, Mejvriskhevi, Mukhrani, Sadakhlo, Saguramo, Sakavre, Samgori, Shavimta, Shulaveri, Skra, Taribana, Tbilisi (Mtatsminda Park, Surroundings of Tbilisi Sea, Surroundings of Turtle Lake, Tbilisi Botanical Garden, Tbilisi Dendropark), Tetrtskaro, Tskneti, Tsodoreti, Udzo, Varketili, Vaziani, Zedazeni (Jijilashvili, 1964a, b, 1966, 1967b, 1968); **W.G.:** Ajameti, Alakhadzi, Batumi Botanical Garden, Bichvinta Reserve, Bjinevi, Chakvistavi, Chalaburi, Chaladidi, Enguri gorge, Eshera, Gagra, Green Cape, Gumbra, Ingiri, Issue of riv. Rioni and Tekhuri, Khobi, Kobuleti, Kodori gorge, Menji, Nakalakevi, Natanebi, Ochamchire, Senaki, Surroundings of Inkiti Lake, Tsaishi, Tsalenjikha, Tskaltubo, Zestaponi, Zorveti, Zugdidi Botanical Garden (Jijilashvili, 1974b); **S.G.:** Abastumani, Akhaldaba, Akhalkalaki, Akhaltsikhe, Aspindza, Atskuri, Avralo, Bakuriani Botanical Garden, Baniskhevi, Bogdanovka, Borjomi (Borjomi Park), Chitakhevhesi, Daba, Dmanisi, Dviri, Goderdzi Pass, Gomareti, Gujareti, Kariani, Khanchali Lake, Likani, Mzetamze, Patara Tsemi, Saghamo Lake, Sakochao, Tadzrisi, Tandzia, Trialeti, Tsaghveri, Tsalka, Tsikhisjvari (Jijilashvili, 1967a, 1974a).

26. *F. fennica* Seifert, 2000

Distribution: **E.G.:** Shenako (Seifert, 2000).

27. *F. foreli* Bondroit, 1918

Syn.: *Formica (Coptoformica) tamarae* Dluss.

Distribution: **E.G.:** Omalo (Dlussky, 1964); **S.G.:** Bakuriani, Gorelovka, Gujareti, Tsalka (Jijilashvili, 1967a, 1974a).

28. *F. fusca* L., 1758

Distribution: **E.G.:** Ertatsminda, Kavtiskhevi, Khrami gorge, Lagodekhi Reserve, Saguramo, Tetrtskaro, Tkemlovani, Zedazeni (Jijilashvili, 1964a, b, 1967b, 1968, 1974a); **W.G.:** Chakvistavi, Kobuleti (Jijilashvili, 1974b); **S.G.:** Abastumani, Akhaldaba, Bakuriani, Goderdzi Pass, Gorelovka, Gujareti, Kokhtagora, Tsalka, Tskhratskaro, Zekari Pass (Karavaiev, 1926; Jijilashvili, 1967a, 1974a).

29. *F. georgica* Seifert, 2002

Distribution: **E.G.:** Barisakho, Kazbegi, Mtskheta, Omalo, Pasanauri, Shatili, Shenako (Seifert, 2002).

30. *F. lemani* Bondroit, 1917

Distribution: **S.G.:** Bogdanovka, Khanchali Lake, Paravani Lake, Tabatskuri Lake, Tskhratskaro Pass (Jijilashvili, 1967a, 1974a).

31. *F. picea* Nylander, 1846  
Distribution: **S.G.:** Bakuriani, Bogdanovka, Khanchali Lake, Tabatskuri Lake, Tikmatashi Pass (Jijilashvili, 1967a, 1974a).
32. *F. pratensis* Retzius, 1783  
Distribution: **E.G.:** Manglisi (Ruzsky, 1905); **S.G.:** Abastumani (Ruzsky, 1905).
33. *F. rufa* L., 1761  
Distribution: **S.G.:** Abastumani (Ruzsky, 1905).
34. *F. rufibarbis* Fabricius, 1793  
Distribution: **E.G.:** Dedoplistskaro, Dighomi, Gardabani, Kazbegi, Manglisi, Mtskheta, Pasaauri, Rustavi, Sagarejo, Sakavre, Sartichala, Tbilisi (Ortachala, Surroundings of Tbilisi Sea, Tbilisi Botanical Garden), Tsereti, Udabno, Varketili (Ruzsky, 1905; Jijilashvili, 1964a, b, 1966, 1968, 1974a); **W.G.:** Ajameti, Bank of Inkiti Lake, Batumi, Bichvinta Reserve, Bjinevi, Chakvi, Kutaisi, Oni, Ozurgeti, Poti (Ruzsky, 1905, 1907; Jijilashvili, 1974b); **S.G.:** Abastumani, Adigeni, Arjevanidze forest, Aspindza, Bakuriani, Baniskhevi, Bogdanovka, Borjomi Park, Daba, Gujarjeti, Kimotesubani, Ota, Tadzrisi, Trialeti, Tsaghveri, Tsalka (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).
35. *F. sanguinea* Latreille, 1798  
Syn.: *Formica clarior* Ruzs.  
Distribution: **E.G.:** Dighomi, Ertatsminda, Igoeti, Iraga, Karsani, Kavtiskhevi, Kiketi, Kojori, Kvishkheti, Lagodekhi Reserve, Manglisi, Rustavi, Saguramo, Sakavre, Samshvilde, Surroundings of Gori, Tbilisi (Surroundings of Turtle Lake), Tetrtskaro, Tskneti, Velebi (Nasonov, 1884; Jijilashvili, 1964a, b, 1966, 1967b, 1968, 1974a); **W.G.:** Akhali Atoni, Bichvinta, Eshera, Sokhumi (Ruzsky, 1905, 1907; Jijilashvili, 1974b); **S.G.:** Abastumani, Adigeni, Akhalkalaki, Akhaltsikhe, Aspindza, Bakuriani, Borjomi, Daba, Mzetamze, Ota, Sapara, Tadzrisi, Tba, Trialeti, Tsaghveri, Tsalka, Zekari Pass (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).
36. *F. subpilosa* Ruzsky, 1902  
Distribution: **E.G.:** Bank of Jandara Lake, Dighomi, Gardabani, Kavtiskhevi, Kiketi, Lochini gorge, Mtskheta, Rustavi, Taribana, Tbilisi (Avchala, Samgori, Surroundings of Tbilisi Sea) (Ruzsky, 1902, 1905; Jijilashvili, 1964b, 1966, 1968).
- Genus *Plagiolepis* Mayr, 1861
37. *P. pallescens* Forel, 1889  
Distribution: **E.G.:** surroundings of Tbilisi (Ruzsky, 1905); **S.G.:** Borjomi (Ruzsky, 1905).
38. *P. pygmaea* (Latreille, 1798)  
Distribution: **E.G.:** Manglisi, Mtskheta, Tbilisi (Avchala, Mushtaidi Garden, surroundings of Lisi Lake; Tbilisi Botanical Garden) (Ruzsky, 1905); **W.G.:** Batumi, Oni, Tsesi (Ruzsky, 1905).
- Genus *Polyergus* Latreille, 1804
39. *P. rufescens* (Latreille, 1798)  
Distribution: **E.G.:** Manglisi (Ruzsky, 1905); **W.G.:** Bjinevi (Jijilashvili, 1974b); **S.G.:** Borjomi, Daba, Tadzrisi, Vardzia (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).
- Genus *Proformica* Ruzsky, 1902
40. *P. caucasea* (Santschi, 1925)  
Distribution: **E.G.:** Tbilisi (Karavaiev, 1926).
41. *P. kobachidzei* Arnol'di, 1968  
Distribution: **E.G.:** Zemo Omalo (Arnol'di, 1968).
42. *P. nasuta* (Nylander, 1856)  
Distribution: **E.G.:** Canyon Ole, Eldari Lowland, Gori, Karsani, Kavtiskhevi, Kobi, Lekistskali, Mt. Ialghuja, Mtskheta, Sartichala, Shulaveri, Surroundings of Gori, Surroundings of Gremi, Taribana,

Tbilisi (Mtatsminda, Mushtaidi Garden, Surroundings of Tbilisi Sea, Tbilisi Botanical Garden, Turtle Lake), Vashlovani Reserve (Ruzsky, 1905; Jijilashvili, 1964a, b, 1966, 1968, 1974a); **W.G.:** Batumi, Chakvi (Ruzsky, 1905); **S.G.:** Abastumani, Akhaltsikhe, Aspindza, Borjomi, Daba, Dviri, Rustavi, Tsaghveri, Vardzia (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

43. *P. pilosiscapa* Dlussky, 1969

Distribution: **W.G.:** Surroundings of Skurhesi, Tsalenjikha (Dlussky, 1969; Jijilashvili, 1974b).

Genus *Lasius* Fabricius, 1804

Subgenus *Cautolasius* Wilson, 1955

44. *L. (Cautolasius) flavus* (Fabricius, 1782)

Syn.: *Lasius (Cautolasius) flavus* (F.) var. *fuscoides* Ruzs., *Lasius (Cautolasius) flavus* (F.) var. *odoratus* Ruzs.

Distribution: **E.G.:** Bolnisi, Bukhurtkhevi-tskali gorge, Bursachili, Dedoplistskaro, Didi Lilo, Dighomi, Gokhnari, Iraga, Kobi, Kojori, Lagodekhi Reserve, Larsi, Lekistskali, Lilo, Loshkineti, Manglisi, Mleta, Pantishara, Pasanauri, Sartichala, Satskhenhesi, Shiraki, Tbilisi (Surroundings of Tbilisi Sea, Tbilisi Dendropark, Vaziani), Tetrtskaro, Tkemlovani, Tskneti, Udabno (Ruzsky, 1905; Jijilashvili, 1964a, b, 1967b, 1968, 1974a); **W.G.:** Kutaisi, Oni, Sokhumi, Surroundings of Skurhesi, Tsalenjikha (Ruzsky, 1905; Karavaiev, 1926; Jijilashvili, 1974b); **S.G.:** Abastumani, Atskuri, Avralo, Bakuriani, Bogdanovka, Borjomi, Goderdzi Pass, Gorelovka, Great and Minor Khanchali Lakes, Kariani, Paravani Lake, Tikmatashi Pass, Trialeti, Tsalka, Zekari Pass (Ruzsky, 1905; Jijilashvili, 1967a, Jijilashvili, 1974a).

45. *L. (Cautolasius) myops* Forel, 1894

Distribution: **S.G.:** Zekari Pass (Ruzsky, 1905).

Subgenus *Chthonolasius* Ruzsky, 1912

46. *L. (Chthonolasius) bicornis* (Foerster, 1850)

Distribution: **E.G.:** Tbilisi (Seifert, 1988); **W.G.:** Ritsa Lake (Seifert, 1988); **S.G.:** Adigeni, Avralo, Baniskhevi, Gujaretistskali, Tsaghveri, Tsalka (Jijilashvili, 1967a, 1974a).

47. *L. (Chthonolasius) citrinus* Emery, 1922

Syn.: *Lasius (Chthonolasius) affinis* Schenck.

Distribution: **E.G.:** Kazbegi, Kvishkheti (Ruzsky, 1905; Seifert, 1988, 1990) **S.G.:** Borjomi, Kimotesubani (Ruzsky, 1905; Jijilashvili, 1967a).

48. *L. (Chthonolasius) distinguendus* (Emery, 1916)

Distribution: **E.G.:** Kavtiskhevi (Jijilashvili, 1964a, b).

49. *L. (Chthonolasius) mixtus* (Nylander, 1846)

Distribution: **E.G.:** Tbilisi (Ruzsky, 1905; Jijilashvili, 1964b).

50. *L. (Chthonolasius) rabaudi* (Bondroit, 1917)

Distribution: **S.G.:** Bogdanovka, Khanchali Lake (Jijilashvili, 1974a).

51. *L. (Chthonolasius) umbratus* (Nylander, 1846)

Distribution: **E.G.:** Tbilisi (Mushtaidi Garden) (Ruzsky, 1902; Jijilashvili, 1964b); **S.G.:** Bogdanovka, Borjomi, Daba, Khanchali Lake (Ruzsky, 1902, 1905; Jijilashvili, 1967a, 1974a).

Subgenus *Dendrolasius* Ruzsky, 1912

52. *L. (Dendrolasius) fuliginosus* (Latreille, 1798)

Distribution: **E.G.:** Bolnisi, Poladauri (Jijilashvili, 1974a) **S.G.:** Borjomi (Borjomi Park, Borjomi Plateau), Tsaghveri (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

Subgenus *Lasius* Fabricius, 1804

53. *L. (Lasius) alienus* (Foerster, 1850)

Distribution: **E.G.:** Bank of Jandara Lake, Bolnisi, Bursachili, Gardabani, Grakali, Gudauri, Gveleti, Igoeti, Iraga, Kasristskali, Kavtiskhevi, Kazbegi, Kazreti, Khrami gorge, Kianeti, Kitsnisi, Kojori, Kvishkheti, Lagodekhi Reserve, Larsi, Lekistskali gorge, Luri, Manglisi, Mleta, Mtskheta, Nichbisi, Pantishara, Pasanauri, Poladauri, Saguramo, Sakavre, Samshvilde, Satskhenhesi, Shavimta, Shulaveri, Sighnaghi, Taribana, Tbilisi (Mushtaidi Garden, Tbilisi Botanical Garden), Tetrtskaro, Tkemlovani, Tkviavi, Udabno, Zedazeni (Ruzsky, 1905; Jijilashvili, 1964a, b, 1966, 1967b, 1968, 1974a); **W.G.:** Abasha, Ajshesi, Akhali Atoni, Anaklia, Anaria, Baghdati, Batumi Botanical Garden, Bichvinta Reserve, Bjineti, Chakvi, Chaladidi, Chakvistskali, Eshera, Grigoreti, Ingiri, Inkiti Lake, Kakhabeti, Khobi, Kobuleti, Kutaisi, Lidzava, Menji, Nakalakebi, Natanebi, Ochamchire, Oni, Poti, Senaki, Sokhumi, Sviri, Tsaishi, Tsalenjikha, Tsesi, Zestaponi, Zugdidi Botanical Garden (Ruzsky, 1905; Karavaiev, 1926; Jijilashvili, 1974b); **S.G.:** Abastumani, Akhalkalaki, Akhaltsikhe, Aspindza, Avraro, Bakuriani, Bogdanovka, Borjomi, Dmanisi, Goderdzi Pass, Gogasheni, Kariani, Khanchali Lake, Ota, Paravani Lake, Sapara, Tabatskuri, Trialeti, Tsalka, Zekari Pass (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

54. *L. (Lasius) brunneus* (Latreille, 1798)

Distribution: **E.G.:** Bolnisi, Gardabani, Kianeti, Kiketi, Manglisi, Pasanauri (Ruzsky, 1905; Jijilashvili, 1968, 1974a); **W.G.:** Akhali Atoni, Baghdati, Bank of the riv. Rioni, Kutaisi, without exact locality, Poti, Sokhumi, Surebi, Tsaishi, Zugdidi (Ruzsky, 1905; Karavaiev, 1926; Jijilashvili, 1974b); **S.G.:** Akhaldaba, Aspindza, Bakuriani, Baniskhevi, Borjomi Park, Kimotesubani, Mzetamze, Ota, Tsaghveri, Tsalka, Trialeti, Vardzia, Zekari Pass (Jijilashvili, 1967a, 1974a).

55. *L. (Lasius) emarginatus* (Olivier, 1792)

Distribution: **E.G.:** Bolnisi, Ertatsminda, Igoeti, Kazreti, Khrami gorge, Kianeti, Lagodekhi Reserve, Manglisi, Poladauri, Saguramo, Samshvilde, Shavimta, Tetrtskaro, Tskneti, Tsodoreti, Zedazeni, Zilcha (Jijilashvili, 1964a, b, 1966, 1967b, 1968, 1974a); **W.G.:** Anaklia, Asechka, Skurhesi, Batumi Botanical Garden, Bichvinta Reserve, Chakvi, bank of the riv. Chaladidi, without exact locality, Chanistskali, Engurhesi, Ghalidzga gorge, Kakhabeti, Khobi, Kodori gorge, Lidzava, Natanebi, Ochamchire, Telmandarcheli, Tkvarcheli, Tsalenjikha, Zestaponi, Zugdidi (Zugdidi Botanical Garden) (Ruzsky, 1905; Karavaiev, 1926; Jijilashvili, 1974b); **S.G.:** Abastumani, Adigeni, Akhaldaba, Akhaltsikhe, Aspindza, Baniskhevi, Bank of the riv. Borjomula without exact locality, Borjomi (Borjomi Park, Borjomi plateau), Daba, Gomareti, Kariani, Libani, Mzetamze, Patara Tsemi, Sapara, Tadzrisi, Tsaghveri, Vardzia (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

56. *L. (Lasius) lasioides* (Emery, 1869)

Distribution: **E.G.:** Tbilisi (Avchala) (Ruzsky, 1905); **W.G.:** Alakhadzi, Anaklia, Asechka, Bank of Inkiti Lake, Bichvinta Reserve, Chakvistskali, Darcheli, Green Cape, Kakhabeti, Khelvachauri, Khobi, Kutaisi, Lidzava, Menji, Ochamchire, Senaki, Tsalenjikha, Tskaltubo, Zestaponi, Zovreti, Zugdidi (Jijilashvili, 1974b).

57. *L. (Lasius) niger* (L., 1758)

Distribution: **E.G.:** Gardabani, Grove across the riv. Iori, Manglisi, Sadakhlo, Sartichala, Tbilisi (Samgori field), Tetrtskaro (Ruzsky, 1905; Jijilashvili, 1964b, 1966, 1968, 1974a); **W.G.:** Abasha, Alakhadzi, Anaklia, Bank of Inkiti Lake, Bichvinta Reserve, Chaladidi, Kakhabeti, Khobi, Khrami gorge, Kobuleti, Menji, Natanebi, Ochamchire, Poti, Senaki, Surroundings of Paliastomi Lake, Surroundings of Poti (Ruzsky, 1905, 1907; Jijilashvili, 1974b); **S.G.:** Bakuriani, Borjomi (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

58. *L. (Lasius) obscuratus* Stitz, 1930

Distribution: **E.G.:** upper valleys of the rivers Alazani, Andiskoysu, Aragvi, Argun, Assa, Terek (Seifert, 1992).

59. *L. (Lasius) turcicus* Santschi, 1921

Distribution: **E.G.:** Tbilisi (Seifert, 1992).



Genus *Lepisiota* Santschi, 1926

60. *L. frauenfeldi* (Mayr, 1855)

Syn.: *Lepisiota caucasica* (Santschi, 1917)

Distribution: **E.G.:** Eldari Lowland, Gardabani, Kaltani gorge, Pantishara gorge, Vashlovani Reserve (Jijilashvili, 1964b, 1966); **W.G.:** Baghdati, Kutaisi (Ruzsky, 1905, 1907).

Genus *Paratrechina* Motschoulsky, 1863

61. *P. colchica* Pisarski, 1960

Distribution: **W.G.:** Achishesi, Batumi, Buknara, Ingiri, Kakhaberi, Kochi, Zugdidi Botanical Garden (Pisarski, 1960; Jijilashvili, 1974b).

Genus *Prenolepis* Mayr, 1861

62. *P. nitens* (Mayr, 1853)

Distribution: **W.G.:** Batumi Botanical Garden, Kutaisi (Ruzsky, 1905, 1907; Jijilashvili, 1974b).

Subfamily *Myrmicinae* Lepeletier de Saint-Fargeau, 1835

Genus *Aphaenogaster* Mayr, 1853

63. *A. georgica* Arnol'di, 1968

Distribution: **E.G.:** Shiraki, without exact locality (Arnol'di, 1968); **S.G.:** Dmanisi (Arnol'di, 1968).

64. *A. gibbosa* (Latreille, 1798)

Syn.: *A. gibbosa muschtaidica* Ruzs.

Distribution: **E.G.:** Near to Davit Gareji monastery, surroundings of Kianeti, Tbilisi (Mushtaidi), Udabno (Ruzsky, 1905, Jijilashvili, 1964b, 1966, 1974a).

65. *A. kurdica* Ruzsky, 1905

Distribution: **E.G.:** Lagodekhi Reserve (Jijilashvili, 1967b); **S.G.:** Khrami gorge (Tsalka district), surroundings of Atskuri (Jijilashvili, 1974a).

66. *A. obsidiana* (Mayr, 1861)

Distribution: **E.G.:** Bursachili, Gudauri, Mleta, Pasanauri (Ruzsky, 1905); **S.G.:** Goderdzi Pass (Ruzsky, 1905; Jijilashvili, 1974a).

67. *A. semipolita* (Nylander, 1856)

Distribution: **W.G.:** Batumi (Ruzsky, 1905).

68. *A. splendida transcaucasica* Karavaiev, 1926

Distribution: **E.G.:** Shiraki (Canyon Ole) (Jijilashvili, 1964a, b, 1966).

69. *A. subterranea* (Latreille, 1798)

Distribution: **E.G.:** Algeti, Betania, Ertatsminda, Gardabani, Karsani, Kavtiskhevi, Kianeti, Kvishkheti, Lagodekhi Reserve, Saguramo, Shiraki-Shavimta, surroundings of Kazreti, surroundings of Tetrtskaro, Tbilisi, Zedazeni (Ruzsky, 1902, 1905; Jijilashvili, 1964b, 1966, 1967b, 1968, 1973, 1974a); **W.G.:** Baghdati, Batumi (Batumi Botanical Garden, Green cape), Bichvinta Reserve, Chakvistavi, Colchic Reserve, Natanebi, Rioni, Sakara, Sataplia, Surebi, surroundings of Kutaisi, Sviri, Tsaishi, Tsalenjikha, Zugdidi Botanical Garden (Ruzsky, 1905, 1907; Jijilashvili, 1974b); **S.G.:** Abastumani, Akhaldaba, Akhaltsikhe, Borjomi Park, Dviri, Kimotesubani, Likani, surroundings of Chitakhevhesi, surroundings of Dmanisi, Tsaghveri, Tsalka, Zekari Pass (Ruzsky, 1905; Karavaiev, 1926; Jijilashvili, 1967a, 1974a).

70. *A. testaceopilosa* (Lucas, 1849)

Distribution: **W.G.:** Baghdati, Kutaisi (Ruzsky, 1905).

Genus *Cardiocondyla* Emery, 1869

71. *C. elegans* Emery, 1869

Distribution: **E.G.:** Mtskheta, Pantishara, Taribana, Tbilisi (Avchala, Lisi Lake, Mushtaidi Garden, Tbilisi Botanical Garden) (Ruzsky, 1902, 1905; Jijilashvili, 1964b, 1966); **W.G.:** Batumi, Ingiri, Poti, Telmani-Darcheli (Ruzsky, 1905, 1907; Jijilashvili, 1974b); **S.G.:** Abastumani, Akhaltsikhe, Borjomi (Ruzsky, 1905).

72. *C. sahlbegi* Forel, 1913

Distribution: **E.G.:** Diklo, Tbilisi (Seifert, 2003).

73. *C. stambuloffii* Forel, 1892

Syn.: *Cardiocondyla bogdanovi* Ruzs.

Distribution: **E.G.:** Taribana (Jijilashvili, 1964a, b, 1966).

Genus *Crematogaster* Lund, 1831

Subgenus *Crematogaster* Lund, 1831

74. *C. (Crematogaster) laestrygon* Emery, 1869

Distribution: **W.G.:** Chakvi (Ruzsky, 1905).

75. *C. (Crematogaster) schmidti* (Mayr, 1853)

Distribution: **E.G.:** Bolnisi, Gardabani, Karsani, Kavtischevi, Kianeti, Khachini, Lagodekhi Reserve, Mtskheta, Nichbisi, Sadakhlo, Saguramo, Signaghi, surroundings of Poladauri, Taribana, Tbilisi (Avchala, Tbilisi Botanical Garden), Udabno, Vashlovani Reserve (Ruzsky, 1902, 1905; Jijilashvili, 1964b, 1967b, 1966, 1968, 1973, 1974a); **W.G.:** Akhali Atoni, Anaklia, Batumi (Batumi Botanical Garden, Green cape), Bichvinta, Chakvi, Chaladidi, Eshera, Ingiri, Kakhaveri, Khobi, Kobuleti, Kodori gorge, Kutaisi, Poti, Rioni, Sakara, Senaki, Zugdidi Botanical Garden (Ruzsky, 1905, 1907; Karavaiev, 1926; Jijilashvili, 1974b); **S.G.:** Borjomi, surroundings of Chitakhevhesi, Zekari Pass (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

76. *C. (Crematogaster) scutellaris* (Olivier, 1792)

Distribution: **W.G.:** Batumi (Ruzsky, 1905).

77. *C. (Crematogaster) subdentata* Mayr, 1877

Distribution: **E.G.:** Igoeti, Kavtiskhevi, surroundings of Gori, surroundings of Lisi Lake, Taribana (Ruzsky, 1902, 1905; Jijilashvili, 1964b, 1966, 1968, 1973).

Subgenus *Orthocrema* Santschi, 1918

78. *C. (Orthocrema) bogojawlenskii* Ruzsky, 1905

Syn.: *Crematogaster (Crematogaster) kosti* Ruzs.

Distribution: **E.G.:** Tbilisi (Lisi Lake) (Ruzsky, 1905).

79. *C. (Orthocrema) sordidula* (Nylander, 1849)

Distribution: **E.G.:** Bolnisi, Poladauri, Ratevani, surroundings of Khachini, surroundings of Mtskheta, Tbilisi (Mtatsminda plateau, surroundings of Lisi Lake, surroundings of Turtle Lake) (Ruzsky, 1905; Jijilashvili, 1964b, 1968, 1974a).

Genus *Harpagoxenus* Forel, 1893

80. *H. sublaevis sublaevis caucasicus* Armol'di, 1968

Distribution: **S.G.:** Patara Them, Tsaghveri (Jijilashvili, 1967a; Armol'di, 1968).

Genus *Leptothorax* Mayr, 1855

81. *L. acervorum* (Fabricius, 1793)

Distribution: **W.G.:** Manglisi, riv. Rioni, without exact locality (Ruzsky, 1905); **S.G.:** Adigeni, Baniskhevi, Kimotesubani, Mzetamze, Sakochao, surroundings of Bakuriani, Tsaghveri, Tskhratskaro Pass, Zekari Pass (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

82. *L. muscorum* (Nylander, 1846)

Distribution: **E.G.:** Kazbegi, Saguramo, Zedazeni (Ruzsky, 1905; Jijilashvili, 1968); **S.G.:** Adigeni, Aspindza, surroundings of Ota, Zekari Pass (Ruzsky, 1905; Jijilashvili, 1974a)

83. *L. scamni* Ruzsky, 1905

Distribution: **S.G.:** Abastumani (Ruzsky, 1905).

Genus *Manica* Jurine, 1807

84. *M. rubida* (Latreille, 1802)

Distribution: **E.G.:** Manglisi, Tkemlovani (Jijilashvili, 1973, 1974a); **W.G.:** Chakvi, Mamisoni Pass (Ruzsky, 1905, 1907); **S.G.:** Abastumani, Akhaldaba, Bakuriani Botanical Garden, Bogdanovka, Borjomi Park, Ota, Patara Tsemi, Sapara, surroundings of Didi and Mtsire Khanchali Lakes, Tabatskuri, Tadzrisi, Tsaghveri, Zekari Pass (Ruzsky, 1902, 1905; Karavaiev, 1926; Jijilashvili, 1967a, 1974a).

Genus *Messor* Forel, 1890

85. *M. caducus* (Victor, 1839)

Syn.: *Messor caducus caucasicola* Arn.

Distribution: **E.G.:** Tbilisi (Arnol'di, 1977).

86. *M. incorruptus* Kuznetsov-Ugamsky, 1929

Syn.: *Messor aegyptiacus* var. *incorruptus* Ruzs.

Distribution: **E.G.:** Kojori, Tbilisi (Ruzsky, 1905); **S.G.:** Abastumani, Akhaltsikhe (Ruzsky, 1905).

87. *M. melancholicus* Arnol'di, 1977

Distribution: **E.G.:** Eldari Lowland, Gardabani, Shiraki (Zilcha), surroundings of Dighomi, Tbilisi (Mtatsminda Park, Shav nabada, surroundings of Tbilisi, Tbilisi Botanical Garden) (Jijilashvili, 1964a, b, 1968); **S.G.:** Aspindza, surroundings of Atskuri (Jijilashvili, 1974a).

88. *M. meridionalis* (André, 1883)

Distribution: **E.G.:** Eldari Lowland, Gardabani, Manglisi, Shiraki (Kasris-tskali), surroundings of Dighomi, Lekistskali, Mt. Iaghluja, Mtskheta, Pantishara, Patara Shiraki, Shulaveri, Rustavi, Taribana, Tbilisi (Mushtaidi Garden, surroundings of Lisi Lake, surroundings of Tbilisi Sea, Tbilisi Botanical Garden, Varketili), Vashlovani Reserve, Zilcha (Ruzsky, 1905; Jijilashvili, 1964b, 1966, 1968).

89. *M. structor* (Latreille, 1798)

Syn.: *Messor rufitarsis* (s. l.), *Messor rufitarsis* F., *Messor clivorum* Ruzs., *Messor clivorum sevani* Arn.

Distribution: **E.G.:** Adzvisi, Bolnisi, Digomi, Eldari Lowland, Ertatsminda, Gamarjveba, Gardabani, Iraga, Gori, Ghoghasheni, Karsani, Kavtiskhevi, Kojori, Kvishkheti, Lagodekhi Reserve, Manglisi, Nichbisi, Saguramo, Sakavre, Shiraki (Kasristskali, Zilcha, Canyon Ole, Didi Shiraki), Signaghi, surroundings of Dighomi, surroundings of Iraga, surroundings of Lisi Lake, Shulaveri, surroundings of Satskhenhesi, Taribana, Tetrtskaro, Udabno, Pantishara, Vashlovani Reserve, Tbilisi (Avchala, Krtsanisi, Mtatsminda Park, Mt. Shav nabada, Tbilisi Botanical Garden, Samgori field, surroundings of Tbilisi Sea, surroundings of Turtle Lake), Tkemlovani, Zedazeni, Zilcha, (Ruzsky, 1905; Jijilashvili, 1964a, b, 1967b, 1966, 1968, 1973, 1974a); **W.G.:** Akhali Atoni, Bank of riv. Choloburi without exact locality, Bichvinta reserve, Bjinevi, Chiatura, Rgani, Gumbra, Kodori gorge, Kvemo Sakara, surroundings of Zorveti, Tskaltubo, Vani, Zestaponi (Ruzsky 1905; Karavaiev, 1926; Jijilashvili, 1974b); **S.G.:** Abastumani, Akhaldaba, Akhalkalaki, Akhaltsikhe, Borjomi Park, Chitakhevhesi, Chobiskhevi, Daba, Dviri, Gujareti, Machartskali, Patara Tsemi, Sapara, Tsaghveri, Vardzia, Zekari Pass (Ruzsky, 1905; Karavaiev, 1926; Jijilashvili, 1967a, 1974a).

Genus *Monomorium* Mayr, 1855

90. *M. dentigerum* (Roger, 1862)

Distribution: **E.G.:** Eldari Lowland, Lekistskali, Surroundings of Mingechauri, Taribana (Jijilashvili, 1964a, b, 1966).

91. *M. pharaonis* (Linnaeus, 1758)  
Distribution: **E.G.:** surroundings of Tbilisi (Ruzsky, 1905; Jijilashvili, 1964b); **W.G.:** Batumi (Ruzsky, 1905, 1907).

92. *M. salomonis* (Linnaeus, 1758)  
Distribution: **S.G.:** Akhaltsikhe (Ruzsky, 1902, 1905).

93. *M. subopacum* (Smith. F., 1858)  
Distribution: **E.G.:** Eldari Lowland, Lekistskali, Pantishara, surroundings of Mingechauri, Taribana, Vashlovani Reserve (Jijilashvili, 1964b, 1966).

Genus *Myrmecina* Curtis, 1829

94. *M. graminicola* (Latreille, 1802)  
Distribution: **E.G.:** Bolnisi, Kazreti, Kojori, Lagodekhi Reserve, surroundings of Ratevani, surroundings of Tetrtskaro, Tbilisi (Mtatsminda Park), Tsodreti (Jijilashvili, 1967b, 1968, 1974a); **W.G.:** Asechka, Batumi (Green cape), Bichvinta Reserve (Jijilashvili, 1974b); **S.G.:** Dmanisi, Khrami gorge, Tandzia (Jijilashvili, 1974a).

Genus *Myrmica* Latreille, 1804

95. *M. caucasica* Arnol'di, 1934  
Distribution: **E.G.:** Kavtiskhevi, Kojori, Mukhrani, Sartichala, surroundings of Iraga, Tbilisi Botanical Garden, Tetrtskaro (Jijilashvili, 1964b, 1966, 1968, 1973, 1974a); **W.G.:** Ajameti, Alakhadze, Anaria, Kakhberi, banks of the riv. Ghalidzga without exact locality, banks of the riv. Supsa, without exact locality, Batumi (Batumi Botanical Garden, Green cape), Bichvinta, Chaladidi, Colchic Reserve, Eshera, Gagra, Gumbra, Ingiri, Khelvachauri, Kodori gorge, Kutaisi, Kvemo Sakara, Natanebi, Ochamchire, Poti, Rioni, riv. Rioni basin, Saghoria, surroundings of Grigoreti, Tsaishi, Zestafoni, Zugdidi Botanical Garden (Ruzsky, 1905, 1907; Jijilashvili, 1974b); **S.G.:** Akhaldaba, Arjevani forest, Bakuriani, Borjomi Park, Daba, Dmanisi, Gujareti, Kariani, Kimotesubani, Libani, Machartskali, Mzetamze, Patara Tadzrisi, Tba, Tikmatashi Pass, Tsaghveri, Tsemi (Jijilashvili, 1967a, 1974a).

96. *M. caucasicola* Arnol'di, 1934  
Distribution: **E.G.:** Kiketi, surroundings of Samshvilde, Tetrtskaro, (Jijilashvili, 1968, 1974a); **S.G.:** Adigeni, Aspindza, Borjomi, Ota, Patara Tsemi, Tadzrisi, Zekari Pass (Jijilashvili, 1967a, 1974a).

97. *M. georgica* Seifert, 1987  
Distribution: **E.G.:** Mtskheta, Tbilisi (Seifert, 1987).

98. *M. lacustris* Ruzsky, 1905  
Syn.: *Myrmica scabrinodis lobicornis* Nyl. var. *deplanata* Em.  
Distribution: **W.G.:** Batumi, Oni (Ruzsky, 1905).

99. *M. lobicornis* Nylander, 1846  
Distribution: **E.G.:** Bursachili, Gudauri, Gveleti, Kazbegi, surroundings of Patara Lilo, Tbilisi; (Mushtaidi Garden) (Ruzsky, 1902, 1905; Jijilashvili, 1964b, 1966, 1968); **W.G.:** riv. Rioni gorge without exact locality; **S.G.:** Abastumani, surroundings of Gomareti, Tikmatashi Pass, Tskhratskaro (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

100. *M. ravasinii* Finzi, 1923  
Distribution: **S.G.:** Aspindza, Ota, Patara Tsemi, Tsaghveri, Zekari Pass (Jijilashvili, 1967a, 1974a).

101. *M. rubra* (Linnaeus, 1758)  
Syn.: *Myrmica laevinodis* Nyl.  
Distribution: **E.G.:** Loshkineti, Pasaauri (Ruzsky, 1905; Jijilashvili, 1973); **W.G.:** Eastern slope of Mt. Ajara, Oni, Ozurgeti (Ruzsky, 1905); **S.G.:** Abastumani, Bogdanovka, Borjomi, surroundings of Saghamo Lake, Zekari Pass (Ruzsky, 1905; Jijilashvili, 1974a).

102. *M. ruginodis* Nylander, 1846

Distribution: **E.G.:** Algeti gorge, Bursachili, Gudamakari, Gudauri, Iraga, Kiketi, Kitsnisi, Kojori, Larsi, Loshkineti, Pasaauri, Saguramo, Sakavre, Shindisi, surroundings of Tetrtskaro, Tbilisi (Samgori field), Tkemlovani, Zedazeni (Ruzsky, 1905; Karavaiev, 1926; Jijilashvili, 1968, 1973, 1974a); **W.G.:** surroundings of Kutaisi, surroundings of Tkvarcheli, Tsalenjikha, Source of the riv. Rioni (Ruzsky, 1905; Jijilashvili, 1966, 1974b); **S.G.:** Abastumani (surroundings of Observatory), Bakuriani, Bogdanovka, Borjomi, Dmanisi, Goderdzi Pass, Gujareti, Kariani, surroundings of Khanchali Lake, surroundings of Saghamo Lake, surroundings of Trialeti, Tabatskuri, Tsalka, Zekari Pass (Ruzsky, 1902, 1905; Karavaiev, 1926; Jijilashvili, 1967a, 1974a).

103. *M. rugulosa* Nylander, 1849

Distribution: **E.G.:** Gardabani, Kavtiskhevi surroundings of Jandara Lake (Jijilashvili, 1964b, 1968, 1973).

104. *M. scabrinodis* Nylander, 1846

Distribution: **E.G.:** Gardabani, Gudamakari, Dedoplistskaro, Kobi, Kvishkheti, Larsi, Manglisi, Mleta, Pasaauri, Rustavi, surroundings of Digomi, surroundings of Iraga, surroundings of Sathkhenhesi, Tbilisi (Mushtaidi Garden), Tetrtskaro (Ruzsky, 1902, 1905; Jijilashvili, 1964b, 1966, 1968, 1974a); **W.G.:** Abasha, Katsoburi, riv. Rioni basin without exact locality (Ruzsky, 1905; Jijilashvili, 1974b); **S.G.:** Bakuriani, Borjomi Park, Dmanisi, Gujareti, Patara Tsemi, surroundings of Kariani, surroundings of Trialeti, Tsalka, Tskhratskaro, Vardzia, Zekari Pass (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

105. *M. schencki* Viereck, 1903

Distribution: **E.G.:** Ertatsminda, Omalo, Sakavre, Shatili (Jijilashvili, 1973; Seifert, 2003).

106. *M. sulcinodis* Nylander, 1846

Distribution: **E.G.:** Gudauri, Igoeti, Loshkineti, Pasaauri (Ruzsky, 1905; Jijilashvili, 1973); **S.G.:** Gorelovka, North slope of Tskhratskaro, surroundings of Bogdanovka, surroundings of Khanchali Lake, Zekari Pass (Ruzsky, 1905; Jijilashvili, 1974a).

107. *M. turcica* Santschi, 1931

Distribution: **E.G.:** Mtskheta, Tbilisi (Seifert, 2002).

Genus *Myrmoxenus* Ruzsky, 1902

Subgenus *Myrmoxenus* Ruzsky, 1902

108. *M. (Myrmoxenus) tamarae* (Arnol'di, 1968)

Distribution: **S.G.:** Daba (Arnol'di, 1968).

Genus *Pheidole* Westwood, 1839

109. *P. pallidula* (Nylander, 1849)

Syn.: *Pheidole pallidula orientalis* Em.

Distribution: **E.G.:** Ateni gorge, Bolnisi, Dedoplistskaro, Dighomi, Grakali, Igoeti, Kavtiskhevi, Khashuri, Kojori, Mtskheta, Pantishara, Ratevani, Sartichala, Shavnabada, Shiraki (Kasristskali, Zilcha, Canyon Ole), Shulaveri, surroundings of Jandara Lake, surroundings of Khachini, surroundings of Magharo, surroundings of Mingechauri, surroundings of Satskhenhesi, Taribana, Tbilisi (Avchala, Mtatsminda park, Mushtaidi Garden, Tbilisi Botanical Garden, surroundings of Lisi Lake, surroundings of Tbilisi Sea, Varketili), Vashlovani Reserve (Nasonov, 1889; Ruzsky, 1902, 1905; Jijilashvili, 1964b, 1966, 1968, 1973, 1974a); **W.G.:** surroundings of Batumi, surroundings of Kutaisi (Ruzsky, 1905, 1907); **S.G.:** Abastumani, Akhaltsikhe, Aspindza, Atskuri, Borjomi, Daba, Khertvisi, Likani, surroundings of Rustavi, Tsaghveri, Vardzia (Nasonov, 1889; Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

Genus *Solenopsis* Westwood, 1840

110. *S. fugax* (Latreille, 1798)

Syn.: *Solenopsis fugax orientalis* Ruzs.; *Solenopsis orbula* Em. var. *latroides* Ruzs.

Distribution: **E.G.:** Dedoplistskaro, Dusheti, Ertatsminda, Igoeti, Kavtiskhevi, Kazreti, Lagodekhi Reserve, Manglisi, Pasaauri, Shiraki (Kasristskali, Shavimta), surroundings of Bolnisi, surroundings of Digomi, Tbilisi (Samgori, Tbilisi Botanical Garden, Mtatsminda Park, surroundings of Patara Lilo, surro

undings of Tbilisi Sea, Varketili), Udabno, Vashlovani Reserve (Ruzsky, 1905; Jijilashvili, 1964b, 1966, 1967b, 1968, 1973, 1974a); **W.G.:** Anaria, Batumi, Bichvinta, Chakvi, Ingiri, Kutaisi (Ruzsky, 1905, 1907; Karavaiev, 1926; Jijilashvili, 1974b); **S.G.:** Abastumani, along the bank of the riv. Borjomula, Aspindza, Atskuri, Chobiskhevi, Daba, Mzetamze, Sapara, surroundings of Dmanisi, Tadzrisi, Zekari Pass (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

111. *S. ilinei* Santschi, 1936

Syn.: *Solenopsis orbula oculata* Karaw.

Distribution: **E.G.:** Gardabani, Karsani, Shiraki (Kasristskali, Pantishara), surroundings of Dighomi, Tbilisi (Mtatsminda plateau, Tbilisi Botanical Garden) (Jijilashvili, 1964a, b, 1966, 1968).

Genus *Stenamamma* Westwood, 1839

112. *S. westwoodii* Westwood, 1839

Distribution: **E.G.:** Kojori, Saguramo, Zedazeni (Jijilashvili, 1968); **S.G.:** Bakuriani, Baniskhevi, Borjomi, Chitakhevhesi, Dmanisi, surroundings of Gomareti, Tsaghveri (Jijilashvili, 1967a, 1974a).

Genus *Strongylognathus* Mayr, 1853

113. *S. rehbinderi* Forel, 1904

Distribution: **W.G.:** Akhali Atoni, Batumi, Bjinevi (Forel, 1904, Ruzsky, 1905, 1907; Jijilashvili, 1974b).

114. *S. testaceus* (Schenck, 1852)

Distribution: **E.G.:** Tbilisi (Samgori) (Jijilashvili, 1964a, b, 1966); **S.G.:** Tsaghveri, Tsalka (Jijilashvili, 1967a, 1974a).

Genus *Temnothorax* Mayr, 1861

115. *T. affinis* (Mayr, 1855)

Syn.: *Leptothorax affinis* Mayr

Distribution: **E.G.:** Pasanauri, Tbilisi (Mushtaidi Garden) (Ruzsky, 1905; Jijilashvili, 1964b); **W.G.:** Baghdadi, Kodori gorge, Kutaisi (Ruzsky, 1905, 1907; Jijilashvili, 1974b).

116. *T. alpinus* (Ruzsky, 1902)

Distribution: **W.G.:** Mamisoni Pass (Ruzsky, 1905); **E.G.:** Gudauri (Ruzsky, 1905).

117. *T. brauneri* (Ruzsky, 1905)

Distribution: **W.G.:** Baghdati, Surebi (Ruzsky, 1905); **S.G.:** Zekari Pass (Ruzsky, 1905).

118. *T. corticalis* (Schenck, 1852)

Distribution: **S.G.:** Baniskhevi, Mzetamze, Tsaghveri (Jijilashvili, 1997a).

119. *T. exilis* (Emery, 1869)

Distribution: **E.G.:** Manglisi, Pasanauri (Ruzsky, 1905).

120. *T. korbi* (Emery, 1924)

Distribution: **E.G.:** Karsani, Kojori, Nichbisi, surroundings of Gokhnari, Tbilisi (Mtatsminda Park, Tbilisi Botanical Garden), Tetrtskaro (Jijilashvili, 1968, 1973, 1974a); **S.G.:** Tskhratskaro (Jijilashvili, 1974a).

121. *T. melnikovi* (Ruzsky, 1905)

Distribution: **S.G.:** Akhaltsikhe, Sapara (Jijilashvili, 1974a).

122. *T. nadigi* (Kutter, 1925)

Syn.: *Leptothorax caucasicus* Arn.

Distribution: **E.G.:** Kojori (Arnol'di, 1977).

123. *T. nigriceps* (Mayr, 1855)  
Distribution: **E.G.:** Manglisi (Ruzsky, 1905).
124. *T. nigrilus* (Emery, 1878)  
Distribution: **W.G.:** Batumi, Kutaisi, Oni (Ruzsky, 1905); **S.G.:** Zekari Pass (Ruzsky, 1905).
125. *T. nylanderi* (Foerster, 1850)  
Distribution: **E.G.:** Algeti, Bolnisi, Ertatsminda, Kojori, Khrami gorge, Lagodekhi Reserve, Manglisi, surroundings of Khachini, surroundings of Kianeti, Tetrtskaro (Ruzsky, 1905; Jijilashvili, 1967b, 1973, 1974a); **S.G.:** Abastumani, Akhaldaba, Akhaltsikhe, Baniskhevi, Borjomi Park, Chitakhevhesi, Daba, Dviri, Kariani, Mzetamze, surroundings of Gomareti, surroundings of Patara Dmanisi, surroundings of Sapara, Tsaghveri, Tskhratskaro, Zekari Pass (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).
126. *T. parvulus* (Schenck, 1852)  
Distribution: **E.G.:** Kavtiskhevi, Kiketi, Manglisi, Saguramo, Shulaveri, Tbilisi (Mtatsminda park), Tskneti, Tsodoreti, Zedazeni (Jijilashvili, 1964b, 1966, 1968).
127. *T. recedens* (Nylander, 1856)  
Syn.: *Leptothorax (Temnothorax) rogeri* Em.  
Distribution: **E.G.:** surroundings of Mtskheta (Ruzsky, 1905; Jijilashvili, 1964b); **W.G.:** surroundings of Kutaisi (Ruzsky, 1905, 1907); **S.G.:** Borjomi (Ruzsky, 1905).
128. *T. satunini* (Ruzsky, 1902)  
Distribution: **E.G.:** Gardabani, Rustavi (Jijilashvili, 1968).
129. *T. tamarae* (Radchenko, 1993)  
Distribution: **S.G.:** Tsaghveri (Radchenko, 1993).
130. *T. tuberum* (Fabricius, 1775)  
Distribution: **E.G.:** Kavtiskhevi, surroundings of Bolnisi, Tbilisi (Mtatsminda plateau, Tbilisi Botanical Garden) (Jijilashvili, 1968, 1973, 1974a); **W.G.:** Akhali Atoni, Batumi (Ruzsky, 1905).
131. *T. unifasciatus* (Latreille, 1798)  
Syn.: *Leptothorax tuberum unifasciatus* (Latr.) var. *anoplogynus* Em.  
Distribution: **E.G.:** Kavtiskhevi, Kiketi, Lagodekhi Reserve, Manglisi, Poladauri, surroundings of Bolnisi, surroundings of Mtskheta, surroundings of Ratevani, surroundings of Tetrtskaro, Zedazeni (Ruzsky, 1905; Karavaev, 1926; Jijilashvili, 1964b, 1966, 1967b, 1968, 1974a); **W.G.:** Alakhadze, Anaklia, Asechka, Baghdati, Bichvinta, Bjinevi, Chakvistavi, Gagra, Khobi, Kutaisi, Lidzava, Poti, riv. Tekhura and Rioni, without exact locality, Sakara, Senaki, surroundings of Achishesi, Tsaishi, Zugdidi Botanical Garden (Ruzsky, 1905, 1907; Karavaev, 1926; Jijilashvili, 1974b); **S.G.:** Akhaldaba, Borjomi Park, Chitakhevhesi, Chobiskhevi, Daba, Kimotesubani, Tsaghveri, Zekari pass (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

Genus *Tetramorium* Mayr, 1855

132. *T. caespitum* (Linnaeus, 1758)  
Distribution: **E.G.:** Eldari Lowland, Dedoplistskaro, Dighomi, Dusheti, Ertatsminda, Gardabani, Gori, Gudamakari, Igoeti, Iraga, Karsani, Kavtiskhevi, Kazbegi, Kazreti, Khrami gorge, Kobi, Kojori, Lagodekhi Reserve, Larsi, Loshkineti, Magharo, Manglisi, Mleta, Mtskheta, Pasaauri, Patara Lilo, Poladauri, riv. Iori gorge, Rustavi, Sadakhlo, Saguramo, Samshvilde, Sartichala, Satskhenhesi, Shiraki (Canyon Ole, Kasris-tskali, Zilcha), Shulaveri, Skra, slopes of Mt. Kvernaki, surroundings of Digomi, surroundings of Gori, surroundings of Kianeti, surroundings of Kumisi Lake, surroundings of Ratevani, surroundings of Tandzia, surroundings of Tetrtskaro, Taribana, Tbilisi (Avchala, Dendropark, Lisi lake, Mtatsminda park, Mushtaidi Garden, Samgori, Shavnabada, surroundings of Turtle Lake, surroundings of Tbilisi, surroundings of Tbilisi Sea, Tbilisi Botanical Garden, Varketili, Vaziani), Tiriponi field, Tkemlovani, Tkviavi, Udabno, Vashlovani Reserve, Zedazeni (Nasonov, 1889; Forel, 1904; Ruzsky, 1905; Jijilashvili, 1964b, 1966, 1967b, 1968, 1973, 1974a); **W.G.:** Ajameti, Akhali Atoni, Alakhadze, Anaklia, Anaria, Bank of the riv. Chanistskali, Bank of the riv. Pichora, Batumi, Bichvinta, Chakvi, Chaladidi, Darcheli, Eshera, Gagra, Gali, Grigoreti, Gumbra, Ingiri, Kakhaveri, Khelvachauri, Khobi, Kutaisi, Ochamchire, Poti, Sakara,

Sataplia, Surebi, surroundings of Achishesi, surroundings of Inkiti Lake, Sviri, Tsalenjikha, Zestafoni, Zugdidi Botanical Garden (Forel, 1904; Ruzsky, 1905, 1907; Jijilashvili, 1974b); **S.G.:** Abastumani, Adigeni, Akhalkalaki, Aspindza, Atskuri, Bakuriani, Borjomi, surroundings of Dmanisi, Goderdzi Pass, Kariani, Likani, Sapara, surroundings of Akhaltsikhe, surroundings of Bogdanovka, surroundings of Gorelovka, surroundings of Ghoghasheni, surroundings of Khertvisi, Tsalka, Trialeti, Vardzia, Zekari Pass (Ruzsky, 1905; Jijilashvili, 1967a, 1974a).

133. *T. densopilosum* Radchenko et Arakelian, 1990

Distribution: **W.G.:** Ochamchire (Radchenko et Arakelian, 1990).

134. *T. ferox* Ruzsky, 1903

Distribution: **E.G.:** Gardabani, Kavtiskhevi, Sadakhlo, Sartichala, Shiraki (Kasristskali), Lochini gorge, Rustavi, Udabno, Tbilisi (Dendropark, Varketili, surroundings of Turtle Lake, surroundings of Tbilisi Sea) (Jijilashvili, 1964a, b, 1966, 1968); **W.G.:** Bichvinta, Gumbra, Ochamchire, surroundings of Inkiti Lake (Jijilashvili, 1974b).

135. *T. forte* Forel, 1904

Syn.: *Tetramorium taurocaucasicum* Arn.

Distribution: **W.G.:** Ajameti, Anaklia, Chakvistavi, Kobuleti, Sataplia, Vani, Zugdidi-Telmani (Ruzsky, 1905; Jijilashvili, 1974b).

136. *T. punicum* (Smith, F., 1861)

Distribution: **E.G.:** Tbilisi (Jijilashvili, 1964a, b, 1966).

137. *T. semilaeve* André, 1883

Distribution: **E.G.:** Gardabani, Iraga, Khrami gorge, Lochini gorge, Sadakhlo, Saguramo, Shulaveri, surroundings of Dighomi, surroundings of Gori, surroundings of Tetrtskaro, Tbilisi (Mtatsminda park, surroundings of Lisi Lake, surroundings of Tbilisi Sea, Tbilisi Botanical Garden, Varketili), Vashlovani Reserve, Zedazeni (Ruzsky, 1905; Jijilashvili, 1964b, 1968, 1973, 1974a); **W.G.:** Ajameti, Anaklia, Anaria, Asechka, Batumi, Bichvinta, Chaladidi, Chiatara, Rgani, Sakara, Zestaponi (Ruzsky, 1905, 1907; Jijilashvili, 1974b); **S.G.:** Akhaltsikhe, Aspindza, Atskuri, Daba, Dviri, Mzetamze, Rustavi, surroundings of Adigeni, surroundings of Kariani, surroundings of Khertvisi, surroundings of Tsalka, Tba, Tsaghveri (Jijilashvili, 1967a, 1974a).

138. *T. syriacum* Emery, 1924

Distribution: **E.G.:** Kavtiskhevi, Patara Lilo, Sadakhlo, Sartichala, Shiraki (Kasristskali, Ole gorge, Shavimta, Zilcha), Tbilisi (Dendropark, Mtatsminda park, Samgori, surroundings of Lisi Lake, surroundings of Tbilisi Sea, surroundings of Turtle Lake, Varketili), Udabno (Jijilashvili, 1964a, b, 1966, 1968).

Subfamily *Ponerinae* Lepeletier de Saint-Fargeau, 1835

Genus *Cryptopone* Emery, 1893

139. *C. ochracea* (Mayr, 1855)

Distribution: **W.G.:** Batumi (Jijilashvili, 1974b).

Genus *Hypoponera* Santschi, 1938

140. *H. eduardi* (Forel, 1894)

Distribution: **W.G.:** Batumi, Chakvi, Chakvistavi (Jijilashvili, 1974b).

Genus *Pachycondyla* Smith, F., 1858

141. *P. nigrita* (Emery, 1895)

Distribution: **W.G.:** Alachadze, Senaki (Jijilashvili, 1974b).



142. *P. coarctata* (Latreille, 1802)

Syn.: *Ponera lucida* Em.

Distribution: **E.G.:** Gardabani, Karsani, Khrami gorge, Kojori, Lagodekhi Reserve, Shulaveri, Tbilisi (Mtatsminda plateau, Tbilisi Botanical Garden, Mushtaidi Garden), Tetrtskaro (Ruzsky, 1905; Jijilashvili, 1964b, 1967b, 1966, 1968, 1974a); **W.G.:** Alakhadze, Asechka, Batumi, Bichvinta Reserve, Chakvistavi, Kutaisi, Ozurgeti (Ruzsky, 1902, 1905, 1907; Karavaiev, 1926; Jijilashvili, 1974b). **S.G.:** Surroundings of Dmanisi (Jijilashvili, 1974a).

### References

1. **Arnol'di K. V.** 1964. Higher and specialized representatives of the ant genus *Cataglyphis* (Hymenoptera, Formicidae) in the fauna of the USSR. *Zool. Zh.*, **4** (43): 1800-1815 (in Russian).
2. **Arnol'di K. V.** 1968. Important additions to the myrmecofauna (Hymenoptera, Formicidae) of the USSR and descriptions of new forms. *Zool. Zh.*, **12** (47): 1800-1822 (in Russian).
3. **Arnol'di K. V.** 1977. Survey of harvester ants of the genus *Messor* (Hymenoptera, Formicidae) of the fauna of the USSR. *Zool. Zh.*, **5** (56): 1637-1648 (in Russian).
4. **Arnol'di K. V.** 1977. New and little known species of ants of the genus *Leptothorax* Mayr (Hymenoptera, Formicidae) of the European part of the USSR and Caucasus. *Entomol. Obozr.*, **56**: 198-204 (in Russian).
5. **Dlussky G. M.** 1964. The ants of the subgenus *Coptoformica* of the genus *Formica* (Hymenoptera, Formicidae) of the USSR. *Zool. Zh.*, **7** (43): 1026-1040 (in Russian).
6. **Dlussky G. M.** 1969. Ants of the genus *Proformica* Ruzs. of the USSR and contiguous countries (Hymenoptera, Formicidae). *Zool. Zh.*, **2** (48): 218-232 (in Russian).
7. **Forel A.** 1904. Miscellanea myrmécologiques. *Rev. Suisse Zool.*, **12**: 1-52.
8. **Jijilashvili T.** 1964 a. Contribution to the ant species complex (*Formicidae*) of the steppes zone of Western Georgia. *Bull. Acad. Sci. Georg.*, **33** (3): 663-666 (in Russian).
9. **Jijilashvili T.** 1964 b. Ecological-faunistic characteristic of the ant fauna of the steppes zone of Georgia. *Bull. Acad. Sci. Georg.*, **34** (3): 651-657 (in Russian).
10. **Jijilashvili T.** 1966. Contribution to the ant fauna of the steppes zone of Georgia. In.: *Material on the fauna of Georgia, part I*, Metsniereba, Tbilisi, 59-77 (in Russian).
11. **Jijilashvili T.** 1967 a. Material on the ant fauna of the Borjomi-Bakuriani forests. In.: *Material on the fauna of Georgia, part II*, Metsniereba, Tbilisi, 50-70 (in Russian).
12. **Jijilashvili T.** 1967 b. Contribution to the ant Fauna (Hymenoptera - Formicidae) of the Lagodekhi Reserve. *Bull. Acad. Sci. Georg.*, **37** (1), 173-175 (in Georgian).
13. **Jijilashvili T.** 1968. Ants (Hymenoptera, Formicidae). In.: *Surroundings zone fauna of Tbilisi*, Metsniereba, Tbilisi, 126-137 (in Georgian).
14. **Jijilashvili T.** 1973. Contribution to the ant fauna (Hymenoptera - Formicidae) of the Kartli region. In.: *Material on the fauna of Georgia, part III*, Metsniereba, Tbilisi, 177-185 (in Georgian).
15. **Jijilashvili T.** 1974 a. Material on the ant fauna (Hymenoptera, Formicidae) of Samtskhe-Trialeti and Javakheti. In.: *Material on the fauna of Georgia, part IV*, Metsniereba, Tbilisi, 191-220 (in Russian).
16. **Jijilashvili T.** 1974 b. Ecological-faunistic investigation of the ant fauna (Hymenoptera, Formicidae) of Colchic Lowland. In.: *Material on the fauna of Georgia, part IV*, Metsniereba, Tbilisi, 221-241 (in Russian).
17. **Karavaiev V.** 1926. Beiträge zur Ameisenfauna des Kaukasus, nebst einigen Bemerkungen über andere palaearktische Formen. (Schluss). *Konowia*, **5**: 187-199.
18. **Karavaiev V.** 1929. Myrmekologische Fragmente. II. *Zb. Prats Zool. Muz.*, **7**: 205-220.
19. **Nasonov N. V.** 1889. Contribution to the natural history of the ants primarily of Russia. 1. Contribution to the ant fauna of Russia. *Izv. Imp. Obshch. Lyubit. Estestvozn. Antropol. Etnogr. Imp. Mosk. Univ.*, **58**: 1-78 (in Russian).
20. **Radchenko A., Arakelian G.** 1990. Ants of the *Tetramorium ferox* Ruzsky group (Hymenoptera, Formicidae) from the Crimea and Caucasus. *Biol. Zh. Arm.*, **43**: 371-378.
21. **Radchenko A.** 1993. New species of ants of the genus *Leptothorax* (Hymenoptera, Formicidae) from the southern and eastern Palearctic. *Zh. Ukr. Entomol. Tov.*, **2**: 23-34.
22. **Ruzsky M.** 1902. Material on the ant fauna of the Caucasus and the Crimea. *Protok. Obshch. Estestvoispyt. Imp. Kazan. Univ.*, **206**: 1-33 (in Russian).

23. **Ruzsky, M.** 1905. The ants of Russia. (Formicariae Imperii Rossici). Systematics, geography and data on the biology of Russian ants. Part I. *Tr. Obshch. Estestvoispyt. Imp. Kazan. Univ.*, **38** (4-6): 1-800 (in Russian).
24. **Ruzsky M.** 1907. The ants of Russia. (Formicariae Imperii Rossici). Systematics, geography and data on the biology of Russian ants. Part II. *Tr. Obshch. Estestvoispyt. Imp. Kazan. Univ.*, **40** (4): 1-122 + 3 (in Russian).
25. **Seifert B.** 1987. *Myrmica georgica* n. sp., a new ant from Transcaucasia and North Kazakhstan (U.S.S.R.) (Hymenoptera, Formicidae, Myrmicinae). *Reichenbachia*, **24**: 183-187.
26. **Seifert B.** 1990. Supplementation to the revision of the European species of the ant subgenus *Chthonolasius*. *Doriana*, **6** (271): 1-13.
27. **Seifert B.** 1992. A taxonomic revision of the Palaearctic members of the ant subgenus *Lasius* s. str. (Hymenoptera, Formicidae) *Abh. Ber. Naturkundemus. Görlitz*, **66**: 1-67.
28. **Seifert B.** 2000. A taxonomic revision of the ant subgenus *Coptoformica* Mueller, 1923 (Hymenoptera: Formicidae). *Zoosystema*, **22** (3): 517-568.
29. **Seifert, B.** 2002. A taxonomic revision of the *Formica cinerea* group (Hymenoptera: Formicidae). *Abh. Ber. Naturkundemus. Görlitz*, **74** (2): 245-272.
30. **Seifert B.** 2002. The "type" of *Myrmica bessarabica* Nasonov 1889 and the identity of *Myrmica salina* Ruzsky 1905 (Hymenoptera: Formicidae, Myrmicinae). *Mitt. Münch. Entomol. Ges.*, **92**: 93-100.
31. **Seifert B.** 2003. The ant genus *Cardiocondyla* (Insecta: Hymenoptera: Formicidae) - a taxonomic revision of the *C. elegans*, *C. bulgarica*, *C. batesii*, *C. nuda*, *C. shuckardi*, *C. stambuloffii*, *C. wroughtonii*, *C. emeryi* and *C. minutior* species groups. *Ann. Naturhist. Mus. Wien. B. Bot. Zool.*, **104** (B): 203-338.
32. **Seifert B.** 2003. The Palaearctic members of the *Myrmica schencki* group with description of a new species (Hymenoptera: Formicidae). *Beitr. Entomol.*, **53**: 141-159.

## SCALE INSECT PESTS ON ORNAMENTAL PLANTS IN CITY TBILISI

G. Japoshvili<sup>1</sup>, N. Gabroshvili<sup>2</sup>, B. Japoshvili<sup>3</sup>

<sup>1</sup> Suleyman Demirel University, Isparta, Turkey; e-mail: giorgij70@yahoo.com

<sup>2</sup> Institute of Zoology, e-mail: gabroshvili@yahoo.com

<sup>3</sup> Iliia Chavchavadze State university, e-mail: bellaj99@yahoo.com

**Abstract.** The scale species complex and parasitoids of urban areas were determined in Georgia, during the years 1994 to 2006. In this study a total of 84 species of coccids are listed belonging to 52 genera and 9 families. 1 species *Planacoccus vovae* is recorded first time for Georgia and Caucasus. The most numerous family is *Diaspididae* with 39 species and *Coccidae* with 22 species.

**Key words:** *Chalcidoidea*, *Coccoidea*, Georgia, Ornamental plants

### Introduction

The ornamental plants plays an increasingly important role for physical and psychical human health in urban habitats through the world. Besides parks, squares and little gardens in Georgia there are three big botanical gardens. Tbilisi botanical garden was established in 17-th century (1636). Coccid insects are notorious pests of many ornamental plants. They cause damage by feeding on plant sap, reducing vigor and producing chlorotic areas and sooty mould at feeding locations; premature leaf drop; and distorting stems and bark. Large population of Coccids can kill branches, and unchecked infestations may kill plant. Expended use of ornamental plants has caused their cash value to rival and in some instances exceed. On the other hand, ornamental plants are under unsuitable environmental conditions. It has been observed that sucking insects are increasing in areas of high air pollution, leading to the mortality of beneficial insects (Japoshvili 1999; Ulgenturk 2001). Mass development of some scale insects in the street plantations is associated not only with indirect effect of abiotic factors, but also with direct destruction of entomophagous insects as a results of uncontrolled use of modern pesticides (Kozarzhevskaya, 1992).

Same time One of the biodiversity hotspots among world 25 hotspots is Caucasus (Myers et al. 2000), where the key place takes territory of Georgia, for this reason to determine biodiversity of different taxonomic groups of Caucasus is considerably important.

In Georgia, the basis for studying fauna, taxonomy, morphology, biology, economic aspect and natural enemies of Coccids were provided mainly by Hadzibeyli (1941-1983), Yasnosh (1957-1998) and Japoshvili (1996-2006). In this paper, the species of Coccid insects and their parasitoids on ornamental plants are given.

### Material and Methods

Survey were carried out in Tbilisi, Georgia, between 1996 and 2006. Sampling was carried out during spring and summer. Coccids were taken from ornamental, cultivated and from plants in nature. Infested plant parts were placed in plastic bags and adult emergence was monitored. The emerging adults were transferred in to vials of 70% ethyl alcohol, some were dried and mounted and microscopic slides were done for determination if it was necessary.

Specimens of coccids were deposited in the Georgian Institute of Zoology, Tbilisi, Georgia.

### Results

List of Coccoidea Species on the ornamental trees in Tbilisi

#### Family: Margarodidae

##### Genus: *Icerya* Sign.

1. *I. purchasi* Mask. - Recorded and liquidated by the Carantine Inspection in 1939 (Hadzibeyli, 1941).

##### Genus: *Kuwania* ( Ckll)

2. *K. minuta* Borchs. - On *Quercus hartwissiana* in Tbilisi botanical garden was recorded by Hadzibeyli (1941, 1983).

**Family: Pseudococcidae**  
**Genus: Pseudococcus West.**

3. *Ps. longispinus* (Targ.-Tozz.) –Hadzibeyli 1941, 1983.  
4. *Ps. comstocki* (Kuw). - Recorded on *Morus*: Botanical garden of Tbilisi, 21.V.1997.  
5. *Ps. viburni* (Sign.) (=obscurus) –Hadzibeyli 1941, 1983.

**Genus: Spilococcus Ferr.**

6. *S. mamillariae* (Bouche) –Hadzibeyli 1983.

**Genus: Planococcus Ferr.**

7. *Planococcus vovae* (Nasonov) (=Pseudococcus junipericola Borchs.) – Recorded on *Cupressus*: Gldani, IV mic. reg., 26.VII.1998 and in Mukhiani 28.VII.1998.  
8. *Pl. ficus* (Sign). – Recorded on *Vitis*: Samgori, 7.IX.1996; *Ficus*: Ortachala Young Naturalists Station, 15X.1996; *Vitis*: Vake, Chavchavadze av., 13-19.VII.1997; *Ficus*: Isani 18.VIII.1998; *Platanus*: Samgori, 14.VI.1998; *Ficus* and *Vitis*: Isani, 26.VII, 4.VIII. 1998; *Ficus* and *Vitis*: Krtsanisi, 20.VII.1998; *Ficus* and *Vitis*: Samgori, 11-12.IX.1998.

**Genus: Spinococcus Ckll.**

9. *Sp. morrisoni* (Kir.) –Hadzibeyli 1983.

**Genus: Phenacoccus Ckll.**

10. *Ph. aceris* Sign. (=Ph. mespili (Sign.)) – Recorded on Apple and Plum: Nadzaladevi, Tsiklauri, Bendeliani, Khudadovi streets, 27.VI. – 21.VII.1994; Apple: Young Naturalists Station, 2.VII. 1995; *Quercus*: Cemetery of Mukhatgverdi, 20.V.-30.V. 1997; Apple and Plum: Africa, 21.VI.1997; 15.III.1998; *Acer*: Mtatsminda, 8.VI.1998; *Carpinus*: Botanical garden of Tbilisi, 8.VI.1998 and surroundings of Tbilisi sea, 23.V.1998; *Acer*: Lisi, 12.VI.1998 and Khudadovi forest, 17.VII.1998; Peach: Mtatsminda 18.VII.1998; Apple: Didube, Agmashenebeli av. 4.VII.1998; Apple and Tkemali: Samgori, III massive, IV mic. meg., 6.VII.1998.

11. *Ph. pumilus* Kir. –Hadzibeyli 1941, 1983.

**Genus: Nipaecoccus Suic.**

12. *N. nipae* (Mask)- Hadzibeyli 1941,1983.

**Genus: Ritsemia Lichtenstein**

13. *R. pupifera* Licht- Hadzibeyli 1941, 1983.

**Genus: Antonina Sign.**

14. *A. crawi* Ckll - Hadzibeyli 1941, 1983.

**Genus: Heliococcus Sulc**

15. *H. destructor* Borchs- Hadzibeyli 1983.

**Family: Eriococcidae**

**Genus: Eriococcus Targ-Tozz**

16. *E. williamsi* Danzig - Recorded on *Buxus*: Cemetery of vake, 9.VI.1994; *Buxus*: Botanical garden of Tbilisi, 2.VII. 1995; *Buxus*: Cemetery of vake, 15. III; 14. III; 5. IV 1998; *Buxus*: Botanical garden of Tbilisi, 19. III; 16. IV; 23. IV; 8. V; 23.V; 7. VIII 1998; *Buxus*:Children's city " Mziuri", 27. IV. 05 Was misidentified as *E.buxi* (Fonsc).

17. *E. spurius* (Mod)(=Gossyparia spuria)- Recorded on *Ulmus*: Lake of "Kustba",- 16. V, 24.V 1998; *Ulmus*: Botanical garden of Tbilisi, 5. VI, 16.VI 1998; *Ulmus*: Gldani VII mic. reg, 28. VI 1998; *Ulmus*: Khudadovi forest, 11. VI 1998.

18. *E. aceris* Sign- Recorded by Trjapitzin (1968)

Recorded in Botanical garden of Tbilisi, 16.IV, 21.IV, 20.V, 27.V 1998.

**Family: Asterolecaniidae**

**Genus: Planchonia Sign.**

19. *P. arabis* Sign- Recorded on *Jasminum* and *Hedera*: Cemetery of kukia 12.IV, 19.V, 28.V, 17. VI. 1996; *Hedera*: Disrtict of Svaneti, 13.IV, 23.V 1998.

**Genus: Asterodiaspis Sign.**

20. *A. quercicola* Bouche- Hadzibeyli 1941; 1983.

**Family: Kermesidae**

**Genus: Kermes Silv**

21. *K. roboris* Fourc- Recorded for the first time for Tbilisi on *Quercus*: Saburtalo 19. V, 6. VI 1998.

**Family: Coccidae**

**Genus: Pulvinaria Targ. Tozz.**

22. *P. floccifera* West.(=Chloropulvinaria)- Recorded on *Ilex colchica*: Botanical garden of Tbilisi 5. III 1998, 21-23. V, 1998.

23. *P. peregrina* Bouchs(=*Eupulvinaria*) - Recorded on Rose: Institute of Plant Protection 11.VI, 1998; *Jasminum*: Kudadovi forest, 18.VI, 1998.

24. *P. vitis* L- Recorded on *Populus gracilis*: Samgori, 20.VII, 28.VII. 1997; *Populus gracilis*: Samgori, Isani, 9.VIII. 1997; *Populus gracilis*: Didube, 21. VI, 24.VII 1998.

**Genus: *Rhizopulvinaria* Borchs.**

25. *Rh. armenica* Borchs- Hadzibeyli 1983.

**Genus: *Neopulvinaria* Hadz.**

26. *N. innumerabilis* ( Rathron)- Recorded on *Vitis*: Samgori, 18.V, 1997; *Vitis*: Isani, 28. IX, 1997, 20. IV, 1998; *Vitis*, *Cydonia oblonga* and *Diospyros*: Samgori, 31. V, 1998; *Platanus* and *Fraxinus*: Ortachala, 14.VI, 1998; *Acer*: Botanical garden of Tbilisi, 27.V. 1998; *Tilia*: Isani, 14,VI 1998.

**Genus: *Coccus* L.**

27. *C. hesperidum* L- Recorded on *Hydnum repandum*, *Acacia* and *Eriobotrya japonica*: Botanical garden of Tbilisi 26. IV.1994; *Ficus*: Samgori, 10. VII 1997, 15.X, 1997, 20.IV. 1998; *Pinus*: Gldani, 26. VII 1998; *Ficus* and *Hedera*: Isani, 15. IV, 16.IV, 14. VI, 1998; *Acacia* and *Elaeagnus*: Vake, 15. IV, 16 V. 1998; *Ficus* and *Hedera*: Childran's city "Mziusi", 27. 04.05.

28. *C. pseudomagnoliarum* Kuw- Recorded on *Celtis*: Botanical garden of Tbilisi 9. VI. 1994; *Celtis*; "Mziuri", 15.IV.1998; *Celtis*: Khudadovi forest, 11. VI. 1998; *Celtis* and *Berberis*: Botanical garden of Tbilisi, 23. V- 27.V 1998; *Celtis*; cemetery of Ebraeli, 14. VI. 1998; *Tamarix* and *Poncirus trifoliata*: Gldani, 28. VI. 1998; *Celtis*: Street of Mtskheta and Erisravi, 16. V, 1998; *Celtis*: "Mziuri", 27. 04. 05.

**Genus: *Eucalymnatus* Ckll**

29. *E. tessellatus* ( Sign.)- Hadzibeyli1941; 1960; 1983.

**Genus: *Sphaerolecanium* Suic.**

30. *Sph. prunastri* Fonsc- Recorded on Tkemali: Botanical garden of Tbilisi, 27. IV, 21.V, 5.VI, 23.VII. 1995; *Prunus spinosa*: Samgori, 18. V, 8. VI 1996; Plum: Isani, 21.VII. 1997; Plum: Ortachla, 27,V.1998; Plum: Vake, 21.VII 1997.

**Genus: *Saissetia* Depl**

31. *S. oleae* Bern- Hadzibeyli 1941; 1960; 1983.

32. *S. coffea* (Walker)(=*S. hemisphaerica* Targ)- Hadzibeyli 1960; 1983.

**Genus: *Parthenolecanium* Sulc**

33. *P. corni* Bouche-Recorded in all districts of city Tbilisi on many different plants during investigation.

34. *P. persicae* F- Recorded on *Corylus* and *Cydonia obeonga*: Samgori, 31.V. 1998.

35. *P. rufulum* Ckll- Recorded on *Quercus*: Ravine of "Vere", 15.VII. 1994; *Quercus*, *Spiraea*, *Crataegus pentagyna* and *Corylus*: Botanical garden of Tbilisi, 15.VII. 1997, 6. VI, 1998; *Quercus*: Cemetery of Mukhatgverdi 20. IV, 7. 17, VII 1998.

**Genus: *Palaeolecanium* Sulc.**

36. *P. bituberculatum* Targ- Recorded on Apple and Tkemali: Saburtalo, 19.V,6.VI. 1998

**Genus: *Rhodococcus* Borchs.**

37. *Rh. spiraeae* Borchs- Recorded on *Spiraea* and *Rhamnus palasii*: Lake of "Kustba", 26.V. 1998;

*Speraea*: Mtacminda, 18.V.1998; *Spiraea* and *Rhamnus palasii*: Saburtalo and Vake, 6. VI, 13. VI, 1998.

38. *Rh. turanicus* Arch- Recorded on Cotoneaster: Botanical garden of Tbilisi, 27.V. 1998.

**Genus: *Physokermes* Targ- Tozz**

39. *Ph. hemicyppus* ( Dalm)- Recorded on *Picea*: Botanical garden of Tbilisi, 22, 28.V, 1996, 27.V. 1998.

**Genus: *Ceroplastes* Gray**

40. *C. japonicus* Green- Recorded on *Ilex aquifolium*, *Laurus nobilis*, *Laurocerasus officinalis*, *Osmanthus Fragrans*, *Hedera*, *Eriobotrya japonica*, *Diospyros*: Botanical garden of Tbilisi , 26. IV, 9. VI, 1994, 27.IV, 5.VI. 1995, 17-25 VI. 1996, 14.VII.1997, 23.V. 1998; *Hedera*: Isani, 20.IX. 1994, 14. VII. 1997, 26.IV. 1998; Plum, *Laurus nobilis*, *Hedera*: Vake, 23.VI, 15.VI, 1998; *Salix alba*: Ravine of "Vere", 12. 10. 04.

**Genus: *Eriopeltis* Sign**

41. *E. festucae* Fonsc-Recorded on *Agropyrum* and *Festuca*: Park of Vake, 29.VI, 3, 11. VII. 1998; *Agropyrum* and *Festuca*: Lake of "Kustba", 14.VII, 22. IX, 1998.

**Genus: *Anapulvinaria* Bouchs.**

42. *A. pistaceae* (Bodenh.)

**Genus: *Luzulaspis* Ckll.**

43. *L. luzulae* (Dufour)- Trjapitzin, 1968.

**Family: *Kerridae***

**Genus: *Kerria* Oken (=Laccifer)**

44. *K. lacca* (Kerr.) – Hadzibeyli, 1966,1983.

**Family: Ortheziidae**

**Genus: Orthezia Bosc.**

45. *O. urticae* L. – Hadzibeyli, 1941, 1983.

**Family: Diaspididae**

**Genus: Lepidosaphes Shimer.**

46. *L. juniperi* Ldgr- Recorded on *Tuja*: Botanical garden of Tbilisi, 23, 27. V. 1998;

*Tuja*: “Mziuri”, 15.IV. 1998; *Cupressus*: Gldani, 28.VI.1998.

47. *L. malicola* Borch- Recorded on *Quercus* and *Rosa canina*: Forest of Khudadovi, 11. VI. 1998; *Populus tremula*: Lake of Lisi, 17.VI.1998.

48. *L. granati* Kor-Recorded on *Punica granatum*: Samgori 18.V. 1997; *Celtis*: Forest of Kudadovi, 11. 13.IV. 1998;

49. *L. conchiformis* (Gmelin)(=*L.rubri* Thiem)- Hadzibeyli, 1965, 1983; Nikolskaya, Yasnosh, 1966.

50. *L. ulmi* L-Recorded on *Rosa canina*: Gldani, 6. VI. 1998; *Fraxinus*: Sea of Tbilisi, 8.VI. 1998.

**Genus: Mercetaspis Gomez-Menor Ortega (=Nilotaspis Ferr.)**

51. *M. halli* (Green)(=*N. halli* Green.)- Recorded for the first time for Tbilisi on *Pyrus salicifolia*: Lake of “Kustba”, 16.V, 20.V 1998.

**Genus: Kuwanaspis Mac G.**

52. *K. pseudolecaspis* (Kuw.)(=*bambusae* (Kuw))- Recorded on Bamboo: Botanical garden of Tbilisi, 23.V, 2.VI, 12.VII.1998.

53. *K. Howardi* (Cooley)-Recorded on Bamboo: Botanical garden of Tbilisi, 15. III, 2. VI, 12.VII. 1998.

**Genus: Carulaspis Mac G.**

54. *C. minima* (Sign)(=*C. caruelii* (Targ-Tozz)- Recorded on *Tuja*: Vake, 7.VII. 1997; *Tuja* and *Cupressus*: Saburtalo, 15. III. 1997; *Cupressus*: Forest of Khudadovi, 11. IV, 15. IV,1998; *Juniperus*, *Tuja* and *Cupressus*: Botaniocal garden of Tbilisi, 16. IV, 27. VI, 1998; *Cupressus* and *Juniperus*: Gldani, 28.VI.1998; *Tuja* and *Cupressus*: Isani, 30. VI.1998.

**Genus: Unaspis Mac G.**

55. *U. euonymi* (Comstock)- Recorded on *Cotinus coggygria*: Sea of Tbilisi, 21, 26.V.1998; *Cotinus coggygria* and *Evonymus*: Botanical garden of Tbilisi, *Fraxinus*: Gldani, 28.VII 1998.

**Genus: Prodiaspis Young in Young & Wang**

56. *P. tamaricicola* (Mal)(=*A. tamaricicola* Mal.)- Recorded for the first time for Tbilisi on *Tamarix*: Gldani, 11,VII, 1997, 28.VI, 26. VII. 1998; *Tamarix*: A left Embankment of Mtkvari, 1.VIII.1997, 14, 17.VIII.1998.

**Genus: Salicicola Lindinger**

57. *S. Kermanensis* (Lndgr)- Regorded on *Populus gracilis*: Vake, 8. VI; *Ramnus pallasii*: Botanical garden of Tbilisi, 1. VII. 1997; *Populus gracilis*: Isani, 14.VI, 1998; *Populus gracilis*: Samgori, 14. VIII. 1998.

**Genus: Targionia Signoret**

58. *T. vitis* (Sidn.)- Hadzibeyli, 1983.

**Genus: Aspidiotus Bouche.**

59. *A. destructor* (Sign.)- Hadzibeyli, 1983.

60. *A. nerii* Bouche- Recorded on *Hedera*: Cemetery of Vake, 16, 19. VII. 1998; *Hedera*: Cemetery of Ebraeli, 14. VI, 18. VII. 1998.

**Genus: Dynaspidotus Thiem et Gern.(=Nuculaspis Ferris)**

61. *D. britannicus* ( New SL)- Recorded on *Hedera*: Tbilisi 1994-1998.

62. *D. abietis* (Schr.)(=*N. abietis* Schr.- Recorded on *Juniperus*: Botanical garden of Tbilisi, 20.IX. 1998.

**Genus: Diaspidiotus Berl. et Leon. (=Quadraspidotus Mac G.)**

63. *D. elaeagni* Borchs- Hadzibeyli, 1941, 1983; Nikolskaya, Yasnosh, 1966.

64. *D. prunorum*(Laingg.)- Recorded on Pear: Isani, 10. IV. 1998; Pear: Samgori 14.Vi. 1998.

65. *D. gigas* Thiem rt Gernech- Recorded on *Populus tremula*: Botanical garden of Tbilisi, 1. VIII. 1997; Pear: Gldani, 11. IV; Samgori, 28. VI, 29.VI, 3.VII. 1998.

66. *D. ostreaformis* (Curtis)- Hadzibeyli 1941; 1983.

67. *D. pyri* ( Lichtenstein)- Hadzibeyli 1983.

68. *D. zonatus* (Frau)- Hadzibeyli 1983.

69. *D. caucasicus* Borchs- Recorded by Hadzibeyli 1983.

70. *D. perniciosus* Comst- Recorded Mtatsminda, 7. VI, 9.Vi, 1997; Krtsanisi 15.VI. 1998.

**Genus: Aonidia Targioni- tozzetti.**

71. *A. lauri* (Bouche)- Hadzibeyli 1983.

**Genus: *Leucaspis* Targ-Tozz.**

72. *L. pusilla* Low- Recorded in Botanical garden, 26.VI. 1994; Ortachala, 21, IV, 23.VII 1995; Isani, 30. VI. 1997; Vake, 19.VI. 8.VII. 16. VII. 26.VII. 1998.

73. *L. lowi* Colv.(=*L. loewi* Colv.)- Recorded in Vake, 27.III; Botanical garden of Tbilisi, 11.IV; Culture and existence museum of Georgia, 16.V; Gldani, 28.vi. 1998.

**Genus: *Parlatoria* Targ-Tozz.(=*Syngenaspis* sulc.)**

74. *P. oleae* (Colv.)- Recorded in many districts of Tbilisi, on the different plants during 1994-1998.

75. *P. ziziphi* (Luc.)- Hadzibeyli 1941; 1965; 1983.

76. *P. theae* Ckll- Recorded on *Viburnum tinus* and *V. lantana*: Botanical garden of Tbilisi, 27.IV. 1998 and Gldani 6.VIII. 1998.

77. *P. parlatoria* (Sulc.) (= *Syngenaspis parlatoria* Sulc)-Recorded on *Picea*: Botanical garden of Tbilisi, 26. IV. 1994.

**Genus: *Diaspis* Costa**

78. *D.echinocacti* (Bouche)-Recorded on *Cactus*: Botanical garden of Tbilisi, 11.VI, 23.V. 1998.

**Genus: *Aulacaspis* Ckll.**

79. *A. rosae* (Bouche)-recorded on *Rosa canina*: Saburtalo, 6.VI. 1998.

**Genus: *Epidiaspis* Ckll**

80. *E. leperii* (Sign.)- Recorded on Pear: Samgori, 9. VI; Architecture and existence museum of Georgia, 16.V; *Pyrus salicifolia*: Gldani, 26. VII. 1998.

**Genus: *Chrusomphalus* Ashm.**

81. *Ch. dictyospermi* (Morgan)- Hadzibeyli 1941; 1983.

**Genus: *Aonidiella* Berlese et Leonardi**

82. *A. taxus* Leonardi- Hadzibeyli 1983.

83. *A. citrinia* (Coq)- Hadzibeyli 1941;1983.

**Genus: *Hemiberlesia* Ckll**

84. *H. lataniae* (Sign.)- Hadzibeyli, 1983.

**Discussion and Conclusion**

84 species of coccids were recorded by the literature sources and investigation carried out by the authors. 34 species are given in literature but they could not be recorded during survey. Only 50 species was collected during studies. Family Diaspididae is most numerous with 39 species, 22 species belongs to Coccidae, 13 species to Pseudococcidae, 1- Kermesidae, 2 – Margarodidae, 3- Eriococcidae, 2- Asterolecaniidae, 1- Kerridae, 1- Ortheziidae.

18 important pests in urban plantations were revealed by our observations: *Planococcus ficus*, *Phenacoccus aceris*, *Eriococcus williams*, *E. spurius*, *Pulvinaria floccifera*, *Neopulvinaria innumerabilis*, *Coccus hesperidum*, *C. pseudomagnoliarum*, *Sphaerolecanium prunastri*, *Parthenolecanium corni*, *P. rufulum*, *Palaeolecanium biturerculatum*, *Rhodococcus spiraeae*, *Ceroplastes japonicus*, *Carulaspis minima*, *Prodiaspis tamaricicola*, *Leucaspis pusilla*, *L. Lowi*. Among which *Planococcus ficus*, *Phenacoccus aceris*, *Neopulvinaria innumerabilis*, *C. pseudomagnoliarum*, *Sphaerolecanium prunastri*, *Parthenolecanium corni*, *Ceroplastes japonicus*, *Prodiaspis tamaricicola*, *Leucaspis pusilla* were most harmful for host plants.

**Acknowledgements:** We are grateful to Dr M. Gvritshvili (Tbilisi Botanical Garden) for his valuable help in determination of ornamental plants.

**References**

1. Japoshvili G. 1999. Chalcid parasitoids (Hymenoptera: Chalcidoidea) of Coccids, Psyllids and Whiteflies (Hemiptera: Coccoidea, Psylloidea, Aleyrodoidea) in city Tbilisi. PhD Thesis. (In Georgian).
2. Hadzibeyli Z. 1941. Material on the pest fauna of plants of City Tbilisi, p. 181-191. (In Russian).
3. Hadzibeyli Z. 1960. New species of Coccids (Homoptera: Coccoidea) from Georgia. Proceedings of Institute of Plant Protection Vol. XIII:38-49. (In Russian).
4. Hadzibeyli Z. 1965. Ecological characteristics of tribe Lepidosaphidini fauna of Georgia. Proceedings of Institute of Plant Protection Vol. XVII:4-19. (In Russian).
5. Hadzibeyli Z. 1966. Studies on hemolymph of lac insect *Laccifer lacca* Kerr. Proceedings of Institute of Plant Protection Vol. XVIII:137-148. (In Russian).
6. Hadzibeyli Z. 1983. Coccids of Subtropical Zone of Georgia, Tbilisi, Metsniereba. (In Russian).
7. Kozarzhevskaya E.1992. The pests of Ornamental plants. Nauka, Moscow. (In Russian).

8. Myers N, Mittermeier R, Mittermeier C, Fonseca G. and Kent J. 2000. Biodiversity hotspots for conservation priorities. *Nature*. Vol. 403, pp. 853-858.
9. Nikolskaya M, Yasnosh V. 1966. Aphelinids of European Part of USSR and Caucasus. Nauka, Leningrad.
10. Trjapitzin V. 1968. A survey of the encyrtid fauna (Hym. Encyrtidae) of the Caucasus. *Trudy Vsesoyuznogo Entomologicheskogo Obshchestva* 52:43-125 (In Russian).
11. Ulgenturk S (2001) Parasitoids and Predators of coccids (Homoptera: Coccoidea) Species on Ornamental Plants in Ankara, Turkey). *Acta Phytoparasitica et Entomologica Hungarica*, 36(3-4): 369-375.
12. Yasnosh V, Japoshvili G. 1998. Japanes Was Scale and natural Enemies in Tbilisi. *Bulletin of the Georgian Academy of Sciences*, 157,N1:132-134.



**CHECK LIST OF BEES (*HYMENOPTERA*, *HALICTIDAE*) OF GEORGIA****I. Skhirtladze**

**Georgian National Museum, e-mail: apidology@mail.ru**

**Abstract.** The study of bees of Georgia began in first half of the XIX century. But planned investigation of bees Georgia began only in second half of the XX century. The *Halictidae* family was determined to include 55 species, of 3 subfamily and 6 genera.

**Key words:** Bees, species, distribution, Georgia.

**Abbreviations:** EG – Eastern Georgia, WG – Western Georgia.

**Ordo Hymenoptera****Super family Apoidea, Ashmead, 1899****Family Halictidae Cockerell, 1931****Subfamily Halictinae Ashmead, 1899****Genus Halictus Latreille, 1805****1. *H. albipes* (Fabr., 1781)**

Distribution: EG: Shipiaki, Tsalka; Dusheti; Magaroskari, Khomisdziri, Katsalkhevi, Shuaphkho, Akneli, Khomsti, Motsmao, [2, 4].

Number: Numerous.

**2. *H. brachyceros* Blüthg, 1925**

Distribution: WG: Chkorotsku [3].

Number: Rare.

**3. *H. calceatus* (Scop, 1763)**

Distribution: EG: Dusheti: Gudrukhis khevi, Magaroskari, Mountain Akhun, Katsalkhevi, Shuaphkho, Akneli, Likokis khevi, Motsmao, Datvis khevi, Tsiteltskaro: Vashlovani – national park, Kasris tskali, David Gareji, Gardabani; Saguramo – national park. WG: Chkhorotsku; Ambrolauri: Cheliagele, Nikortsminda; Gulripshi; Gudauta; Pitsunda – national park [3, 4, 5, 7, 9].

Number: Numerous.

**4. *H. clypearis* (Schenck, 1853)**

Distribution: EG: Tsalka, Bediani [2].

Number: Rare.

**5. *H. corvinus* F. Mor., 1878**

Distribution: Eastern Georgia: Dusheti, Sharakhevi, [4].

Number: Rare.

**6. *H. costulatus* Kriechb., 1873**

Distribution: EG: Kizilkilissa, Dmanisi; Shuaphkho, Dusheti [2, 4].

Number: Rare.

**7. *H. eurygnathus* Blüthg, 1933**

Distribution: EG: Bediani, Tsalka; Sharakhevi, Dusheti; Gudrukhis khevi, Dusheti; Datvis khevi, Dusheti; Katsalkhevi, Dusheti; Akneli, Dusheti [2, 4].

Number: Ordinary.

- 8. *H. fulvicornis* (Kby, 1802)**  
 Distribution: EG: Tbilisi: Digomi, Tsodoreti, Dusheti: Akhuni, Katzalkhevi, Roshka, Kmosti, Likokis khevi, Motsmao, Datvis khevi, [4, 9].  
 Number: Numerous.
- 9. *H. geminatus* Per, 1881**  
 Distribution: WG: Nakiani, Zugdidi [3].  
 Number: Rare.
- 10. *H. glabriusculus* F. Mor., 1872**  
 Distribution: WG: Zugdidi: Letsurtsume; Akhalsopheli, Gulriphshi; Sukhumi Kelasuri [3, 9].  
 Number: Ordinary.
- 11. *H. griseolus* F. Mor., 1872**  
 Distribution: WG: Kutaisi [9].  
 Number: Rare.
- 12. *H. holzi* Schenck, 1870**  
 Distribution: EG: Tbilisi [9].
- 13. *H. laevigatus* (Kby, 1802)**  
 Distribution: EG: Dusheti, Likokis khevi [4]; Kazbegi [9].
- 14. *H. laticeps* Schenck, 1867**  
 Distribution: WG: Chkhorotsku; Dusheti: Sharakhevi, Motsmao, [3, 4].  
 Number: Rare.
- 15. *H. leucozonius* Schrk, 1781**  
 Distribution: EG: Tbilisi, Tzodoreti; Tetrtskaro; Tbsi; Tsiteltskaro: Vashlovani – national park, Datvis khevi, Kumuros khevi; Gardabani [7, 9].
- 16. *H. longirostris* F. Mor., 1876**  
 Distribution: EG: Tsiteltskaro: Vashlovani – national park [7].  
 Number: Rare.
- 17. *H. lucidulus* Schenck, 1859**  
 Distribution: WG: Kobuleti [9].  
 Number: Rare.
- 18. *H. maculatus* Sm., 1848**  
 Distribution: EG: Tsalka; Tbilisi, Tzodoreti; WG: Zugdidi, Akhalsopheli, Taia [2, 3, 9].  
 Number: Ordinary.
- 19. *H. major* Nyl, 1852**  
 Distribution: EG: Borjomi; Adigeni [1, 9].  
 Number: Rare.
- 20. *H. malachurus* (Kby, 1802)**  
 Distribution: EG: Ukangori, Dmanisi; Dusheti, Magaroskari; WG: Zugdidi, Chkuduashi, Akhalsopheli, Chkhorotsku, Taia; Chkhorotsku [2, 3, 4].  
 Number: Ordinary.
- 21. *H. marginatus* Brulle, 1832**  
 Distribution: EG: Tbilisi: Lake Lisi, Lake Kustba; Digomi, Tbilisi; Tbsi, Tetrtskaro; Matsevani, Tsiteltskaro; Vashlovani – national park; Kasristskali, Datvis khevi, Lagodekhi; David Garejji, Gardabani; WG: Oni: Mtiskalta, Bari; Kutaisi; Ambrolauri: reservoir Shaori, Tlugi, Phutieti; Pitsunda – national park [5, 6, 7, 9].  
 Number: Numerous.

- 22. *H. morbillosus* Kriechb, 1873**  
 Distribution: EG: Patara Dmanisi; Dmanisi; Tsiteltskaro: Vashlovani – national park, Lekis tzkali; WG: Ambrolauri: Skhvava, Phutieti, [2, 5, 7, 9].  
 Number: Numerous.
- 23. *H. morio* (F., 1793)**  
 Distribution: EG: Dusheti: Sharakhevi, Roshka, Datvis Khevi; WG: Lugela, Chkhorotsku: Nakiani, Letsurtsume, Chkhorotsku [4].
- 24. *H. mucoreus* (Ev., 1854)**  
 Distribution: EG: Lagodekhi [9].  
 Number: Rare.
- 25. *H. patellatus* F. Mor**  
 Distribution: EG: Tbilisi, Tsodoreti; Tetrtskaro, Matsevani; Keshishi, Gardabani; Tsiteltskaro: Vashlovani – national park; Kumuros khevi; WG: Ambrolauri: Skhvava, Nikortsminda, reservoir Shaori, Phutieti, Oni: Gomi, Mtiskalta, [5, 7, 9].
- 26. *H. paucillus* Schenck, 1851**  
 Distribution: WG: Zugdidi: Tsaishi, Chkhaduashi, Akhalsopheli; Chkhorotsku: Nakiani, Letsurtsume, [3].  
 Number: Numerous.
- 27. *H. perkinsi* Blüthg, 1933**  
 Distribution: EG: Dusheti, Magaroskari; WG: Chkhorotsku, Lugela [3, 4].  
 Number: Rare.
- 28. *H. politus* Schenck, 1853**  
 Distribution: WG: Chkhorotsku, Nakiani; Kutaisi; Gulriphshi [3, 9].  
 Number: Rare.
- 29. *H. puncticollis* F. Mor., 1872**  
 Distribution: EG: Tsitetskaro, Vashlovani – national park [7].  
 Number: Rare.
- 30. *H. quadricinctus* (F., 1776)**  
 Distribution: EG: Tbilisi, Tsodoreti, Tsiteltskaro, Kumuros Khevi; Kaspi [7, 9].  
 Number: Not numerous.
- 31. *H. riparius* F.Mor., 1873**  
 Distribution: EG: Mtskheta; Tetrtskaro, Matscvani; Tsiteltskaro: Pantisharas Khevi, Kasristskali; Vashlovani – national park, Udabno, Gardabani; Matsimchai, Lagodekhi [6, 7, 9].  
 Number: Numerous.
- 32. *H. rubicundus* (Christ., 1791)**  
 Distribution: EG: Dusheti: Roshka, Kmosti, [4].  
 Number: Rare.
- 33. *H. senilis* (Ev., 1852)**  
 Distribution: EG: Tbilisi: Digomi, Lake Kus tba; Tsodoreti, Tsiteltskaro: Pantisharas khevi, Vashlovani – national park, Kasristskali, Keshishi; Gardabani [7, 9].  
 Number: Numerous.
- 34. *H. sexcinctus* (F., 1775)**  
 Distribution: EG: Uraeli, Akhaltsikhe; Tbilisi, Tsodoreti; Tsiteltskaro, Vashlovani – national park; WG: Oni, Mtiskalta, Pitsunda – national park [1, 5, 7, 9].  
 Number: Numerous.

- 35. *H. sexnotatus* (Kby, 1802)**  
 Distribution: EG: Lagodekhi [6].  
 Number: Rare.
- 36. *H. subauratus* (Rossi, 1790)**  
 Distribution: EG: Dmanisi, Gomareti; Tbilisi, Tsodoreti; Tsiteltskaro, Kasris tskali; Ratchisubani, Lagodekhi; WG: Kutaisi; Ambrolauri, Phutieti; Sukhumi: Kelasuri, Besleti; Gudauta; Lidzava, Gagra; Pitsunda – national park [2, 5, 7, 9].  
 Number: Numerous.
- 37. *H. tetrazonianellus* (Klug, 1817)**  
 Distribution: EG: Lagodekhi [6, 9].  
 Number: Rare.
- 38. *H. tetrazonius* (Klug, 1817)**  
 Distribution: EG: Tbilisi [9].  
 Number: Rare.
- 39. *H. tomentosus* Schenck, 1853**  
 Distribution: EG: Mtskheta [9].  
 Number: Rare.
- 40. *H. truncaticollis* F. Mor., 1878**  
 Distribution: EG: Akhaltsikhe; Mtskheta; Tbilisi [1, 9].  
 Number: Rare.
- 41. *H. tumulorum* (L., 1767)**  
 Distribution: EG: Khrami, Tsalka; Mtskheta, Saguramo; Kiketi; Tbilisi; Dusheti: Katsalkhevi; Shuaphkho, Roshka; WG: Zugdidi, Akhalsopheli; Oni, Utsera; Sukhumi, Besleti; Gudauta; Pitsunda; Ambrolauri, Nikortsminda [2, 3, 4, 5, 9].  
 Number: Numerous.
- 42. *H. varipes* F. Mor, 1876**  
 Distribution: EG: Tbilisi, Lake Lisi; Tsiteltskaro: Vashlovani – national park, Datvis Khevi; Kaspi; WG: Gudauta; Sukhumi, Kelasuri [7, 9].  
 Number: Ordinary.
- 43. *H. villosulus* (Kby., 1802)**  
 Distribution: EG: Dusheti, Magaroskari; WG: Zugdidi, Akhalsopheli, Nakiani.; Letsurtsume; Chkhorotsku [3, 4, 9].  
 Number: Ordinary.
- 44. *H. xanthopus* (Kby, 1832)**  
 Distribution: EG: Balkho, Akhalkalaki; Ukangori, Dmanisi; Tbilisi, Lake Kus tba; Tsiteltskaro, Vashlovani – national park, Kasristskali [1, 2, 7, 9].  
 Number: Ordinary.
- 45. *H. zonulus* Smith, 1848**  
 Distribution: EG: Barisakho, Dusheti [4].  
 Number: Rare.

## **2. *Nomioides* Schenck, 1865**

- 46. *N. minutissimus* (Rossi, 1790)**  
 Distribution: EG: Tbilisi [9].  
 Number: Rare.

- 47. *N. variegatus* (Ol., 1789)**  
Distribution: EG: Tbilisi [9].  
Number: Rare.

### **3. *Sphecodes* Latreille, 1805**

- 48. *S. ephippius* (L., 1853)**  
Distribution: EG: Tbilisi; Borjomi [8, 9].  
Number: Rare.
- 49. *S. fuscipennis* (Germ. 1853)**  
Distribution: EG: Tsiteltskaro, Vashlovani – national park [7].  
Number: Rare.
- 50. *S. gibbus* Latreille, 1805**  
Distribution: EG: Borjomi [8].  
Number: Rare.
- 51. *S. reticulatus* Thoms, 1870**  
Distribution: WG: Sukhumi [9].  
Number: Rare.

### **2. Subfamily *Nomiinae* Latreille, 1804**

#### **4. *Nomia* Latreille, 1805**

- 52. *N. diversipes* Latr., 1806**  
Distribution: EG: Tsiteltskaro, Kumuros Khevi, Vashlovani – national park; WG: Akhali Aphony; Pitsunda – national park [7, 9].  
Number: Ordinary.

### **3. Subfamily *Dufoureae* Lepeletier, 1841**

#### **5. *Rhophites* Spinolla, 1808.**

- 53. *R. caucasicus* F. Mor, 1876**  
Distribution: EG: Kobi; Lagodekhi [6, 9].  
Number: Rare.
- 54. *R. quinquespinosus* Spin, 1808**  
Distribution: EG: Tbilisi, Tsodreti. WG: Oni, Glola [9].  
Number: Ordinary.

### **6. *Systropha* Illiger, 1806**

- 55. *S. planidens* Giraud, 1861**  
Distribution: EG: Borjomi; Akhaltsikhe [1, 8, 9].  
Number: Rare.

### **References**

1. Skhirtladze I., 1970. To study the bees of small caucasion, Moambe of the Georgian state Museum, XXVI-XXVII-A, p. 191-203 (in Georgian).
2. Skhirtladze I., 1975. To study the bees of Tsalka-Dmanis, Moambe of the Georgian state Museum, XXVIII-A, p. 270-289 (in Georgian).
3. Skhirtladze I., 1976. To study the bees of Mauntain ringe Egrisi, Moambe of the Georgian state Museum, XXIX-A, p. 134-153 (in Georgian).

4. Skhirtladze I., 1876. To study the bees of Pshav-Khevsureti, Moambe of the Georgian state Museum, XXIX-A, p. 110-133 (in Georgian).
5. Skhirtladze I., 1981. To study the bees of Racha, Moambe of the Georgian state Museum, XXXI-A, p. 181-201 (in Russian).
6. Materials of studing the bees in Lagodekhsky Reserve. Transcations of Georgian National park, IV, p. 337-348 (in Georgian).
7. Skhirtladze I., 1981. To study the bees of Vashlovani Reserve. Transcations of Georgian National park, V, p. 145-159 (in Georgian).
8. Skhirtladze I., 1987. To study the bees of Borjomi Reserve. Transcations of Georgian National park, VI, p. 268-279 (in Georgian).
9. Схиртладзе И.А., 1981. Пчелиные Закавказья (Нуменоптера, Ароидеа), Тб., Мецниереба, с. 29-48.
10. Схиртладзе И.А., 1992. Пчелиные (Нуменоптера, Ароидеа) Высокогорий Большого и Малого Кавказа, Тб., Мецниереба, с. 115-145.
11. Попов В.В., Никольская М.Н., 1958. Перепончатокрылые – Нуменоптера, Животный мир СССР, т. 5, Л., с. 318-350.
12. Радде Г.И., 1899. Коллекции Кавказского Музея, ч. I. Зоология, Тб., с. 520-535.
13. Dalla Torre, 1846. Catalogus Нуменоптерорум, V.X. Lipslae, p. 51-98.
14. Morawitz F., 1878. Nachtrag Zur Bienen fauna Caucasicus, Hor. Soc. Ent. Ross. Petersburg, p. 3-112.
15. Michener C.D., 1944. Camparative external morphology, phylogeny and a classification of the Bees (Нуменоптера). Bull of the Amer. museum of Nat. hist. New York, p. 247-268.

## CHECKLIST OF LASIOCAMPIDS (*LEPIDOPTERA*, *LESIOCAMPIDAE*) OF TRANSCAUCASUS

**E. Didmanidze**

**Georgian National Museum, e-mail: Lepidopterology@mail.ru**

**Abstract.** In the Article provides a Annotaided list of 24 species on the Lasiocampids of Transcaucasus. They are united in 5 subfamilies and in 13 genera 4 species (*Chandrostega pastrana* Led., *Trichiura mirzayni* Lb., *Lasiocampa grandis* Rognf., *Phyllodesma farahae* Laj) registered for the first time Georgia.

**Key words:** Lasiocampids, Distribution, Species, Transcaucasus

**Ordo *Lepidoptera***

**Subordo *Heteroneura***

**Family *Lasiocampidae***

### I. Subfamily *Chondrosteginae* Tutt, 1902

#### Genus *Chondrostega* Lederer, 1858

#### 1. *Ch. pastrana* Lederer, 1858

**Distribution:**- Eastern Georgia (Tbilisi) [our data, CGNM<sup>1</sup>]; Nakhichevan [12.23] Extremely rare species.

### II. Subfamily *Paecilocampinae* Tutt, 1902

#### Genus *Paecilocampa* Stephens, 1828

#### 2. *P. populi* (Linnaeus, 1758)

**Distribution:** All over Georgia. [19.21.23]; Armenia [10.12.13.16.23.] Azerbaijan [our data, CGNM] Not numerous species [12.15]

#### Genus *Trichiura* Stephens, 1828

#### 3. *T. crataegi* (Linnaeus, 1758)

**Distribution:** Western Georgia and Eastern Georgia [15.17.18.19.20.21.23]; Armenia [13.16.12. CGNM]; Azerbaijan [12.18.23]. Not numerous species.

#### 4. *T. mirzayani* Ebert, 1971

**Distribution:** Western Georgia (Adjara, ms. Khino, 1000-1200 m.) and Eastern Georgia (Tsagveri, Borjomi gorge, 900-1000 m.), [our data, CGNM]; Azerbaijan [12.23]. Rare species.

### III. Subfamily *Malacosominae* Tutt, 1902

#### Genus *Malacosoma* Hubner [1820] 1816

#### 5. *M. castrense* (Linnaeus, 1758)

**Distribution:** Eastern Georgia and Southern Georgia [6.8.11.17.19.23]; Armenia [10.12.13.16.19.23]; Azerbaijan [10.19.23. CGNM]. A time many species.

#### 6. *M. franconicum* (Denis at Schiffmuller, 1775)

**Distribution:** Eastern Georgia and Southern Georgia [3.6.7.18.19.20.21.23]; Armenia [10.12.13.16.17.18.19.23.24]; Azerbaijan [17.18.19.23 CGNM]. Not numerous species.

#### 7. *M. neustrium* (Linnaeus, 1758)

**Distribution:** Georgia [3.5.6.7.8.9.11.15.17.19.20.21]; Armenia [10.13.16-19]; Azerbaijan [10,19,23,28, CGNM] – ewerywhere, numerous species.

#### 8. *M. squalorum* (Bombyx franconica Den at Schiff.)

**Distribution:** Eastern Georgia and Southern Georgia (Bacuriani, Mtskheta, Lagodekhi, Dmanisi: Velispiri, Akhalcikhe) [12,23,24. CGNM]. Not numerous species.

#### 9. *M. parallela* Staodinger, 1887 (Bombyx neustria var. parallela Stgr.)

<sup>1</sup> CGNM-Collection of Georgian National Museum

**Distribution:** Eastern Georgia (Tbilisi, Borjomi) [12.23. CGNM]; Armenia [10.13.16.23]; Azerbaijan [10.23]. Rare species.

#### IV. Subfamily *Lasiocampidae* Tutt, 1902

##### Genus *Eriogaster* Germar, 1810

10. *E. neogena* (Fishen de Waldheim, 1824)

**Distribution:** Eastern Georgia (ssp *acanthophylli* Chr. – Vashlovani reserve). [8.11.17.19.23, CGNM]; Armenia [10.16.17.19.23]; Azerbaijan [10.17.19.23 CGNM]; Rare species.

11. *E. daralgesis* Zolotuhin, 1991

**Distribution:** Armenia [23]; Azerbaijan (Nakhievan) [12.23]; Very rare species.

##### Genus *Lasiocampa* Schrank, 1802

12. *L. quereus* (Linnaeus, 1758)

**Distributio:** Georgia, Armenia, Azerbaijan –everywhere, [3.5.8.1-13.15-19.21.23. CGNM]. Ordinary, a taime numerous species.

13. *L. eversmanni* (Kindermann in Eversmann, 1843)

**Distribution:** Eastern Georgia [8.11.19.23]; Armenia [10.13.16.23]; Azerbaijan [10.17.19.23 CGNM]. Not numerous species.

14. *L. trifolii* (Denis at Schiffermuller, 1775)

**Distribution:** Western Georgia and Eastern Georgia [12.18.19.20.21.23]; Armenia [12.13.16.18.19.23]. Azerbaijan [12.17.18.19.23, CGNM]. Ordinary species.

15. *L. pionkovskii* Scheljuzhko, 1943

**Distribution:** Southern Armenia and Southern Azerbaijan (Nakhichewan) [12.23]. Rare species.

16. \* *L. grandis* (Regenhofer, 1891)

**Distribution:** Southern Georgia (Aspindza) [our data – CGNM], Southern Armenia and Southern Azerbaijan (Nakhichewan)[12.23.].

##### Genus *Macrothylacia* Rambur, 1866

17.\* *M. rubi* (Linnaeus, 1758)

**Distribution:** Eastern Georgia (Borjomi) [12.23. CGNM]. Extremely rare species.

#### V. Subfamily *Pinarinae* Tutt, 1902

##### Genus *Gastropacha* Ochseneheimer, 1810

18. *G. quercifolia* (Linnaeus, 1758)

**Distribution:** Georgia [3.4.5.8.12.15.18.19]; Armenia [10.12.13.16.18.23]; Azerbaijan [10.12.17.18.23.28. CGNM] – everywhere, ordinary species.

##### Genus *Phylloidesma* Hubner [1820] 1816

19.\* *Ph. jiannisi* Lajonquiere, 1963 (*Phalera ilicifolia* L., *Epicnaptera Tremulifolia* L.).

**Distribution:** Georgia [3.4.5.6.8.12.15.17.19.21.23], Armenia [13.16.17.23], Azerbaijan [12.17.19.23. CGNM] – everywhere, ordinary species.

20.\* *Ph. farahae* Laionquiere, 1963

**Distribution:** South – Western Georgia [our data, CGNM]; Azerbaijan [12.23.24]. Rare species.

##### Genus *Streblote* Hubner [1820] 1816

21.\* *S. solitaria* Zolotuhin, 1991

**Distributin:** Transcaucasus: Armenia [12.22.23]. Extremely raree species.

##### Genus *Pachypasa* Walker, 1855

22. *P. otus* (Drury, 1773)

**Distribution:** Eastern Georgia [3.8.11.14.17.19.23]; Armenia [10.16.18]; Azerbaijan [10.28. CGNM]. Rare species.

---

\* supplement species



### Genus *Dendrolimus* Germar, 1812

#### 23. *D. pini* (Linnaeus, 1758)

**Distribution:** All over Georgia [3.6.11.15.17.18.19.20.21.23], Armenia [12.19.23] and Azerbaijan [12.17.19.23. CGNM]. Numerous species.

### Genus *Odonestis* Germar, 1812

#### 24. *O. pruni* (Linnaeus, 1758)

**Distribution:** Western and Eastern Georgia [3.4.15.19.21.23]; Armenia and Azerbaijan [19.23. CGNM]. Not numerons.

### References

1. Daniel F. Die sudformen von *Dendrolimus pini* L. Fragm. Balc. Mus Maced. Sc. Nat. 2. (1959), P. 97-105.
2. Didmanidze E. To a knowledge of fauna of Macrolepidoptera of Lagodekhi Reserve (new and poorly known species of fauna of Georgia). Moambe of Georgian State Museum S. Djanashia. Tbilisi. 1969. 22-23-A; p. 171-199 (in Georgian).
3. DiDmanidze E. A. Results of studyng the Macrolepidoptera in the Lagodekhi Reserve I. Zoologe, Moscou, 1971, 50. p. 515-519 (in Russian).
4. Didmanidze E.A. To the fauna of Macrolepidoptera of Gegechkori distrak (Mountain part), Moambe of Georgian State Museum S. Djanashia, Tbilisi, 1973, 24-25-A. p. 92-120.
5. Didmanidze E.A. Sikharulidze Z. Die Butterflais (Macrolipoptera) of Saguramo Reserve. J. Reserves of Georgia, Tbilisi, 1974, 3. p.213-226. (in Russian).
6. Didmanidze E.A. Materials of fauna Macrolepidoptera of Lesser Caucasus (Meskhet. Djavakhety, Southern Georgia). Moambe of Georgian State Museum S. Djanashia, Tbilisi, 1975, 28-A. p. 293-336 (in Russian).
7. Didmanidze E.A. To a knowledge of Macrolepidoptera of Lesser Caucasus (Tzalka-Dmanisi District). Moambe of Georgian State Museum S. Djanashia, Tbilisi, 1976, 29-A, p. 154-184 (in Russian).
8. Didmanidze E.A. Moths (Lepidoptera, Heterocera) of arid landscapes of Georgia. Tbilisi, 1978, p. 1-318 (in Russian).
9. Didmanidze E.A. Materials on Macrolepidoptera of Tusheti, Moambe of Georgian State Museum S. Djanashia, 1980, 30-A, p. 126-167 (in Russian).
10. Didmanidze E.A. Materials on Lepidoptera Heterocera of arid landscapes of Georgia (Without Geometridae and Noctuidae) Part II, Moambe of Georgian State Museum S. Djanashia, Tbilisi, 1981 a, 31-A, p. 124-181 (in Russian)
11. Didmanidze E.A. Materials to a study of Macropelidoptera of Vashlovani Reserve. I. Reserves of Georgia, Tbilisi, 1981 b. p. 75-119.
12. Dubatolov V.V., Zolotuhin V.V. A list of the formen USSR – Atlanta (Marktleten/Wurzburg), 1992, 23(3/4), p. 531-5-548.
13. Gevorkjan M.R. Fauna of Heterocera (Lepidoptera) of gorges of the Rozdan river and its tributary Marmarik (Armenian SSR) – Entomol. Obozr. 1986. 65, p. 683-691.
14. Khodzhevanishvili I.A., Pitzhelauri V.P. Pocularities of development of *Phachipasa otus* Drury in Eastern entomological Society, Leningrad, 1974, p. 250 (in Russian).
15. Milianovsky E.S. Fauna of Lepidoptera of Abkhasia, Trudy Sukhum opytnoi stantzii efiromaslichnykh kultur. Sukhum, 1964, 5, p. 1-91 (in Russian).
16. Mirzoyan S.A. Dendrofilnie nasekomie lesov i parkov Armenii, Erevan, 1974, p. 1-452. (Lasiocampidae: 201-202) (in Russian).
17. Radde G. Lepidoptera Caucasus Museum Caucasicum. Sammalungen des Kaukasishen Museum. Tiflis, 1899, p. 431-435.
18. Romanoff N.M. Les Lepidopteres de la Trandcaucasie, 2 partie – Men. Lepid., 1885, 2, p. 1-118.
19. Shengelia E.S. On distribution of *Bombyces* in Georgian and neighboring republics. Trudy zool.sectora AN SSR, Georgian Filiale, 1941, 3. p. 117-127 (in Russian).
20. Shengelia E.S. *Lasiocampidae*, *Orgydae* and *Geometridae* from Great Caucasus of Georgia. Phauna Visokogorie Balshovo Caucasa predelakh Grusii, Tbilisi, 1964, p. 125-143 (in Russian).

21. Shengelia E.S. *Lasiocampidae*, „Phauna bespozvonochnikh Trialetskovo khrebta“, Tbilisi, 1966, p. 147-148 (in Russian).
22. Zolotuhin V.V. on new and little – known *Lasiocampidae* (*Lepidoptera*) from Armenia USSR, Atalanta (Marktleu then/Wurzburg), 1991, 22 (2/4), p. 117-123.
23. Zolotuhin V.V. Au annotaded checklist of the *Lasiocampidae* (*Lepidoptera*) of Caucasus. Atalauta (Marktleuthen/Wurzburg), 1992a 23 (1/2) p. 225-243.
24. Zolotuhin V.V. Lasiocampids of franconicum-group (*Malacosoma*, *Lasiocampidae*, *Lepidoptera*) of the fauna of the USSR. Part 1. Vestnik SPBGU, 1992, 3(0), p. 25-33 (in Russian).
25. Zolotuhin V.V. New and little – Known species of Lasiocampids of the genus *Phyllodesma* Hbn. (*Lepidoptera*, *Lasiocampidae*), Entomol Obozr., 73(1), 1994, p. 136-143 (in Russian).
26. Iosef I. de Freina. Beitrag zur systematischen Erfassung der Bombyces und Sphinges Fauna Kleinasien Atalanta Deutschen Forschungszentral fur Smetterlingswanderungen, 10, Heft 3, ISSN, Munchen, 1979, p. 174-224.
27. Iaseef. I. de Freina, Beitrag zur sistematischev Erfassung der Bobyces und Sphing – Fauna Kleinasiens. Neue Kenntnisse uber Atrenspektrum, Sustematik und Nomenlatur sowie Beschreibung neuer Taxa (*Lepidoptera*) – Mitt. Munchen Entomal. Gesellsch, 1982, 72, p. 57-127.
28. Jhivotni mir Azermajana, v. II Bespozvonochnie, Baku, 1996, p. 244-246 (in Russian).

## CHECK LIST OF FISHES OF GEORGIA

N. Sh. Ninua<sup>1</sup>, B. O. Japoshvili<sup>2</sup>

<sup>1</sup>Georgian National Museum

<sup>2</sup>Institute of Zoology, e-mail: bella.japoshvili@gmail.com

**Abstract.** Investigations of the ichthyofauna of Georgia began in the XVIII-XIX centuries [10, 19,29-31,33,41,43,44,60,64], but no faunistic lists of the fish species of the country have been published until now. The present ichthyofauna of Georgia comprises 167 species, belonging to 3 subgenera, 109 genera, 5 tribes, 9 subfamilies, 57 families, 13 suborders, 25 orders, 5 superorders, 2 subclasses, 3 classes and 2 superclasses. Among them 61 are freshwater inhabitants, 76 live in marine water and 30 species are migratory. Terminology follows modern systematic classification and the Global information system on fishes [7,71]. The following abbreviations are used: BS- Black Sea, BSB- Black Sea Basin, BSE- Black Sea everywhere, BSC- Black Sea Coast, BSCE- Black Sea coast everywhere, BSCC- Black Sea Coast of Caucasus, Riv.- river, Res. - reservoir, L.-lake.

**Key words:** freshwater, marine, migratory fishes, Georgia

**Superclass** *Agnatha*, Jawless fish

**Class** *Cephalaspidomorphi*

**Order** *Petromyzontiformes*, Lampreys

**Family** *Petromyzontidae* Bonaparte, 1831, Lampreys

**Genus** *Caspiomyzon* Berg, 1906, Caspian lampreys

1. *Caspiomyzon wagneri* (Kessler, 1870), Caspian lamprey

Distribution: Before building the Mingechauri Reservoir was frequent. Today is rare [2,3,5,45,61].

**Genus** *Eudontomyzon* Regan, 1911, Brook lampreys

2. *Eudontomyzon mariae* (Berg, 1931), Ukrainian brook lamprey

Distribution: Riv: Chorokhi, Chakvistiskali, Chaisubani, Khobi, Tsivi, Enguri, Kodori, Kelasuri, Gumista, Bzipi [2,3,5,7,45,61].

**Class** *Elasmobranchii* Bonaparte, 1838, Rays and sharks

**Superorder** *Squalomorphi*, Sharks

**Order** *Squaliformes* Goodrich, 1909, Bramble, Sleeper and dogfish sharks

**Family** *Squalidae* Blainville, 1816, Dogfishes, Dogfish sharks

**Genus** *Squalus* Linnaeus, 1758, Spiny dogfishes, Spur dogs

3. *Squalus acanthias* Linnaeus, 1758, Piked dogfish, Spurdog

Distribution: BSE. [4, 69,70].

**Superorder** *Batoidea*, Torpedoes, Skates and rays

**Order** *Rajiformes*, Skates and rays

**Family** *Rajidae* Bonaparte, Rays, Skates

**Genus** *Raja* Linnaeus, 1758, Rays, Skates

4. *Raja clavata* Linnaeus, 1758, Thornback ray (roker)

Distribution: BSCE [4,69,70].

**Family** *Dasyatidae* (*Trygonidae*) Jordan et Evermann, Stingrays and whiprays

**Genus** *Dasyatis* Rafinesque, 1810, Stingrays, Roundrays

5. *Dasyatis pastinaca* (Linnaeus, 1758), Common stingray

Distribution: BSCE [4,69].

**Superclass** *Gnathostomata*, Jawmouth

*Teleostomi* Bonaparte, 1836

**Class** *Actinopterygii* Klein, 1885, Ray-finned fishes

**Subclass** *Chondrostei*, Cartilage ganoids

**Order** *Acipenseriformes* Berg, 1940, Sturgeons and paddlefishes

**Suborder** *Acipenseroidei*, Sturgeons

**Family** *Acipenseridae* Bonaparte, 1831, Sturgeons

**Genus *Acipenser* Linnaeus, 1758, Sturgeons**

6. *Acipenser sturio* Linnaeus, 1758, Sturgeon  
Distribution: South-East part of BS [2,4,7,9,28,42,49,51,54,65].
7. *Acipenser nudiventris* Lovetsky, 1828, Fringebarbel sturgeon  
Distribution: South-East part of BS [2-4,7,10, 28,30,33,42,49,51,54,55,57,58,64,65,69].
8. *Acipenser stellatus* Pallas, 1771, Starry sturgeon  
Distribution: South-East part of BS [2-4,7,10,28,30,33,42,49,51,54,55,57,58,64,65,69].
9. *Acipenser gueldenstaedtii* Brandt & Ratzeburg, 1833, Russian sturgeon  
Distribution: South-East part of BS [2-4,7,10, 30,33, 42,49,51,54,55,57,58,64,65,69].
10. *Acipenser g. colchicus* Marti, 1940, Colchian Sturgeon  
Distribution: South-East part of BS [2-4,7,28,42,49,51,54,55,57,58,64,65,69].
11. *Acipenser g. persicus* Borodin, 1897, Persian sturgeon  
Distribution: South-East part of BS [2-4,7,42,49,51,54,55,57,58,64,65,69].
- Genus *Huso* Brandt et Ratzeburg, 1833, Great (huso) sturgeons**
12. *Huso huso* (Linnaeus, 1758), Beluga  
Distribution: South-East part of BS [2-4,7,28,30, 42,49,51,54,55,57,58,64,65,69].  
**Subclass *Neopterygii*, Newfin fishes**  
**Division *Teleostei*, Bony fishes**  
**Subdivision *Elopomorpha***  
**Order *Anguilliformes*, Eels and morays**  
**Suborder *Anguilloidei*, Eels**  
**Family *Anguillidae* Rafinesque, 1815, Freshwater eels**  
**Genus *Anguilla* Schrank, 1798, Freshwater eels**
13. *Anguilla anguilla* (Linnaeus, 1758), European eel  
Distribution: Riv: Chorokhi, Kintrishi, Supsa, Rioni, Khobi, Tsivi, Churia, Enguri, Kodori, Besleti, Gumista, Bzipi. L: Paliastomi. Rare. [7,28,61].  
**Family *Congridae (Leptocephalidae)*, Regan, 1912).**  
**Genus *Conger* Schaeffer, 1760, Congers, Conger eels**
14. *Conger conger* (Linnaeus, 1758), Conger eel  
Distribution: In Georgia is rare, few numbers [69].  
**Subdivision *Clupeomorpha***  
**Order *Clupeiformes* Bleeker, 1859, Herrings**  
**Suborder *Clupeoidei*, Herrings**  
**Family *Engraulidae* Ridewood, 1905, Anchovies**  
**Genus *Engraulis* Cuvier, 1816, Anchovies**
15. *Engraulis encrasicolus ponticus* Alesandrov, 1927, Black sea anchovy  
Distribution: West and East part of BS [1,5,7,28,66,67,69].
16. *Engraulis encrasicolus maeoticus* Pusanov, 1926, Azov sea anchovy  
Distribution: BSC [1,5,7,66,67,69].  
**Family *Clupeidae* Cuvier, 1816, Herrings, Shads, Sardines**  
**Genus *Alosa* Linck, 1790, Allises, Shads**
17. *Alosa caspia palaeostomi* (Sadowsky, 1934), Paliastomi shad  
Distribution: BS, L: Paliastomi [3, 4, 7, 29, 69].
18. *Alosa tanaica* (Grimm, 1901), Azov shad  
Distribution: BSC, L: Paliastomi. [3, 4, 7, 29, 69].
19. *Alosa immaculata* Bennett, 1835, Pontic shad  
Distribution: BSC, L: Paliastomi [3, 4, 7, 29, 69].  
**Genus *Clupeonella* Kessler, 1877, Kilka**
20. *Clupeonella cultriventris* (Nordmann, 1840), Black Sea sprat, Common kilka  
Distribution: BSC, L: Paliastomi [7,69].  
**Genus *Sprattus* Girgensohn, 1846, Sprats**
21. *Sprattus sprattus sprattus* (Linnaeus, 1758), European sprat  
Distribution: BSE [7,69].  
**Subdivision *Euteleostei*, Veritable (true) bony fishes**  
**Superorder *Ostariophysii*, Bonycystics**  
**Series *Otophysi***

**Order Cypriniformes** Berg, 1940, Carps  
**Family Cyprinidae** Fleming, 1822, Minnows or carps  
**Subfamily Acheilognathinae** Bleeker, 1863, Bitterlings  
**Genus Rhodeus** Agassiz, 1832, Bittrelings

22. *Rhodeus sericeus* (Pallas, 1776), Bitterling

Distribution: Every Riv, L. and Res. [4,5,7,21,59].

23. *Rhodeus colchicus* Bogutskaya et Komlev, 2001

Distribution: Every Riv, L. and Res. [6,58].

**Subfamily Barbinae** Bleeker, 1859, Barbels

**Genus Barbus** Cuvier, 1816, Barbels, Barbs

24. *Barbus escherichii* Steindachner, 1897, Barb

Distribution: Riv., L. and Res. of west Georgia [2-5,7,14,20-29,32,37,38].

25. *Barbus lacerta* Heckel, 1843, Kura barbel

Distribution: East Georgia, Riv: Mtkvari and its tributaries. L: Jandara, Paravani, Sagamo-few numbers.  
Res: Khrami, Tbilisi, Sioni [2-5,7,13,17,20-29,32,38].

26. *Barbus capito capito* (Gueldenstaedtii, 1772), Bulatmai barbel

Distribution: Riv. Mtkvari and its tributaries. L: Jandara. Res: Tbilisi [2-5,7,14,15,17,20-29,32].

27. *Barbus mursa* (Gueldenstaedtii, 1773), Mursa

Distribution: Riv. Mtkvari and its tributaries, Iori. Res: Tbilisi, Sioni – rare. [2-5,7,15-17,20-29,32,38].

**Genus Capoeta** Valenciennes, 1842, Khramulyas

28. *Capoeta capoeta* (Gueldenstaedtii, 1773), Khramulya, Transcaucasian barb

Distribution: Riv: Mtkvari (up and down stream), Okumi, Liakhvi, Ksani, Aragvi, Khrami and its tributaries, Debeda, Mashavera, Alazani and its tributaries, Iori. L: Jandara, Bazaleti. Res: Tbilisi, Sioni [3,4,7,13,15,17,20,22,28, 29,35,41,46].

29. *Capoeta capoeta sevangi* de Filippi, 1865, Sevan khramulya

Distribution: L: Paravani, Sagamo, Tabatskuri. Res: Khrami, Tbilisi, Tkibuli [2-5,7,13-17,20-29,32].

30. *Capoeta tinca* (Heckel, 1843), Anatolian khramulya

Distribution: R: Chorokhi, Supsa, Rioni and their tributaries [2-5,7,15-17,20-29,32].

31. *Capoeta sieboldi* (Steindachner, 1864), Colchian khramulya

Distribution: Every Riv., L. and Res [2-5,7,15-17,20-29,32].

**Subfamily Ctenopharyngodoninae** Hosoya, 2002, Grass carps

**Genus Ctenopharyngodon** Steindachner, 1866, Grass (Chinese) carps

32. *Ctenopharyngodon idella* (Valenciennes, 1844), Grass carp

Distribution: Acclimatized in 1962. L: Jandara, Kumisi, Lisi. Ponds of Japana [7,29].

**Subfamily Cyprininae** Bonaparte, 1831, Carps

**Genus Carassius** Jarocki, 1822, Crucian carps

33. *Carassius carassius* (Linnaeus, 1758), Crucian carp

Distribution: Everywhere [3-5,7,11,28,29,40].

**Genus Cyprinus** Linnaeus, 1758, Carps

34. *Cyprinus carpio* Linnaeus, 1758, Common carp

Distribution: Riv: Alazani, Bzipi, Iori, Aragvi, Kodori, Enguri, Rioni. L: Paravani, Paliastomi, Bazaleti, Res: Tbilisi, Shaori. Reservoirs of Achara [5,7,21,28,29,52].

**Subfamily Gobioninae** Jordan et Fowler, 1903, Gudgeons

**Genus Gobio** Cuvier, 1816, Gudgeons, Gobies

35. *Gobio lepidolaemus caucasica* Kamensky, 1901, Gudgeon

Distribution: Riv: Chorokhi, Natanebi, Supsa, Rioni, Khobi, Churia, Enguri, Kodori, Bzipi. L: Paliastomi. Res: Tkibuli [3,5,7,29,56].

**Genus Romanogobio** Bănărescu, 1961, Rumanian gudgeons

36. *Romanogobio persus* (Günther, 1899), Kura gudgeon

Distribution: Riv: Mtkvari and its tributaries. L: Jandara. Res: Tbilisi, Sioni [3,5,7,29].

**Genus Pseudorasbora** Bleeker, 1859, Stone morocos

37. *Pseudorasbora parva* (Temminck et Schlegel, 1846), Stone moroco

Distribution: Riv. Iori, Alazani and others. L: Bazaleti, Jandara. Res: Kumasi, Algeti, Tkibuli, Shaori [47,48,68].

**Subfamily Leuciscinae** Bonaparte, 1837, Daces

**Tribe Abramidini** Dybowski, 1862

**Genus *Abramis* Cuvier, 1816, Breams**

38. *Abramis brama* (Linnaeus, 1758), Common bream  
Distribution: Riv: Supsa, Rioni, Tekhura, Churia, Tikori, Enguri. L: Paliastomi, Nabada [3-5,7,28,29].
39. *Abramis brama orientalis* Berg, 1949, Eastern bream  
Distribution: Riv: Mtkvari (up to Tbilisi), Khrami, Algeti, Alazani, Iori. L: Jandara. Res: Tbilisi [3-5,7,28,29].

**Genus *Ballerus* Heckel, 1843, Zopes**

40. *Ballerus sapa* (Pallas, 1814), Zope  
Distribution: Riv. Mtkvari, Alazani [3-5,7,28,29].

**Genus *Blicca* Heckel, 1843. White (silver) breams**

41. *Blicca bjoerkna* (Linnaeus, 1758), Silver bream  
Distribution: Freshwaters of BSC. Riv: Rioni, Tekhuri, Enguri. L: Paliastomi, Nabada, Bebesiri [3-5,7,28,29,56].
42. *Blicca bjoerkna transcaucasica* Berg, 1916, Transcaucasian bream  
Distribution: Riv: Mtkvari, Iori (down stream), Alazani (middle and down streams). L: Jandara [3-5,7,28,29].

**Tribe *Alburnini* Girard, 1859**

**Genus *Alburnoides* Jetteles, 1861, Riffle minnows**

43. *Alburnoides bipunctatus* (Bloch, 1782)(=*Alburnoides bipunctatus eihwaldi*, Filippi, 1863), Spirlin, Riffle minnow  
Distribution: Riv: Mtkvari and its tributaries. L: Paravani, Sagamo, Khanchali, Bazaleti, Jandara. Res: Tbilisi, Pildo, Sioni. [3-5,7,28,29].
44. *Alburnoides bipunctatus fasciatus* (Nordmann, 1840), South minnow  
Distribution: South part of Georgia, everywhere [3-5,7,28,29].

**Genus *Alburnus* Rafinesque, 1820, Bleaks**

45. *Alburnus alburnus* (Linnaeus, 1758), Bleak  
Distribution: Riv: Rioni, Tekhura, Churia, Tikori, Kelasuri, Gumista, Besleti [14, 27-29].
46. *Alburnus hohenackeri* Kessler, 1877, North Caucasian bleak  
Distribution: Riv: Alazani, Iori. Res: Tbilisi [27-29].
47. *Alburnus filippi* Kessler, 1877, Kura bleak  
Distribution: Riv: Mtkvari, Alazani and their tributaries. L: Jandara, Res: Tbilisi, Sioni [8,27-29].

**Genus *Acanthalburnus* Berg, 1916, Black-brows**

48. *Acanthalburnus microlepis* (De Filippi, 1863), Blackbrow bleak  
Distribution: Mtkvari (upper and down streams) and its tributaries. L: Jandara. Res: Tbilisi [8,27-29].

**Genus *Chalcalburnus* Berg, 1932, Royal fishes, Shemayas**

49. *Chalcalburnus chalcoides* (Gueldenstaedtii, 1772), Danube bleak, Caspian shemaya  
Distribution: Riv: Mtkvari, Iori, Alazani. L: Jandara. Res: Tbilisi [8,27-29].
50. *Chalcalburnus chalcoides* derjugini (Berg, 1923), Shemaya of Batumi  
Distribution: West Georgia, waters of Achara [27-29,52].

**Tribe *Hypophthalmichthyini* Günter, 1868, Silver carps**

**Genus *Aristichthys* Oshima, 1919, Bigheads**

51. *Aristichthys nobilis* (Richardson, 1845), Bighead carp  
Distribution: Introduced in 1962 year in ponds of Japana. L: Jandara, Lisi, Kumisi [7,8,28,29,47].

**Genus *Hypophthalmichthys* Bleeker, 1859, Silver carps**

52. *Hypophthalmichthys molitrix* (Valenciennes, 1844), Silver carp  
Distribution: Ponds of Japana. L: Jandara, Lisi, Kumisi [7,8,28,29,47].

**Tribe *Leuciscini* Bonaparte, 1846**

**Genus *Aspius* Agassiz, 1832, Asps**

53. *Aspius aspius* (Linnaeus, 1758), Asp  
Distribution: BSB. Riv: Rioni, Enguri, Mtkvari [28,29].
54. *Aspius aspius taeniatus* (Eichwaldi, 1831), Caspian asp  
Distribution: Riv: Alazani, Mtkvari, Khrami, Iori. L: Jandara. Res: Tbilisi [28,29].

**Genus *Chondrostoma* Agassiz, 1832, Nasen**

55. *Chondrostoma colchicum* Derjugin, 1899, Colchic nase, Colchian undermouth  
Distribution: South Georgia. L: Paliastomi [3-5,7, 22, 28,29].
56. *Chondrostoma cyri* Kessler, 1877, Kura nase

Distribution: Riv: Mtkvari, Ksani, Liakhvi, Khrami, Iori, Alazani, Aragvi. Res: Tbilisi [3-5,7, 13, 28,29].

**Genus** *Leuciscus* Cuvier, 1816, Daces

57. *Leuciscus leuciscus* (Linnaeus, 1758), Common dace

Distribution: Rivers of BSB [3-5,7,22, 28,29].

**Genus** *Petroleuciscus* Bogutskaya, 2002

58. *Petroleuciscus borysthenicus* (Kessler, 1859)(= *Luciscus borysthenicus* (Kessler, 1859) Dnieper chub

Distribution: Riv: Chorokhi, Kintrishi, Rioni, Khobi, Churia, Enguri, Kodori, Shavtskala, Bzipi. L: Nuriageli, Paliastomi, Inkiti [3-5,7, 28,29].

**Genus** *Rutilus* Rafinesque, 1820, Roachs

59. *Rutilus rutilus* (Linnaeus, 1758), Roach

Distribution: BSB, Riv: Rioni, Tekhura, Enguri, Tikori, Churia, Khobi. L: Nabada, Bebesiri, Paliastomi. [4,7,28,29].

60. *Rutilus rutilus kurensis* Berg, 1932, Kura roach

Distribution: Riv: Mtkvari, Khrami, Iori, Alazani. L: Jandara. Res: Tbilisi [3-5,7, 28,29].

61. *Rutilus frisii* (Nordmann, 1840), Kutum, Black Sea roach

Distribution: BS (near Kobuleti), Riv: Dgamishi. L: Paliastomi (few numbers) [3-5,7, 28,29].

**Genus** *Scardinius* Bonaparte, 1837, Rudds

62. *Scardinius erythrophthalmus* (Linnaeus, 1758), Rudd

Distribution: Gulf of Kodori. Riv: Chorokhi, Rioni, Enguri (BSC). L: Nuriageli, Paliastomi, Bebesiri [3,4,7,24,28].

**Genus** *Squalius* Bonaparte, 1837, Chubs

63. *Squalius cephalus* (Linnaeus, 1758) (= *Leuciscus cephalus orientalis* Nordmann, 1840), European chub

Distribution: All Rivers, lakes and reservoirs [3-5,7, 28,29].

**Genus** *Vimba* Fitzinger, 1873, Vimbas, Zantes

64. *Vimba vimba* (Linnaeus, 1758), Vimba

Distribution: Riv: Chorokhi, Chakvistskali, Kintrishi, Natanebi, Rioni, Khobi, Tsivi, Churia, Tikori, Enguri, Kodori, Shavtskala, Bzipi, Psou. L: Paliastomi, Shavnabada [3,4,7,24,25].

**Tribe** *Pseudaspinini* Bogutskaya, 1990

**Genus** *Phoxinus* Rafinesque, 1820, Minnows

65. *Phoxinus phoxinus colchicus* Berg, 1910, Eurasian minnow

Distribution: Riv: Chelta, Chorokhi, Korolistkali, Chakvistskali, Kintrishi, Supsa, Bakhvistskali, Kodori, Psou, Tetri, Shavi [7,28,29]

**Subfamily** *Tincinae* Kryzhanovsky, 1947, Tenches

**Genus** *Tinca* Cuvier, 1816, Tenches

66. *Tinca tinca* (Linnaeus, 1758), Tench

Distribution: Riv: Mtkvari, Supsa, Rioni, Kodori. L: Paliastomi, Bebesiri. Waters of Achara [7,28,52].

**Family** *Cobitidae* Swainson, 1839, Loaches

**Genus** *Cobitis* Linnaeus, 1758, Spined loaches

67. *Cobitis satunini* Gladkov, 1935

Distribution: Almost all rivers, lakes and reservoirs [5,7,28].

**Genus** *Sabanejewia* Vladykov, 1929, Loaches of Sabanejewia

68. *Sabanejewia aurata aurata* (De Filippi, 1863), Goldside loach

Distribution: Riv: Mtkvari, Iori, Alazani and their tributaries, Khrami, Aragvi, Ksani, Liakhvi. L: Jandara. Res: Tbilisi, Pildo, Sioni [5,7,20,28].

**Family** *Balitoridae* Swainson, 1839, River loaches

**Genus** *Barbatula* Linck, 1790, Whiskered loaches

69. *Barbatula angorae* (Steindachner, 1897), Angora loach

Distribution: Riv: Mtkvari Basin(upper stream), Supsa, Chorokhi, Enguri, Sakraula. Reservoirs of Achara. [23,27-29,52].

70. *Barbatula barbatulus caucasicus* Berg, 1899

Distribution: Riv: Arguni, tributary of Terek [29].

**Family** *Balitoridae* Swainson, 1839, River loaches

**Subfamily** *Nemacheilinae*

**Genus** *Oxynoemacheilus* Banareescu et Nalbant, 1966

71. *Oxynoemacheilus brandtii* (Kessler, 1877), Kura stone loach  
 Distribution: Rivers of Mtkvari Basin. L: Jandara, Pildo. Res Tbilisi, Sioni. [15-17].  
**Order** *Siluriformes*, Sheatfishes, Catfishes, Nematognathus  
**Family** *Siluridae* Cuvier, 1816, Sheatfishes, Welses, Silurid catfishes  
**Genus** *Silurus* Linnaeus, 1758, Sheatfishes, Welses
72. *Silurus glanis* Linnaeus, 1758, Wels catfish, Wels, European catfish  
 Distribution: Almost every rivers of BSB. L: Paliastomi, Bebesiri. Frequent in South Georgia [3-5,28,29].  
**Superorder** *Protacanthopterygii*  
**Order** *Esociformes*, Pikes and mudminnows  
**Family** *Esocidae* Cuvier, 1816, Pikes, Pickerels  
**Genus** *Esox* Linnaeus, 1758, Pikes
73. *Esox lucius* Linnaeus, 1758, Northern pike  
 Distribution: BSC. Delta of Rioni, Riv: Tekhura, Abasha, Okumi, Kodori, Besleti, Khobi, Tsivi, Churia. L: Paliastomi, Nabada, Bebesiri, Skurcha [3-5,28,29].  
**Order** *Salmoniformes*, Salmonids  
**Family** *Coregonidae* Cope, 1872, Whitefishes  
**Genus** *Coregonus* Linnaeus, 1758, Ciscos, Whitefishes  
**Subgenus** *Cisco* Jordan, Evermann, 1911, Whitefishes, Ciscos
74. *Coregonus albula* (Linnaeus, 1758), European cisco, Vendace  
 Distribution: In 1930 was introduced from Volkhov reservoir (Russia, L: Ladoga) to L: Paravani, Tabatskuri [3-5,7,15,18, 28,29,36,39,47,53].  
**Subgenus** *Coregonus* Linnaeus, 1758, Whitefishes
75. *Coregonus lavaretus* (Linnaeus, 1758), Common whitefish, European (Baltic sea) whitefish  
 Distribution: Introduced in L: Paravani, Tabatskuri. Nowadays is vulnerable [18,36,47].  
**Subgenus** *Leucisithys* Dybowski, 1874, Omuls
76. *Coregonus peled* (Gmelin, 1789), Peled  
 Distribution: Introduced fertilized eggs from Volkhov hatchery (Russia, L: Ladoga) to L: Kumisi, Kondoli. Lakes and reservoirs of Abasha region. Today is vulnerable [18,36,47].  
**Family** *Salmonidae* Cuvier, 1816, Salmon, Salmonid fishes  
**Genus** *Oncorhynchus* Suckley, 1861, Pacific salmon
77. *Oncorhynchus mykiss* (Walbaum, 1792), Rainbow trout  
 Distribution: In 1936-1940 years was introduced from Kurski province (Russian Federation) to East Georgia. [3,5,27-29].  
**Genus** *Salmo* Linnaeus, 1758, Salmon
78. *Salmo trutta* Linnaeus, 1758, Trout (Sea trout, Brown trout)  
 Distribution: Every mauntinian rivers and lakes [16,20-29].
79. *Salmo labrax* Pallas, 1814 (= *Salmo trutta labrax* Pallas, 1814), Black Sea salmon  
 Distribution: Gulf of Rioni. Riv: Chorokhi, Kintrishi, Enguri, Khobi, Kodori, Gumista, Shavi, Bzipi [24-29].
80. *Salmo caspius* (Kessler, 1877), Caspian salmon  
 Distribution: Before building of Mingechauri reservoir (1953-1965) was frequent (coming for spawning to river Mtkvari) [27-29].  
**Order** *Gadiformes*, Cods, Soft-finned fishes  
**Family** *Lotidae* Bonaparte, 1837, Hakes and burbot  
**Genus** *Gaidropsarus* Rafinesque 1815, Rocklings
81. *Gaidropsarus mediterraneus* (Linnaeus, 1758), Shore (Mediterranean) rockling  
 Distribution: BS (common for stony coasts) [4,7,69].  
**Genus** *Merluccius* Rafinesque, 1810, Merluccid hakes, whittings
82. *Merluccius merluccius* (Linnaeus, 1758), Hake  
 Distribution: South part of BS [4,7,69].  
**Genus** *Odontogadus* Gill, 1863, Whiting
83. *Odontogadus merlangus euxinus* (Nordmann, 1840), Whiting  
 Distribution: BSC [4,7,69].  
**Superorder** *Acanthopterygii*, Pickedfins  
**Series** *Mugilomorpha*



**Order Mugiliformes**, Mullet-like fishes

**Family Mugilidae** Bonaparte, 1831, Gray mullets

**Genus Mugil** Linnaeus, 1758, Gray mullets

84. *Mugil cephalus* Linnaeus, 1758, Flathead mullet

Distribution: BSC. Rivers of Caucasus. L: Pitsunda, Paliastomi. Freshwater lakes of Achara [4,7,12,28,69].

85. *Mugil soiyu* Basilewsky, 1855, So-iuy mullet

Distribution: BSC. Freshwater parts of rivers and lakes of BSB [4,7,28,69].

**Genus Liza** Jordan et Swain, 1884

86. *Liza aurata* (Risso,1810), Golden grey mullet

Distribution: BS. L: Paliastomi [4,7,28,69].

87. *Liza saliens* (Risso, 1810), Leaping grey mullet

Distribution: BSC. Freshwater parts of rivers and lakes of BSB [4,7,28,69].

**Family Sphyraenidae** Röse, 1793, Barracudas, Sea pikes

**Genus Sphyraena** Röse, 1793, Barracudas, Sea pikes

88. *Sphyraena sphyraena* (Linnaeus, 1758), European barracuda, spet

Distribution: BS, rare [69].

**Family Centranchidae (Maenidae)**, Pickerels

**Genus Spicara** Rafinesque, 1810, Pickerels

89. *Spicara smaris* (Linnaeus, 1758), High-body pickerel

Distribution: BSCE [69].

**Family Pomacentridae**, Damselfishes, Anemonfishes, Coralfishes

**Genus Chromis** Cuvier, 1815, Chromises, Reef fishes, Pullers

90. *Chromis chromis* (Linnaeus, 1758), Blue damselfish, Barfish

Distribution: BSC [69].

**Order Atheriniformes**, Silversides

**Suborder Atherinoidei**, Silversides

**Family Atherinidae** Risso, 1827, Silversides, Hardy-heads

**Genus Atherina** Linnaeus, 1758, Atherines, Silversides, Sand smelts

91. *Atherina mochon pontica* Eichwald, 1831, Silverside, Big-scale sand smelt

Distribution: South, East and North BSC [69].

92. *Atherina bonapartei* Boulenger, 1904.

Distribution: BSCC [69].

**Order Beloniformes** Berg, Syntognaths

**Family Belonidae** Gill, Needle-fishes, Garfishes

**Genus Belone** Cuvier, 1817, Needlefishes, Garfishes

93. *Belone belone* euxini Gunther, 1811, Garfish

Distribution: BSCE [7,69].

**Order Cyprinodontiformes**, Cyprinodont(oid)s

**Family Poeciliidae** Swainson, 1839, Live bearers, Mosquito fishes

**Genus Gambusia** Poey, 1854, Mosquito fishes, Topminnows

94. *Gambusia affinis holbrooki* (Girard, 1859), Mosquito fish, Topminnow

Distribution: BSC, freshwater regions [43,47].

**Order Gasterosteiformes**, Sticklebacks and tubesnouts

**Family Gasterosteidae** Bonaparte, 1831, Sticklebacks

**Genus Gasterosteus** Linnaeus, 1758, Sticklebacks

95. *Gasterosteus aculeatus* Linnaeus, 1758, Three-spined stickleback, Tidder

Distribution: Brackish places of BS and deltas of its rivers [4,7,69].

**Order Syngnathiformes**, Pipefishes and seahorses

**Suborder Syngnathoidei**, Pipefishes

**Family Syngnathidae** Bonaparte, 1831, Pipefishes, Seahorses

**Genus Nerophis** Rafinesque, 1810, Straight-nose pipefishes

96. *Nerophis ophidion* (Linnaeus, 1758), Straight-nose pipefish

Distribution: BSC [3-5,7,29,69].

**Genus Syngnathus** Linnaeus, 1758, Pipefishes

97. *Syngnathus typhle* Linnaeus 1758, Deep-snouted pipefish

Distribution: BSC [3-5,7,29,69].

98. *Syngnathus variegatus* Pallas, 1814

Distribution: BSCC [3-5,29,69].

99. *Syngnathus tenuirostris* Rathke 1837, Narrow-snouted pipefish

Distribution: BSCC [3-5,29,69].

100. *Syngnathus schmidti* Popov, 1927, Pipefish

Distribution: BSCC [3-5,7,29,69].

101. *Syngnathus abaster* Risso, 1827, Black-striped pipefish (= *Syngnathus nigrolineatus* Eichwald 1831).

Distribution: BSCC [3,5,69].

**Genus** *Hippocampus* Rafinesque, 1810, Seahorses

102. *Hippocampus guttulatus* Cuvier, 1829, Long-snouted seahorse (= *Hippocampus microstephanus* Slastenenko, 1937).

Distribution: BSCC [29,69].

**Order** *Scorpaeniformes*, Scorpion fishes and flatheads

**Suborder** *Scorpaenoidei*, Scorpion fishes

**Family** *Scorpaenidae* Risso, 1826, Scorpionfishes, Rockfishes

**Genus** *Scorpaena* Linnaeus, 1758, Scorpion fishes

103. *Scorpaena porcus* Linnaeus, 1758, Black scorpionfish, Small-scaled scorpion fish, Sea scorpion

Distribution: BSCE [29,69].

**Family** *Triglidae* Regan, 1913, Saerobins, Grondins, Gurnards

**Genus** *Trigla* Linnaeus, 1758, Gurnards, Crowners, Tubbots, Latchets

104. *Trigla gurnardus* Linnaeus, 1758 (= *Eutrigla gurnardus* (Linnaeus, 1758)), Gray gurnard

Distribution: South-West part of BS [69].

105. *Trigla lucerna* Linnaeus, 1758 (= *Chelidonichthys lucernus* (Linnaeus, 1758)), Yellow gurnard, tubfish

Distribution: BS, rare [28,69].

**Order** *Zeiformes*, Dories

**Family** *Zeidae* Bonaparte, 1899, Dories

**Genus** *Zeus* Linnaeus, 1758, Joyh dories

106. *Zeus faber* Linnaeus, 1758, John dory (= *Zeus pungio* Valenciennes, 1835)

Distribution: BS, rare [7,29,69].

**Order** *Perciformes*, Perch-likes

**Family** *Sparidae*, Porgies

**Genus** *Diplodus* Rafinesque, 1810, Sea breams

107. *Diplodus annularis* (Linnaeus, 1758), Annular seabream

Distribution: BSCE [69].

**Genus** *Puntazzo* Bleeker, 1876, Puntazzos

108. *Puntazzo puntazzo* (Cetti, 1784) (= *Diplodus puntazzo* (Cetti, 1777)), Puntazzo, sharp-snouted

Distribution: BSC [69].

**Genus** *Boops* Cuvier, 1815, Bogue, Striped bigeye

109. *Boops boops* (Linnaeus, 1758), Bogue

Distribution: BSCC [69].

110. *Boops salpa* (Linnaeus, 1758)

Distribution: BSCC [69].

**Family** *Mullidae*, Goatfishes, Surmulletts, Redmulletts

**Genus** *Mullus* Linnaeus, 1758, Goatfishes, Mulletts, Surmulletts

111. *Mullus barbatus ponticus* Essipov, 1927, Blunt-snouted mullet

Distribution: BSCE [4,69].

**Family** *Moronidae* Johnson, 1984, Perches

**Genus** *Morone* Mitchill, 1814, Striped perches

112. *Morone labrax* (Linnaeus, 1758), European seabass

Distribution: BS, rare [4,5,69].

**Family** *Serranidae*, Sea basses

**Genus** *Serranus* Cuvier, 1817, Combers

113. *Serranus scriba* (Linnaeus, 1758), Painted comber

Distribution: BSCC [4,5,69].

- Family Percidae** Cuvier, 1816, Perches, Darters  
**Genus Perca** Linnaeus, 1758, River perches
114. *Perca fluviatilis* Linnaeus, 1758, River perch  
 Distribution: Rivers of west Georgia [4,5,69].  
**Genus Sander** Oken, 1817, Pike-perches
115. *Sander lucioperca* (Linnaeus, 1758), Pike-perches  
 Distribution: BSCE. Few numbers in rivers [3,5,7].  
**Family Pomatomidae** Regan, 1913, Bluefishes, Greenfishes  
**Genus Pomatomus** Lacepede, 1802, Bluefishes
116. *Pomatomus saltatrix* (Linnaeus, 1758), Bluefish, Elf, Greenfish  
 Distribution: BSC [69].  
**Family Carangidae** Regan, 1913, Jacks, Horse mackerels, Queenfishes  
**Genus Trachurus** Rafinesque, 1810, Horse mackerels
117. *Trachurus mediterraneus ponticus* Aleev, 1956, Mediterranean horse mackerel  
 Distribution: BSCE [63,69].
118. *Trachurus trachurus* (Linnaeus, 1758), Atlantic horse mackerel  
 Distribution: BSC, rare [63,69].  
**Family Sciaenidae** Regan, 1913, Croakers  
**Genus Sciaena** Linnaeus, 1758, Drums, Meagres
119. *Sciaena umbra* Linnaeus, 1758, Brown meagre  
 Distribution: BSCE [3,69].  
**Genus Umbrina** Cuvier, 1817, Umberfishes
120. *Umbrina cirrosa* (Linnaeus, 1758), Shi drum, Bearded umbrine  
 Distribution: BSCE [3,69].  
**Family Sparidae** Regan, 1913, Porgies  
**Genus Pagellus** Cuvier, 1829, Pandoras
121. *Pagellus erythrinus* (Linnaeus, 1758), Common pandora  
 Distribution: BSCC [69].  
**Genus Sparus** Linnaeus, 1758, Sea breams
122. *Sparus aurata* Linnaeus, 1758, Gilthead seabream, Gilthead  
 Distribution: BSCC [69].  
**Family Labridae** Cuvier, 1816, Wrasses, Slippery dicks  
**Subfamily Labroidae**  
**Genus Labrus** Linnaeus, 1758, Wrasses
123. *Labrus viridis* Linnaeus, 1758, Green wrasse  
 Distribution: BS, rare [69].  
**Genus Symphodus** Rafinesque, 1810, Cork wings
124. *Symphodus tinca* (Linnaeus, 1758), East Atlantic peacock wrasse (= *Crenilabrus tinca* (Linnaeus, 1758))  
 Distribution: BSCC, rare [69].
125. *Symphodus roissali* (Risso, 1810) (= *Crenilabrus roissali* (Risso, 1810)), Five-spotted wrasse  
 Distribution: BSCC, rare [69].
126. *Symphodus cinereus* (Bonnaterre, 1788) (= *Crenilabrus cinereus* (Bonnaterre, 1788)), Grey wrasse  
 Distribution: BSCC, rare [69].
127. *Symphodus ocellatus* (Forsskål, 1775) (= *Crenilabrus ocellatus* (Forsskål, 1775))  
 Distribution: BSCC, rare [69].
128. *Symphodus rostratus* (Bloch, 1791) (= *Crenilabrus rostratus* (Bloch, 1791))  
 Distribution: BS, rare, few numbers [28,69].  
**Family Trachinidae** Regan, 1913, Weever fishes  
**Genus Trachinus** Linnaeus, 1758, Weever fishes
129. *Trachinus draco* Linnaeus, 1758, Greater weever, Stingfish  
 Distribution: BSCC [69].  
**Suborder Gobioidae**, Gobies  
**Family Gobiidae** Fleming, 1822, Gobies, Gudgeons  
**Genus Pomatoschistus** Gill, 1863, Gobies
130. *Pomatoschistus marmoratus* (Risso, 1810), Marbled goby

Distribution: BSCC. L: Paliastomi [3-5,7,28,29,34, 52, 69].

**Genus *Knipowitschia* Iljin, 1927**

131. *Knipowitschia caucasica* (Berg, 1916)

Distribution: BSCC [3-5,7,28,29,34, 52, 69].

132. *Knipowitschia longicaudata* (Kessler, 1877)

Distribution: BSCC[3-5,7,28,29,34, 52, 69].

**Genus *Mesogobius* Bleeker, 1874, Gobies**

133. *Mesogobius batrachocephalus* (Pallas, 1814), Knout goby

Distribution: BSCC[3-5,7,28,29,34, 52, 69].

**Genus *Neogobius* Iijin, 1927**

134. *Neogobius (Ponticola) constructor* (Nordmann, 1840)

Distribution: Rivers of Georgia, everywhere [3,5,7,28,29].

135. *Neogobius (Neogobius) fluviatilis* (Pallas, 1814), Monkey Gob

Distribution: Gulfs of rivers of BSB [3-5,7,28,29,34, 52, 69].

136. *Neogobius (Babka) gymnotrachelus* (Kessler, 1857), Caspian goad goby

Distribution: Riv: Rioni, Supsa, Tskhenistsckali, Tekhuri, Abasha, Enguri. L: Paliastomi [3-5,7,23,24,28,29,34, 52, 59,69].

137. *Neogobius (Apollonia) melanostomus* (Pallas, 1814), Caspian round Gob

Distribution: BSC, rivers of Black sea basin. L: Paliastomi [3-5,7,28,29,34, 52, 69].

138. *Neogobius (Ponticola) ratan* (Nordmann, 1840), Rattan goby

Distribution: BSCC [3-5,7,28,29,34, 52, 69].

139. *Neogobius (Ponticola) platyrostris* (Pallas, 1814), Guban goby

Distribution: BSCC [3-5,7,28,29,34, 52, 69].

140. *Neogobius (Ponticola) syrman* (Nordmann, 1810), Syrman goby

Distribution: BSCC [3-5,7,28,29,34, 52, 69].

**Genus *Zosterisessor* Whitley, 1935, Grass gobies**

141. *Zosterisessor ophiocephalus* (Pallas, 1814), Grass goby

Distribution: BSCC [3-5,7,28,29,34, 52, 69].

**Family *Uranoscopidae* Regan, 1913, Stargazers, Pufferfishes**

**Genus *Uranoscopus* Linnaeus, 1758, Stargazers**

142. *Uranoscopus scaber* Linnaeus, 1758, Atlantic stargazer

Distribution: BSCC, everywhere [69].

**Suborder *Blennioidei***

**Family *Blenniidae* Rafinesque, 1810, Combtooth blennies, Rockskippers**

**Genus *Blennius* Linnaeus, 1758, Blennies**

143. *Blennius sphynx* (Valenciennes, 1836), Spinx blenny

Distribution: BSCC [4,69].

144. *Blennius pavo* (Risso, 1810) (= *Salaria pavo* (Risso, 1810)), Peacock blenny

Distribution: BSCC[3-5,28,29,34, 52, 69].

145. *Blennius sanguinolentus* (Pallas, 1814) (= *Parablennius sanguinolentus* (Pallas, 1814)), Black Sea blenny

Distribution: BSCC, everwhere[3-5,28,29,34, 52, 69].

146. *Blennius tentacularis* (Brünnich, 1768) (= *Parablennius tentaculatrix* (Brünnich, 1768)), Tentacled blenny

Distribution: BSC (Bichvinta, Sokhumi, Batumi) [3-5,28,29,34, 52, 69].

147. *Blennius zvonimiri* (Kolombatovic, 1892) (= *Parablennius zconimiri* (Kolombatovic, 1892))

Distribution: BSC, frequent near Batumi [3-5,28,29,34, 52, 69].

**Genus *Coryphoblennius* Norman, Montagu's blennies**

148. *Coryphoblennius galerita* (Linnaeus, 1758), Montague's blenny

Distribution: BSC (Batumi, Sokhumi) [3-5,28,29,34, 52, 69].

**Family *Tripterygiidae* Regan, 1912 Threefin blennies, Triplefins**

**Genus *Tripterygion* Risso, 1826, Triplefins**

149. *Tripterygion tripteronotus* (Risso, 1810)

Distribution: BS, rare [3-5,28,29,34, 52, 69].

**Suborder *Ammodytoidei***

**Family *Ammodytidae* Bonaparte, Sand lances, Sand eels**

- Genus** *Gymnammodytes* Duncker et Morh, 1935
150. *Gymnammodytes cicerellus* (Rafinesque, 1810), Mediterranean sand eel  
Distribution: BSCC [69].
- Suborder** *Callionymoidei* Regan, 1913  
**Family** *Callionymidae*, Dragonets, Stink fishes  
**Genus** *Callionymus* Linnaeus, 1758, Dragonets, Stingfishes
151. *Callionymus risso* Lessueur 1824 (= *Callionymus balenus* Risso, 1827)  
Distribution: BSC (Batumi, Sokhumi) [4,50,69].
152. *Callionymys pusillus* Delaroche, 1809 (= *Callionymus festivus* Pallas, 1811)  
Distribution: BSC (Batumi, Akhali Atoni) [4,50,69].
153. *Callionymus lyra* Linnaeus, 1758, Dragonet  
Distribution: BSC (Batumi, Akhali Atoni) [4,50,69].
- Suborder** *Scombroidei* Regan, 1909  
**Family** *Scombridae* Rafinesque, Mackerels, Tunas, Bonitos  
**Genus** *Thunnus* South, 1845, Tunas
154. *Thunnus thynnus* (Linnaeus, 1758), Bluefin tunny  
Distribution: BSCC, rare [4,69].
- Genus** *Sarda* Cuvier, 1829, Bonitos
155. *Sarda sadra* (Bloch, 1793), Atlantic bonito  
Distribution: From Mediterranean sea enters into BS [62,69].
- Genus** *Scomber* Linnaeus, 1758, Mackerels
156. *Scomber scombrus* Linnaeus, 1758, Mackerel  
Distribution: BS [4,28,69].
- Family** *Xiphiidae* Regan, 1909, Sword fishes  
**Genus** *Xiphias* Linnaeus, 1758, Sword fishes
157. *Xiphias gladius* Linnaeus, 1758, Swordfish  
Distribution: From Mediterranean sea enters into BS, few numbers [69].
- Order** *Ophidiiformes*, Cusk eels  
**Suborder** *Ophidiioidei* Regan, 1912  
**Family** *Ophidiidae* Rafinesque [Brotulidae], Cusk-eels, Rocklings, Lings, Ophidiiums  
**Genus** *Ophidion* Linnaeus, 1758, Cisk-eels, Ophidiiums
158. *Ophidion rochei* Müller, 1845, Snake blenny  
Distribution: BSCC[69].
- Order** *Pleuronectiformes* Bleeker, 1859, Flatfishes  
**Family** *Pleuronectidae* Rafinesque, 1815, Flatfishes, Right-eyed flounders, Halibuts  
**Genus** *Platichthys* Girard, 1856, Flounders
159. *Platichthys flesus* (Linnaeus, 1758) (= *Platichthys flesus lussus* (Pallas, 1814)), Flounder  
Distribution: North-West part BS, limans and lakes. Gulf of Riv: Chorokhi, Supsa, Rioni, Khobi, Churia, Tikori, Enguri. L: Paliastomi [4,7,28,29,69].
- Family** *Bothidae*, Lefteye flounders  
**Genus** *Arnoglossus* Bleeker, 1862, Flounders, Scald-fishes
160. *Arnoglossus kessleri* Schmidt, 1915, Scaldback  
Distribution: BSCC [4,28,69].
- Family** *Scophthalmidae*, Turbots  
**Genus** *Scophthalmus* Rafinesque, 1810, Brills
161. *Scophthalmus maeoticus* (Pallas, 1814) (= *Psetta maeotica* (Pallas, 1814)), Black Sea turbot, Bastard halibut  
Distribution: BSC, everywhere [69].
- Family** *Soleidae* Bonaparte, True soles  
**Genus** *Solea* Quensel, 1806, Soles
162. *Solea lascaris nasuta* (Pallas, 1814) (= *Pegusa lascaris* (Risso, 1810)), Sand sole  
Distribution: BSCC, everywhere [69].
- Order** *Tetrodontiformes*  
**Suborder** *Tetrodontiformes*, Puffers and filefishes  
**Family** *Balistidae* Regan, 1902, Triggerfishes

**Genus *Balistes*** Linnaeus, 1758, Triggerfishes

163. *Balistes capriscus* Gmelin, 1789, Triggerfish

Distribution: BS, everywhere [31,69].

**Order *Gobiesocieformes*** Berg, Clingfishes

**Family *Gobiesocidae*** Gunther, Clingfishes and singleslits

**Genus *Lepadogaster*** Gouan, 1770, Clingfishes

164. *Lepadogaster lepadogaster* (Bonnaterre, 1788), Cornish sucker, Shore clingfish

Distribution: BSCC [69].

165. *Lepadogaster candolii* Risso, 1810 (= *Lepadogaster decandollei* Risso, 1827), Connemarra clingfish, Connemara sucker

Distribution: BSCC [69].

**Genus *Diplocogaster*** Fraser-Brunner, 1938

166. *Diplocogaster bimaculata bimaculata* (Bonnaterre, 1788), Two-spotted clingfish

Distribution: BSCC [69].

**Order *Lophiiformes***, Anglerfishes

**Family *Lophiidae*** Rafinesque, Goosefishes, Anglers

**Genus *Lophius*** Linnaeus, 1758, Goosefishes, Anglerfishes

167. *Lophius piscatorius* Linnaeus, 1758, Angler, Frogfish, Sea devil

Distribution: BS, rare [28,69].

## References

1. Aleksandrov N. I. 1927. Anchovy of Azov-Black Sea Basin, Proceeding Kerch NIRKh, T.I., Vol.2-3 (in Russian).
2. Antipa G. 1906. Die clupeinen des westlichen Teiles des schwazzen Meeres und der banaummundungen benkschr, Arad. Wiss. Wien Math-natur-wiss, Kl.Bd.78.
3. Barach G.P.1941. Fauna of Georgia, T.I, Freshwater fishes, Tbilisi. (in Russian)
4. Berg L.S. 1899. Data Of Ichthyofauna of Caucasus. Publ. Museum of Caucasus. T.1, Vol.3 (in Russian).
5. Berg L.S. 1949. Fishes of fresh waters of SSSR and its contiguous countries, AS of SSSR, 1-2. (in Russian).
6. Bogutskaya N G., Komlev A.M. 2001. New data of morphology of bitterling (*Rhodeus sericeus*) with description of new species of *Rodeus colchicus* from west transcaucasus. Russian AS, Institute of Zoology, St.Petersburg (in Russian).
7. Bogutskaya N.G., Naseka A.M. 2004. Catalogue of Agnathans and Fishes of fresh and brakish waters of Russia with comments on nomenclature and taxonomy, KMK Scientific Press Lt, Moscow, 387pp (in Russian).
8. Burchuladze O.G.1959. Study results of Ichthyofauna and feeding base of lake Jandara, Proceed. NIRKH, Georgia, T.IV.
9. Burchuladze O., Zarkua Z. 1983. Current status of Sturgeons and their artificial reproduction in south-east part of Black Sea. Moscow (in Russian)
10. Cuvier G. 1829. la regne Animal. En. 2 a., Vol. 2 . Paris.
11. Daraselia T.G. 1985. Existance of *Carassius carassius* in reservoirs of Georgia. Materials of VII conference of young scientists.12-14 (in Russian)
12. Daraselia T.G., Demetrashvili M.G. 1985. Correlation and quantitative distribution of young fish of mullets (*Mugil*) in the lake Paliastomi. Materials of VII conference of young scientists.9-12 (in Russian)
13. Demetrashvili M.G. 1954. Fishes of Khrami Reservoir and its rivers. Proceedings Institute of Zoology of Georgia.XIII, 41-50 (in Russian)
14. Demetrashvili M.G. 1963. Materials of Ichthyofauna of Tkibuli reservoir and its fishery characteristics. Proceedings of I scientific meeting; Reservoirs of Georgia and their importance for fishery. 41-49 (in Russian)
15. Demetrashvili M.G. 1969. Description of fishery of Tbilisi reservoir, Collected articles: Biological production of reservoirs of Georgia (Tbilisi reservoir).Tbilisi, Metsniereba, 132-149 (in Georgian).
16. Demetrashvili M.G. 1972. Materials of fishery characteristics of Sioni reservoir. Collected articles: Hydrobiology and Ichthyology of reservoirs of Georgia. T. III.

17. Demetrashvili M.G. 1980. Influence of regulation of river Mtkvari on its Ichthyofauna. Collected articles: Hydrobiological condition and ichthyofauna of River Mtkvari, 147-171 (in Russian).
18. Demetrashvili M.G., Elanidze R.P., Kokhia A.B. 1977. Systematics and some other data of acclimatized coregonids in high mountain lakes of Georgia. Materials of II conference. Study of reservoirs of Georgia and their importance for fishery. 90-100.
19. Eichwald E. 1831. Zoologia specialis quam exposits animalibustum vivis, tum fossilibus potissimum Rossiar in universum, et Poloniae in specie, in usum lectionum publicarum in universitate caesarea, Vilnensis, Vol.3.
20. Elanidze R.P. 1947. Materials of Ichthyofauna of Riv. Khrami, Proceedings of Institute of Zoology, Georgian Academy of Sciences, T.VII.
21. Elanidze R.P. 1951. Materials of Ichthyofauna of Riv. Alazani, Proceedings of Institute of Zoology, Georgian Academy of Sciences, T.X.
22. Elanidze R.P. 1953. Materials of Ichthyofauna of Riv. Iori, Proceedings of Institute of Zoology, Georgian Academy of Sciences, T.XI.
23. Elanidze R.P. 1954. Materials of Ichthyofauna of Riv. Supsa, Proceedings of Institute of Zoology, Georgian Academy of Sciences, T.XIII.
24. Elanidze, R.P. 1956. Ichthyofauna of Riv. Rioni, Proceedings of Institute of Zoology, Georgian Academy of Sciences, T.XV.
25. Elanidze R.P. 1961. Ichthyofauna of Riv. Kodori, Proceedings of Institute of Zoology, Georgian Academy of Sciences, T.XVIII.
26. Elanidze R.P. 1965. Ichthyofauna of Riv. Bzipi, collected articles "Hydrobiology and Ichthyology of Inland Waters of Georgia", T.II.
27. Elanidze R., Demetrashvili M., Burchuladze O., Kurashvili B. 1970. Fishes of freshwaters of Georgia. Atlas. Tbilisi, 115pp (In Georgian-Russian).
28. Elanidze R., Demetrashvili M. 1973. Pisces. Fauna of Georgia.T.IV. Metsniereba", 122-225 (in Georgian).
29. Elanidze R.F. 1983. Ichthyology of rivers and lakes of Georgia, Publ.. "Metsniereba", Georgian academy of Sciences, Institute of Zoology, Tbilisi.
30. Filippi F. 1863. Nuove o poco note specie di animali vertebrati raccolte in un viaggio in Persia nell' estate dell' anno. Arch.Zool.Anat.Fisiol.Vol.2.
31. Gudimovich P.K. 1953 . Henfishes (Balistes), "Ribnoe xoz-vo", Moscow, 2 (in Russian).
32. Gldenstdt A. 1773. Cyprinus capoeta et cyprinus mursa descripti (Nov. comment, Acad, Sci, Lmp. Petropol, m17).
33. Gunther A. 1866. Catalogue of the fishes in the british museum, Catalogue of the Plysostomi, containing the familias Salmonidae, Percopsidae, Galaxidae, Mormiridae, Gymnarchidae, Esocidae, Umbridae, Scombresocidae, Cyprinodontidae, in the collection of the British Museum, Vol. 6., London, Order of the Trastees, xv+368pp.
34. Ilin B.C. 1949. Short overview of Black sea spini loaches (Pisces, Gobiidae), Bull, Mosk.obsh., icpit. prir.otdel boil.T.54, vol.3 (in Russian).
35. Japoshvili O. G., Japoshvili B.O. 1999. Systematics and Morphology of Genus Varicorhinus, Proceedings of Pedagogical University, T.V, 111-117 (in Georgian).
36. Japoshvili B.O., Japoshvili O.G. 1999. Some data of acclimatized Coregonids in Georgia, Proceedings of Pedagogical University, T. VI, 168-172 (in Georgian).
37. Japoshvili O. G, Japoshvili B.O. 2000. Annotated list of Cypronidae of Georgia, Proceedings of Pedagogical University, T.VII, 100-107.
38. Japoshvili O., Japoshvili B., Goletiani L. 2002. About the Ecological-biological peculiarities of some representatives (Murtsa, Tsvera, Chanari) of the family Cyprinidae:Barbinae. Periodical Scientific Journal –"Prometheus". Tbilisi Sul Khan-Saba Orbeliani State Pedagogical University. XI-XII, 143-148.
39. Japoshvili B. 2004. Age, growth, Condition factor and some morphometric characters of a vendace (Coregonus albula) in the lake Paravani, Proceedings of the Georgian Academy of Sciences, Biol.Ser. B, No.1-2, Vol.2. 97-100.
40. Japoshvili B., O. Ertan. O. Diler. 2004. A study results of morpho-biological characters of Carassius auratus L. in Egirdir lake(Turkey) and Carassius carassius L. in Paravani lake (Georgia), Proceedings of the Institute of Zoology, Vol. XXII, 280-283.
41. Japoshvili, O., Sharvashidze V. 1978. Some data of biology of Khramulya (Varicorhinus capoeta Guldandstadt), Proceedings of pedagogical institute. IV ser. 156-163.
42. Kavraiskiy F.F. 1907. Sturgeons of Caucasus, Tbilisi (in Russian).

43. Kalandadze L.P. 1940. Mosquito fishes and their use for biological control in south region of SSSR.
44. Kamensky S.N. 1897. Ichthyology of Caucasus. Proceedings of Kharkov University, T.XXXI, 77-100.
45. Kokochashvili G. V. 1942. Ukrainian Lamprey in waters of Georgia, Proceedings of State University of Tbilisi, T. XXII.
46. Kokosadze T.R. 1976. Structure of some commercial fishes of river Mtkvari within the bounds of Georgia. Materials of II conf. of young scientists. Tbilisi, Metsniereba, 60-67.
47. Kokosadze T., Japoshvili B., Shonia L. 2000. The role and significance of introduction and acclimatization in the biological complex of the fauna of Georgia (on the example of Ichthyofauna), Proceedings of the Institute of Zoology, Vol.XX, 210-222 (in Georgian)
48. Kokosadze T., Shonia L. 2000. Biological Basis of the ecological condition of the lake Bazaleti, Proceedings of the Institute of Zoology, Vol.XX, 319-322 (in Georgian).
49. Magnin E. 1959. Determination de L'age et croissance de L'Acipenser sturio L., de la Gironde.
50. Maiorova A.A. 1935. Being of Callionymus lyra L. in Black sea. Journal "priroda" N2, Leningrad.
51. Marti V.Yu. 1940. Systematic and biology of Russian sturgeon of Caucasian coast of Black sea, Journal of Zoology, T.19, N6.
52. Meskhidze D.Kh. 1963. Ichthyofauna of inland waters of Achara and some prospects of development of Fishery, Proceedings of I scientific meeting: study and importance of waters of Georgia for commercial fishery.
53. Ninua N.Sh. 1960. White fish of Tabatskuri Lake, Proceedings of NIRKh of Georgia, T.V.
54. Ninua N.Sh. 1976. Conservation strategies of sturgeon fauna and development of commercial fishery of sturgeons in basin of Riv. Rioni, Vestnik, State Museum of Georgia, T. XXIX-A, Tbilisi.
55. Ninua N.Sh. 1976. Surgeon of Riv. Rioni, "Metsniereba", Tbilisi.
56. Ninua N.Sh. 1987. Study of Ichthyofauna of Mountain Svaneti, Vestnik, State Museum of Georgia, T. XXXIV-A. Tbilisi.
57. Ninua N., Mkhaidze M., Bogveradze M., Goginashvili T., Bochorishvili V. 2003-2004. Quantitative and structural study of sturgeons of south-east region of Black sea. Vestnik, Georgian National Museum, T.45, Tbilisi.
58. Ninua N.Sh. 2007. 2004-2006 Current status of fishes of south-east part of black sea region and prediction (forecasting) of recourses. "Kavkazskii vestnik" N16.
59. Pavliashvili T. 1960. Materials of Study of Ichthyofauna of R.Enguri., Proceedings of Tbilisi State University, 82.
60. Radde G. I. 1899. Collection of Caucasian Museum. Zoology, Tiflis, Museum of Caucasus (in Russian).
61. Sharvashidze V. 1982. Fishes of Georgia, Publ. "Ganatleba", Tbilisi, 307pp.
62. Shaverdashvili R.S. 1960. Experience of Bonito's (Sarda) age determination by scale. Proceedings Georgian NIRKh, T.V, Batumi.
63. Shaverdashvili, R.S. 1964. Biology and trade of horse-mackerel of south-east part of Black sea, Journal Voprosi Ichthyologii, T.IV. Vol.I, Moscow.
64. Shaverdashvili R.S., Ninua N.Sh., Bolkvadze L.D. 1967. Biological characters of Sturgeons of South-East part of Black sea. Proceedings, NIRKh.I, Astrakhan.
65. Shaverdashvili R.S., Ninua N.Sh. 1983. Contemporary from Cretaceous period. Journal of "Science of CCCP", T.4, Moscow.
66. Shavlakadze M. 1998. State of Black sea anchovy stock. Conservation of biological diversity as a prerequisite for sustainable development in the Black sea Region. NATO, ASI. Series 2. Environmnet. Vol.46. Kluwer Academic publishers. 119-123.
67. Shavlakadze M.A., Goradze R.Kh., Zosidze R.Sh. 2000. Fishery and some questions of ecology of Black sea, Georgian Academy of Ecology, Departm. of Achara, T.I, Batumi.
68. Shonia L., Kokosadze T. 2006. Bioecological characterists of "migrant" Pseudorasbora parva (Sleg.) in Bazaleti lake. Proceedings of Georgian Academy of Sciences, Biological series B, N3, Vol.4.
69. Svetovidov A.N. 1964. Fishes of Black sea (Key of Fauna of SSSR), Russian Academy of Sciences, Institute of Zoology, M-L Nauka.
70. Zarkua, Z., Kokosadze T., Shonia L. 2001. Food-fishes of Black Sea and their status today (present situation). Science and Technology, N4-6, 112-114.
71. [www.fishbase.org](http://www.fishbase.org) (Global information system on fishes).



## GEOFFROY'S BAT (*MYOTIS EMARGINATUS*) IN GEORGIA. PRESENT STATUS OF THE SPECIES

A. Bukhnikashvili, N. Natradze

Institute of Zoology  
e-mail: [campester@campester.ge](mailto:campester@campester.ge)

**Abstract.** The species *Myotis emarginatus* is IUCN Red List species with the category VU. This species is one of the rarest in Georgia however not included in Georgian Red List. 7 findings were known until 2000 year. Since 2000 more 13 new findings are known. Nowadays we know two big colonies of *M. emarginatus* in vil. Nokalakevi and cave complex Tetri Senakebi. Single specimens were captured in nets and recorded using ultrasound detectors in 12 locations, and, presumably, a somewhat large colony of Geoffroy's bat is present in only two locations (Dashbashi Canyon and Cave Monastery of Sabereebi). According to our data we suggest status endangered (EN) for the species - *Myotis emarginatus*.

**Key words:** Geoffroy's Bat, Status, Georgia

The species *Myotis emarginatus* is IUCN Red List species with the category vulnerable (VU). This species is one of the rarest in Georgia however not included in Georgian Red List.

Geoffroy's Bat (*Myotis emarginatus*) was first found in Georgia in a mixed colony together with other species (*Rhinolophus ferrumequinum*, *R. mehelyi*, *Myotis blythii*, *M. emarginatus*, *Miniopterus schreibersii*) in 1937 in the Svetitskhoveli Monastery in Mtskheta by A.F. Papava; in 1939 this species was found in the same location by A.F. Papava and A.P. Kuziakin (Papava, 1949, 1953, 1960; Kuziakin 1950). A.F. Papava continued the observations on this species at the Monastery until 1941. At that time the population of Geoffroy's bat was estimated to amount 2000 (the largest cluster in the Caucasus). According to the information provided by M.P. Perov (1980), at the end of 1970's *M. emarginatus* did not abide at the Monastery. Unfortunately, the complex colony of chiropterans in the Svetitskhoveli Monastery was destroyed in 1997-1998. The data about the present status of the species is not available, since churchmen had blocked the access to the premises of its abode. For many years, the cluster of Geoffroy's bat in this complex colony was considered to be the biggest in Georgia. There is no numeric data available from other locations, neither any collection materials except for the only specimen from the collection of small mammals of the Institute of Zoology of Georgia, captured in Chakvistavi (Adjara).

The book published under the editorship of V.V. Sokolov and E.E. Syroechkovsky (1989) presents data that is based on the information obtained from yearly reports of reserves that were being rewritten from year to year, or the attributions according to the closest point of the appearance of the species (e.g., all species found in Mtskheta were automatically attributed to the Saguramo Reserve). Naturally, none of these attributions have any other justification than a literary one. These specimens are not found in the collections, hence it is impossible to estimate the time of their occurrence.

The largest colony (1500 specimen) of Geoffroy's bat (Kozhurina, Filchagov 1999) in Georgia was found in 1998 in the village Nokalakevi.

We started our studies in 1996. Chiropterans obtained in refuges and nets, were observed visually, and starting from 1999 they could be identified also by ultrasound detectors in transects, routes and roosts. 39 natural and 95 artificial caves, grotts, adits and pits were studied. Forests and coasts of basins in the Borjomi, Akhaltsikhe, Tetrtskaro, Tsalka, Sagarejo, Sighnaghi, Dedoplistskaro, Lagodekhi, Gardabani, Marneuli, Mtskheta, Gori, Dusheti, Mestia, Lentekhi, Tsageri, Oni, Ambrolauri, Chiatara, Tskaltubo, Baghdati, Terjola, Martvili, Zugdidi, Khobi, Lanchkhuti, Kobuleti, Khelvachauri districts were studied.

On 14 July 2000 we found a complex colony (*Rhinolophus ferrumequinum*, *Myotis blythii*, *M. emarginatus*) in the Tetri Senakebi cave complex that comprised of 900-1100 specimens, with approximately the same share of a Great Horseshoe bat and the Geoffroy's bat and up to 10 specimens of Lesser Mouse-Eared Bat. Due to the partial collapse of the wall of an artificial cave in 2002, the colony was divided into parts with one part migrating to the medieval watch tower in the David Gareji Cave Monastery. These two

cave complexes are located within 14 km distance from each other. Around 350 specimen of *R. ferrumequinum* and *M. emarginatus* were found in the David Gareji (Natradze et al. 2003; Bukhnikashvili 2004; Bukhnikashvili et al. 2005) Monastery. Between 1999 and 2001 (inclusive) bats did not occur in the tower, and, according to local monks, they had not found them in those areas before. The number of chiropterans found in David Gareji was equal to the number of the ones that had migrated from Tetri Senakebi, and, although the animals were not marked, this fact allows us to assume that these bats had migrated from the damaged cave.

No large colonies have occurred since 2000. Single specimens were captured in nets and recorded using ultrasound detectors in 12 locations, and, presumably, a colony of Geoffroy's bat is preset in only two locations (Dashbashi Canyon and Cave Monastery of Sabereebi) (Tab. 1).

Table 1

Places of finds *Myotis emarginatus* (on years)

Place and time of finding	Num.	Place and time of finding	Num
Mtskheta – 1937, 1938, 1939 (su)	~2000+3+2+5	Riv. Potskhovi near Vill. Parekha – 2004 (su)	BD
Borjomi gorge – 1953 (-)	–	Jandari – 2004 (su)	BD
Tskhinvali – 1953 (-)	–	Ghliana cave – 2004 (su)	BD
Chakvistavi – 1965 (su)	1	CC. Kolagiri – 2005 (su)	BD
Saguramo reserve – ? (1989) (-)	–	CC. Sabereebi – 2005 (su)	BD
Pskhu-Gumista reserve – ? (1989) (-)	–	Dashbash canion - 2005, 2007 (su)	BD
Nokalakevi – 1998 (su)	1500	Lk. Kustba (Tbilisi vicinity) – 2006 (su)	BD
CC. Tetri Senakebi – 2000 (su)	~350+4	Riv. Sharaula near Vill. Gogolati – 2007 (su)	BD
CC. David Gareji – 2002 (su)	~150+1	C. Kidobana – 2007 (au)	1
CC. Nakhiduri – 2004 (su)	BD	Vill. Barisakho, Nb. Gulischala – 2007 (au)	1

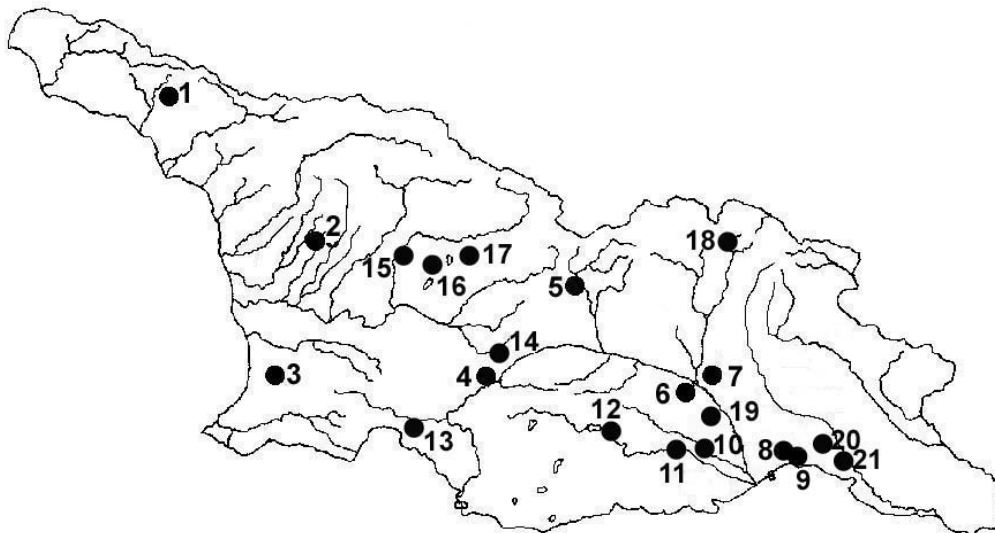
Num. – Quantity of individuals, BD. – Species identified by bat detector and software BATSAUND, CC – Cave complex, C – Cave, Nb – Natural boundary, Vill. – Village, Riv. – River, Lk. – Lake, SU- Summer, AU – Autumn.

Based on the aforementioned it is evident that over 80 years of observation in Georgia Geoffroy's Bat was found in 20 locations (Pic. 1), 6 of those were found until 1960's, 13 ones were found by us after 2000.

Hence we can deduce that *Myotis emarginatus* is a very rare species in Georgia. Presently only 2 large nursery colonies are known to exist, the remaining 12 points detected by us were comprised of only single individuals. All specimens captured by us are males.

Extermination of nursery colonies will cause irrecoverable damage to Geoffroy's bat since there is no information about other large roosts of this species in Georgia.

According to our data we suggest status endangered (EN) for the species - *Myotis emarginatus*.



Pic. 1. *Myotis Emarginatus* Distribution in Georgia

1. Pskhu-Gumista reserve; 2. Nokalakevi; 3. Chakvistavi; 4. Borjomi gorge; 5. Tskhinvali; 6. Mtskheta; 7. Saguramo reserve; 8. CC. Tetri Senakebi; 9. CC. David Gareji; 10. Jandari; 11. CC. Nakhiduri; 12. Dashbash canyon; 13. Riv. Potskhovi near Vill. Parekha; 14. Ghliana cave; 15. Riv. Sharaula near Vill. Gogolati; 16. Kidobana cave; 17. Vill. Barisakho, Nb. Gulischala; 18. Lk. Kustba (Tbilisi vicinity); 19. CC. Sabereebi; 20. CC. Kolagiri.

#### Reference

1. Bukhnikashvili A. 2004. On Cadastre of Small Mammals (Insectivora, Chiroptera, Lagomorpha, Rodentia) of Georgia // Publ. "Universal", Tbilisi: 132 pp.
2. Bukhnikashvili A.K., Kandaurov A.S., Natradze J.M. 2004. Records of bats in Georgia over the last 140 years // "Plecotus" M, № 7: 41-57 (in Russian).
3. Kozhurina E.I., Filchagov A.V. 1999. The Bats of Nokalakevi, Western Georgia // Plecotus at al., №2: 94-99 (in Russian).
4. Kuzyakin A.P. 1950. Bats // Publ. "Sovetskaya nauka", M.: 443 pp. (in Russian).
5. Natradze J., Bukhnikashvili A., Kandaurov A. 2003. New findings of bats in Georgia // In Proceedings of NACRES "Conservation of Arid and Semiarid Ecosystems in Transcaucasia", NACRES, Tbilisi: 49-55 (in Russian).
6. Papava A.F. 1949. To Distribution and to Way of Life of Bats in Georgia // Bull. MOIP, LIV, 3: 39-41 (in Russian).
7. Papava A.F. 1953. The Key of the Mammals of Georgia // Science-Methodical Cabinet Publ., Tbilisi: 139 pp. (in Georgian).
8. Papava A.F. 1960. The Key of the Mammals of Georgia // "Tsodna", Tbilisi: 160 pp. (in Georgian).
9. Perov M.V. 1980. To Study on Bats of Georgia // Bats (*Chiroptera*). Terriological issues, "Nauka", M.: 59-63 (in Russian).
10. Georgian Red List. 2006. Presidential Decree # 303, (02.05.2006), on Approval of Georgian Red List.
11. Sokolov V.V., Syroechkovskii E.E. Eds. 1989. Reserves of USSR. Reserves of Caucasus // Publ. "Mysl", M.: 366 p. (in Russian).

## THE NEMATODES AND ORIBATID MITES AS INDICATORS OF URBAN ENVIRONMENT

M. Murvanidze<sup>1</sup>, T. Arabuli<sup>2</sup>, N. Bagaturia<sup>3</sup>, I. Eliava<sup>4</sup>, Er. Kvavadze<sup>5</sup>, L. Mumladze<sup>6</sup>

1,2,3,4,5,6 - Institute of Zoology, e-mail:makam94@hotmail.com

**Abstract.** For the purpose to study of urban environment condition in Tbilisi and in its environs samples of soil nematodes and oribatid mites were collected. In all was determined 44 species of nematodes and 76 species of oribatid mites. Pair faunal likeness by Jaccard's coefficient, Renkonen's coefficient of dominance and Simpson's index of diversity was calculated for both groups. On the basis of this calculation clusters of faunal likeness and dominance identities were made up for nematodes and oribatid mites.

**Key words:** nematodes, oribatid mites, indicators, faunal likeness.

### Introduction

In the city, the animals have to exist in extreme and mainly in total unfamiliar conditions. The heightened temperature, polluted surroundings, dusty atmosphere and different from natural ecosystems, impoverished plant cover, act constantly on the animals (Klausnitzer, 1990). The urban environment obviously causes a change in the species pattern in these types of habitats and minimizes the number of species in central urban regions. The most important regional factors are probably relative aridity, air pollution and habitat isolation, showing a similar increasing tendency from suburban to central regions of Tbilisi.

The urban environment obviously causes a change in the species pattern in soil habitats and minimizes the number of species in central urban regions. The abiotic factors (temperature, humidity, pH value) in urban soils are different from those of the same habitats outside the town. Therefore we presume that reactions of the invertebrate animals on the peculiarities of the city surroundings, their adaptation to the city and steadfastness to the anthropogenic disturbances are very interesting.

In the last decades there has been growing interest in the use of invertebrates as indicators of the impact of anthropogenic disturbances and climate change (McGeoch, 1998). Nematodes and oribatid mites satisfy every criterion for bioindicators: they are abundant and diverse, they have important ecological functions in the soil and they are sensitive to environmental conditions (Beaulieu F., Weeks A.R., 2007). There are number of works in Europe in this direction (Kehl, Weigmann, 1992; Porzner, Weigmann, 1992; Weigmann, 1987). But in Georgia data on indicatory meaning of invertebrate animals are very scarce (Eliava et al., 2002; Murvanidze, 1999).

Our investigation was performed in Tbilisi, on transect from natural polydominant forests in riv. Vere gorge, via artificial ecosystems and city centre to polydominant forest in Norio. Material was taken on the territories of former USSR Transcaucasian Military Unit and Norio Military Unit as well.

We addressed following hypotheses: 1) Abundance of oribatid mites is much higher in natural ecosystems compared to the city central districts; 2) Indexes of diversity change in the similar way; 3) Soils on the territories of former military units are polluted and correspondingly, the fauna of oribatid mites is impoverished.

### Material and Methods

Sampling was performed in 2.02 -6. 02.2008. 14 sites are studied. At every site three soil samples were taken with their volume 10 cm<sup>3</sup>. Nematodes and oribatid mites were withdrawn from soil using methods of soil zoology (Bergmann funnels for nematodes and Berlese-Tullgren Apparatus for oribatid mites). Oribatid mites were preserved in 70% alcohol and nematodes – in 5-6% formalin. For identification of oribatid mites and nematodes temporary slides were prepared and studied in microscope. The identification was performed by keys of Andrassy (1984), Ghilarov & Krivolutskyi (1975), Eliava (1982) and Weigmann (2006). Jaccard's coefficient of faunal likeness (J) (Chernov, 1975), Renkonen's coefficient of dominance (Re) (Kehl, Weigmann, 1992) and Simpson's index of diversity (1-D) (Simpson, 1949) are calculated. Clusters of faunal and dominance identities and graphs describing changes of abundance and

index of diversity along transect are build. Chemical analyses of the soil on amount of humus were carried in A. Tvalchrelidze Institute of Mineral Row Materials.

The sites of sampling materials are as follows:

1. River Vere gorge. Natural polydominant broad-leaved forest H = 847m; N 4171766; E 4465474 (pic.1)
2. River Vere gorge. Artificial pine forest H = 695m; N 4171722; E = 4468119
3. River Vere gorge. Shrubs H = 640m; N 4171626; E 4468707
4. River Vere gorge. Artificial *Amygdalus* forest H = 600m; N 4171989; E 4469276 (pic. 2)
5. River Vere gorge. Ruderal site H = 568m; N 4171859; E 4470380 (pic. 3)
6. Nutsbidze plateau. Shrubs
7. Nutsbidze plateau. *Paliurus spina-christi* shrubs.
8. Former Transcaucasian Military Unit H = 455m; N 4171743; E 4474539
9. Square on the Chavchavadze ave.
10. Riv. Vere gorge. Derivat of Flood-plane forest (pic. 4)
11. Chodrishvili str. Square. H = 533m; N 417304; E 44821 (pic. 5)
12. Tbilisi Reservoir, the secondary meadow; H = 550m; N 41739; E 44,847 (pic. 6)
13. Former Norio Military Unit. H = 673; N 41718 E 44962 (pic. 7)
14. Norio broad-leaved forest H = 673; N 418202; E 44964 (pic.8)



*Pic. 1 Polydominant forest in riv. Vere gorge*



*Pic. 2. Amygdalus forest in riv. Vere gorge*



*Pic. 3. Ruderal site in riv. Vere gorge*



*Pic. 4. Flood-plane forest in riv. Vere gorge*



*Pic. 5. Sampling site on Chodrishvili str.*



*Pic. 6. Tbilisi Reservoir surroundings*



*Pic. 7. Polydominant forest in Norio*



*Pic. 8. The territory of former military unit in Norio*



## Results and Discussion

In 42 soil samples 64 forms of nematodes and 70 species of oribatid mites are registered (tab.1). *Comansus indicus* (nematode) and *Tectoribates ornatus* (oribatid mites) were new for Georgian fauna. *Sicaguttur* sp., and *Triplonchium* sp. (nematode) can be new for science but description is not yet possible due to lack of the material.

Table 1.

**Faunal list of nematodes and oribatid mites with dominance identities (%)**

species	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>Nematodae</b>														
<i>Alaimus mucronatus</i>	3													
<i>A. acutus</i>						18								
<i>Anaplectus granulosus</i>	22										3	8		5
<i>Tripylina arenocola</i>		13	18							1				
<i>Plectus annulatus</i>				20	19			23						
<i>P. parietinus</i>	3	13		27						4	5	38		
<i>P. parvus</i>			27		9		20	10	18	12	3			
<i>P. sp.</i>											3			
<i>Clarcus papillatus</i>	6										3		4	
<i>Comansus indicus</i>	3	6									3			
<i>Prionchulus muscorum</i>	3	25					20							
<i>Mylonchulus brachiuris</i>													4	
<i>M. contractus</i>							20							
<i>M. sigmatuellus</i>	3			2										
<i>Iotonchus</i> sp.							20							
<i>Mesodorylaimus bastiani</i>			9		2		20	10		4			4	
<i>M. meyli</i>				2									9	
<i>M. sp.</i>	3											4		
<i>Sicaguttur</i> sp.	3			2										
<i>Eudorylaimus bokori</i>											8			
<i>E. carteri</i>	9				21			2		23	18		9	
<i>E. curvatus</i>											5			
<i>E. curvicaudatus</i>											37	4		
<i>E. georgiensis</i>													9	
<i>E. irritans</i>										4				
<i>E. leukarti</i>	3								18	2	3			36
<i>E. tritici</i>											3			
<i>E. subdigitatus</i>									12					
<i>E. sp.a</i>			9	10		9			9	9		4		
<i>E. sp. b</i>						18								5
<i>Microdorylaimus parvus</i>	6				4									
<i>Allodorylaimus holdemani</i>								2						
<i>Labronema obtusum</i>								2						
<i>Dorydorella briophila</i>								23						
<i>D. pratensis</i>									33					
<i>Discolaimus major</i>									3	1				
<i>D. sp.</i>														9
<i>Aporcelaimellus adriani</i>												4	4	9
<i>A. amylovorus</i>				5	28									
<i>A. krigeri</i>					9			4		6			4	
<i>A. obtusicaudatus</i>	12	31	9	10		18		6		17			30	
<i>A. propinquus</i>			9											
<i>A. sp.</i>	3	13		10				2		1			9	9
<i>Metaporcelaimus</i> sp.													4	
<i>Axonchium siddiqi</i>														5
<i>Xiphinema brevicole</i>													4	

<i>X. diversicaudatum</i>				2					3					
<i>X. pini</i>	6											8		
<i>Tylencholaimus eskei</i>	3													
<i>T. vigil</i>							18							
<i>T. formosus</i>							18							
<i>Trachactinolaimus</i> sp.														18
<i>Bursella monchistera</i>			9											
<i>Triplonchium</i> sp.				2										
<i>Eucephalobus striatus</i>				5				2				4		
<i>Acrobeles ciliatus</i>				5	2					3	16	21		4
<i>Butlerius butchleri</i>					2									
<i>Tylenchus polyhipnus</i>					2									
<i>Tylenchorhynchus dubius</i>								2						
<i>T. grandis</i>														
<i>T. tessellatus</i>								2						
<i>Merilinus brevidens</i>												4		
<i>Helicotylenchus</i> sp.								2	3					
<i>Enchodelus hopedorus</i>			9											
<b>total</b>	<b>16</b>	<b>6</b>	<b>8</b>	<b>12</b>	<b>11</b>	<b>6</b>	<b>5</b>	<b>14</b>	<b>8</b>	<b>13</b>	<b>13</b>	<b>10</b>	<b>12</b>	<b>9</b>
<b>Oribatida</b>														
<i>Epilohmannia cylindrica</i>			+	2	4			1	8	13				
<i>E. gigantea</i>														5
<i>Eniochthonius minutissimus</i>	3			2										
<i>Papillacarus</i> sp.									1					
<i>Mesoplophora pulchra</i>								+						3
<i>Hoplophthiracarus vanderhammenii</i>	2								2	10				
<i>H. vicinus</i>											2			20
<i>Phthiracarus ferrugineus</i>							3			5				
<i>Pht. laevigatus</i>										+				
<i>Rhyzotritia ardua</i>			3	15		1		1	1	4	10	2		
<i>Oribotritia berleseii</i>									+					
<i>Hypochothonius luteus</i>									6					
<i>Neoliodes theleproctus</i>	1			2										
<i>Nothrus biciliatus</i>		+							+	1				
<i>Hermanniella punctulata</i>						+							4	
<i>Tripochthonius tectorum</i>		28	+											
<i>Licnodamaeus undulatus</i>							18							
<i>Aleurodamaeus setosus</i>		+										1		
<i>Jacotella ornata</i>					2									
<i>Damaolus ornatissimus</i>			+			1								
<i>Fosseremus laciniatus</i>			+	2		1								
<i>Metabelba italica</i>										10				
<i>M. papillipes</i>												2		
<i>M. pulverulenta</i>						3								
<i>Eremaeus hepaticus</i>	3													
<i>Ctenobelba pilosella</i>														3
<i>Ceratoppia bipilis</i>												1		
<i>C. quadridentata</i>		+	3											
<i>Gustavia microcephala</i>	1													
<i>Doricranosus splendens</i>		+	1	2						+			4	
<i>D. iberica</i>			+											
<i>Liacarus brevilamellatus</i>		+	+					+						
<i>Carabodes willmanii</i>	1					1					2			3
<i>Tectocephus sarekensis</i>	1		6		22	+		21	7		2	47		
<i>T. punctulatus</i>	1													
<i>T. velatus</i>	1	4			20						21	3		11

<i>Epimerella smirnovi</i>											2			
<i>Oppiella fallax</i>	3	11	39	20		50	21	14			2		3	
<i>O. simifallax</i>								+						
<i>O. subpectinata</i>	4							+		11	10	33		20
<i>O. nova</i>	1					+								
<i>Ramusella clavipectinata</i>	3	38	25	5		5	7			+		5		
<i>R. insculpta</i>	7					6	11			1	8		10	11
<i>R. mihelcici</i>					30									
<i>Quadroppia michaeli</i>						+	3							
<i>Suctobelba granulata</i>						2	3							
<i>Suctobelbella forsslundi</i>						1								
<i>S. subcornigera</i>		+	2	2		3								
<i>Scapheremaeus palustris</i>		+												
<i>Cymbaeremaeus cymba</i>								+						
<i>Scutovertex sculptus</i>		+									2			
<i>Eupelops acromios</i>	1	+						6				1		
<i>E. torulosus</i>		5	+						+					
<i>Peloptulus phaenotus</i>			+	2										
<i>Tectoribates ornatus</i>													29	
<i>Parachipteria nicoleti</i>														3
<i>Galumna tarsipennata</i>										+	5	1		
<i>G. flagellata</i>					10					19				
<i>G. obvia</i>									2					
<i>Pilogalumna crassiclava</i>		3	3	2					+	+				
<i>Ceratozetes gracilis</i>														1
<i>Ceratozetes minutissimus</i>	6											1		
<i>Latilamellobates naltshiki</i>		+	+	2		4					2			
<i>Chamobates voigtsi</i>										4				
<i>Minunthozetes pseudofusiger</i>	48		+	4				43			2	1	33	6
<i>Punctoribates punctum</i>				2	30			5						
<i>Protoribates capucinus</i>				15		1	18	+	22	14				11
<i>Scheloribates laevigatus</i>		+	3			+	3		+	1		1	4	
<i>Sch. latipes</i>		+	+			2			23	2		1	10	
<i>Oribatula tibialis</i>	11	8	+	5		4		+		2				3
<i>Simkinia tianschanica</i>			+									1		
<i>Zygoribatula frisiae</i>				2	2			7						
<i>Z. longisensilla</i>		+	7			17	11							
<i>Z. terricola</i>											28	2		
<b>total</b>	<b>18</b>	<b>20</b>	<b>23</b>	<b>18</b>	<b>7</b>	<b>21</b>	<b>10</b>	<b>15</b>	<b>14</b>	<b>19</b>	<b>14</b>	<b>16</b>	<b>8</b>	<b>13</b>

Calculation of coefficients of faunal likeness of nematodes showed low faunal likeness between the sites, with lowest indexes between all other sites and ruderal biotop. High coefficients were observed between the sites that maintained the natural cover or where changes of plant cover didn't result in significant changes of soil. For example cutting of natural forest in riv. Vere gorge and planting of *Amygdalus* didn't result in changes of soil parameters and soil fauna characterising the broad-leafed soils survived (tab.2).

Calculation of Renkonen's coefficients which is based on percent of dominance of each species showed higher percent of dominance between the species with the highest result between the dominant species of ruderal site and flood-plain forest (44%). In most cases coefficients of dominance were high between the dominant species of natural sites and sites close to natural biotops (tab.2).

Table 2

**Table of faunal likeness (upper side) and dominance identities (lower side) of nematodae (%)**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1		16	4	22	7	5	5	11	9	18	15	16	16	13
2	21		16	15	0	9	9	10	0	26	17	14	12	7
3	9	22		17	6	14	8	21	20	17	5	6	11	6
4	20	33	18		16	6	0	23	5	25	4	22	14	17
5	9	0	11	26		0	15	20	6	13	15	5	15	6
6	12	18	18	19	0		0	10	7	6	0	6	6	7
7	3	20	29	0	11	0		11	8	6	6	0	5	0
8	10	8	27	12	36	8	20		15	21	13	4	22	9
9	3	0	27	11	9	9	18	14		25	10	6	0	5
10	27	18	35	27	44	27	16	31	24		8	9	18	15
11	21	8	3	10	23	0	3	5	6	30		15	4	5
12	20	13	3	40	4	4	0	2	4	11	28		0	12
13	28	39	13	21	15	18	4	16	4	35	12	4		5
14	11	9	5	19	2	5	0	4	23	6	15	19	13	

The same calculations were made on the oribatid mites. They showed the highest likeness at neighbouring sites like artificial pine-forest and shrubs in riv. Vere gorge (50%) and shrubs and *Amygdalus* forest in riv. Vere gorge (41%). Mites collected in ruderal biotop showed low or no likeness with other sites due to poor oribatid fauna different from all other sites. Mites, collected in Natural polydominant forests (riv. Vere gorge and Norio) showed comparable high indexes of likeness in spite of big distance between the sites. Sites, where military units of former USSR were located appeared quite rich with mites and nematodes and showed high indexes of faunal likeness with other sites (tab.3). Soil analyses proofed results obtaining with observations on oribatid mites and nematodes – sites, where military units of former USSR were located appeared rich with humus layer and the ruderal site was the poorest with humus (tab. 4).

Calculation of Renkonen's coefficients showed mainly the same results as the coefficients of likeness with high percent between the neighbouring sites and low – between the ruderal and sites (tab.3).

Table 3

**Table of faunal likeness (upper side) and dominance identities (lower side) of oribatid mites (%)**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1		15	14	24	4	21	12	27	3	13	19	26	13	24
2	15		50	30	0	24	7	10	14	19	10	17	17	7
3	7	39		41	7	36	10	19	23	24	16	22	19	6
4	17	27	37		14	25	8	32	14	20	19	6	13	11
5	1	0	6,5	6		4	0	16	11	9	5	10	0	0
6	16	20	56	35	0,5		33	16	16	18	20	12	11	6
7	13	18	28,5	40	0	47		7	9	12	9	8	23	9
8	48	11	22,5	31	29	16,5	14,5		21	18	21	11	9	17
9	1	0,5	9,5	18,5	4	5	18,5	10		33	8	15	10	4
10	5	4	6,5	22,5	14	12	1	3,5	28		10	13	18	15
11	18	6	7,5	3,6	2	12,5	11	7,5	3	15		30	16	29
12	12	10	17	14	22	8	6	24	9,5	15	3		14	12
13	42	4,5	8	9	0	12	17	36	10,5	4,5	12	3		11
14	22	7	1	29	0	10	22	7,5	11	25	33	23	16	

Based on these calculations clusters of faunal likeness and dominance identities were build for oribatid mites and nematodes. Cluster of faunal likeness of nematodes showed different results. Four groups are divided with no specific arrangement (fig.1). In cluster of faunal likeness of oribatid mites three main groups were divided. The first groups composed oribatid mites of riv. Vere gorge with natural and artificial broad-lived vegetation, the second group was made by mites inhabiting Nutsbidze plateau and former

military unit located in Norio and the third group was made by oribatid mites of meadow at the Tbilisi Reservoir and Norio neighborhood (fig.2). Oribatid mites of ruderal site appeared isolated from other groups.

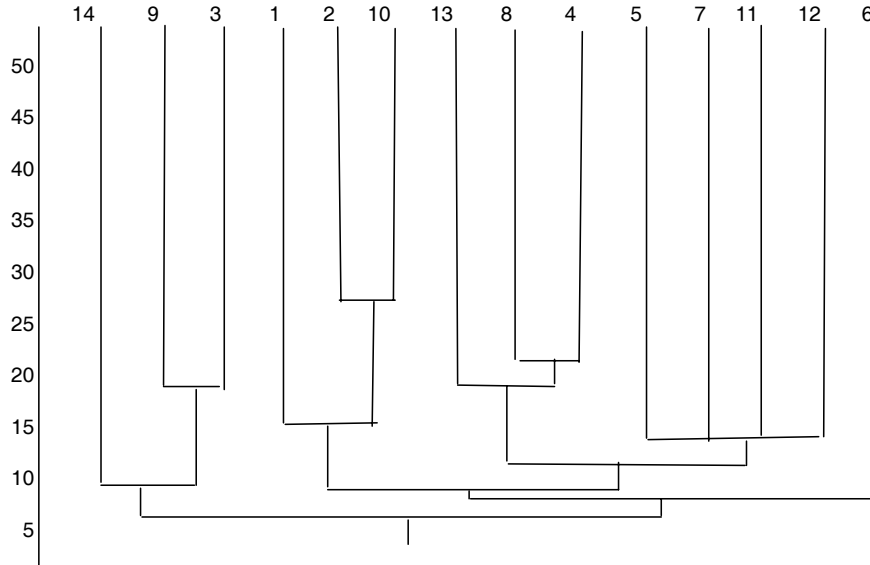


Fig. 1. cluster of faunal likeness of nematoda

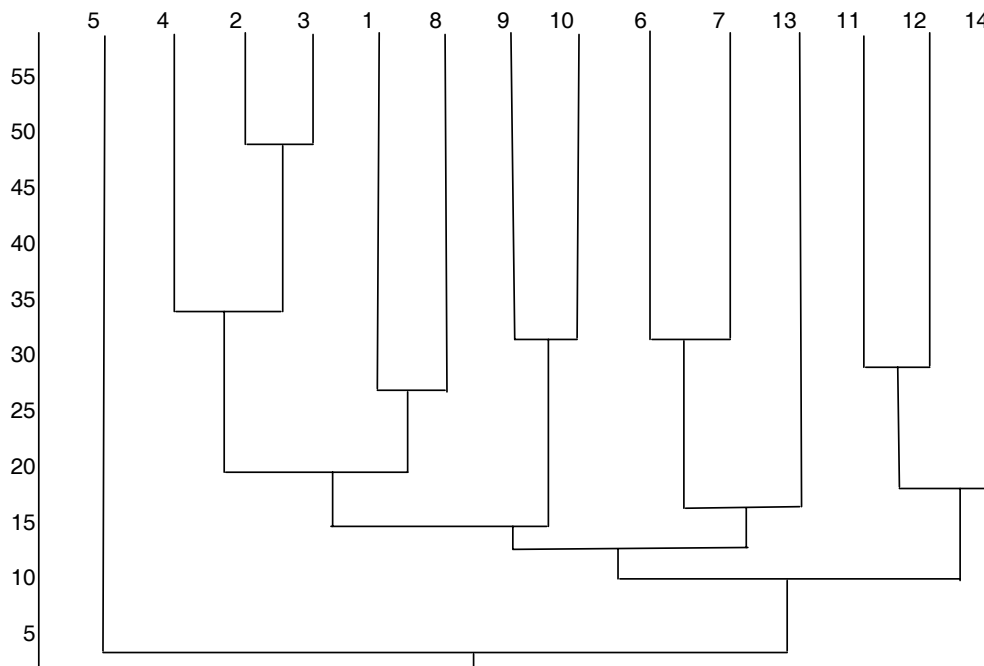


Fig.2. Cluster of faunal likeness of oribatid mites

Cluster of dominance identities of nematodes were arranged into three groups. The first group was made by nematodes inhabiting soils of artificial plantation, the second groups – by nematodes of Norio military unit, meadow at Tbilisi Reservoir and riv. Vere gorge and the third group – by nematodes of polydominant forest in Norio, square on the Chavchavadze avenue and shrubs on Nutsubidze plateau (fig. 3). Cluster of dominance identities of oribatid mites shows three main groups as well, where the first groups is made of the dominant species inhabiting soils of artificial vegetation, the second group is represented by dominant species of soils from natural polydominant forests and former military units and the third group – by dominant species of mites from flood-plane forest, meadow at Tbilisi Reservoir, square on the Chavchavadze avenue and ruderal site (fig. 4).

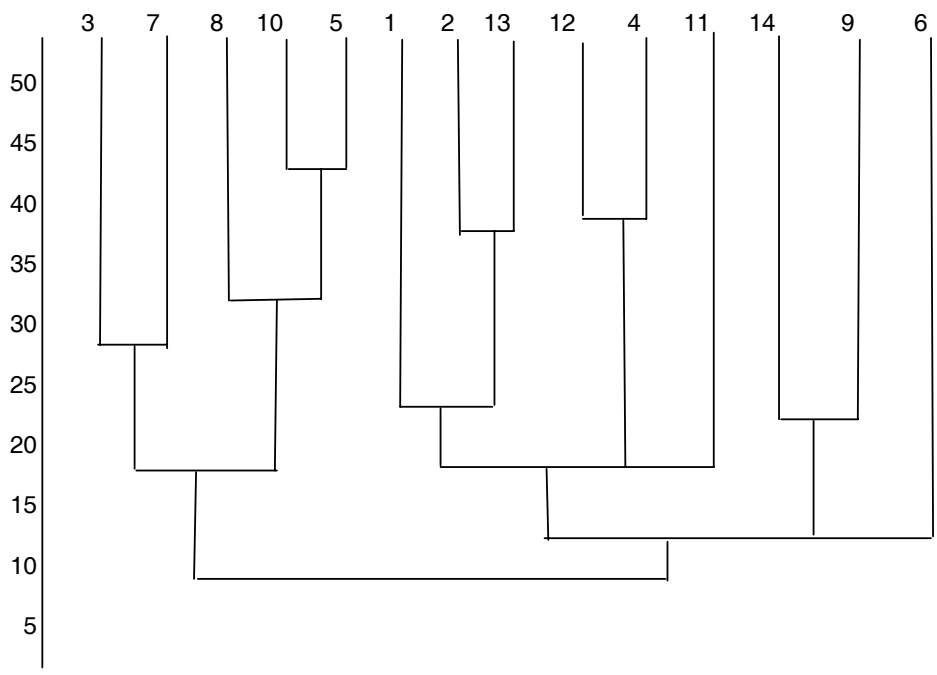


Fig. 3. Cluster of dominance identities of nematoda

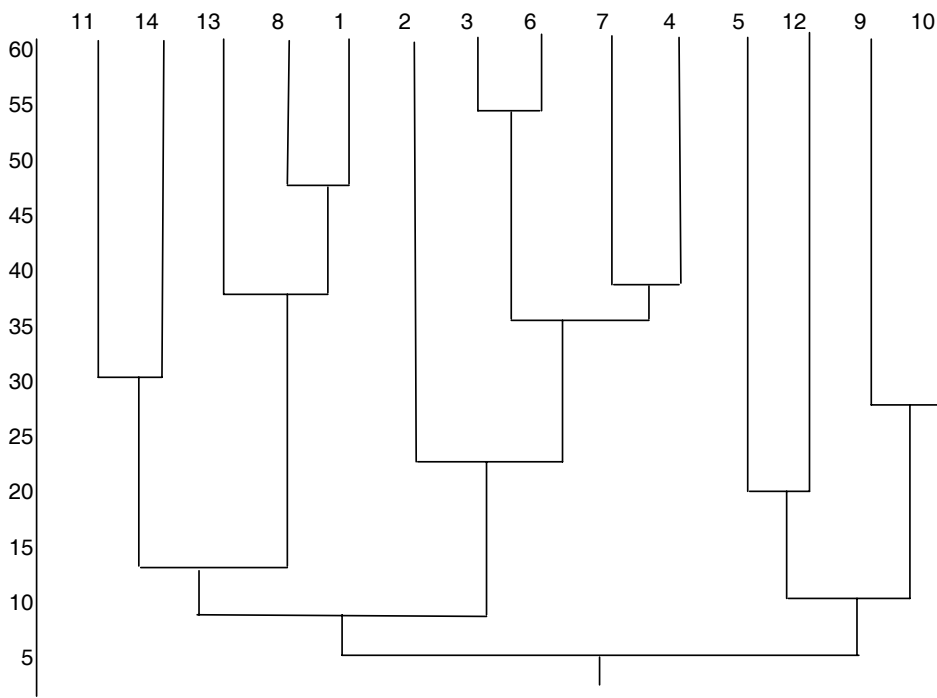


Fig. 4. Cluster of dominance identities of oribatid mites

Calculation of densities of oribatid mites and nematodes showed that nematodes were presented in much higher densities with maximal density 190000 ind/m<sup>2</sup> – in soil of flood-plane forest, than oribatid mites with maximal density 1300 ind/m<sup>2</sup> in soil of shrubs at Nutsubidze plateau. Changes of abundance of oribatid mites and nematodes at different sites show high densities in soils of natural or close to the natural sites (sites 1, 2, 6, 10, 2, 14). In soil of ruderal site (site 5) density of oribatid mites is minimal, but density of nematodes increases. Densities of both groups of invertebrate animals are low in site 7 (soil under the *Paliurus spinachristi* shrubs), they increase their quantity at Former Transcaucasian Military Unit (site 8) and decrease again at the square on the Chavchavadze ave (site 9) which is located in the city center and is distinguished with high traffic and polluted air. Densities of oribatid mites and nematode remain low at the Chodrishwili Street (site 11) as well (fig. 5, 6).

Changes of Simpson's index of Diversity (1-D) that represents the probability that two individuals randomly selected from a sample will belong to different species shows almost reciprocal fluctuations between the oribatid mites and nematodes. Index of diversity of oribatid mites appeared highest at the square on the Chavchavadze Avenue and the same of nematodes was highest at shrubs in riv. Vere gorge (site 3) and flood-plane forest (site 10) (fig. 7)

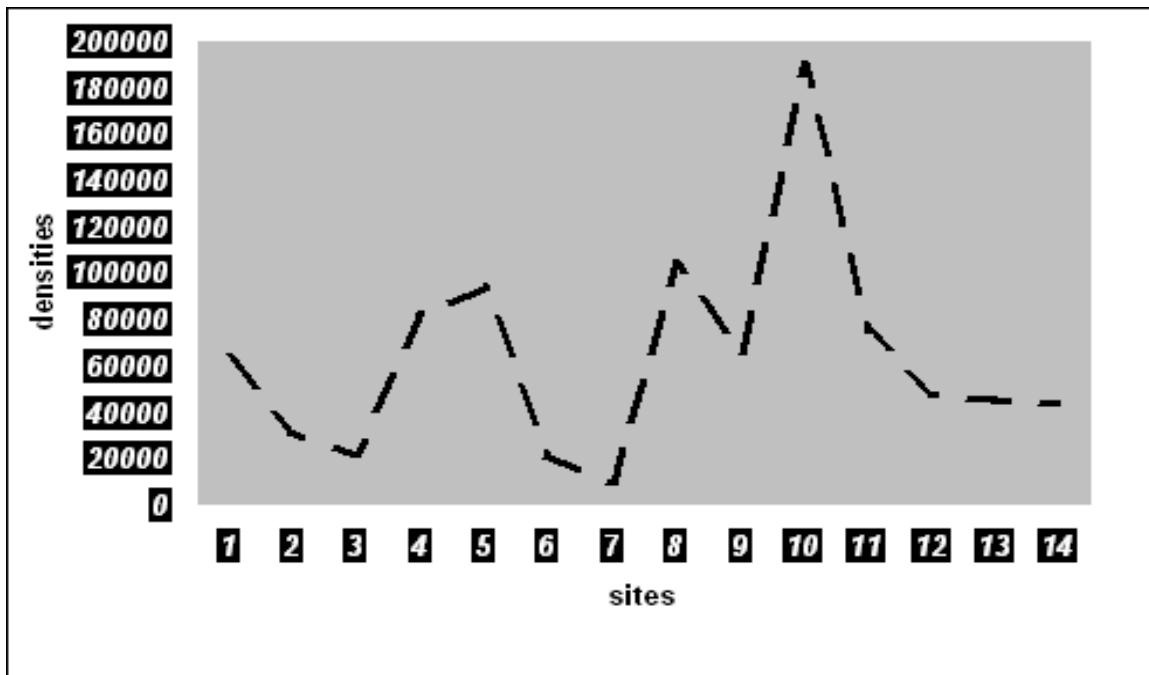


Fig. 5. Changes of densities of nematodes along the studied transect

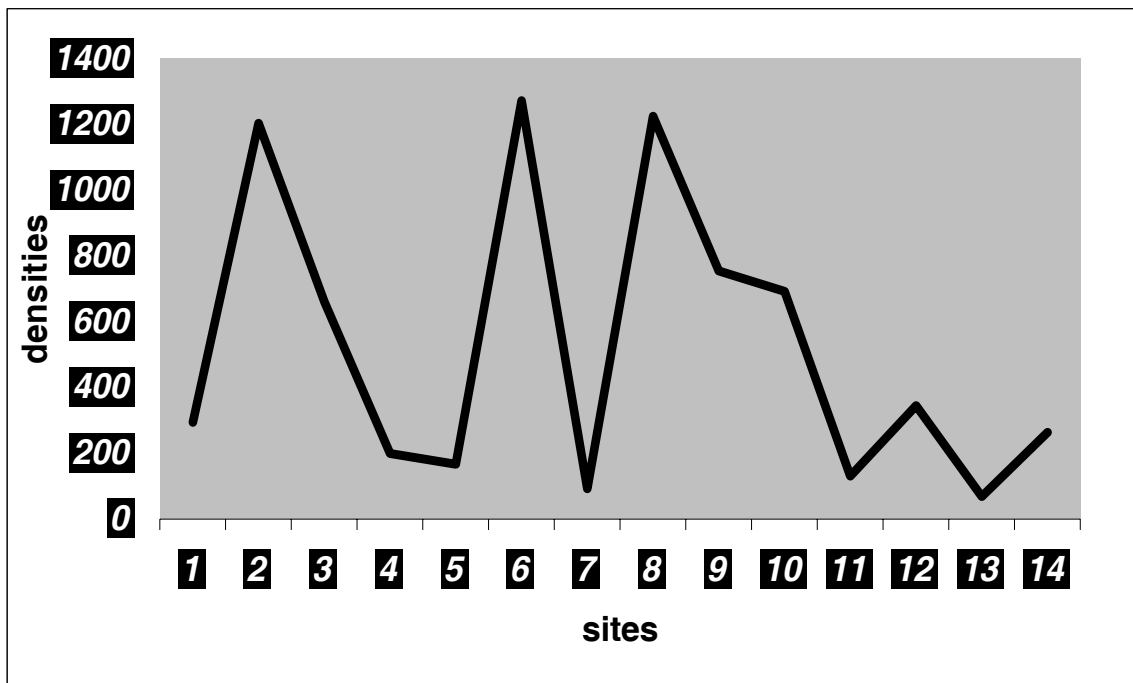


Fig. 6. Changes of densities of oribatid mites along the studied transect

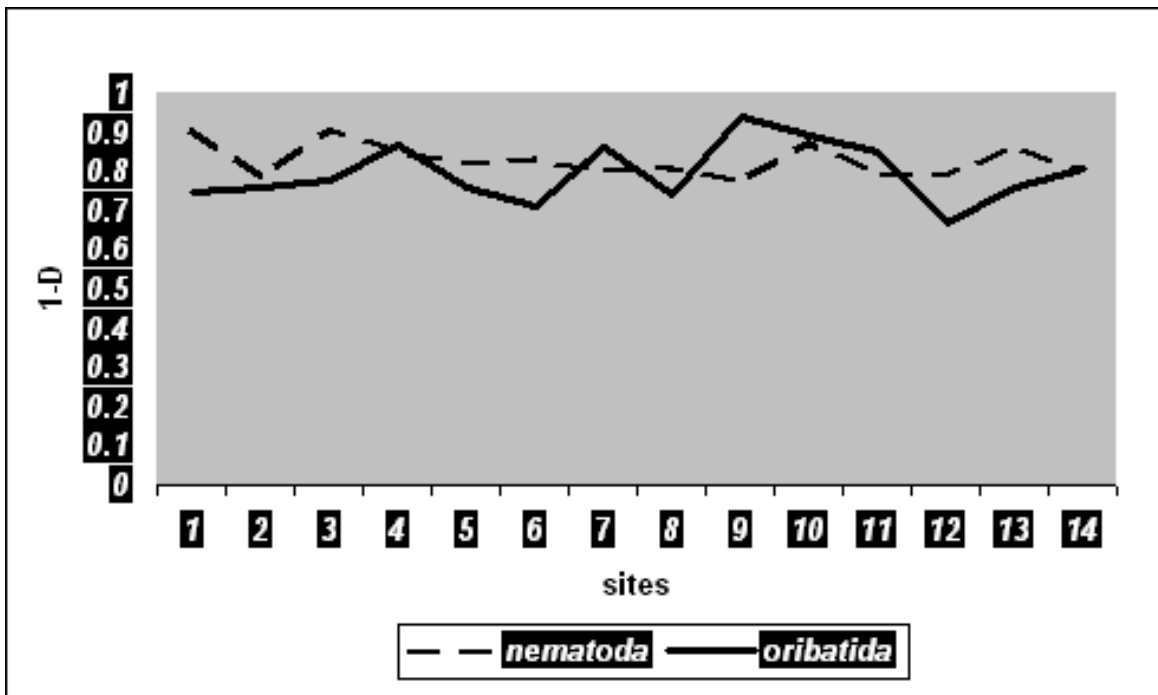


Fig. 7. Changes of Simpson's index of diversity of oribatid mites and nematodes

Chemical analyses of soil involved calculation of soil humidity, pH and percentage of humus in disturbed sites (tab. 4). The table shows very low concentration of humus in ruderal site and high concentration in the natural polydominant forest and on the territory of former Transcaucasian military unit, what reflects on composition of soil fauna as well (fig. 1-7).

Table 4.

**Chemical composition of soil samples (%)**

sites	humidity	pH	Humus	Humus per dry mass
<b>riv. Vere gorge, polydominant forest</b>	3,50	5,42	8,24	8,54
<b>riv. Vere gorge, artificial pine forest</b>	3,49	7,46	6,73	6,97
<b>riv. Vere gorge, shrubs</b>	4,77	8,20	6,5	6,8
<b>Ruderal biotope</b>	3,42	1,97	2,04	7,39
<b>Former Transcaucasian military unit</b>	3,32	9,00	9,31	7,85
<b>Square on Chavchavadze ave.</b>	3,28	6,73	6,95	7,47
<b>riv. Vere gorge, flood-land</b>	4,71	7,95	6,4	6,7

The investigations proofed our two hypotheses. In the natural ecosystems there is high diversity of species with typical forest species, but in central districts predominate ecological ubiquitous, that can stand the extreme conditions like polluted environment, heightened temperature, lack of humidity etc. Abundance of oribatid mites in natural ecosystems is also higher compared to the same in city center. Our third hypothesis appeared not true. Soils from former Transcaucasian Military Unit and Norio Military Unit territories are distinguished by high percent of humus and high density and diversity of oribatid mites and nematodes. That may be explained by forbidding of people excess to these territories and accordingly, maintenance of comparably clean ecosystems.

Our researches proofed that: 1) Natural and artificial forests existing in Tbilisi outskirts may be considered as "healthy" ecosystems; 2) In central districts pollution increases and the sites are inhabited only by everytopic species.



## Acknowledgements

The research was funded by joint grant of Georgian National Science Foundation and Scientific Technical Center Ukraine. GNSF-STCU 07/129, project 4327 “The invertebrate animals as bioindicators of urban environment”.

## References

1. Andrassy I. 1984: Klasse Nematoda. Gustav Fischer Verlag, Stuttgart, 509p.
2. Beaulieu F. and Weeks R. 2007: Free-living mesostigmatic mites in Australia: their roles in biological control and bioindication. Australian journal of Experimental Agriculture. 47, 460-478.
3. Chernov Yu. I. 1975: In: Metodi pochvenno-zoologicheskikh issledovaniy [The methods of soil zoological investigations]. M. 160-216 (in Russian)
4. Ghilarov M. S., Krivolutskyi D. A. 1975: Opredelitel Obitaiushchikh v Pochve Kleshchei. Sarcoptiformes. [The identification keys of soil inhabiting mites. Sarcoptiformes]. Nauka, Moscow, 491 pp. (in Russian)
5. Eliava I. 1982: Key of the Nematods of Family *Qudsianematidae* (*Dorylamida*). “Metsniereba” Tbilisi, 1982, 1-216.
6. Eliava I., Bagaturia N., Kvavadze Er., Gigolashvili M., Tskitishvili E. Nematodofauna of Tbilisi and its environs. Proceedings of the Institute of Zoology. XXI, 44-45 (in Georgian).
7. Kehl Ch. Weigmann G. 1992: Die Hornmilbenzonosen (Acari: Oribatida) and Apfelbaumen im Stadtgebiet von Berlin als Bioindikatoren fuer die Luftqualitat. Zool. Beitr. N. F. 34(2), 261-271
8. Klausnitzer B. 1990: Ekologiya gorodskoi fauni [The ecology of city fauna]. izd. “Mir”. 1-248 (in Russian)
9. McGeoch M. A. 1998: The selection, testing and application of terrestrial insects as bioindicators. Biological Reviews, 73, 181-201.
10. Murvanidze M. 1999: To the study of quantitative dynamics of oribatid mites (*Acari, Oribatei*) in urban conditions. Bull. of Georgian Academy of Sciences. 160/2. 337-379.
11. Porzner A., Weigmann G. 1992: Die Hornmilbenfauna (Acari, Oribatida) an Eichen-stammen in einem Gradienten von Autoabgas-Immisionen. Zool. Beitr. N. F. 34(2), 249-260
12. Simpson E. H. 1949: Measurement of diversity. Nature 163, 688
13. Weigmann G. 2006: Hornmilben (Oribatida). – In: Dahl (ed.), Die Tierwelt Deutschlands 76, 1-520.
14. Weigmann G., Kratz W. 1987: Oribatid mites in urban zones of West Berlin. Biol. Fertl Soils, 3, 81-84
15. Weigmann G., Jung E. 1992: Die Hornmilben (Acari, Oribatida) and Strassenbaumen in Stadtzonen unterschiedlicher Luftbelastung in Berlin. Zool. Beitr. N. F. 34(2), 273-287

## THE KRUMMHOLZ BEECH WOODS OF MT TAVKVETILI (JAVAKHETI PLATEAU, SOUTHERN GEORGIA) – A RELICT ECOSYSTEM

Giorgi Arabuli<sup>1</sup>, Eliso Kvavadze<sup>2</sup>, David Kikodze<sup>3</sup>, Simon E. Connor<sup>4</sup>, Eristo Kvavadze<sup>5</sup>,  
Nana Bagaturia<sup>6</sup>, Maka Murvanidze<sup>7</sup>, Tea Arabuli<sup>8</sup>

1. Georgian National Museum
2. Georgian National Museum, Davitashvili Institute of Paleobiology, e-mail: ekvavadze@mail.ru
3. Tbilisi Botanical Garden and Institute of Botany
4. Geography Department, University of Melbourne, Victoria, Australia
- 5, 6, 7, 8. Georgian Institute of Zoology, e-mail: izoo@caucasus.net

**Abstract.** A 1600-m<sup>2</sup> area of krummholz-form beech wood (*Fagus orientalis*) has been discovered on the NE slope of Mt Tavkvetili in Southern Georgia. We conducted detailed botanical, faunal and palynological analyses to determine the age and genesis of this rare highland ecosystem. The vast majority of the Javakheti Plateau is treeless in the present-day, yet the Tavkvetili beech wood is typical of Southern Georgian beech forests in structural and compositional terms. Analysis of the woodland fauna (soil nematodes, oribatid mites) reveals an assemblage analogous to the fauna of beech forests on the Gombori Range (Nagubrebi). Palynological analysis of a late Holocene soil section from Mt Tavkvetili suggests that the woodland has existed for at least 2000 years and is a remnant of more extensive beech forest that existed on the Javakheti Plateau. Given its small size and the susceptibility of beech woods to disturbance, we suggest that conservation measures be emplaced immediately to protect this relict ecosystem.

**Key words.** Elfin wood, *Fagus orientalis*, soil nematodes, oribatid mites, pollen analyses, Southern Georgia.

### Introduction

Today, the majority of the Javakheti Plateau is deforested and covered by steppe and meadow-steppe vegetation. Various coniferous, mixed and deciduous forests are thought to have existed on parts of the Plateau in the historic and prehistoric past (Froneli, 1991; Troitski, 1924; Grossheim, 1948; Ketskhoveli, 1960, Kvavadze et al., 2007), but direct evidence for these forests is lacking and little is known of their specific composition. The recent discovery of a small patch of krummholz-form beech forest on the Javakheti Plateau may provide a rare insight into the structure and composition of the woodlands that previously grew on the Plateau. Using botanical, zoological and palynological methods, we address three key questions:

1. What is the species composition of the Tavkvetili beech wood?
2. How does it resemble other beech-dominated ecosystems in the region?
3. Is the Tavkvetili beech wood a relict ecosystem?

### Materials and Methods

Mt Tavkvetili is an extinct volcano located at the northern end of the Samsari Range in Southern Georgian Volcanic Uplands. It rises to an elevation of 2583 m above sea level and approximately 500 m above the surrounding plain. The mountain has a distinct, flattened peak that gives it its name (Tavkvetili: 'decapitated'). The landscape of the Javakheti and Tsalka Plateau is characterised by undulating andesite-basalt plains interrupted by volcanic cones and a large number of lake basins. Almost the entire area is treeless and vegetated by steppe and meadow-steppe vegetation. For this reason, the beech wood on Mt Tavkvetili is of considerable scientific interest.

The vegetation of the beech woods was described using phytosociological methods (Braun-Blanquet). We collected soil samples at various sites in the woods and extracted nematodes and oribatid mites using standard techniques (Ghilarov, 1989). In addition, a 50-cm-deep soil section was dug from flat ground

beneath the woodland canopy. Pollen were extracted from nine different levels according to the method of Faegri and Iversen (1980).

## ***Results and Discussion.***

### Floristics

The beech woodland we investigated is dominated by *Fagus orientalis* in krummholz (crook-stem) form. It was discovered on the NE slope of Mt Tavkvetili and covers an area of approximately 1600 m<sup>2</sup>. The dwarf woodland has an elongated shape, the long axis pointing downslope (Fig. 1). Scree slopes surround the woodland on all sides. On average, the beech trees in the woodland are 3-5 m in height. Canopy density is 0.8-0.9 and the individual trees are 8-10 cm diameter at breast height (Fig. 2). Structurally analogous woodlands (Fig. 3) are found along the Main Caucasus Range (Ochiauri, 1965).

Alongside the canopy dominant, *Fagus orientalis*, the following woody species are represented: elm (*Ulmus glabra*), high mountain maple (*Acer trautvetteri*), mountain ash (*Sorbus aucuparia*) and willow (*Salix caprea*). These species, together with krummholz beech trees, form a continuous woodland canopy. Understorey is absent, although occasional individuals of viburnum (*Viburnum lantana*), currant (*Ribes biebersteinii*) and small groups of bilberry (*Vaccinium myrtillus*) are found in places. A swathe of *Rhododendron caucasicum* is located immediately above the beech wood (Fig. 4), while fragments of tall herbaceous vegetation and broad-leaved forb meadows occur around the woodland perimeter. These include species such as *Stachys macrantha*, *Allium victorialis*, *Calamagrostis arundinacea*, *Valeriana officinalis*, *Inula orientalis*, *Veratrum lobelianum*, *Heracleum asperum*, *Chamerion angustifolium*, *Polygonum carneum*, *Aruncus vulgaris*, *Vicia balansae*, *Polygonatum verticillatum*, *Solidago virgaurea*, *Rumex alpinus*, *Poa nemoralis*, and *Campanula rapunculoides*.

The Tavkvetili krummholz-formation beech wood is typologically of the **Fagetea nuda** category. Herbaceous plants (e.g. *Oxalis acetosella*, *Stellaria holostea*, *Galium odoratum*) are present in small numbers, characteristic of this type of beech forest. It is also noteworthy that the trees currently produce fruits and viable seeds (Fig. 5). This indicates that the population has maintained its reproductive viability and is likely a self-sustaining ecosystem. This suggests that the population of beech trees on Mt Tavkvetili may have existed for a considerable length of time and is likely to be a relict stand of beech forest, formerly more extensive on the Javakheti Plateau.

A significant proportion (35-40%) of the beech trees have had their bark gnawed by Pontic Field Voles (*Clethrionomys glareolus ponticus* Thomas) (Fig. 6). Our observations lead us to believe that Field Voles inhabit the woodland permanently and feed on beech bark in winter, when other appropriate food is lacking. Some trees are completely untouched, while others have been damaged in previous years.

### Soil Fauna

Analysis of Mt Tavkvetili's soil fauna revealed 41 nematode forms belonging to 5 orders, 16 families and 23 genera (Table 1). Of these, 27 are identifiable to species level and 14 to genus level. Two species had not been previously identified in Georgia – *Lotonchus zschorrei* (Family *Lotonchidae*) and *Mesodorylaimus dorni* (Family *Dorylaimidae*). The genus *Dorylaimidae* was represented by the largest number of species. High diversity amongst the *Dorylaimidae* is regarded as characteristic of natural forest ecosystems (Jgenti et al., 2004; Tskitishvili, 2006; Arabuli et al., 2007; Chuchulashvili, 2007).



Fig. 2. A, B – Larger-trunked beech-trees  
(photo by G. Arabuli and Er. Kvavadze)



**A**



**B**

Fig. 3. A, B – Krummholz-form beech trees  
(photo by G. Arabuli and Er. Kvavadze)



Fig. 4. A, B – *Rhododendron caucasicum* at the beech woodland edge  
(photo by G. Arabuli and Er. Kvavadze)



Fig. 5. A, B –Beech branches with fruits  
(photo by G. Arabuli and Er. Kvavadze)



Fig. 1. A - Overview of the Mt Tavkvetili beech wood.  
B - Close-up view of the Mt Tavkvetili beech wood and scree slopes.  
In the background, the Baku-Tbilisi-Ceyhan pipeline is visible  
(photo by G. Arabuli and Er. Kvavadze)





Fig. 6. A, B – Beech bark eaten by Pontic Field Voles  
(photo by G. Arabuli and Er. Kvavadze)

Table 1

List of Soil Nematodes of beech (*Fagus orientalis*) woodlands in Georgia, including Mt Tavkvetili.

	Species	Nagubrebi Gombori Range	Mt Tavkvetili	Mariamjvari Reserve	Satapia Reserve
1.	<i>Tripyla Affinis</i>			+	
2.	<i>T. glomerans</i>	+			
3.	<i>T. setifera</i>			+	
4.	<i>T. tenius</i>			+	+
5.	<i>T. sp.</i>	+	+		
6.	<i>Tripylidae gen. nov.</i>	+			
7.	<i>Tobrilus aberrans</i>			+	
8.	<i>Tobrilus sp.</i>	+			
9.	<i>Monhystera sp.</i>	+			
10.	<i>Amphidelus sp.</i>		+		
11.	<i>Plectus annulatus</i>	+	+		
12.	<i>P. acuminatus</i>	+			
13.	<i>P. longicaudatus</i>	+			
14.	<i>P. subtilis</i>				
15.	<i>P. elongatus</i>				
16.	<i>P. parvus</i>		+		
17.	<i>P. parietinus</i>	+	+		
18.	<i>P. papillatus</i>		+		
19.	<i>P. sp.</i>				+
20.	<i>Anaplectus granulatus</i>	+	+		
21.	<i>A. submersus</i>	+			
22.	<i>Nygolaimus brachiurus</i>	+			
23.	<i>N. sp.</i>		+		
24.	<i>Mesodorylaimus abberans</i>	+			
25.	<i>M. bastiani</i>	+	+	+	
26.	<i>M. centrocerus</i>	+			
27.	<i>M. dorni</i>		+		
28.	<i>M. mesonictius</i>	+			+
29.	<i>M. pseudobastiani</i>		+		
30.	<i>M. recurvus</i>		+		
31.	<i>M. subtilis</i>				+
32.	<i>M. sp. (a)</i>	+			
33.	<i>M. sp. (b)</i>			+	
34.	<i>Prodorylaimus longicaudatus</i>	+			
35.	<i>P. paralongicaudatus</i>	+			
36.	<i>P. sp.</i>		+		+
37.	<i>Dorylaimus sp.</i>		+		
38.	<i>D. n. sp.(?)</i>		+		
39.	<i>Paradorylaimus longicaudatus</i>				+
40.	<i>Leptonchus sp.</i>		+		
41.	<i>Eudorylaimus acuticauda</i>	+			
42.	<i>E. acutus</i>	+			
43.	<i>E. carteri</i>	+	+	+	+
44.	<i>E. centrocerus</i>	+	+		
45.	<i>E. confusus</i>	+			

46.	<i>E. incisus</i>	+			
47.	<i>E. leptus</i>	+			
48.	<i>E. leucarti</i>		+		
49.	<i>E. holdemani</i>		+		
50.	<i>E. opisthistera</i>		+		
51.	<i>E. pseudocarteri</i>			+	
52.	<i>Eud. sp. (a)</i>	+			
53.	<i>Eud. sp. (b)</i>		+	+	
54.	<i>Eud. sp. (c)</i>		+		
55.	<i>Epidorylaimus lugdunensis</i>	+			
56.	<i>Discomictus sp.</i>	+			
57.	<i>Erumenicus. monhystera</i>		+		
58.	<i>Aporcelaimellus amilovorvus</i>	+			
59.	<i>A. capitatus</i>	+			
60.	<i>A. krygeri</i>	+	+	+	+
61.	<i>A. obscurus</i>	+	+		+
62.	<i>A. obscuroides</i>		+		+
63.	<i>A. obtusicaudatus</i>	+			+
64.	<i>A. paraobtusicaudatus</i>	+			
65.	<i>A. taylori</i>		+		
66.	<i>A. sp.</i>	+	+	+	+
67.	<i>Paraxonchium striatum</i>	+			
68.	<i>P. sp.</i>	+			
69.	<i>Pungentus silvestris</i>		+		
70.	<i>P. sp.</i>	+			
71.	<i>Enchodelus brevidentatus</i>	+			
72.	<i>E. georgiensis</i>	+			
73.	<i>E. hoppedorus</i>	+			+
74.	<i>E. macrodorus</i>	+	+		+
75.	<i>E. sp.</i>	+			
76.	<i>Longidorus sp.</i>	+			+
77.	<i>Paralongidorus sp.</i>		+	+	
78.	<i>Xiphinema brevicolle</i>		+		
79.	<i>X. pini</i>	+			
80.	<i>X. sp.</i>	+			
81.	<i>Tylencholaimus minimus</i>	+			
82.	<i>T. steckki</i>	+	+		
83.	<i>T. sp.</i>	+			
84.	<i>Tylencholaimellus eskei</i>	+	+		
85.	<i>Belondira apitica</i>	+			
86.	<i>B. sp.</i>		+		
87.	<i>Actinolaimus sp.</i>	+			
88.	<i>Trachactinolaimus sp.</i>	+			
89.	<i>Paractinolaimus sp.</i>	+			
90.	<i>Clarcus papillatus</i>	+	+		
91.	<i>Clarcus sp.</i>	+			
92.	<i>Comansus parvus</i>	+			
93.	<i>C. sp.</i>	+			
94.	<i>Prionchulus muscorum</i>	+			
95.	<i>Prionchulus sp.</i>		+		
96.	<i>Mylonchulus brachiuris</i>	+			
97.	<i>Anatonchus tridentatus</i>	+			
98.	<i>Myconchus sp.</i>	+			
99.	<i>Sporonchulus sp.</i>			+	
100.	<i>Cobbonchus sp.</i>		+		

101.	<i>Cephalobus parvus</i>	+			
102.	<i>Teratocephalus terrestris</i>	+			
103.	<i>Filenchus sp.</i>	+			
104.	<i>Tylenchorynchus sp.</i>		+		
	Total number of species	66	40	13	15

Nematode assemblages from the Mt Tavkvetili beech woodland are very distinct. Compared to assemblages from other beech forests in Georgia, 15% of species at Tavkvetili are shared with those of Nagubrebi (Gombori Range) and even fewer with Sataplia Reserve. In spite of this, the main community constituents in all four beech forests were similar (Table 1).

Oribatid mites in the Mt Tavkvetili woodland soils were identified to 43 different species. Three of these species are new to the Georgian fauna, namely *Suctobelba atomaria*, *Suctobelbella falcata* and *S. duplex*. The majority of the species have cosmopolitan distributions. Only *Hoplophthiracarus vicinus*, *Steganacarus personatus* and *Parachipteria georgica* are endemic to Georgia. *Pantelozetes paolii* is a mountain species found in only two locations in Georgia: Omalo (Akhmeta region) and Tavkvetili.

Table 2 compares the oribatid mite assemblages from beech forests on Mt Tavkvetili, Gombori Range (Nagubrebi), Algeti Reserve and Kintrishi Reserve (Arabuli, 2007; Murvanidze et al., 2003). Soils from the Gombori Range had by far the greatest species diversity, with 119 species represented. This may have been a function of the monthly sampling regime employed at this site (Arabuli, 2007). At sites sampled only once, 21 species were identified in both Algeti and Kintrishi. The Mt Tavkvetili assemblage had 20 species in common with the Gombori Range site and 7 species in common with Algeti and Kintrishi. *Tectocephus velatus* was found in all four study areas.

The highest faunal likeness index (15%) occurred between the Tavkvetili and Gombori Range oribatid mite assemblages. The family *Suctobelbidae* is well represented at all four sites – 9 at Tavkvetili, 4 at Nagubrebi, 3 at Kintrishi and 1 at Algeti – while other families are generally represented by only single species.

Table 2

List of oribatid mites of beech (*Fagus orientalis*) woodlands in Georgia, including Mt Tavkvetili.

	Species	Nagubrebi Gombori Range	Algeti Reserve	Kintrishi Reserve	Tavkvetili mountain
1	<i>Liochthonius lapponicus</i> (Tragardh, 1910.)	+			
2	<i>Hypochthonius rufulus</i> C.L. Koch, 1835	+			
3	<i>Hypochthoniella minutissima</i> (Berlese, 1904)	+			
4	<i>Mesoplophora pulchra</i> Sellnick, 1928	+			
5	<i>Epilohmannia gigantea</i> Berlese, 1917	+			
6	<i>Hoplophthiracarus vanderhammeni</i> Nied, 1991	+			
7	<i>H. vicinus</i> Niedbala, 1984			+	+
8	<i>Phthiracarus ferrugineus</i> (C. L. Koch, 1841)	+		+	
9	<i>Phth. globosus</i> (C. L. Koch, 1841)	+			
10	<i>Phth. baloghi</i> (Feider, Suci, 1957)	+			
11	<i>Phth. Lentulus</i> (C. L. Koch, 1841)			+	
12	<i>Steganacarus csiszarai</i> Balogh & Mahunka, 1979	+			
13	<i>St. striculus</i> (C. L. Koch, 1836)	+		+	
14	<i>St. serratus</i> (Feider & Suci, 1957)	+			
15	<i>St. spinosus</i> (Sellnick, 1920)	+		+	
16	<i>St. (T) carinatus</i> (C. L. Koch, 1841)	+	+		
17	<i>St. (T) phyllophorus</i> (Berlese, 1904)	+			
18	<i>St. balearicus</i> Perez-Inigo, 1969	+			
19	<i>St. bicarinatus</i> Jeleva, 1970	+			
20	<i>St. personatus</i> Niedbala, 1983				+

21	<i>Archiphthiracarus murphyi</i> (Harding, 1976)	+			
22	<i>A. lanatus</i> (Feider, Suci, 1957)	+			
23	<i>A. ligneus</i> (Willmann, 1931)	+			
24	<i>A. clemens</i> (Aoki, 1963)	+			
25	<i>Rhysotritia ardua</i> (C.L. Koch, 1841)	+		+	
26	<i>Oribotritia serrata</i> Feider et Suci, 1958	+			
27	<i>Trhrypochtonius tectorum</i> (Berlese, 1896)		+		+
28	<i>Nothrus silvestris</i> Nicolet, 1855	+			
29	<i>N. borussicus</i> Sellnick, 1928		+		+
30	<i>N. palustris</i> C.L. Koch, 1839				+
31	<i>Platynothonus grandjeani</i> Sitnikova, 1975	+			
32	<i>Camisia horrida</i> (Hermann, 1804 )		+		
33	<i>C. segnis</i> (Hermann, 1804 )		+		
34	<i>Nanhermannia nana</i> (Nicolet, 1855)	+			
35	<i>Hermanniella granulata</i> (Nicolet, 1855)	+			
36	<i>H. punctulata</i> Berlese, 1908	+	+		
37	<i>Arthrodamaeus femoratus</i> (C. L. Koch, 1840)	+	+		
38	<i>Metabelba filippovi</i> Bul.-Zachvatkina, 1965	+			
39	<i>M. flagelliseta</i> Bulanova-Zachvatkina, 1965	+			
40	<i>M. pulverulenta</i> (C. L. Koch, 1839)	+	+		+
41	<i>M. rara</i> Bulanova-Zachvatkina, 1965			+	
42	<i>Metabelbella macerochaeta</i> Bul-Zach, 1967	+			
43	<i>Porobelba spinosa</i> (Sellnick, 1920)				+
44	<i>Eupterotegeus ornatissimus</i> (Berlese, 1908)	+			
45	<i>Amerus troisii</i> (Berlese, 1883)	+			
46	<i>Amerobelba decedens</i> Berlese, 1908	+			
47	<i>Damaeolus ornatissimus</i> Csiszar, 1962	+			
48	<i>Eremobelba geographica</i> Berlese, 1908	+			
49	<i>Eremaeus hepaticus</i> C. L. Koch, 1836	+			+
50	<i>E. oblongus</i> C. L. Koch, 1836	+			
51	<i>Rhynchobelba inexpectata</i> Willmann, 1953			+	
52	<i>Tricheremaeus pilosus</i> Michael, 1888	+			
53	<i>Zetorchestes micronychus</i> (Berlese, 1883)	+			
54	<i>Cultoribula bicultrata</i> Berlese, 1908	+			
55	<i>Gustavia microcephala</i> (Nicolet, 1855)	+			
56	<i>Adoristes ovatus</i> (C.L. Koch, 1840)	+			
57	<i>Liacarus brevilamellatus</i> Mihelcic, 1955	+			
58	<i>L. coracinus</i> (C. L. Koch, 1840)	+			
59	<i>L. tubifer</i> Djaparidze & Melamud, 1990	+			
60	<i>L. lencoranicus</i> Krivolutsky, 1967	+			
61	<i>Ceratoppia bipilis</i> (Hermann, 1804)	+	+		
62	<i>Carabodes femoralis</i> (Nicolet, 1855)	+			
63	<i>C. rugosior</i> Berlese, 1916	+			
64	<i>C. procerus</i> Weigmann & Murvanidze 2003	+			
65	<i>C. willmanni</i> Bernini, 1975				+
66	<i>Tectocephus punctulatus</i> Djaparidze, 1985	+			
67	<i>T. sarekensis</i> (Tragardh, 1910)	+	+		+
68	<i>T. velatus</i> (Michael, 1880)	+	+	+	+
69	<i>Dissorhina ornata</i> (Oudemans, 1900)		+		+
70	<i>Berniniella bicarinata</i> Paoli, 1908	+			+
71	<i>B. conjuncta</i> (Strenzke, 1951)	+			
72	<i>B. exempta</i> (Mihelcic, 1959)	+			
73	<i>B. sigma</i> (Strenzke, 1951)	+			+
74	<i>Micropopia minus</i> (Paoli, 1908)	+			

75	<i>Oppiella acuminata</i> (Strenzke, 1951)				+
76	<i>O. maritima</i> (Willmann, 1928)	+			
77	<i>O. nasuta</i> (Moritz, 1965)	+			
78	<i>O. nova</i> (Oudemans, 1902)	+		+	
79	<i>O. (R) hygrophila</i> (Mahunka, 1987)	+			
80	<i>O. obsoleta</i> (Paoli, 1908)	+			
81	<i>O. (R) fallax</i> (Paoli, 1908)			+	+
82	<i>O. (R) simifallax</i> (Subias & Minguez, 1986)	+			+
83	<i>O. (R) subpectinata</i> (Oudemans, 1900)	+		+	
84	<i>Oxyoppioides decipiens</i> (Paoli, 1908)	+			
85	<i>Ramusella insculpta</i> (Paoli, 1908)	+			
86	<i>R. mihelcici</i> (Perez-Inigo, 1964)	+			
87	<i>Quadroppia michaeli</i> , Mahunka, 1977	+		+	
88	<i>Q. quadricarinata</i> (Michael, 1885)	+			+
89	<i>Suctobelba atomaria</i> Moritz, 1970			+	+
90	<i>S. granulata</i> Hammer, 1952	+			+
91	<i>S. trigona</i> (Michael, 1888)	+		+	+
92	<i>Suctobelbella acutidens</i> (Forsslund, 1941)	+			
93	<i>S. duplex</i> (Strenzke, 1950)	+			+
94	<i>S. falcata</i> (Forsslund, 1958)				+
95	<i>S. forsslundi</i> (Strenzke, 1950)				+
96	<i>S. sarekensis</i> (Forsslund, 1941)				+
97	<i>S. subcornigera</i> (Forsslund, 1941)	+			+
98	<i>S. subtrigona</i> (Oudemans, 1916)		+	+	+
99	<i>Conchogneta tragardhi</i> Forsslund, 1947			+	
100	<i>Banksinoma lanceolata</i> (Michael, 1888)	+			
101	<i>Cymbaerema cymba</i> (Nicolet, 1885)	+			
102	<i>Pantelozetes paolii</i> (Oudemans, 1913)				+
103	<i>Eupelops acromios</i> (Hermann, 1804)	+	+		
104	<i>E. plicatus</i> (C. L. Koch, 1836)	+	+		+
105	<i>E. torulosus</i> (C. L. Koch, 1840)	+			
106	<i>Peloptulus phaenotus</i> (C. L. Koch, 1844)		+		
107	<i>Achipteria coleoprata</i> (Linne, 1746)	+			
108	<i>A. nitens</i> (Nicolet, 1855)				+
109	<i>Parachipteria georgica</i> Murv., Weigm., 2003	+		+	+
110	<i>P. punctata</i> (Nicolet, 1855)	+			
111	<i>P. nicoleti</i> (Berlese, 1883)	+			+
112	<i>Fuscozetes fuscipes</i> (C. L. Koch, 1844)				+
113	<i>Umbellozetes fuscus</i> Krivolutsky, 1969	+			
114	<i>Protokalumma aurantiaca</i> (Oudemans, 1913)			+	
115	<i>Acrogalumna longipluma</i> (Berlese, 1904)	+			
116	<i>Pilogalumna tenuiclava</i> (Berlese, 1908)	+			
117	<i>P. crassiclava</i> (Berlese, 1914)			+	
118	<i>Galumna obvia</i> (Berlese, 1915)		+		
119	<i>Ceratozetella sellnicki</i> (Rajski, 1958)	+			
120	<i>Ceratozetes gracilis</i> (Michael, 1884)	+			
121	<i>C. laticuspidatus</i> Menke, 1964	+			
122	<i>C. longicuspidatus</i> Kulijev, 1962	+			
123	<i>C. mediocris</i> Berlese, 1908	+			
124	<i>Sphaerozetes piriformis</i> (Nicolet, 1855)	+			+
125	<i>Melanozetas mollicomus</i> (C. L. Koch, 1840)				+
126	<i>Trichoribates caucasicus</i> Shaldybina, 1971				+
127	<i>Latilamelobates naltshiki</i> Shaldybina, 1971		+		+
128	<i>Chamobates caucasicus</i> Shaldybina, 1969	+			

129	<i>Ch. cuspidatus</i> (Michael, 1884)				+
130	<i>Ch. voigtsi</i> (Oudemans, 1902)	+		+	
131	<i>Euzetes globosus</i> (Nicolet, 1855)	+			
132	<i>Minunthozetes pseudofusiger</i> (Schwac, 1922)	+			+
133	<i>M. semirufus</i> (C. L. Koch, 1840)			+	+
134	<i>Mycolates. tridactylus</i> Willmann, 1929	+			
135	<i>Punctoribates punctum</i> (C. L. Koch, 1893)	+	+		
136	<i>Protoribates capucinus</i> (Berlese, 1908)	+			
137	<i>P. pannonicus</i> Willmann, 1951	+			
138	<i>Liebstadia similis</i> (Michael, 1888)				+
139	<i>Schelorbates laevigatus</i> (C. L. Koch, 1836)	+			
140	<i>Sch. latipes</i> (C. L. Koch, 1840)	+	+		
141	<i>Sch. pallidulus</i> (C. L. Koch, 1840)				+
142	<i>Oribatula tibialis</i> (Nicolet, 1855)	+	+		
143	<i>Phaulopi saakadzei</i> Djaparidze, 1985	+			
144	<i>Zygoribatula exilis</i> (Nicolet, 1855)	+			+
	Total number of species	<b>109</b>	<b>21</b>	<b>22</b>	<b>43</b>

### PALYNOLOGICAL INVESTIGATION

Our detailed palynological investigation of the Mt Tavkvetili soil profile gives an interesting picture. All samples studied had high concentrations of palynomorphs, with no evidence of pollen taphonomy. Besides pollen and spores, they contain many non-pollen fossils (Table 3).

The Tavkvetili pollen diagram (Fig. 9) is divided into three stratigraphic zones based on pollen composition. These were compared to radiocarbon-dated pollen spectra from nearby lakes Aligol and Imera. Lake Aligol (Aligel) is situated on the western part of the Tsalka Plateau near Santa village, some 25 km from Mt Tavkvetili. Lake Imera is on the eastern part of the Tsalka Plateau near Imera village and Lake Bareti (Kvavadze et al., 2007).

The lower zone of the Tavkvetili profile has pollen-compositional similarities with early Subatlantic sediments of these lakes ( $^{14}\text{C}$  dated to  $2360\pm 40$  BP). During this period, each of the pollen diagrams are characterised by high proportions of pine, beech, hornbeam, oak and fir.

This correlation indicates that, 2300 years ago, pine forests with a mixture of fir, spruce and beech grew around the Mt Tavkvetili beech woodland. Pine was clearly a woodland dominant, as indicated by its clear predominance in the arboreal pollen group (65-75%). The proportion of beech was also quite significant, given its low pollen productivity at high altitudes.

The next stage in the development of vegetation began 1500-1400 years ago when more thermophilous species expanded on Mt Tavkvetili, particularly oak and hornbeam (Fig. 9). Pollen of heat-loving zelkova (*Zelkova carpinifolia*) is also present in the second pollen zone, probably transported from lower-altitude broadleaf forests (Kvavadze & Connor, 2004). *Corylus* pollen also increases at this time, while species that prefer cooler conditions, such as pine and beech, decrease. *Rhododendron* is consistently present through this pollen zone. Evidence of climatic cooling is seen towards the end of the second zone, when spruce and fir increase.

The final zone shows that temperatures increased again in more recent times. Oak and hornbeam pollen peak at this time (Fig. 9), and *Juglans*, *Alnus*, *Fagus* and *Corylus* also increase. It is probable that this represents the onset of the Mediaeval Warm Period, which was characterised by mild and humid conditions across the whole of Southern Georgia. The uppermost sample represents the present-day vegetation of the study area. As well as the beech elfin woodland, the regional importance of meadow vegetation and pastures is clearly reflected. Importantly, the proportion of *Fagus* pollen has changed little through the profile, suggesting that the beech woods that currently grow on Mt Tavkvetili are remnant vegetation.

Palynological data from Mt Tavkvetili support the conclusion that forests previously existed in Javakheti. This is true of all the Holocene warm phases beginning from the Early Bronze Age, when, for example, broadleaf forests of oak, lime, beech and hornbeam grew in the vicinity of Lake Paravani (Kvavadze et al., 2007). Forest cover remained during the climatic cooling of the Little Ice Age, its composition changing to coniferous forest during cooler phases. The prior existence of more extensive forest cover in Javakheti is confirmed by historical sources. According to Vakhushti Bagrationi, spruce and

fir forests grew around Lake Tabatskuri at an altitude of 1900-2000 m during the 17<sup>th</sup> century (Ketskhoveli, 1959, p. 277).

We conclude that the largely treeless landscapes of Javakheti's high plateaux is largely the result of anthropogenic activity in recent centuries. As on the Tsalka Plateau, where human activity was responsible for the present character of the landscape, Javakheti's forest areas were replaced by secondary meadow vegetation with mountain steppe elements. The Tavkvetili beech wood is a rare exception.

Table 3

The content of palynomorphs in the samples taken from soil profile

Tavkvetili. Nr of samples	1	2	3	4	5	6	7	8	9
Depth, cm	0.0	0.65	13.0	16.0	23.0	29.0	36.0	45.0	50.0
AP:									
Abies mordmanniana	2	3	4	3	3	8	10	5	8
Picea orientalis	8	18	16	15	21	4	7	6	12
Pinus	88	107	48	59	63	45	57	43	57
Juniperus					3				
Betula	1	1	1	1				1	
Alnus	5	4	5	2	1		2		1
Fagus orientalis	25	25	1	4	3	2	2	6	11
Carpinus caucasica	34	43	8	7	4	1		4	
Carpinus orientalis	7	7	3						
Quercus	4	26		2	2				
Juglans	3	2							
Corylus	4	4	2	1		1		2	
Tilia	1						1		4
Zelkova			1	1					
Acer		1							1
Rhododendron	8	1	2	5	7			3	2
Vaccinium	1	1	2	1	3				
Sorbus		1							
Ephedra		1							
Total AP	191	245	93	101	110	61	79	70	96
NAP:									
Achillea type	1	1		3		2		1	2
Apiaceae		9	5		6			2	7
Artemisia	7	6	1	2	6			2	4
Aster type	7	11	2	4	1	3	3	4	
Astrantia	1	1	1						
Boraginaceae		8			2	2			
Brassicaceae		5		4	2				
Campanula				1					
Carduus	1	7	2	2	2	2	1		3
Caryophyllaceae	2	5	23	10	11	9	2	6	15
Centaurea	1								1
Centaurea cyanus				2		2			
Centaurea arm									5
Cerealia type	1		2	8		1			2
Chenopodiaceae	50	14	36	20	29	2	5	9	5
Cichorioideae	6				2	2	4		5
Cirsium type		2		2					
Convolvulus	1							1	
Cyperaceae	2	8	5			3			4
Dipsacus									3
Epilobium								1	1
Fabaceae	3	3	4						5
Geranium	1			1	2	1		3	4
Heraclea		1							
Inula	2	2							3
Knautia		2				1	1		2
Onagra			1	1					



Papaver								2	
Plantago m/m	3	2							
Plantago lanceolata	1								
Plumbago							2		
Poaceae	42	13	17	8	3	5	4		17
Polygonum	3	2	1	1		3		3	2
Polygonum aviculare type		3	4	5	1			1	
Polygonum bistorta			1	1	1		1	2	2
Ranunculaceae		3		5	3			2	1
Rosaceae		4		2	4	2			
Saxifragaceae							2		3
Scabiosa								1	
Sparganium			2		4			1	
Triticum type	1		1		1	1			
Typha	1								
Urtica		2							
Valeriana	1	1	1	2		1			2
Xanthium type	3	4							
Undiff.NAP	5			5			4		9
Pteridophyta:									
Adiantum					1				
Asplenium	5	10	1					3	
Bothrichium	2	6	14	4	35	12	22	48	25
Dryopteris	1	3						2	
Polypodiaceae	86	112	123	99	123	506	505	644	560
Polypodium vulgare			2		3			6	3
Lycopodium selago	1								1
Sphagnum		3							
Total NAP	241	253	249	192	242	560	556	744	696
Non pollen fossils:									
Fibers of cotton		4				2	1		5
Parenchime cells of Pinus								2	1
Ascospores		179	42			9	17	13	
Ascospores undiff.		33		10	31				
Sordaria type	2	10	12	20	21		3	1	4
Chaetomium type		6	1						
Arcella	1	2							
Podospora		7	14	30	20				
Brachisporium		170	8	8	18	10			
Coprophyllum ascospores			52						
Sporormiella			20	6	2			1	
Microthyrium		3							
Coprophyllum	100				20				10
Zoomaterials		2							
Claws of Acari				3	6	1	1	2	
Chella Acari				1					
Hair of Acari		2			3				
Acari		2							
Trichura			1						
Total POLLEN FOSSILS	432	498	342	293	352	621	635	814	792
Total NON POLLEN FOSSILS	103	420	150	78	121	22	22	19	20
Total PALYNOMORPHS	535	918	492	371	473	643	657	833	812





## Conclusion

The beech woodland of Mt. Tavkvetili is located in a complex of diverse vegetation. In typological terms, it can be classified as a dead-litter beech forest (**Fageta nuda**). The reproductive viability and health of the population is confirmed by its ability to produce seed, and suggests that the beech woods present in this location are a self-sustaining population of considerable age.

In agreement with its floristic character, zoological investigation showed that Mt Tavkvetili's nematode and oribatid mite fauna exhibit similarities with the fauna of dead-litter beech forest on the Gombori Range.

Pontic Field Voles currently inhabit forests along the Trialeti Range. Their presence in the stand of beech on Mt Tavkvetili suggests that the forest cover of Javakheti and Trialeti was more continuous and interconnected in the past. The Tavkvetili woodland appears to be a complete and functioning forest ecosystem, albeit one that is now an isolated remnant of its former extent. Plant pollen and spores accumulated in the soil profile during the last 2300 years showed that forest vegetation was always present in the vicinity of Mt Tavkvetili.

At the beginning of the Sub-Atlantic period (2500-2300 years ago), when the climate on a global scale was cooler than nowadays, pine forests grew in the region. Beech was mixed with pine.

1500-1400 years ago the climate became warmer and pine-beech forests changed to hornbeam and oak forests. The significance of other heat-loving elements increased at the time of the Medieval Warm Period, which lasted from the 7<sup>th</sup> to 11<sup>th</sup> century and was also global in extent (Le Roy Ladurie 1971; Grove 1997; Ramezani et al. 2008). Then, in the 12<sup>th</sup>-14<sup>th</sup> centuries, the climate of Javakheti cooled and the importance of beech and pine increased.

The most recent warming began in the 15<sup>th</sup> century and lasted nearly 200 years. Though the cooling of the Little Ice Age that took place in the 15<sup>th</sup> century was short, it was very strong and completely destroyed hornbeam and oak forests. In the vicinity of Tavkvetili their place was taken by beech, which has survived on Mt Tavkvetili until now.

Because of its small extent and extreme rarity in the Javakheti landscape, we consider the Tavkvetili beech woodland to be highly endangered. It is imperative that this unique relict ecosystem be immediately conserved and protected from burning, grazing and the other human activities that have destroyed forest areas on many other parts of the Javakheti Plateau.

## References

1. Arabuli G., Mosulishvili M., Murvanidze M., Arabuli T., Bagaturia N., Kvavadze E. (2007): The Colchic Lowland Alder Woodland with Boxwood Understory (*Alnetta barbatae buxosa*) and their Soil Invertebrate Animals. Proc. Georgian Acad. Sci., Biol. Ser. B. Vol. 5, No. 2: 35-42.
2. T. Arabuli. Oribatid Mites (Acari, Oribatida) of Gombori Range Beech Forest. Proc. Georgian Acad. Sci., Biol. Ser. B. Vol. 5, No. 1.: 2006. 23-28.
3. Chuchulashvili N. Soil Nematodes of Sataflia Reserve. Proc. Georgian Acad. Sci., Biol. Ser. B. Vol 5, No.3-4. 2007.
4. Faegi K., Iversen J. 1989. Textbook of Analysis, 4<sup>th</sup> edn, (revised by K. Faegi, P. E. Kaland et K. Krzynski).
5. Ghilarov M. S. (wds). 1987. Numeric Methods in Soil Zoology. Moscow, „Nauka“. (in Russian)
6. Grossheim A. 1948. Vegetational cover of Caucasus. MOIP, Moscow.
7. Grove J. M. 1997. The spatial and temporal variations of glaciers during the Holocene in the Alps, pyrenees, Tatra and Caucasus, In: B. Frenzel (ed). Paleoklimaforschung/Palaeoclimate Research, Gustav Fischer Verlag. Stuttgart-Jena-Lubeck-Ulm, pp. 95-103.
8. Jgenti L., Eliava I., Gigolashvili M., Kuchava M. 2004. For Study of Soil Nematodes of Kintrishi Reserve. Proc. of Institute of Zoology, Vol. 22, 230-241.
9. Ketskhoveli N. 1960. Vegetational cover of Georgia. Metsniereba, Tbilisi.
10. Kvavadze E. V., Connor S. V., Narimanashvili G. K. 2007a. Pleistocenovaia i golotsenovaia istoria razvilia landshftov okrestnostei Tsalki (Iuzhnaia Gruzia) po palinologicheskim dannim oziornikh i pochvennikh obrazovaniu (Late Pleistocene and Holocene history of landscapes of the Tsalka Plateau (Southern Georgia) based on palinological analysis of lake and soil formations). In: G. Mchedlishvili (ed). Problems of Palaeobiology, vol. II. Georgian National Muzeum, Tbilisi, pp. 12-23 (in Russian).
11. Kvavadze E. Kakhiani K., Pataridze N., Connor S. 2007. The Results of Palinological investigation of Paravani Kurgan. Proc. Georgian Acad. Sci. Biol. Ser. B. Vol. 2, 97-107.

12. Kvavadze E., Bagathuria N., Eliava I., Didmanidze E., Murvanidze M., Darejanashvili Sh., Arabuli T., Gurgenzidze L., Japoshvili G., Bardjadze Sh., Gigolashvili M., Tscitishvili E. 2004 To the study of Biodiversity of Invertebrate of Mariamjvari Reserve. Proc. of the Institute of Zoology (Tbilisi, Georgia), Vol. 22, 249-268.
13. Maruashvili L. 1970. Physical Geography of Georgia Tbilisi part 2. (in Georgian).
14. Murvanidze M., Weigmann, G., Tsiklauri Kh. 2003: The Fauna and Ecology of Oribatid Mites (*Acari, Oribatida*) of Algethy Reserve. (Georgia, Caucasus). Bull. of the Georgian Acad. of Sci. 167, No. 1.: 137-140.
15. Le Roy Ladurie E. 1971. Istoria klimata s 1000 goda (The History of climate Muzeum, Tbilisi, pp. 12-23 (in Russian).
16. Ochiauri D. 1965. For Stude of Flora of Pshav-Khevsureti. Tbilisi „Metsniereba“ (in Georgian).
17. Proneli A. (Kipshidze A.) 1991. Great Meskheti. Tbilisi „Marikhi Georgian“ (in Georgian).
18. Ramezani E., Mohamad R., Mohadjer M., Knapp H\_D., Ahmadi H., Joosten H. 2008. The Late-Holocene vegetation history of the Central Caspion (Hyrcanian) ferest of northern Iran. The Holocene, 18. 2, pp. 307-321.
19. Tskitishvili E. 2006. Soil population of Nematodes of Gombori ridge (East Georgia). Proc. Georgian Acad. Sci., Biol. Ser B Vol. 4, No. 3.
20. Troitski N. 1927. Ostatki lesov v Akhalkalakskom uezde. Vestnik Tiflisskogo Botan. Sada. Ser. III, vip. 3 (in Russian).

## CONTENTS

50 წელი მეცნიერების სამსახურში .....	7
50 YEARS FOR SCIENCE .....	9
<b>I. J. Eliava, T. D. Tskitishvili, N. L. Bagathuria, E. T. Tskitishvili, M. Kuchava</b> - List of Free, Plant parasitic and Insect parasitic Nematoda of Georgia. Part IV. Order <i>Dorylaimida</i> Pearce, 1942.....	11
<b>I. J. Eliava, T. D. Tskitishvili, N. L. Bagathuria, M. A. Kuchava, E. T. Tskitishvili</b> - List of Free, Plant parasitic and Insect parasitic Nematodes of Georgia, Part V. Orders: <i>Enoplida</i> Chitwood, 1933; <i>Chromadorida</i> , Chitwood, 1933; <i>Monhysterida</i> De Conick et Schuurmans Stekhoven, 1933; <i>Mononchida</i> Jairajpuri, 1969.....	22
<b>E. Tskitishvili, T. Tskitishvili, M. Kuchava, N. Tsibadze</b> - Some Data about Nematodofauna of Potato and Distribution of Potato Stem Nematode in Southern Georgia.....	29
<b>Bagathuria N., Tskitishvili E.</b> - First Find of <i>Jotonchus Zschokkei</i> (Menzel, 1913) Altherr, 1955 ( <i>Mononchida</i> ) and <i>Mesodorylaimus Derni</i> Loof, 1969 ( <i>Dorylaimida</i> ) in Georgia .....	32
<b>O. Gorgadze</b> - Combined Application of Local Entomopathogenic Nematodes and Bacterial Preparations Against <i>Hyponomeuta Malinellus</i> and <i>Anthonomus Pomorum</i> .....	35
<b>L. Arabuli, L. Murvanidze, L. Zirakishvili</b> - Parasitology and Tropical Medicine .....	38
<b>E. Kakalova, L. Shonia</b> - The Results of Ecological-Parasitological Study of <i>Pseudorasbora Parva</i> Populated in Kumisi Reservoir and Basaleti Lake.....	41
<b>L. Murvanidze, K. Nikolaishvili, Ts. Lomidze</b> - The Annotated List of Amphibian Helminths of Georgia.....	43
<b>K. Nikolaishvili, Ts. Lomidze, N. Melashvili, L. Petriashvili</b> - To the Study of Helminthofauna of Iranian Longlegged Wood Frog <i>Rana Macrocnemis</i> (Boul.) .....	50
<b>L. Murvanidze, Ts. Lomidze, K. Nikolaishvili, E. Jankarashvili</b> - The Annotated List of Reptile Helminthes of Georgia .....	54
<b>E. Kakalovi</b> - Data of Ecological and Parasitological Researches of the Kumisi Reservoir Fish .....	62
<b>G. Sh. Kajaia</b> - To the Study of the Acaroidea Mites (Acariformes) of the North-East Turkey .....	65
<b>E. Kvavadze, T. Arabuli, M. Murvanidze</b> - The Pseudoscorpions (Arachnida: Pseudoscorpions) of Georgia .....	68
<b>T. Arabuli, M. Tskitishvili</b> - Quantitative Dynamic of <i>Cenopalpus Pulcher</i> (Acari: Tenuipalpidae) on the Quince ( <i>Cydonia Oblonga</i> ) .....	74
<b>A. Cholokava †</b> - The Weevil Beetles ( <i>Bhychitidae</i> , <i>Attelabidae</i> , <i>Apionidae</i> , <i>Nopophyidae</i> , <i>Dryophthoridae</i> , <i>Curculionidae</i> ) of Georgia .....	77
<b>G. Chaladze</b> - Checklist of Diving Beetles (Insecta, Coleoptera, Dytiscidae) of Georgia .....	124
<b>N. Gratiashvili, Sh. Barjadze</b> - Checklist of the Ants ( <i>Formicidae</i> Latreille, 1809) of Georgia .....	130

<b>G. Japoshvili, N. Gabroshvili, B. Japoshvili - Scale Insect Pests on Ornamental Plants in City Tbilisi</b> .....	147
<b>I. Skhirtladze - Faunistic List of Bees (<i>Hymenoptera, Halictidae</i>) of Georgia</b> .....	153
<b>E. Didmanidze - An Checklist on the Lasiocampids (<i>Lepidoptera, Lesiocampidae</i>) of Transcaucasus</b> ..	159
<b>N. Sh. Ninua, B. O. Japoshvili - Check List of Fishes of Georgia</b> .....	163
<b>A. Bukhnikashvili, N. Natradze - Geoffroy's Bat (<i>Myotis Emarginatus</i>) in Georgia. Present Status of the Species</b> .....	177
<b>M. Murvanidze, T. Arabuli, N. Bagaturia, I. Eliava, Er. Kvavadze -The Nematodes and Oribatid Mites as Indicators of Urban Environment</b> .....	180
<b>G. Arabuli, E. Kvavadze, D. Kikodze, S. E. Connor, Er. Kvavadze, N. Bagaturia, M. Murvanidze, T. Arabuli - The Krummholz Beech Woods of Mt Tavkvetili (Javakheti Plateau, Southern Georgia) – A Relict Ecosystem</b> .....	194
<b>Contents</b> .....	214





გარეკანის პირველ და მეოთხე გვერდზე — *Liocleonus clathratus* (Olivier, 1807)  
(ფოტო ერისტო ყვავაძისა).

On the Title page and on the fourth page — *Liocleonus clathratus* (Olivier, 1807)  
(photo by Eristo Kvavadze)

გამომცემლობის რედაქტორი  
**ნინო ბელთაძე**

კომპიუტერული უზრუნველყოფა  
**თინათინ ბერბერაშვილი**

ხელმოწერილია დასაბეჭდად 02.08.08  
პირობითი ნაბეჭდი თაბახი 14  
სააღრ.-საგამომცემლო თაბახი 11,62

ტირაჟი 100

შეკვეთა № 78



გამომცემლობა „უნივერსალი“

თბილისი, 0179, ი. ჯავახიშვილის გამზ. 19, ☎: 22 36 09, 8(99) 17 22 30

E-mail: universal@internet.ge