

# Annual Zoological Congress of “Grigore Antipa” Museum

**CZGA**



Annual Zoological Congress  
of "Grigore Antipa" Museum

**23-25 November 2011  
Bucharest - Romania**

## **Book of Abstracts**

**Edited by:**

**Dumitru Murariu, Costică Adam, Gabriel Chișamera,  
Elena Iorgu, Luis Ovidiu Popa, Oana Paula Popa**



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## **DEDICATION**

**CZGA 2011** is dedicated to the memory of

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# CZGA 2011 PROGRAMME

WEDNESDAY, 23<sup>rd</sup> OF NOVEMBER 2011

08:30-12:00

## **Registration**

08:50-09:00

**Dumitru MURARIU** - Welcome and greetings

09:00-09:30

**Dumitru MURARIU, Oana Paula POPA, Irinel E. POPESCU** - In memoriam - Academician Nicolae Botnariuc, Senior researcher Teodor T. Nalbant, Professor Dr. Constantin Pisiică, Dr. Alexandrina Negrea

## **Invited speakers**

09:30-10:15

**Octavian POPESCU** - Glycan diversity – an evolutionary perspective

10:15-11:00

**Ioan COROIU** - Bat overground shelters in Transylvania (Romania)

**11:00-11:30**

## ***Coffee break***

## **Invited speaker**

11:30-12:15

**Boris KRYŠTUFEK** - Process and pattern in small mammal diversity in the Balkan glacial refugium

## **Taxonomy. Faunistics. Zoogeography**

**Chair: Dumitru MURARIU (Bucharest, Romania)**

12:15-12:30

**Luminița BEJENARU, Simina STANC, Mariana POPOVICI** - Archaeozoological perspective on Neolithic migrations in Eastern and South-Eastern Romania

12:30-12:45

**Darko RADMANOVIĆ, Jelena LUJIĆ, Desanka KOSTIĆ, Svetlana BLAŽIĆ** - Fauna diversity of archaeological sites in Vojvodina (Serbia)

12:45-13:00

**Marius SKOLKA, Dan COGĂLNICEANU, Laurențiu ROZYLOWICZ, Gabriel BĂNICĂ, Anca DRAGU, Marian TUDOR, Cristina PREDA, Memedemin DANYIAR** - Fauna of Jiu Gorges National Park

**13:00-14:00**

**Lunch break**

**Chair: György MAKRANCZY (Budapest, Hungary)**

14:00-14:15

**Elżbieta DUMNICKA, Dominika OLSZEWSKA, Marta BISKUP, Katarzyna GAJEK, Damian ZIELONKA, Bronisław W. WOŁOSZYN** - The "Jaskinia na Kamieniu" cave (Poland) as a habitat of invertebrate animals

14:15-14:30

**Ana-Maria KRAPAL, Oana Paula POPA, Elena Iulia IORGU, Marieta COSTACHE, Luis Ovidiu POPA** - Isolation and characterization of new microsatellite markers for the invasive softshell clam, *Mya arenaria* (L.) (Bivalvia: Myidae)

14:30-14:45

**Liviu Aurel MOSCALIUC** - New records for the Romanian spider fauna: *Spermophora senoculata* (Dugès, 1836) (species and genus) and *Xysticus laetus* Thorell, 1875 (species), collected in the Danube Delta

14:45-15:00

**Ileana NEGOESCU, Oana Paula POPA, Luis Ovidiu POPA** - First description of the male of *Leptanthura glacialis* Hodgson, 1910 (Isopoda: Anthuroidea: Leptanthuridae)

15:00-15:15

**Luis Ovidiu POPA, Oana Paula POPA, Lucian PÂRVULESCU, Elena Iulia IORGU** - Population genetics of *Austropotamobius torrentium* (Crustacea: Astacidae) in Romania

15:15-15:30

**Elena Iulia IORGU, Oana Paula POPA, Ana-Maria KRAPAL, Luis Ovidiu POPA** - Isolation and characterization of microsatellite loci for *Isophya stysi* (Orthoptera: Phaneropteridae) and cross-amplification in closely related species

15:30-15:45

**Ionuț Ștefan IORGU, Lucian FUSU** - Bioacoustics and cytogenetics in *Isophya dobrogensis*, a Romanian endemic bush-cricket (Orthoptera: Phaneropteridae)

**15:45-16:15**

**Coffee break**

**Chair: Irinel E. POPESCU (Iași, Romania)**

16:15-16:30

**Ionuț Ștefan IORGU** - Two new bush-cricket species (Orthoptera: Phaneropteridae) from the Carpathian Mountains

16:30-16:45

**Monica AXINI** - The diversity of beetles (Coleoptera) from Conacu-Negrești Valley, South Dobrogea, Romania

16:45-17:00

**Melanya STAN, Eleonora KHOTKO** - Rove beetles (Coleoptera: Staphylinidae) from Berezinsky Biosphere Reserve (Republic of Belarus)

17:00-17:15

**Ştefan-Bogdan DEHELEAN, Milca PETROVICI** - Seasonal dynamics of the ground beetles (Coleoptera: Carabidae) in Cefa Nature Park (North West of Romania)

17:15-17:30

**Corneliu PÂRVU, Lavinia PAUL** - Catalogue of Romanian Dipterans (Insecta: Diptera)

17:30-17:45

**Levente SZÉKELY** - The macrolepidoptera of Central-Dobrogea (Romania)

17:45-18:00

**Irinel E. POPESCU** - Morphological variation of flagellum of two species of Torymidae (Hymenoptera: Chalcidoidea) and some taxonomic implications

18:00-18:15

**Ioan TĂUŞAN, Aurelia-Andreia ŞTEFU, Oana Teodora BOTA, Adriana-Valentina CRAVĂ** - New data concerning the distribution of some sub-Mediterranean ant species (Hymenoptera: Formicidae) from Romania

***18:15-18:30***

***Discussions***

***18:30-19:00***

***Poster session***

THURSDAY, 24<sup>th</sup> OF NOVEMBER 2011

08:30-12:00

**Registration**

**Invited speakers**

09:00-09:45

**Dan MUNTEANU** - Principles and rules of the International Code of Zoological Nomenclature

09:45-10:30

**Imad CHERKAOUI, Vincent DEVICTOR** - Introduction to landscape ecology concept: Effects of distance between forest patches and landscape matrix on bird communities in a highly fragmented forest (Ma'amora cork oak forest - Morocco)

***10:30-11:00***

***Coffee break***

## Invited speakers

11:00-11:45

**Abraham bij de VAATE, Myra SWARTE** - Recent introductions of nonindigenous macroinvertebrates in West-European inland waters

11:45-12:30

**Victor SURUGIU** - Assessment of the marine environmental quality using polychaetes – challenges and approaches

## Ecology

### Chair: Ioan SÎRBU (Sibiu, Romania)

12:30-12:45

**Ioan SÎRBU, Ioana GOGOLINCĂ** - Using *Unio crassus* Philipsson, 1788 (Bivalvia: Unionidae) as a valuable tool for rivers' ecological state assessment; case study - the Hârțibaciu River (Olt River Basin, Transylvania, Romania)

12:45-13:00

**Eugen NIȚU, Augustin NAE, Raluca BĂNCILĂ, Ionuț POPA, Andrei GIURGINCA, Rodica PLĂIAȘU, Ioana NAE** - Arthropod community structure and environmental correlates in the mesovoid shallow substratum (MSS) of scree habitat in the „Piatra Craiului” National Reserve, Romania

**13:00-14:00**

### Lunch break

14:00-14:15

**Jabraeil RAZMJOU, Maryam PAHLAVAN YALI, Mohammad KHANJANI** - Biological studies including life history study of *Tetranychopsis horridus* (Canesterini & Fanzago) (Acari: Tetranychidae) under laboratory conditions

14:15-14:30

**Miroslav PAPÁČEK** - Growth strategies of the water bugs (Heteroptera: Nepomorpha, Gerromorpha) in relation to their life cycles

14:30-14:45

**Lavinia PAUL, Corneliu PÂRVU, Ana-Maria KRAPAL** - The importance of the necrophagous insects (Diptera, Coleoptera) in the organic matter decay within different conditions of exposure to the control factors (Romania)

14:45-15:00

**Zoltán LÁSZLÓ, Béla TÓTHMÉRÉSZ** - Testing the enemy hypothesis: the case rose galls

15:00-15:15

**Iulian GHERGHEL, Alexandru STRUGARIU, Ștefan R. ZAMFIRESCU, Ioana-Mădălina AMBROSA, Irinel E. POPESCU** - Microhabitat selection and feeding ecology of the *Ablepharus kitaibelii* populations in Northern areal limit

15:15-15:30

**Grzegorz KŁYS, Bronisław W. WOŁOSZYN** - Possibilities of modeling of underground systems as bats' hibernacula

15:30-15:45

**Ana Maria BENEDEK, Ioan SÎRBU, Anca BUCUR, Victoria COCIȘ, Adrian RĂULEA, Adriana VORNICU** - Small mammals' communities in a mosaic landscape from southern Transylvania, Romania

15:45-16:00

**Romulus-Marian PAIU, Manuela Diana SAMARGIU, Mihaela CÂNDEA, Eugen ANTON** - New data on bycatch and strandings of the Black Sea cetacean situation in the Romanian coast, and measures to limit bycatch deaths/fatalities

16:00-16:15

**Andrea Cristina STAICU, Lotus Elena MEȘTER, Anca DINISCHIOTU** - Contributions to the scientific study of physiological and molecular bases of mammal hibernation and their practical applications

**16:15-16:45**

***Coffee break***

### **Parasitism in the animal kingdom**

**Chair: Doina CODREANU-BĂLCESCU (Bucharest, Romania)**

16:45-17:00

**Mykola OVCHARENKO, Doina CODREANU-BĂLCESCU, Karolina BAÇELA-SPYCHALSKA, Piotr WRÓBLEWSKY** - New data on the distribution of unicellular parasites along central corridor of trans European migration of Ponto-Caspian gammarids (Crustacea: Amphipoda)

17:00-17:15

**Ana Maria BENEDEK, Gabriela VORNICU** - Ectoparasite infestation of rodents in Hârtibaciu Plateau, Romania

17:15-17:30

**Bilal DİK, Ali HALAJIAN** - Chewing lice of wild birds in Iran, with new records

17:30-17:45

**Costică ADAM, Gabriel CHIȘAMERA, Viorel POCORA** - Chewing lice (Phthiraptera: Amblycera, Ischnocera) from wild birds - Taxonomical and parasitological novelties

**17:45-18:00**

**Discussions**

**18:00-18:15**

**Poster session**

**18:45-20:00**

**Visit of the new permanent exhibition of “Grigore Antipa” National Museum of Natural History**

**20:00-22:30**

**Gala Dinner**

FRIDAY, 25<sup>th</sup> OF NOVEMBER 2011

08:30-12:00

**Registration**

### **Invited speakers**

08:30-09:15

**Dan MUNTEANU** - Some zoology professors' personality evocation of the “Babeş-Bolyai” University of Cluj-Napoca (Romania)

09:15-10:00

**Anca DINISCHIOTU, Andreea Cristina STAICU** - Fish-animal model in biomedical research

10:00-10:45

**Marius SKOLKA** - Invasive species in Romania

**10:45-11:15**

***Coffee break***

### **Invasive species**

**Chair: Marius SKOLKA (Constanța, Romania)**

11:15-11:30

**Teodora A. TRICHKOVA, Dimitar S. KOZUHAROV, Zdravko K. HUBENOV, Lubomir KENDEROV, Ivan S. BOTEV, Svetoslav D. CHESHMEDJIEV, Oana P. POPA, Luis O. POPA** - Recent distribution of *Dreissena* species in Bulgaria

11:30-11:45

**Lucian PÂRVULESCU** - Current threats of indigenous crayfish species in Romania

11:45-12:00

**Cecilia ȘERBAN** - *Leptoglossus occidentalis* Heidemann, 1910 (Heteroptera: Coreoidea): a new record for the invasive true bugs fauna of Romania

12:00-12:15

**Maria-Magdalena DASCĂLU, Rodica SERAFIM** - *Trichoferus campestris* (Faldermann, 1835): an alien longhorn beetle in Romania



## Taxonomy. Faunistics. Zoogeography

### Chair: Bronisław W. WOŁOSZYN (Krakow, Poland)

12:15-12:30

**Andreea DUDU, Sergiu-Emil GEORGESCU, Marieta COSTACHE** - DNA markers in the Danube sturgeons

12:30-12:45

**Sergiu-Emil GEORGESCU, Andreea DUDU, Marieta COSTACHE** - Molecular markers in Romanian salmonids

12:45-13:00

**Simona STAVRI, Otilia ZĂRNESCU** - Comparative aspects of tail fin regeneration in *Corydoras aeneus* and *Carassius auratus gibelio*

**13:00-14:00**

### **Lunch break**

14:00-14:15

**Dumitru MURARIU** - Mammal fauna (Mammalia) from Curvature Carpathians – Romania

14:15-14:30

**Edoardo VERNIER, Bronisław W. WOŁOSZYN** - Presence and abundance of Rhinolophidae (Mammalia: Chiroptera) in N. E. Italy

## Biodiversity Conservation

### Chair: Ioan COROIU (Cluj-Napoca, Romania)

14:30-14:45

**Alexandru STRUGARIU, Ștefan R. ZAMFIRESCU, Oana ZAMFIRESCU, Iulian GHERGHEL, Tiberiu C. SĂHLEAN, Constantin ION, Irinel E. POPESCU, Lucian GORGAN** - Conservation biology of the critically endangered Moldavian meadow viper (*Vipera ursinii moldavica*): an integrative approach

14:45-15:00

**Ioan COROIU, Alin DAVID, Corina IȚCUȘ, Anda CULIȘIR, Lucian BARBU-TUDORAN** - Structure and multiannual dynamics of winter colonies of bats in Peștera cu Apă din Valea Leșului Cave (Apuseni Mountains, Romania)

15:00-15:15

**Corina IȚCUȘ, Ioan COROIU, Alin DAVID, Anda CULIȘIR** - Long term dynamics of bat species colonies from Bulz Water Cave (Bihor County, Romania)

15:15-15:30

**Anda CULIȘIR, Ioan COROIU, Regina KLÜPPEL, Gerd MÄSCHER, Antje SEEBENS, Frauke KRÜGER, Corina IȚCUȘ** - Pattern for the conservation of a Greater mouse-eared bat (*Myotis myotis*) nursery colony in a man-made overground roost

15:30-15:45

**Silviu CHIRIAC, Radu Mihai SANDU, Matei Ionuț DRAGOMIR** - The analysis of favourability factors that determine choosing of dens by brown bears in south-eastern part of the Eastern Carpathians

15:45-16:00

**Ioan Mihai POP, Leonardo BERECZKY, Cosmin STÂNGĂ** - The analysis of the scores awarded to the trophies of brown bear skulls in the south-eastern part of the Eastern Carpathians - reflection on the wildlife management

16:00-16:15

**Maria Rodica OȚELEA, Stelian BĂRĂITĂREANU, Mihaela ZĂULEȚ, Fănel OȚELEA, Doina DANEȘ** - Biodiversity Conservation in the Rams Genetic Selection Programs for Scrapie

**16:15-16:45**

***Coffee break***

**Studies and recovery of the natural history museum patrimony**

**Chair: Dumitru MURARIU (Bucharest, Romania)**

16:45-17:00

**Iorgu PETRESCU, Ana-Maria PETRESCU** - Catalogue of crustacean collection of "Grigore Antipa" National Museum of Natural History from Bucharest. Part I.

17:00-17:15

**Angela PETRESCU, Gabriel CHIȘAMERA, Ana-Maria PETRESCU** - Ornithological collection of "Grigore Antipa" National Museum of Natural History of Bucharest – Catalogue of the egg collection

17:15-17:30

**Radu Ștefan PANĂ, George-Ștefan NĂZĂREANU, Bogdan Alexandru FRĂȚILĂ** - Working steps for mounting small mammals

17:30-17:45

**Iorgu PETRESCU** - Catalogue of Theodor Adensamer's donation (Austria) to the Museum of Natural History from Bucharest

17:45-18:00

**Angela PETRESCU, Iorgu PETRESCU** - Donation of Kingdom of Sardinia and Piedmont to the National Museum from Bucharest

18:00-18:15

**Iorgu PETRESCU** - Ethnographic pieces donated by Hilarius Mitrea to the Museum of Natural History from Bucharest

**18:15-18:30**

**Discussions**

**18:30-19:00**

**Poster session**

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## Poster Presentations

### Taxonomy. Faunistics. Zoogeography

**P 01.**

**Darko RADMANOVIĆ, Jelena LUJIĆ, Desanka KOSTIĆ, Svetlana BLAŽIĆ** - Fauna of Early and Late Iron Age in Sites of Vojvodina (Serbia)

**P 02.**

**Darko RADMANOVIĆ, Jelena LUJIĆ, Desanka KOSTIĆ, Svetlana BLAŽIĆ** - Fauna of Neolithic Sites in Vojvodina (Serbia)

**P 03.**

**Simina STANC, Luminița BEJENARU, Mariana POPOVICI** - Beaver (*Castor fiber*) remains in archaeological sites from Romania: archaeozoological approach

**P 04.**

**Simina STANC, Luminița BEJENARU** - Pigs' husbandry (*Sus scrofa domestica*) in East and South-East of Romania over the past two millennia: archaeozoological data

**P 05.**

**Voichița GHEOCA, Ioan SÎRBU** - Considerations on terrestrial gastropod assemblages of deciduous forests and limestones of the Ciucaș Mountains

**P 06.**

**Ștefan-Bogdan DEHELEAN, Thomas SCHMIDT, Lucian PÂRVULESCU** - Preliminary data on the distributions of three Branchiobdellidae species: *Branchiobdella parasita*, *Branchiobdella pentodonta* and *Branchiobdella balcanica* (Annelida: Citellata) in Romania

**P 07.**

**Omid JOHARCHI, Bruce HALLIDAY, Alireza SABOORI, Hadi OSTOVAN** - Identification of Laelapidae (Acari: Mesostigmata) associated with insects and soil in Iran

**P 08.**

**Mohammad KHANJANI** - Study on Biology of Brown Mite, *Bryobia rubrioculus* (Scheuten) (Acari: Tetranychidae) in Plum, Sweet Cherry and Black Cherry Orchards in Hamedan province (West of Iran)

**P 09.**

**Fahimeh MAHMOUDI, Alireza SABOORI, Alireza SARI, Masoud HAKIMITABAR** - A synonymy in the genus *Erythraeus* (Acari: Trombidiformes: Erythraeidae)

**P 10.**

**Mostafa MIRZAIE, Mohammad Ali AKRAMI, Karim HADDAD IRANI-NEJAD** - New records for Iran fauna: one subgenus and three species of the family Oppiidae (Acari: Oribatida)

**P 11.**

**Mostafa MIRZAIE, Mohammad Ali AKRAMI, Karim HADDAD IRANI-NEJAD** - Three species of the family Suctobelbidae (Acari: Oribatida), new records for Iran fauna

**P 12.**

**Constanța-Mihaela ION** - Some Mediterranean centipede species (Myriapoda: Chilopoda) from the collections of “Grigore Antipa” National Museum of Natural History [Results of “Atlas” 2007, “Bolkar” 2009 Expeditions]

**P 13.**

**Amir KHADEMPUR, Mehdi ESFANDIARI, Arsalan JAMSHIDNIA** - Aquatic insects of Karun River at Ahvaz city, SW Iran

**P 14.**

**Elena Iulia IORGU, Ionuț Ștefan IORGU** - Distribution of *Isophya stysi* in Romania (Orthoptera: Phaneropteridae)

**P 15.**

**Ionuț Ștefan IORGU** - Bush-crickets, crickets and grasshoppers (Insecta: Orthoptera) from Letea Sand Bank (the Danube Delta Biosphere Reserve)

**P 16.**

**Gavril Marius BERCHI, Milca PETROVICI, Mălina DUMBRAVĂ-DODOACĂ** - *Arctocoris carinata* (Heteroptera: Corixidae) rediscovered after eighty years in Retezat National Park (Romania)

**P 17.**

**Daniel Kazimir KURZELUK** - The first recording of the species *Allonyx quadrimaculatus* (Schaller, 1783) (Insecta: Coleoptera: Cleridae) for Romania

**P 18.**

**Daniel Kazimir KURZELUK** - Zoogeographical and distributional analysis of the checkered beetle (Coleoptera: Cleridae) faunas of Romania and the neighbouring countries

**P 19.**

**Mihaela CRISTESCU** - Data concerning the butterflies (Lepidoptera: Rhopalocera) from the Breana Roșcani Forest Nature Reserve, Galați (Romania)

**P 20.**

**Constantin CORDUNEANU, Cătălin-Dumitrel BĂLAN, Ovidiu-Alin POPOVICI, Petru BULAI, Ioan SURUGIU** - New records of Noctuidae (Insecta: Lepidoptera) from North-East Romania

**P 21.**

**Viktor VASILEV, Ivaylo RAYKOV, Veselina RAYKOVA, Dimitar DIMITROV** - New data on the distribution of Snad lizard (*Lacerta agilis* Linnaeus, 1758) in South Dobrudja, Bulgaria

**P 22.**

**Viorica ARCAN** - Preliminary data regarding the ornithofauna of “Breana Roșcani” Protected Natural Area (Galați County)

**P 23.**

**Mircea GOGU-BOGDAN, Constantina CHIRECEANU, Voicu BOȘCAIU** - Dynamics of ornithological fauna along the Black Sea Shore in the Danube Delta

**P 24.**

**Angela PETRESCU, Gabriel CHIȘAMERA, Viorel POCORA** - Colour aberration of the bird plumage recorded in Romania

**P 25.**

**Ioan COROIU, Oana CHACHULA, Lotus Elena MEȘTER** - Bats Ossuary in Bulba Cave, Mehedinți County (Romania)

**P 26.**

**Georgiana MĂRGINEAN, Vasile-Alexandru STOICA** - Bats (Mammalia: Chiroptera) of Racovița village and its surroundings (Făgăraș Depression, Transylvania)

**P 27.**

**Sergiu Emil GEORGESCU, Gheorghe HRINCĂ, Marieta COSTACHE** - Molecular diagnostic tests in Romanian sheep breeds

## **Systematics and Evolutionism**

**P 28.**

**Maryam PAHLAVAN YALI, Jabraeil RAZMJOU, Mohammad KHANJANI** - Study on mites associated with forests in north-west Iran

**P 29.**

**Andrei GIURGINCA, Vladimir SISTR, Karel TAJOVSKY** - SEM description of the *Mesoniscus graniger* mouthparts – implications for the systematics of the family Mesoniscidae (Oniscidea, Crustacea)

**P 30.**

**Ana-Maria MIHĂLCESCU** - A hypothetical phylogeny of some Ponto-Caspian neogobiin species (Gobiidae, Perciformes)

## **Ecology**

**P 31.**

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## IN MEMORIAM

Academician **Nicolae Botnariuc,**

Senior researcher **Teodor T. Nalbant,**

Professor Dr. **Constantin Pisiță,**

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# **INVITED SPEAKERS**



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## Introduction to landscape ecology concept: Effects of distance between forest patches and landscape matrix on bird communities in a highly fragmented forest (Ma'amora cork oak forest - Morocco)

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**Key words:** Bird communities, habitat patches, Landscape matrix, cork oak, non-indigenous plantations, landscape corridors, Sorensen and Jaccard indexes.

The cork oak forest of Ma'amora in north-western Morocco was the largest cork oak forest in the world until the beginning of the 20th century. Due to growing land use for agriculture and urbanization, however, this forest has become fragmented into relatively small and isolated patches. The effects of this fragmentation on the diversity of wild animal communities have never been investigated despite the importance of such investigations in elaborating long-term conservation plans of the biodiversity of this forest system.

In this study, we examined the effects of structural connectivity between pure cork oak patches and non-indigenous plantations plots. We also studied the effect of the distance between the cork oak forests patches on Ma'amora forest bird communities.

A systematic sampling of habitats and bird communities was carried out in a set of 44 cork oak patches. We estimated that a long-term monitoring of auditory and visual demonstrations of birds using point counts may provide useful data on species movements in forest corridors between fragments and in the surrounding matrix.

The mosaic approach considers fragments as part of a complex landscape composed of habitat patches of varying quality.

The Ma'amora forest currently covers about 60,000 ha, very fragmented; it is integrated in a matrix of exotic plantations composed of *Eucalyptus* sp. and *Acacia cyanophylla* which covers an area of 130,000 ha. Then, we defined Ma'amora forest as (cork oaks + non-indigenous plantations). We calculated similarity indexes: Sorensen (Is) and Jaccard (IJ) using the COMDYN program for different bird communities according to their phenology of migration and their sensitivities vis-à-vis the forest as a habitat. The two indexes and the terms of autocorrelation known as *Autocor* were used to calculate the effect of distance on different bird communities. The recruitment of forest birds in the different patches of cork oak has been studied depending on the type of the matrix using ANOVA tests.

The results indicate that there is no significant effect of distance on the different bird communities studied, whereas the landscape composition of the matrix had a very significant effect on bird dispersal. We concluded that the type of vegetation near the cork oak forest fragments had a significant effect on the composition of their bird communities. This would temporarily reduce the effects of fragmentation.

This study emphasizes the importance of considering species' perceptions of landscape, especially functional connectivity, in understanding the effects of habitat fragmentation.

## Bat overground shelters in Transylvania (Romania)

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**Key words:** overground bat shelter, *Myotis myotis*/*M. oxygnarthus*, *Nyctalus noctula*, *Vespertilio murinus*.

Bats and especially their protection in Europe are of particular interest for several reasons, two of which we believe are most important: a) deep alteration of habitats in which they live (pollution as a consequence of excessive industrialization, intensive and chemical agriculture, deforestation, speleotourism, etc.) and b) a natural vulnerability of these flying mammals. Of course, there are comprehensive studies on the types of under- and overground shelters of bats, both in the active period and during winter. But we think that in Transylvania there are some features of overground shelters, consequence of the Romanian historical province, type of agriculture practiced and landscape induced a large diversity of habitats. 1. Churches are most important overground shelters of bats in the active period. The most suitable are those in the Saxon Area which were abandoned during the emigration of the Sachs in the 1970s. A large number of Hungarian, Romanian and even Ruthenian churches have significant colonies of bats (hundreds or thousands of individuals) belonging to the species *Myotis myotis*/*M. oxygnarthus*, *Nyctalus noctula*, *Vespertilio murinus* etc. It is worth noting that these colonies (always in attic and/or tower) are related to the architectural style of churches, which are found only in the Neo-gothic and the Renaissance style. Lately, it was reported that a growing number of colonies has been destroyed due to the works of restoration of churches and lack of a coherent and effective protection of bats. This has not been reported in colonies of the Maramureş wooden churches and of the Byzantine style churches. 2. Summer and winter shelters in the earthquake prevention gaps of residential collective buildings. All colonies of this species belong to shelter Noctule bat and their number and size depends on the trophic offer of cities and surroundings. The shelters are the most vulnerable due to the permanent contact with humans and their “natural” reaction against bats. 3. “Double glazing hysteria” is a recent phenomenon in the old neighborhoods of cities, where classical windows are replaced by double-glazed windows, a process in which summer and winter shelters that house major colonies of Noctule bats are open and destroyed. Removal of the great number of colonies (especially in winter!) shows the

extent of the phenomenon. 4. Old oak (“veteran tree”) plantation shelters are important, especially for the summer, due to their very high number and the fact that they are always surrounded by feeding habitats. They are a characteristic of the Saxon Area, because they are less than 600-700 years old, they offer a large number of hollow trees for bats (*Myotis myotis*/*M. oxygnarthus*, *Nyctalus noctula*, *Barbastella barbastellus*). The value of these plantations must be related to the fact that the land in this area is almost abandoned, pesticides have not been used for several decades, which had a significant impact on the growth of the bat populations.



## Fish-animal model in biomedical research

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**Key words:** fish, toxicology, mutations.

Nearly three decades ago, various economic and scientific pressures were demanding more efficient and less expensive whole animal toxicology screening methods as well as ways to reduce the use of mammals in research. Due to bioethical considerations, it became imperative that animals that are lower on the phylogenetic tree be used in research, alongside in vitro tests, chemical reactions and computer models. In this context fish provided attractive models for basic and applied research. Small fish species have proven useful both as environmental sentinels and as versatile test animals in toxicity and disease development studies. They can be easily generated in large numbers of individuals, while inbred stocks and standard strains are commercially available and have the ability to make genetic crosses among phenotypically diverse fish. There are reasonably well-marked gene maps for some species and genetic mechanisms that correspond to rodent and human models. Low maintenance and bioassay costs also count as attractive attributes.

The zebrafish (*Danio rerio*) is a popular candidate for mouse substitute, as it is an excellent tool for developmental and genetic studies. Development of fish models carrying identical transgenes to those found in rodents is beneficial and has revealed that numerous aspects of in vivo mutagenesis are similar between the two classes of vertebrates. Researchers have revealed that fish exhibit frequencies of spontaneous mutations similar to rodents and respond to mutagen exposure consistent with known mutagenic mechanisms. Results have demonstrated the feasibility of in vivo mutation analyses using transgenic fish and have illustrated their potential value as a comparative animal model. Medaka (*Oryzias latipes*), zebrafish, and to a lesser extent rainbow trout (*Oncorhynchus mykiss*), were used for studies on the development and prevention of liver cancer.

Interspecific crosses involving several species of the *Xiphophorus* genus were used to study the induction of malignant melanoma by UV radiation.

Nowadays, limitations of aquatic resources have become obvious and aquaculture has become more and more important. The major decrease of Atlantic cod (*Gadua morhua*) wild populations led to the development of cod aquaculture. In order to improve the quality of broodstock, functional genomics data were necessary and were obtained through specific oligonucleotide microarray.

## **Process and pattern in small mammal diversity in the Balkan glacial refugium**

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**Key words:** Quaternary, species richness, biodiversity, Rodentia, Soricomorpha, phylogeography.

Over the last two million years of Quaternary climatic oscillations, the Balkan Peninsula was one of the major European refuges for temperate biota. The current biodiversity of the region is to a large extent the legacy of the Pleistocene environmental dynamics. Historical processes of divergence, population change, persistence in refuges, and migrations all leave their footprints in the genealogies of species and populations, making them traceable.

Mammal fauna of the majority of the Balkan Peninsula shows affinities with Central Europe and only about 20% of the area ties more closely to Asia Minor. Area-adjusted species richness is significantly higher for the Balkan Peninsula than for the rest of Europe, but significantly less than that of the Near and Middle East. The latitudinal pattern of species richness within the Peninsula shows a humped curve with a peak at ca. 40°N. Hot spots in mammal species richness coincide with the mountains, specifically with the topographically rough terrains along the western Balkan coast (the southern Dinaric Alps and the Šara-Pindhos Mts.), the Rila-Rhodopes Mts., and the Balkan mountain chain. Spatial patterns differ between groups and bats are the most distinct. The more mammal species are per unit area, the lower the proportion of bats tends to be. Species density declines sharply in the Peloponnesus Peninsula, and the number of rodents matches closely, its estimation being an island rather than part of the mainland. Hot spots in endemism (in the southern Dinaric Alps and the northern Šara-Pindhos Mts.) coincide with those of species richness.

The climatic changes during the glacial-interglacial cycles of the Pleistocene era have caused repeated range shifts in most European taxa. Due to the limitation of suitable habitat during glacial maxima, temperate species must have endured such periods in geographically restricted refugial areas. At the end of the Last Glacial Maximum, some refugial populations with divergent genomes remained restricted to their former glacial refuges, whereas others expanded. A traditional explanation advocates a crucial role of Mediterranean refuges and south-to-north oriented postglacial re-colonization routes. The

competing hypothesis points out the role of Mediterranean refuges as sites of endemism and the importance of refuges in central and eastern Europe in the recolonization process. Majority of recent phylogeographic studies provides supportive evidence for later hypothesis. Because of their restricted dispersal and narrow habitat requirements, small mammals provide a suitable group in assessing the legacy of the glacial-interglacial dynamics. Various species show very different phylogeographic patterns which mostly probably reflect a wide diversity in biogeographical processes operating over the peninsula. The Balkans harbour endemic phylogeographic lineages for various ecological groups, therefore suggesting considerable habitat heterogeneity throughout the last two million years of glacial-interglacial dynamics.

The impact of glaciations on speciation continues to be a disputed topic. While some studies suggest that the entire Pleistocene, including the last two glacial cycles, was important for speciation, others claim that speciation and extinction rates remained constant and that speciation events extended over the past 5 Myr. Application of molecular clock on sister species of small mammals suggests that their divergences predate the onset of the Quaternary glaciations.

## Principles and rules of the International Code of Zoological Nomenclature

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**Key words:** International Code of Zoological Nomenclature, rules, taxa.

For the time being, the 4th edition of the *International Code of Zoologic Nomenclature* (ICZN), published in 1999, is in operation. My communication presents the base regulation which the code establishes, whose global objective is the promotion of the stability and universality of the scientific names of animals, so the name of each taxon to be unique. The themes and essential ideas of the Code are underlined:

- Definition of the zoological nomenclature. Its purpose.
- The independence of the zoological nomenclature in front of other nomenclatural systems.
- Starting point of the zoological nomenclature and the statute of the names published before it.
- The number of words in the scientific names of animals. Principle of Binominal Nomenclature. Uninominal names (genus, family), three-nominal names (subspecies).
- Criteria of publication of the nomenclatural papers.
- Criteria of availability of scientific names, for the subspecies, species, genus and family names.
- Publication date; its setting out when the date is not clearly specified.
- Validity of names and nomenclatural acts.
- Principle of Priority.
- Formation and treatment of names of different ranks; etymology of names, their spelling (original and subsequent spellings), correction of the incorrect names.
- Family-group nominal taxa and their names.

- Genus-group nominal taxa and their names.
- Species-group nominal taxa and their names. Principle of Coordination among the names within the same group of taxa (group-family, group-genus, group-species).
- Authors of names and nomenclatural acts, and their citing methods.
- Definition of Homonymy and the Principle of Homonymy.
- The type concept in nomenclature. Principle of Typification. Types in the family-group, in the genus-group, in the species-group. Name-bearing type. Holotype, syntype, lectotype, neotype. Type locality.

It is strongly specified the necessity of respecting the ICZN stipulations by all authors who deal with aspects of zoological taxonomy, in a smaller or larger degree, presented in the 76 articles; also they have to take into account the recommendations inserted between articles.

## Some zoology professors' personality evocation from "Babeş-Bolyai" University of Cluj-Napoca (Romania)

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**Key words:** professor, zoology, university, Cluj.

In the tradition of the recognition and specifying the personalities, who proved to be professors and researchers of a certain value in the near past, the author evokes the zoology professors of the period when he was student at the "Victor Babeş" University of Cluj (which fused with "Bolyai" University, of Hungarian language) and of the next period, as he saw them then and understand later.

**Prof. Vasile Gh. Radu** (1903-1982), originating in Bacău County, came in Cluj in 1940 as University professor, after he was subsequently junior assistant, assistant, laboratory chief and lecturer, between 1926-1940. Later, he became the chief of the Zoology and Comparative anatomy Chair (1948-1973) and, at the same time, director of the Zoological Museum of Cluj (subordinated to the University). As a result of the Vienna Dictate (30<sup>th</sup> of August 1940), we remind that between 1941-1945 the University of Cluj was obliged to leave North Transylvania, and the faculty of Natural Sciences withdrew in Timișoara. Prof. V. Radu taught invertebrate zoology, firstly editing his course in a lithographed variant, then in a printed one (2 volumes, 1958, 1962). His studies focused mainly on Isopoda group, especially on morphologic-anatomical aspects, in this field publishing numerous papers. He created and led a team of pedo-biology. He was corresponding member of the Romanian Academy.

**Conf. Varvara Radu** (1907-1962), was born in Basarabia; she was Professor V. Gh. Radu' wife. She began her educational career in Iași, at the Chair of vegetal physiology, continuing at the University of Cluj since 1940, where she changed her preoccupation and directed to the animal biology, presenting courses of invertebrate zoology, histology and of embriology (in the didactic department of the faculty) as well as that of parasitology (in the scientific department). As researcher, she dealt mainly with cytology and morphology in some certain invertebrate groups (Isopoda, Chalcididae, Proctotrupidae, Muscidae), signing

numerous contributions in this field. She is the co-author of the “*Zoologia nevertebratelor*” [Invertebrate Zoology], where the senior author was Professor V. Gh. Radu.

**Prof. Victor Pop** (1903-1976) was born in Bistrița-Năsăud County, and began his activity as a high-school teacher in Bistrița, Carei and Cluj (1931-1945), but, at the same time, he also was employed at the University, where he passed through all hierarchical stages up to that of University professor (1962). He presented courses of general biology, histology and embryology, of vertebrate zoology. His course of vertebrate zoology, remarkable by the importance he had given to anatomy, was lithographed in 1959-1962, and for the “official” course of zoology, he published at the Educational and Pedagogical Publishing House (authors: Z. Feider, Al. Grossu, St. Gyurko, V. Pop - 1962), Professor Pop edited the chapters *Reptiles* and *Birds*. His entire researching activity focused on Lumbricidae study, in this field becoming a famous specialist all over the world.

**Prof. Zachiu Matic** (1924-1994) was born near Făgăraș, but his forefathers being Greek, he was employed at the University as soon as he graduated it (1949), becoming professor in 1970. For a while, his courses were on the invertebrate zoology for the Didactic Department of the Faculty of Natural Sciences and at the Pedagogic Institute of Cluj (also, courses of general entomology, apiculture, breeding of the useful insects, techniques of the preparation of the educational material, invertebrate zoology), and after the professor Radu retired (1973), he took over his course at the university. He published alone or in collaboration several courses and guides for practical laboratory work. He was appreciated abroad for his serious studies on Chilopoda (Miriapoda) of Romania and of other territories (Iberian Peninsula, Majorca, Malta, Italy, France, Bulgaria, Greece, Yugoslavia, Austria, Turkey, Algeria, Korea, Ethiopia, Cuba). He is the author of the Fascicle *Chilopoda* of the series “*Fauna R.S. România*”.

**Prof. Traian Ceuca** (1921-1996) was born in Salva (Bistrița Năsăud County); he was employed as a junior assistant at the Zoology Chair in 1946, retiring in 1986, as professor. At the beginning of his career he held courses of vertebrate zoology, and after Professor Victor Pop’s retiring he held this course at the faculty of Biology. In collaboration, he published two courses of vertebrate zoology (1957, 1981-1983) and one of palaeontology with elements of zoology (1976), but his scientific interest directed towards diplopods (Miriapoda), a groups about which he published several papers in scientific journals. The paper which was to be published in the series “*Fauna României*” remained in manuscript.

**Prof. Bogdan Stugren** (1928-1993) was born in Reghin; he was professor in the University of Cluj since 1951 till the end of his life. He began his scientific career as zoologist, in the herpetological field, publishing several papers on amphibians and reptiles till 1965, in some of them applying statistical-mathematical methods for analyzing the variability of the animal populations, for the first time in Romania. At the beginning of his career he held courses of invertebrate zoology with some groups of students, then he taught the course of general biology (since 1981) and that of ecology. Bogdan Stugren mainly distinguished by his studies and papers on theoretic ecology, which became reference papers for the biologists who wanted to initiate in this field in the years '70s - '80s (posthumous volume, "*Ecologie teoretică*" [Theoretical Ecology], 1994).

**Prof. Orest Marcu** (1898-1973) was born in Rădăuți, and his university studies carried on at the University of Cernăuți, where he was appointed assistant and later lecturer. Between 1940-1947 he was appointed professor at the University of Iași, and then transferred to Cluj (1950-1963). At least in the '50s, he had not a didactic norm, but he worked and had a laboratory in the building of the Faculty of Natural Sciences. He was a prodigious entomologist, who studied the insect morphology and anatomy, on the one hand, and on the other one the insect biology, mainly focusing on forest injurious insects and to forest economy. He wrote and published most of his papers in German, many of them even in Germany (especially before the World War II). When he retired, he donated to the Museum of Zoology of Cluj his insect collection.

To all of them, the disciples have to be very much obliged.



## Glycan diversity – an evolutionary perspective

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**Key words:** glycan, glycan diversity, evolution.

All cells are assembled from four building blocks: nucleic acids, proteins, lipids and carbohydrates or glycans. As the other biopolymers, glycans are characterized by a significant diversity responsible for many biological functions in living organisms. They correspond to a very important part of the earth biomass, mostly as cellulose from plants, and chitin from arthropods and fungi. The glycobiology (study of glycans), for a long time a Cinderella of biological research, has entered now an era of renaissance strongly correlated with the rapid development of structural and functional genomics, on one hand, and with the extraordinary progresses in genetic technologies, on the other hand. The exact composition and assembly of monosaccharides in the structures of different glycans can vary to a great extent from species to species. Every day, our knowledge regarding natural glycan diversity is constantly increasing. The metazoan glycoconjugates are combinations of six monosaccharide classes: sialic acids (*N*-acetylneuraminic acid, *N*-glycolylneuraminic acid), hexoses (glucose, mannose, galactose), hexosamines (*N*-acetylglucosamine, *N*-acetylgalactosamine), deoxyhexoses (fucose), pentoses (xylose), and uronic acids (glucuronic acid, galacturonic acid, iduronic acid). The discontinuous distribution of glycans across different evolutionary lineages fall in four general models [Varki, 2006; Bishop and Gagneux, 2007]: (i) conserved glycans across many taxa; (ii) specific glycans to a particular lineage; (iii) similar glycans across distant taxa; (iiii) absent glycans from very restricted taxa only within lineages that otherwise possess such glycans. In order to better understand the glycan structure–function relationships, this lecture will provide an introduction to glycan terminology and nomenclature, a short overview of glycan structure and diversity in various taxa, and a brief consideration of the evolutionary processes that, most probably, generate the glycan diversity.

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## Invasive species in Romania

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**Key words:** invasive species, Romania.

Invasive species, even we like it or not, represent a major threat of the modern world. The real impact of the invasive species upon the natural ecosystems was not clearly understood since the middle of the 20<sup>th</sup> century. Despite the measures taken at international level, it is clear that the phenomenon of biological invasions could not be stopped in the future.

In Romania, the biological invasions became an interesting research subject for specialists only in the last decades of the 20<sup>th</sup> century when the Black Sea ecosystems were hardly affected by invasive species from Far East or North Atlantic waters. Species like *Rapana venosa*, *Mya arenaria*, *Mnemiopsis leidyi*, *Corbicula fluminea* or *Anodonta woodiana* became “case studies” and part of the “basic knowledge” of each biologist or ecologist in Romania.

Owing to the major economic or environmental impact they produce, such species became the object of study and research at national level. Thus, research studies addressing invasive species were stimulated and various research programs were carried out, ranging from impact assessment to molecular biology studies. Although there are now experts at national level in invasive species and more studies were developed in this field, however we cannot say that the issue of invasive species has been clarified.

A general synthesis of invasive species’ current situation at national level is still missing and various lists published so far – either at national or European level – continues to be still incomplete. There is no coherent legislation and environmental authorities often ignore the phenomenon if there are no serious consequences.

There are still in progress national programs of intentional introduction of species well known as invasive elsewhere and the pet trade is virtually an inexhaustible source of potentially invasive species. Now, what would be needed in this area would be to focus the specialists’ efforts for awareness not only the authorities but also the public about the role and impact of invasive species in natural ecosystems.

## Assessment of the marine environmental quality using polychaetes – challenges and approaches

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**Key words:** polychaetes, marine environment, pollution, ecological quality, bioindicators, biomonitoring.

Polychaeta is a widely distributed group of segmented worms that exhibits a great morphological variability and diversity of life history traits. This taxon is extremely diverse, to date being recognized between 9000 and 13,000 species and many more awaiting to be described. Polychaetes float in the water column, dwell, burrow or construct tubes on the sediment surface. They inhabit a variety of marine habitats, occurring from poor waters of sandy beaches to ultra-abysal trenches, from fresh to hypersaline waters.

Polychaetes are one of the most representative taxa in almost all marine and estuarine benthic communities, both in terms of number of species and individuals. High densities, of several tens of thousands of individuals per square metre, have been recorded for some species of polychaetes. Polychaetes are an important component especially in soft sediments where they represent 39-72% of total macrobenthic fauna (Hutchings, 1998).

Polychaetes play an important role in the stability and the functioning of benthic communities by bioturbating and reworking the sediments, by recycling the nutrients and by incorporating the organic matter and other chemical pollutants. Species belonging to families Capitellidae, Paraonidae and Cirratulidae, by burrowing activity and by ingesting large amount of bulk sediment, alter sediment properties and influence redox conditions. Species like *Melinna palmata* (Family Ampharetidae) are able to rework up to 9.6 kg of mud/m<sup>2</sup>/day. Surface and subsurface deposit-feeding polychaetes play an important role in the burial of organic matter or other toxic chemicals. In areas with high density of polychaetes bioturbation activity may enhance the resuspension of anthropogenic contaminants from sediment to overlying water. Filter-feeding sabellids, serpulids and spirorbids act as biofilters which can clear large volumes of water from suspended abiotic and biotic particles.

Polychaetes are able to survive in a wide range of environmental conditions. Some polychaetes tolerate large changes in salinity. The pile worm *Alitta succinea* (Family Nereididae) shows great salinity resistance, occurring in

waters with salinity ranging from 0.14 PSU to 80 PSU. Also the ragworm *Hediste diversicolor* (Family Nereididae) tolerate salinities comprised between 0.49 PSU and 62.81 PSU.

Some polychaetes are very tolerant to hypoxia and to the presence in seawater of the toxic hydrogen sulphide. Thus *Hediste diversicolor* can survive 7 days in anoxic conditions or 3 days exposed to 8 mL H<sub>2</sub>S/L. *Capitella capitata* can resist 8 days in water with a concentration of 20.4 mL H<sub>2</sub>S/L. On the other hand, polychaetes, such as *Nereis zonata* (Family Nereididae) and *Nereiphylla rubiginosa* (Family Phyllodocidae), are extremely sensitive, exhibiting significant mortality even in the presence of traces of hydrogen sulphide.

The ability of polychaetes to survive in harsh environmental conditions confers them opportunistic valences. These opportunistic species can colonise rapidly sediments defaunated by organic enrichment or other physical disturbances. Therefore, by monitoring temporal succession of polychaete assemblages, different phases of recovery of the whole benthic community after pollution abatement can be evidenced.

All characteristics enumerated above make polychaetes successful candidates for marine environmental monitoring (Giangrande et al., 2005; Surugiu, 2005; Dean, 2008; Díaz-Castañeda & Reish, 2009). In the evaluation of marine environmental quality polychaetes are used as pollution indicators at species, population and community levels, as bioassay test organisms and as monitors of bioaccumulation (Pocklington & Wells, 1992).

Most frequently as biological indicators of the marine environmental health were utilized benthic organisms because they are relatively sedentary, they integrate environmental quality conditions over longer periods of time as compared to plankton, they comprise species with different tolerances to stress and play an important role in the cycling of the nutrients and other chemicals between sediment and water column. Because sorting and identification of all benthic invertebrate fauna to species level is time-consuming, labour-intensive and requires a consistent taxonomic expertise, routine monitoring programmes could be optimized either by utilizing methods that necessitates reduced level of taxonomic resolution (e.g., Abundance-Biomass Comparison curves or Multi-Dimensional Scaling plots), either by selecting a particular representative group and working at finer taxonomic discrimination.

In both approaches polychaetes proved to be useful means of assessing the effects of pollution or disturbance. Polychaetes have been used extensively also as surrogates for marine biodiversity because they are able to detect quickly community responses to pollution or disturbance without important loss of information. They contains both sensitive (intolerant) and tolerant (opportunistic)

species to poor environmental conditions.

The members of the families Capitellidae (e.g., *Capitella capitata* species complex, *Heteromastus filiformis* etc.), Cirratulidae (e.g., *Chaetozone setosa*) and Spionidae (e.g., *Polydora cornuta* species complex, *Streblospio benedicti*, *Malacocerus fuliginosus*, *Paraprionospio pinnata* etc.), when found in high densities, have been widely accepted as indicators of organic pollution. Based on literature data, Pearson and Rosenberg (1978) ranked 99 macrobenthic species in order of their occurrence along a decreasing organic enrichment gradient. The first 58 species were polychaetes!

Sensitive species include representatives of the families Syllidae (e.g., *Syllis armillaris*, *S. gerlachi*, *S. rosea*, *S. pulvinata* etc.), Glyceridae (e.g., *Glycera alba*), Polynoidae (e.g., *Harmothoe imbricata*), Lumbrineridae (e.g., *Lumbrineris gracilis*), Maldanidae (e.g., *Maldane sarsi*) and Trichobranchidae (e.g., *Terebellides stroemii*), whose absence or decrease in number is indicative of poor environmental conditions and low diversity.

Polychaetes are extremely responsive to environmental disturbance and exhibit quantifiable changes in community structure. In a study of the effects of the polychaete multispecies assemblage to a sewage input, Surugiu (2009) noted a decrease in diversity indices along organic enrichment gradient. However, in the most impacted site this decrease in diversity was offset by the increase in dominance by two opportunistic species – *Alitta succinea* and *Polydora websteri*. Of the two species, only the former has been previously accepted as indicator of organic pollution.

Bellan et al. (1988) proposed an Annelid Index of Pollution, which is based on the ratio of the summed dominances of “polluted water sentinel species” (e.g., *Platynereis dumerilii*, *Protoaricia oerstedii*, *Schistomeringos rudolphii*, *Cirratulus* cf. *cirratulus*, etc.) to that of the “pure water sentinel species” (e.g., the species of the genus *Syllis* or *Amphiglena mediterranea*). In polluted environments this ratio provides values greater than 1, while in pristine or slightly polluted waters this ratio is inferior to 1.

Due to their small size, soft body, relatively short life cycles, ease of collection, transportation and maintenance in the laboratory cultures, polychaetes are appropriate organisms for ecotoxicological testing. In a biotoxicity testing carried out on 48 species from 20 polychaete families, Reish and Gerlinger (1997) found that mercury and copper were the most toxic metals, less toxic were chromium and cadmium, followed by zinc and lead. Developmental stages of polychaetes are usually more sensitive to heavy metal concentrations when compared to LC50 values obtained using adults. Many species seem relatively resistant to organic contaminants (PAHs, PCBs and pesticides) and the effects of

these hydrocarbons on life history characteristics (reproductive output, growth rate, feeding rate etc.) may be more sensitive monitors of water quality than survivorship-based assays.

Some species of polychaetes can inhabit sediments that have very high concentration of trace metal content and body burden (bioaccumulation) of these metals show their potential in bioremediation of contaminated sediments. Because polychaetes play an important role in the feeding of fish and other marine predators, they contribute to bioaccumulation and bioconcentration of hazardous chemicals along the food chain.

Special care must be given to proper identification of the test species because polychaetes differ in their sensitivities to individual toxicants. The use of well established laboratory cultures of polychaete species can overcome this problem.

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## **Recent introductions of nonindigenous macroinvertebrates in West-European inland waters**

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**Key words:** vectors, mechanisms, metrics.

Social and economical globalization and increase of international trade have facilitated the spread of nonindigenous species in all parts of the world. Increasing number of plants, animals and microorganisms are crossing natural barriers to settle into new areas. Focusing at inland waters, the introduction of nonindigenous species into freshwaters is nowadays regarded as the main driver of biodiversity change. This driver is positively influenced by other effects of anthropogenic disturbance, such as embankment and impoundment of rivers (e.g. channelization, water extraction), water quality deterioration (e.g. pollution, eutrophication, acidification) and habitat degradation, creating empty niches for nonindigenous species to settle. Main vectors for the introduction and spread of nonindigenous macroinvertebrate species in Western Europe are navigation, canal construction and aquaculture. Recently, in 1992, an important migration route for species to migrate from Eastern to Western Europe and vice versa was created with the Main-Danube Canal, linking the Rhine and Danube basins. On the basis of recent introductions, mechanisms for macroinvertebrates to settle and to spread successfully in a new environment are discussed. An additional effect of these introductions is that successful species cause an irreversible change in benthic communities. This has, for example, consequences for the ecological rehabilitation of water bodies and the evaluation of effects of it. Since the European Union member states accepted the European Water Framework Directive such a rehabilitation is an important item for all member states and metrics for evaluation of measures must consider the presence of nonindigenous species. An appropriate metric is discussed.





# **ORAL PRESENTATIONS**



## **Archaeozoological perspective on Neolithic migrations in Eastern and South-Eastern Romania**

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**Key words:** Neolithic revolution, migrations, Romania.

The Neolithic revolution led to human and animal population expansion and migrations. The complexity of the Neolithisation process has begun to be revealed by recent evidences collected within the studies of various scientific disciplines. Different scenarios concerning the process have been proposed, as the autochthonous cultural evolution or the cultural change by physical colonization or assimilation of ideas and know-how. Understanding the bases of human culture, it requires an integrated and interdisciplinary approach. In recent years, the concept of human migration has re-emerged in archaeological discussion. Under these circumstances, the role of the archaeozoology become more important, being emphasized the interaction between human migration and animal movement (including the animal products).

The present work proposes to present aspects of the Neolithic migrations in the Eastern and South-Eastern territories of Romania, from an archaeozoological perspective. Certain research field has been explored in view to modeling the population movements: species biogeography (an indication of animal movement and concomitant interaction of peoples is through the presence of species recorded beyond their known geographic ranges), morphometric variations (i.e., the measurement of bone and teeth is important in the interference of animal movement - metric variations in animal populations show generally certain regionally distinct genetic types), identification of animal products and its resources, DNA analysis of animal populations.

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## Fauna diversity of archaeological sites in Vojvodina (Serbia)

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**Key words:** fauna, mammals, archaeological site, Vojvodina.

The present flora and fauna in Vojvodina have formed over a long period of time. The former forests, swamps, marshes and steppes remain only in fragments. The largest portion of the environment has been turned into a cultivated steppe. The changes in the ecological conditions affected the composition of flora and fauna. The remains of plants and animals collected at archaeological sites confirm this.

In Vojvodina, bones were collected for the first time in 1932 at Starčevo site, and since then the continuous analyses of osteological material from circa 20 sites of different periods have been done. The fauna composition most certainly varies in respect to cultural-historical and social-economic organisation of the settlement.

On the basis of researches of fauna found at the archaeological sites in Vojvodina that have been done so far, 123 animal species have been identified: 29 mammal species, 24 bird species, 1 reptile species, 11 fish species, 1 crab species and 57 mollusc species.

Mammal fauna is the most numerous one in terms of species. Bones of domestic animals – oxen, sheep, goats, pigs, horses, dogs, cats, asses have been found at almost all archaeological sites. Individual findings of the camel and lion have been found in Roman layers at the Gomolava site and in Sremska Mitrovica.

In close vicinity to human settlements, bones of animal that settlers hunted and fished have been found (aurochs, deer, wild boar, bear, wolf, fox, wild cat, rabbit, pine marten, beaver, pike, catfish, carp, etc.).

Concerning the other groups, birds were prevalent, and the number of poultry species was significant. Concerning reptiles, only one species, European pond turtle, was identified, while the significant portion of the fish sample belongs to family Acipenseridae. Although there was a large number of mollusc species, all the specimens were found at Gomolava site.

## Fauna of Jiu Gorges National Park

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**Key words:** Jiu Gorges National Park fauna, biodiversity, monitoring, inventory.

Situated in the Southern Carpathian Mountains, the Jiu Gorges National Park covers an area of 11,127 ha, along an altitudinal gradient of 500 m. The park consists mostly of forest habitats. The initial inventory of flora and fauna indicate that in the six major types of ecosystems 1124 species of plants and 445 of animals were present (Stoiculescu et al., 2005; Bussler et al., 2005).

A three years monitoring study began in July 2010 in the Jiu Gorges National Park as a part of an inventory program developed by the Park Administration, in order to complete the inventory and to establish the conservation status of priority habitats and species. For the fauna, after a year of research activities, 630 species of animals were identified in the park: 35 mammals, 10 reptiles, 10 amphibians, 68 birds and 488 invertebrates (including 334 species of moths and butterflies, 66 species of beetles and 27 species of grasshoppers).

From these species, 93 (14.7%) are priority species, listed in the EC Habitats and Birds Directives: 27 species of mammals (including all 18 species of bats identified in the park), 34 species of birds, 9 species of amphibians, 9 species of reptiles and 14 species of invertebrates.

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## The “Jaskinia na Kamieniu” cave (Poland) as a habitat of invertebrate animals

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**Key words:** cave, invertebrates, bacteria, microorganisms.

The “Jaskinia na Kamieniu” cave is situated in the city of Częstochowa, inside a small hill built of Jurassic limestones. It is a horizontal cave with low, narrow passages which are temporary flooded by water. In dry periods there is only one small water reservoir at the end of the cave. Samples were taken in three sites: at the entrance, in the middle and at the end of the cave. Various groups of invertebrates, e.g. Nematoda Oligochaeta, Isopoda, Collembola and Arachnida, were found in terrestrial sediments. In the water bodies light and dark specimens of *Asellus aquaticus* (Isopoda) were frequently observed. Moreover, numerous Copepoda, single Oligochaeta and Diptera larvae (Chironomidae and Chaoboridae families) were encountered. On cave walls typical troglonec and troglophilic taxa of Isopoda, Culicidae, Lepidoptera, Aranea, and Gastropoda were noticed, but up to now spider *Meta menardi*, very common in other caves, was not observed.

Aquatic microflora is very interesting. Near the entrance, a numerous groups of bacteria and fungi were detected. In the middle of the cave bacteria of the genus *Baccillus* prevailed, whereas at the end of the cave only two groups of microorganisms were found. The research showed that diversity and density of fauna and microorganisms diminish as the distance from the cave’s entrance grows. During the conference the outcomes of the preliminary studies will be presented.

## Isolation and characterization of new microsatellite markers for the invasive softshell clam, *Mya arenaria* (L.) (Bivalvia: Myidae)

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**Key words:** *Mya arenaria*, microsatellite markers, invasive species.

The invasive softshell clam (*Mya arenaria*) has a complex and dynamic geographical history of distribution, now occupying most of its territory before the Ice Age. The species has originated in the Pacific Ocean from where it has populated the Atlantic and European waters. After the Ice Age, the only population that survived is the one from the north-west of the Atlantic Ocean and it is considered to be the point of origin for the present process of invasion. From here, it has been re-introduced in the northeast Pacific and along the European coasts, due to intense naval transports and other human activities (Strasser, 1999). *M. arenaria* has spread its area of distribution in all the European seas (mostly through natural means), where it is an invasive species with serious impact on native ecosystems.

The analysis of the genetic diversity of the softshell clam populations can bring new data concerning the invasion process. Following this direction, we described 9 new highly polymorphic microsatellite loci in this species. Two populations of *M. arenaria* from the Romanian coast of the Black Sea, at Modern Beach, Constanța (44°10'43.1"N, 28°39'35"E) and Marină, Mangalia (43°48'33.5"N, 28°35'13.8"E), were sampled. The genetic diversity of these populations was assessed in 76 individuals at the nine new microsatellite loci. All the analyzed loci were polymorphic in all populations and no genetic differentiation was observed between the two populations.

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**New records for the Romanian spider fauna: *Spermophora senoculata* (Dugès, 1836) (species and genus) and *Xysticus laetus* Thorell, 1875 (species), collected in the Danube Delta**

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**Key words:** *Spermophora*, *X. laetus*, new records, spiders, fauna Romania, Letea.

A number of spider species collected in various microhabitats in and around the village Letea are listed. The methods used for specimen gathering were as follows: pitfall traps in packed sandy soil thickly covered with grasses and with a high organic debris component; pitfall traps in loose, high organic silt, free of vegetation, that forms beaches on the edge of canals; sweep netting in the grassy vegetation mentioned before; transect sweep netting in the typical grass vegetation of sand dunes found in the nature reserve Letea Forest and in the forest understory vegetation; active searching and collecting with an aspirator in wood piles, house interiors, house walls and natural surfaces like tree trunks. The time period in which the spiders subject to this presentation were captured is 8<sup>th</sup> – 18<sup>th</sup> of April and 22<sup>nd</sup> – 29<sup>th</sup> of September 2011. These results are the start of a proposed longer survey of the spider fauna in the area. The genus *Spermophora* Hentz, 1841 (Pholcidae) and the named species is reported for the first time in Romania. Its presence was to be expected based on the literature data available for neighbouring countries and its geographical distribution. Of the species, only one individual was collected in early spring, a female. *Xysticus laetus* Thorell, 1875 appears to be a rather rare eastern Mediterranean species, closely related to *Xysticus kempeleni* Thorell, 1872 although there are some clues that it may be in fact more widespread and possibly misidentified with *X. kempeleni* in the latter's range. Diagnostic drawings and photographs are presented.

## First description of the male of *Leptanthura glacialis* Hodgson, 1910 (Isopoda: Anthuroidea: Leptanthuridae)

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**Key words:** *Leptanthura glacialis*, male specimen, first complete description.

The species *Leptanthura glacialis* was described by Hodgson (1910) on a single specimen. Supplementary work was done by (Tattersall, 1921; Monod, 1926; Kussakin, 1967; Kensley, 1982) and (George & Negoescu, 1985) on immature females and juveniles. Wägele, in 1984 (Wägele, 1984), gave a complete description of a female specimen.

*L. glacialis* has a Circumantarctic and South Atlantic distribution, but according to (Kensley, 1982) the species can extend towards the equator along the continental shelves. The species was found at depths between 50-5216 m. Kensley (1982) found a single male in the material studied from the Weddell Sea, but no description of this specimen was provided. To the date no other authors described the male of *L. glacialis*.

The material of this study was collected during the ANDEEP I and II expeditions on RV Polarstern (ANT XIX/3, ANT XIX/4), in the frame of the ANDEEP International Project which investigated the deep water biology of the Scotia and Weddell Seas. A number of 55 specimens (4 males and 27 females, 2 juveniles, 11 postmanca and 11 manca stages) of *L. glacialis* was collected from 19 stations at depths between 1100-4500 m.

In this paper we give, for the first time, a complete description of a male of *L. glacialis*. The investigated material was offered by the Project leader Prof. Dr. Angelika Brandt (Zoological Museum of Hamburg).

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## Population genetics of *Austropotamobius torrentium* (Crustacea: Astacidae) in Romania

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**Key words:** *Austropotamobius torrentium*, conservation genetics, microsatellites.

One major issue in conservation biology is to understand the genetic consequences of population fragmentation and isolation. In this study we analyze the genetic diversity and structure of the Romanian populations of *Austropotamobius torrentium*, an endangered crayfish species inhabiting mainly clear and fast-flowing rivers and streams from the mountain and hill areas. This species is native to Europe being known from Central and Southeastern Europe, from Germany to Turkey.

In order to assess the genetic variability of this species we have analyzed 302 individuals from 12 populations at six polymorphic microsatellite loci. Levels of expected heterozygosity and allelic richness per population were between 0.411-0.788 and 2.8-11.6 respectively. We have also tested the populations for heterozygosity excess in order to detect recent population bottlenecks, and we also assessed the genetic differentiation both within the populations and between populations.

The analyses revealed two major groups (metapopulations) of *A. torrentium*, localized geographically in the North-West and South-West Romania. The two metapopulations showed a high degree of genetic differentiation in both allele sizes and in allele frequencies. The south-western metapopulation is mostly distributed in rivers that are flowing directly in the Danube, while the north-western metapopulation is distributed in rivers that are flowing in Tisa River, which later flows in the Danube. The genetic data showed that the population collected from Strei River clusters with the south-western metapopulation, although Strei is a tributary to Mureș River, which later flows in Tisa River.

These results suggest that for *A. torrentium* the genetic structure of the populations is more affected by the geographical proximity than the direct connection of the aquatic basins where the species is found.

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## **Isolation and characterization of microsatellite loci for *Isophya stysi* (Orthoptera: Phaneropteridae) and cross-amplification in closely related species**

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**Key words:** Orthoptera, genetic diversity, population fragmentation.

Many European *Isophya* species have restricted distribution ranges, being characterised by limited mobility and usually confined to specific topographic requirements and they are usually found in isolated populations of low density and close habitat-dependence. Due to the reduction of their natural habitat, these species have been strongly constrained since the second half of the previous century, being rendered endangered. *Isophya stysi* is a protected species by national and European laws (Habitats Directive) and has isolated populations throughout its range.

In order to ensure effective conservation management efforts, one needs to evaluate the genetic diversity of the populations of this endangered species. Microsatellite DNA is an ideal molecular marker for studies of genetic diversity in natural populations and can assess population structure and trends. The major aim of this study is to describe the first microsatellite loci for the endangered Stys's bush-cricket (*Isophya stysi*).

Ten out of 25 primer pairs proved to be polymorphic and were deemed acceptable for population genetic studies. We tested the degree of polymorphism of the isolated loci in 36 individuals of *Isophya stysi* collected from various sites in Romania. The number of alleles per locus ranged from 6 to 23 and their observed and expected heterozygosities ranged from 0.88 to 1.00 and 0.67 to 0.91, respectively. Only one of the loci did not conform to Hardy-Weinberg equilibrium (IST 18), and linkage disequilibrium was observed only between one pair of loci (IST 2 and IST 21) after the Bonferroni correction.

The polymorphic loci were also cross-amplified in 36 individuals from 18 additional species from Phaneropteridae family: *Isophya camptoxypha*, *Isophya rectipennis*, *Isophya modesta intermedia*, *Isophya ciucasi*, *Isophya hospodar*, *Isophya longicaudata*, *Isophya modestior*, *Isophya kraussii*, *Isophya zubovskii*, *Isophya speciosa*, *Isophya dobrogensis*, *Isophya harzi*, *Isophya pienensis*, *Poecilimon fussii*, *Poecilimon affinis*, *Polysarcus denticauda*, *Barbitistes constrictus*, *Phaneroptera falcata*.

## **Bioacoustics and cytogenetics in *Isophya dobrogensis*, a Romanian endemic bush-cricket (Orthoptera: Phaneropteridae)**

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**Key words:** *Isophya dobrogensis*, endemism, acoustic analysis, chromosomes.

*Isophya dobrogensis* Kis, 1994 is one of the most vulnerable *Isophya* species in Europe, as it is known only from the Popina Island, in the northern part of the Razelm Lake in South-Eastern Romania. The island has a surface of slightly less than 1 square kilometer, but the dry habitat is about 0.65 square kilometers, the rest of the island being a marshy area with reed beds. From the dry habitat the species seems to prefer only the margins of the island, with loess substratum, and not the vegetation installed on the outcrops of Triassic limestone that form most of the island surface. We compared the bioacoustic and cytogenetic data in *Isophya dobrogensis* and other two geographically and morphologically close species. Its particular calling song resembles very much that of *Isophya modesta intermedia* (Kis, 1960) and *Isophya longicaudata longicaudata* Ramme, 1951. In all three species the calling song consists of long syllables with clear distinction between the opening hemisyllable and the closing one. The cytogenetic analysis of all three species revealed very similar karyotypes, analogous to that of other *Isophya* species, the main difference being the centromeric index of the X chromosome, that clearly distinguish the karyotype of *Isophya dobrogensis* from that of the other two species. In *Isophya dobrogensis* the X chromosome is metacentric, while in *Isophya modesta* and *Isophya longicaudata*, it is subtelocentric.

## Two new bush-cricket species (Orthoptera: Phaneropteridae) from the Carpathian Mountains

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**Key words:** *Isophya* n. sp., morphology, bioacoustics.

Genus *Isophya* is the second richest in species from the European Phaneropteridae and one of the most problematic groups from a taxonomical point of view. The identification of species is very difficult because of their high morphological similarity, thus the male calling song remains the main tool for species delimitation. Many *Isophya* individuals from many populations were collected for acoustic recording in the past years from several places in Eastern and Southern Carpathians and after an elaborate sound analysis two populations representing two undescribed species were identified. In one of these populations, located in the Eastern Carpathians, males showed a calling song similar to that of a species known only from Cozia Mountains: *Isophya harzi* Kis, 1960. The new species sings groups of syllable sequences, while *I. harzi* sings ungrouped syllable sequences. The first syllable in a sequence is longer in both species and followed by a number of shorter syllables. In the new species, syllables are shorter compared to *I. harzi* and the whole sequence is followed by a few after-clicks; in *I. harzi* the after-clicks are present between the syllables forming a sequence. The second new species was found in 2009, in the Southern Carpathians. The calling song consists of syllable groups, as in song-related species *I. modestior*. Considering the syllable length, we should place the new species between *I. camptoxypha* and *I. modestior*, the compact impulse series being longer than in *I. camptoxypha* and shorter than in *I. modestior*. After-clicks were not recorded. Considering these 2 new species, there are 19 *Isophya* species known to occur in Romania, and of 6 those are Carpathian endemics.



## **The diversity of beetles (Coleoptera) from Conacu-Negrești Valley, South Dobrogea, Romania**

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**Key words:** beetles, diversity, rare and endemic species.

Conacu-Negrești Valley is defined by the following geographical coordinates: the parallel 43°58'48,93" N and the meridian 28°10'05,12" E. It is located in the center of Cobadin Plateau, subunit of Negru - Vodă Plateau, South Dobrogea. In the South Dobrogea, Conacu-Negrești Valley is located on the north-west→south-east area. It is a “*canara*”, gorges with aged limestone walls, between which the Conacu-Negrești Lake formed, with canyons, ravines, xerophyte steppe grasslands, grassy hills and bushes.

Valley distinguishes by a special landscape beauty and is characterized by an extremely rich and diverse biodiversity, with many rare or endemic species specific to the Dobrogea Province.

This paper presents data on the diversity of beetles, known until now in this area. These data are the result of the research and observations in the field and laboratory projects carried out during April-August 2003-2005, 2009.

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## **Rove beetles (Coleoptera: Staphylinidae) from Berezinsky Biosphere Reserve (Republic of Belarus)**

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**Key words:** rove beetles, the Berezinsky Biosphere Reserve, collection.

The Berezinsky Biosphere Reserve is characterised by different types of ecological systems: forests, bogs, water reservoirs and meadows. Woodlands make up around 80% of the Reserve’s territory. The diversity of rove beetles is rather poor known. A few habitats were investigated in September 2011: forest with *Populus tremula*, *Ulmus glabra*, *Frasinus excelsior*, *Corylus avellana*, *Picea abies* – along the so named Ecological Route of Reserve, the bank of Plavno Lake, the valley of Berezina River – floodplain area, forest with *Quercus* sp. and forest with *Pinus sylvestris* and *Betula pendula*. 51 species were identified, these being preserved in the Coleoptera Collection of “Grigore Antipa” Museum. The species belong to 8 subfamilies: Omaliinae (2), Proteininae (1), Tachyporinae (11), Aleocharinae (18), Oxytelinae (1), Steninae (5), Paederinae (6) and Staphylininae (7). *Stenus nitens* Steph., *Atheta tmolosensis* Bernh. and *Tachyporus corpulentus* (Sahlb.) are not recorded in Romanian fauna. These species are new for the Coleoptera collection as well as the following species: *Sepedophilus marshami* (Steph.), *Atheta paracrassicornis* Brundin, *Myllaena minuta* (Grav.), *Stenus carbonarius* Gyllh., *Quedius nigriceps* Kr. Most of the rove beetle species collected in Berezinsky Biosphere Reserve are characteristic to the hilly and mountainous areas in Romania.

## Seasonal dynamics of the ground beetles (Coleoptera, Carabidae) in Cefa Nature Park (North West of Romania)

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**Key words:** Carabidae, pitfalls, dynamics, Cefa Nature Park, Romania.

The ground beetles are well studied all over the world and in Romania. The Carabidae family is very well represented in the terrestrial epigeal fauna. Due to their ecological roles: predator, pray, herbivorous and scavenger, their study in the ecosystems have a scientific and practical importance. Cefa Nature Park is located in the north-west part of Romania and has common borders with Körös-Maros National Park from Hungary. This is the first long period study of ground beetles in Cefa Nature Park. The individuals were collected using Barber pitfalls filled with glycerin and ethyl-alcohol as preservation liquid. The pitfalls were mounted in four different habitats: pasture, fishpond shore, grassland and forest. The study period was of 12 months from May 2009 to April 2010. Each habitat had 10 pitfalls distributed circularly with monthly collecting. The results showed that the ground beetles are most active during the months of April and July. We also observed that they are active in the winter season with the highest activity in February. In total, we found 93 species belonging to 30 genera. From the four investigated habitats the pasture has the highest activity over 12 months study period. The most abundant species were *Pterostichus macer* and *Pterostichus ovoideus*. Along the fishpond shore the most abundant specie was *Anchonemus dorsalis*, in pasture, *Pterostichus macer*, and *Pterostichus ovoideus*, in grassland and forest.

## Catalogue of Romanian Dipterans (Insecta: Diptera)

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**Key words:** catalogue, Diptera, România, systematics, distribution, bibliography, 5000 species, 100 families.

The necessity of such a paper is predictable within the context of the knowledge consolidation interest of the regional biodiversity values and of the European net of the protected areas.

The exhaustive synthesis *Catalogue of Palaerctic Diptera*, published from 1980 till now is already out-of-date. Neither the checklists for every country nor *Fauna Europaea*, an electronic journal, cannot replace a systematic distributional bibliographical complete catalogue as the present one, which removes all Romanian delays in the knowledge of order Diptera.

For this paper, “all” literature found by the authors was used: old papers and disconnected reports, Fauna Regni Hungariae, “Fauna României” collection, “Fauna Porților de Fier”, Fauna Europaea – electronic, Catalogue of Palaerctic Diptera, “Faunas” of the European countries and of the Middle East, Erwin Linder’s collection – Die Fliegen der Palaearktischen Region, Romanian checklists on families, recent papers, dipteran collections of the Romanian fauna belonging to the “Grigore Antipa” National Museum of Natural History.

Basing on the bibliography (which might be unidentified in a very low percentage, 1%) this catalogue, which includes around 500 pages, was edited.

Being the first catalogue of the entire Order Diptera from the history of the research of these insects in Romania, it includes the first list systematically updated (checklist) with 5000 species; it is the first bibliography with exhaustive ambitions; it is the first complete list of localities from where the Romanian dipterans were reported. Total number of the dipteran families of Romania is of 100, out of which the suborder Nematocera includes 26 families with 1571 species, and suborder Brachycera, 74 families with 3429 species.

A gradient of the species number of the richest families is as follows: 481 - Syrphidae, 314 - Chironomidae, 294 - Cecidomyiidae, 264 - Dolichopodidae, 240 - Empididae, 223 - Muscidae, 215 - Mycetophilidae, 190 - Tachinidae, 139 - Asilidae, 124 - Tipulidae, 119 - Ephydriidae etc.

Numerical share is generated by the specific richness of families and by the intensity of the systematic studies.

## The macrolepidoptera of Central-Dobrogea (Romania)

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**Key words:** Lepidoptera, Macrolepidoptera, new records, Central - Dobrogea, Romania.

Nowadays Dobrogea constitutes the richest and probably the most researched territory from Romania in the lepidopterological point of view. With approximately 1000 reported Macrolepidoptera species, this province has an outstanding position in the Romanian fauna, but also in the fauna of Europe. The diversity and richness of the fauna is primarily determined by its geographical position, the territory of Dobrogea stands for the northern limit of the spread of numerous Balkanian species and the westernmost limit of numerous species characteristic to the Asian steppes. 150 years have passed since the research work upon Dobrogea carried out in 1860 by the lepidopterologist Josef Mann from Vienna. Since then the majority of lepidopterologists from Romania have focused their research upon this territory. However the preceding published work of theirs refer to Southern Dobrogea (Hagieni and Canarua-Fetii) (Popescu-Gorj & Drăghia, 1967; Rákosy & Székely, 1996) and to the northern territories of Dobrogea, the surroundings of Tulcea (Mann, 1866) and of the Măcin Mountains from North-Western Dobrogea (Rákosy & Wieser, 2000).

This work is a synthesis of the present knowledge upon the Macrolepidoptera-fauna from Central - Dobrogea and it is based on the collecting works since 2007, which have been mostly done on salty steppes around the huge lakes (sea lagoons) Razim and Sinoe of Central-Dobrogea (Histria, Plopu-Sarinasuf) but also upon forested areas and rocky-hills (Babadag Forest, Cheile Dobrogei, Gura Dobrogei etc.).

The most remarkable results were attained in the salty steppes (which have scarcely been studied before), from these areas, due to the research done in the last 3 years, three new Noctuids (Lepidoptera: Noctuidae) for Romania were published: *Cucullia argentina* (Fabricius, 1787), *Tarachidia candefacta* (Hübner, [1831]) and *Leucania punctosa* (Treitschke, 1825) (Székely & Dincă, 2009; Székely, Dincă & Juhász, 2011), furthermore numerous very rare species, which had been known in very few individuals signaled in Romania e.g.: *Grammodes bifasciata* (Petagna, 1787), *Saragossa siccanorum* (Staudinger, 1870) etc.

The species protected by Romanian and EU Law are conferred a presentation as well, species that comprise the *Catopta thrips* (Hübner, 1818) population too (species listed in Annex 2/ Habitats Directive), found recently from the steppes near Babadag. The work comprises also proposals for measures to be taken to protect these species.

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## Morphological variation of flagellum of two species of Torymidae (Hymenoptera: Chalcidoidea) and some taxonomic implications

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**Key words:** Hymenoptera, Chalcidoidea, Torymidae, flagellum morphological variation.

Primitive insect antenna had three articles (antennomeres): scapus (scape), pedicellus and the third article that suffers secondary segmentation forming the flagellum made from funicle and clava. In Chalcidoidea, the first flagellomer segment (article for pedant interpretation) is usually very small and it's called anellus. What it's an anellus? The usual convention is that an anellus can have trichoid sensilla but not placoid sensilla. Sometimes the anelli can be difficultly seen, even under SEM examination and in other cases can be like normal funicular segment in shape and size. Usually, the theory argued that the funicular segments suffer a process of reducing the size and become anelli that can even disappear. It is interesting that the anelli are considered parts of flagellum but not of funicle, that being contradictory if an article of flagellum can become an anellus. The number of anelli and their shape usually is considered a constant character for a species and is frequent used for divide species or even genera in taxonomic keys. We examined 18 females and 4 males of *Idiomacromerus pallistigmus* Askew (Torymidae) obtained from *Blascoa ephedrae* Askew (Pteromalidae) from seeds of *Ephedra distachya* L. (Ephedraceae) from Maritime Dune Natural Reserve from Agigea (Constanța). In 14 females we clearly observed two anelli. In 3 females and 3 males the third flagellomer is smaller but has placoid sensilla. In one female and one male the third flagellomer lack the placoid sensilla. We examined also more than 100 specimens of *Eridontomerus arrabonicus* Erdős (Torymidae) obtained from galls of *Tetramesa scheppigi* (Schlechtendal) (Eurytomidae) inside the seeds of *Stipa lessingiana* Trin et. Rupr. (Poaceae) from David's Valley Natural Reserve (Iași). In few specimens, the second flagellomer is longer than third one, in most of the specimens the second flagellomer being almost as long as the third flagellomer. Also, in few specimens the second flagellomer is smaller than the third one and lack the placoid sensilla. We must consider more carefully the anelli as a taxonomic character and identify, if it's possible, the grade of polymorphism of this character inside of a population or a species. This paper is a result of the project POSDRU/89/1.5/S/63663.

## **New data concerning the distribution of some sub-Mediterranean ant species (Hymenoptera: Formicidae) from Romania**

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**Key words:** ants, new records, distribution, ecology.

Present-day data concerning the distribution and ecology of three sub-Mediterranean ant species are given. Additional data from unpublished Natural History Museum of Sibiu ant collections are presented also.

*Aphaenogaster subterranea* (Latreille, 1798) is a widely distributed Mediterranean species, whose northern part of the range extends to the south of Central Europe; it is an oligotope, associated with warm deciduous forests (Czechowski et al., 2002). Although the species was recorded from several areas in Romania, mostly from the Southern parts of Romania, no records whatsoever are known from Transylvania. During a field campaign, in summer 2011, one population was found in a Downy Oak (*Quercus pubescens* Willd.) forest Natura 2000 site in Dumbrăveni (Sibiu County). Nine other forests sites were investigated, all of them having a northern exposition and additional *Aphaenogaster subterranea* individuals were found in a clear-cut site. The first record from Dobrogea is now known from Histria.

*Cardiocondyla stambuloffi* Forel, 1892 was recorded from Moldova, Ukraine, Bulgaria, Greece, Turkey, Iran and Armenia. In Romania the species is known only from Letea forest (Seifert, 2003) and Lacul Sărat (Brăila County) (Markó et al. 2006). The third record for this species is given from Pechea (Galați County).

*Crematogaster schmidti* (Mayr, 1853) has been reported from the Northern bank of Mediterranean Sea and Black Sea, from Slovenia in the west to Ukraine in the east. In Romania, the species was previously recorded from two sites, and now we recorded it from Porțile de Fier and Ciupercenii Noi (Dolj County).



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## DNA markers in the Danube sturgeons

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**Key words:** sturgeons, DNA markers, species identification, genetic diversity

Sturgeons represent a very old group of fish with an important scientific and economical value. Unfortunately, due to their commercial importance, these species have been overexploited through overfishing and poaching, nowadays being at the brink of extinction. Lower Danube is the last refuge for the sturgeons in the Black Sea region and in this context protection measures and restoration programs were undertaken in order to conserve these valuable natural resources. Currently three diadromous species of sturgeons are found in the Lower Danube basin and in the Black Sea - *Huso huso* (beluga sturgeon), *Acipenser stellatus* (stellate sturgeon) and *Acipenser gueldenstaedtii* (Russian sturgeon) and one potamodromous species – *Acipenser ruthenus* (sterlet).

Some characteristic of the sturgeons correlated with their complex biology with aspects like spawning migration, considerable longevity, and large intervals between two successive spawning made them very susceptible to the anthropogenic impact and very difficult to characterize from genetic and molecular point of view. DNA markers like microsatellites or mtDNA have proven to be very useful tools for species and hybrids identification and assessing the genetic diversity in Danube sturgeon populations. Molecular analysis are absolutely necessary for the characterization of individuals implied in repopulation programs, in order to avoid the potential alteration of the genetic status due to poor hatchery practices or the intentional or accidental introduction of exotic species or genotypes.

## Molecular markers in Romanian salmonids

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**Key words:** salmonids, 16S rRNA, 12S rRNA, molecular phylogeny.

Salmonids are a heterogeneous group of fish with a wide distribution all over the world. Even if the salmonids are a well-studied group of fish, there are still a number of questions pending with regard to their phylogeny and evolution. So, despite the fact that a relatively significant number of studies based on both morphological and molecular data were performed, there are still different opinions concerning genus-level relationships. The native salmonid species from Romania have been characterized only from a morphological point of view, but the molecular aspects have never been analyzed before. This represents the first molecular analysis accomplished in salmonid species from our country.

In the present study we proposed a phylogenetic analysis based on molecular markers of 16S rRNA and 12S rRNA mitochondrial genes in four salmonid species from Romania - *Salmo trutta fario*, *S. labrax*, *Salvelinus fontinalis* and *Thymallus thymallus*. For this purpose, nucleotide sequences of 16S rRNA and 12S rRNA fragments were obtained in each of the four analyzed species and subsequently the assessment of nucleotide variation and a phylogenetic analysis were performed. For a more accurate phylogenetic classification of these species within the Salmonidae family, the analysis was performed using similar sequences from GenBank Database from 14 salmonids and one osmerid species used as an outgroup. Three methodologies (Neighbor Joining, Maximum Parsimony and Maximum Likelihood) were utilized for phylogenetic reconstruction by each gene separately and the mitochondrial data combined. The phylogenetic analysis using mitochondrial rRNA genes as markers has allowed an overview about the positions occupied by Romanian salmonids within the Salmonidae family. This molecular study has interesting implications for understanding the evolution and diversification of this group of fish.

## **Comparative aspects of tail fin regeneration in *Corydoras aeneus* and *Carassius auratus gibelio***

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**Key words:** tail fin, epimorphic regeneration, blastema, osteopontin, chondroitin sulphate.

Fish fins are able to regenerate, when they are cut, by epimorphic regeneration, a process which occurs in three steps: wound healing and apical epidermal cap formation; formation of blastema; regenerative outgrowth and pattern reformation (Shao et al., 2009).

Regenerative capacity of fish fins was studied in many species and it was observed that it can vary between species (Maginnis, 2006), therefore we decided to investigate the dynamics of lepidotrichia regeneration and mineralization in tail fin and immunohistochemical evaluation of some markers involved in osteogenesis (chondroitin sulphate and osteopontin) in two species of fish (*Corydoras aeneus*, *Carassius auratus gibelio*) that have not undergone such studies.

The tail fins of *Corydoras aeneus* and *Carassius auratus gibelio*, amputated transversally at the level proximal to the first branch point, were collected at various intervals of regeneration, fixed and embedded in paraffin.

Sections have shown that in both species, apical epidermal cap was formed 24 hours after amputation and the blastema began to form 2 days after amputation. The mineralized process had started at the level of lepidotrichial matrix in the proximal differentiated region of the tail fin 3 days after amputation in *Corydoras albino* and at 6 days after amputation in *Carassius auratus gibelio*.

*In toto* observations have shown that bone tissue formation began 3 days after amputation in *Corydoras aeneus* and 6 days after amputation in *Carassius auratus gibelio*.

Immunohistochemistry reaction for chondroitin sulfate was intensely positive at the periphery of lepidotrichial matrix 3 days after amputation in *Corydoras aeneus* and 6 days after amputation in *Carassius auratus gibelio*. Osteopontin was expressed in intralepidotrichial connective tissue, at the level of proximal differentiated region of the tail fin.

In conclusion, tail fin regeneration and mineralization in *Corydoras aeneus* are faster than in *Carassius auratus gibelio*.

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## Mammal fauna (Mammalia) from Curvature Carpathians - Romania

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**Key words:** mammal species, plant association, ecosystems, trophic relations, conservation statute.

Data on the mammals which live in the natural and cultivated ecosystems all over the Curvature Carpathians began since 1971, and continued irregularly till 2010. The most numerous identifications of the insectivorous and rodent mammal species were made after the material was collected by spring traps, live traps, sheet iron cylinders buried in the ground, and the bat species were reported after the individuals caught with Japanese nets and by the Bat Detector (*BATBOX DUET*) with frequencies between 18 – 126 kHz. Middle and large sized mammals were not collected, and their data were gathered according to the observations on the spot, to the study of the tracks in snow or soft soil, to the paths and galleries, or to the burrows, droppings, hair left on the tree barks, when animals scratched their back or horns. A part of the information of hunting interest were got from the County Associations of the Sport Hunters and Fishermen and from the Forest Departments of the three counties (Prahova, Buzău and Vrancea) or directly, from the forest rangers.

Teleajen Valley belongs to Prahova Co. and the single contribution to the knowledge of the small-sized mammals along this valley was published by Andreescu and col. (1973). Other surveyed points in this county were on Zăganu Mt., Muntele Roșu, Ciucaș Mt. and Cumpătu Hill on the left bank of Prahova river – westernmost limit of the Curvature Carpathians.

For Buzău Valley (Pătârlagele, Sibiciu de Sus, Pănătău, Vipereni, Nehoiu and Culmea Mălui – Siriu Mountains), Murariu (1975) mentioned several mammal species of insectivores, chiropterans, rodents, carnivores and artiodactyles. In 1979, Murariu and col. reported only small-sized mammals – insectivores and rodents from Buzău Co.

In Vrancea Mountains were surveyed 15 stations: Andrieșu de Jos, Butucoasa, Crângul Petrești, Faraoanele, Fitionești, Gârbova, Lepșuleț, Măgura Odobeștilor, Rădulești, Răstoaca-Dumbrăvița, Schitul Tarnița, Soveja and Zboina Neagră.

After 2000, the ultrasound detector was used for the identification of the bat species. Collected specimens were measured, weighed, labelled with the provisory identifications and preserved for the collections of “Grigore Antipa” National Museum of Natural History of Bucharest.

From the altitudinal point of view, Low areas (150 – 200 m), the hills

(300 – 400 m) and the mountains can be distinguished. Adequately, specific diversity of mammals is altitudinally different along all surveyed localities, but also longitudinally.

A number of 55 mammal species were identified from the Curvature Carpathians (Vrancea Mts., Penteleu, Siriu, Ciucaș and Zăganu Mts.). Between them there are 40 common mammal species. For most of them there are information about their home range as well as about the approximately density. Altitudinal distribution, preferred habitat and their place in ecosystems are mentioned for all the reported species. Considering the protection statute, 18 species are vulnerable, 7 are endangered and 18 species of mammals has not enough evaluated populations to confer a certain statute. However, two of the species (*Mus musculus* and *Rattus norvegicus*) need to be controlled because of the risk to disseminate pathogenic agents (viruses and bacteria) of severe diseases for animals and humans.

## Presence and abundance of Rhinolophidae (Mammalia: Chiroptera) in N. E. Italy

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**Key words:** Chiroptera, Rhinolophidae, *Rhinolophus ferrumequinum*, *Rhinolophus blasii*, N. E. Italy.

Generally in Europe, the Horseshoe Bats (Rhinolophidae) are considered very endangered species. A view of actual status of the different species of this family, based on monitoring of known and classified roosts (after years of winter census), in caves and other habitats, considering most researches performed in the last 30 years in northeastern Italy (especially in Veneto region), is given here. More than 100 roosts of Rhinolophids were recorded and classified in the last 30 years, and the most important were monitored during the years.

In northeastern Italy (regions Veneto, Friuli-Venezia Giulia, Trentino-Alto Adige) four species of Rhinolophids were recorded: *Rhinolophus ferrumequinum* (Schreber, 1774), *Rhinolophus hipposideros* (Bechstein, 1800), *Rhinolophus euryale* (Blasius, 1853) and *Rhinolophus blasii* Peters, 1866. The last known specimen of *Rhinolophus blasii* was collected in the year 1960 in a cave in the province of Trieste, very close to the border with Slovenia.

More than 100 roosts of Rhinolophids were classified in the last 30 years.

The most abundant and widespread species is *Rhinolophus ferrumequinum*. More than 70% of classified roosts referred to this species. A limited number of nursery colonies was found (maximum number, circa 80 ind.; in province of Verona, region Veneto; year 2006). It is present in the plain, in the hills and mountains, maximum elevation of active bats was found at 1483 m a.s.l. (Lessinia park, province of Verona, region Veneto). *Rhinolophus ferrumequinum* presents the most numerous colonies of Rhinolophids, also with hundreds of individuals (maximum number 315 individuals, winter colony; in province of Vicenza, region Veneto; year 2005).

The second species in number, is *Rhinolophus hipposideros*. In most cases, it is present only in a low number, and at first appeared to be reduced in number or absent in many caves in last decades, but in the last 15 years several

new roosts were found (especially in hill and mountain habitats) also with maternity colonies (maximum number 31 individuals, nursery, in province of Vicenza, region Veneto; year 1998). It is present in hill and mountain habitats, and seems to be specialized to use very deep parts of some cave as roost, with a late emergence. Maximum elevation of active bats was found at 1483 m a.s.l. (Lessinia park, province of Verona, region Veneto).

The less abundant species of horseshoe bat in northeastern Italy, is *Rhinolophus euryale*. This Mediterranean species has the northern limit of its distribution in this area, and seems very rare and localized in the region Veneto, absent in Friuli-Venezia Giulia, it is present mostly in the southern part of the province of Trento, quite close to the great lake of Garda. A colony in a cave in province of Trento, represents the northernmost record of presence for this species.



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**Using *Unio crassus* Philipsson, 1788 (Bivalvia: Unionidae) as a valuable tool for rivers' ecological state assessment; case study - the Hârtibaciu River (Olt River Basin, Transylvania, Romania)**

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**Key words:** population ecology, spatial dynamics, human impact.

The naiad species *Unio crassus* is a “flagship” species, listed by the Annexes II and IV of the EUHSD (92/43/EEC 1992) also known as the Habitats Directive. Its past and present distribution indicates that it is the most characteristic naiad for the Romanian Carpathian Basin environmental conditions. It lives preferentially in flowing waters from hills, plateaus and depressions, being often the single or the most abundant naiad species inhabiting the flowing waters, especially in the upper or middle rivers' courses, being found in lowland sectors as well. *Unio crassus* is considered a key-species, proving a high quality of the freshwater environment. However, during the XX<sup>th</sup> Century it became more and more scarce, often regionally or locally extinct, because the pollution and debasement of environmental quality, as well as the hydrotechnical plants. Thus, we consider it as a vulnerable species.

Considering its ecological features, the authors have conceived a methodological algorithm for using *Unio crassus* as a valuable tool for freshwater environment quality assessment and monitoring. The beginning was to analyse adequate comparative methods for field investigations, sampling and choosing between different ecological measures, as well as running in parallel a case-study along a river from southern Transylvania. The following steps have been covered: selection of sampling sites, assessment of ecological density, biomass and related statistics, stage-specific populations' structure, spatial dynamics analysis and statistical models of populations' and communities' measures along the river's longitudinal gradient. The next steps were classifying the river's sectors according to their ecological state and human impact, drawing proposals for correlation of the present enterprise with other freshwater ecological methods for environmental quality assessment and establishing scenarios for future trends prognosis. Finally the authors suggest a proper software and a computer-based simulation environment for calculus and models for the given items.

## **Arthropod community structure and environmental correlates in the mesovoid shallow substratum (MSS) of scree habitat in the „Piatra Craiului” National Reserve, Romania**

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**Key words:** abiotic parameters, invertebrate communities, quantitative analysis, rock debris, subterranean superficial environment.

Invertebrate communities of superficial underground compartment (SUC) or mesovoid shallow substratum (MSS), a subterranean network of voids immediately under the soil and scree horizon, were scarcely studied, especially due to the sampling difficulty. Earlier studies suggested that the MSS might play an important role in the life cycle of some species adapted to the subterranean habitat (troglobitic species). Besides this, a number of soil species were identified into the MSS. The question is if the screes play an important and constant role for the soil and subterranean faunal structure and dynamics (and in this case, how is the arthropod community from the MSS influenced by environmental variables) or, its role is minor, restricted just to the life cycle of few species adapted for this habitat and some other preferential soil species. The aim of our research was to investigate the role played by the MSS in the invertebrates' faunal structure (soil and subterranean species) and seasonal dynamics.

140 species were identified, out of which 85 species were unique. Only one troglobitic species (*Duvalius deubelianus*) was recorded in the MSS. Nine species were identified as characteristic for this compartment in the study area. Other 110 species from the MSS were represented by soil-dweller species that inhabited this compartment in different patterns. The results of our study show that arthropod community structure varied with altitude, surface habitat type, sampling depth and were related with surface relative humidity and surface and subsurface temperature. Joined analyses of the environmental factor influence and seasonal variation of arthropods abundance and biomass emphasize the importance of MSS in species dispersal and survival. The MSS has a key role in the life cycle and acts as an ecological or seasonal microrefuge for many edaphic and euedaphic (soil) species.

**Biological studies including life history study of *Tetranychopsis horridus* (Canesterini & Fanzago) (Acari: Tetranychidae) under laboratory conditions**

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**Key word:** Hazelnut, life table, *Tetranychopsis horridus*.

*Tetranychopsis horridus* (Canesterini & Fanzago) (Acari: Tetranychidae) is a mite of inadequately known biology that lives on hazelnut crops in Ardabil province, Iran. The mites are spread randomly on the leaves, and they prefer the upper surface of the leaves to lay their eggs, especially on the midrib of the leaves. We studied the biology of *T. horridus* under controlled conditions (15°C, 60% RH and a photoperiod of 16L: 8D hours). Duration of each life stages longevity, reproduction rate, the intrinsic rate of natural increase ( $r_m$ ), net reproductive rate (R<sub>0</sub>), mean generation time (T), doubling time (DT) and finite rate of increase ( $\lambda$ ) of *T. horridus* on the hazelnut plants were calculated. Differences in fertility life table parameters of this mite on host plant analyzed by means of pseudo-values, which were produced by jackknife re-sampling. The averages of adult longevity, Pre-oviposition, oviposition and post-oviposition period of *T. horridus* were 20.2, 4.5, 11.2 and 4.9 days, respectively. The mean developmental time was 65.8 days. Values of  $r_m$  and finite rates of increase ( $\lambda$ ) were 0.019 individuals day<sup>-1</sup> and 1.02 day respectively. The population doubling time (DT) and mean generation time (T<sub>c</sub>) showed 34.8 and 62.5 days, respectively. Data on these points is still needed to obtain an extensive picture of the factors that determined the dynamics of *T. horridus* populations. The results of this study offers direction for future study on estimating the performance of other species of mites.

## Growth strategies of the water bugs (Heteroptera: Nepomorpha, Gerromorpha) in relation to their life cycles

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**Key words:** water bugs, growth, life cycles, autecology.

Growth of twelve water bug species was studied. These species mutually differ in both morphological and ecological features. They can be categorized by type of life cycle into following groups: (1) semivoltine species (*Aphelocheirus aestivalis* (Aphelocheiridae); (2) univoltine species with: (a) long oviposition period and development (*Nepa cinerea*, *Ranatra linearis* (Nepidae), (b) short oviposition period and development (*Corixa punctata* (Corixidae), *Notonecta glauca* (Notonectidae), *Ilyocoris cimicoides* (Naucoridae); (c) overwintering nymphs (*Micronecta scholtzi* (Corixidae); (d) long living adults (2 years) and long development (*Plea minutissima* (Pleidae); (e) long living adults (at least 2 years), overwintering adult and egg stage, summer dormancy, cohort splitting nymphs (*Velia caprai* (Veliidae); (3) bivoltine species (*Cymatia coleoprata*, *Sigara falleni* (Corixidae), *Gerris lacustris* (Gerridae).

Growth equations and curves of individual species were compared. Generally, species with bigger body grow faster and more intensively in comparison with the small ones (except *C. punctata*). Three different growth strategies were distinguished in bivoltine species or in univoltine species with cohort splitting nymphs: (i) individuals of the 2<sup>nd</sup> generation are smaller than the 1<sup>st</sup> generation ones, positive compensating growth proceeds in the embryos of the 1<sup>st</sup> generation (*C. coleoprata*); (ii) all nymphs of the 2<sup>nd</sup> generation or late summer to autumn cohort of nymphs respectively are smaller than the nymphs of the 1<sup>st</sup> generation or early summer nymph cohort respectively; compensating growth proceeds between the 5<sup>th</sup> nymphal instar and adults of late summer specimens (*G. lacustris*, *V. caprai*); (iii) younger nymphs of the 2<sup>nd</sup> generation are smaller than the same nymphs of the 1<sup>st</sup> generation; older nymphs and adults are larger in comparison with corresponding individuals of the 1<sup>st</sup> generation; compensating growth or development respectively proceeds in younger nymph of the 2<sup>nd</sup> generation and embryos of the 1<sup>st</sup> generation (*S. falleni*).

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## **The importance of the necrophagous insects (Diptera, Coleoptera) in the organic matter decay within different conditions of exposure to the control factors (Romania)**

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**Key words:** necrophagous, Insecta, species, forensic entomology, Romania, original experiment

The study of the necrophagous insect fauna brings information by giving numerous data got after experimental studies in the knowledge development of the necrophagous insect associations (biology, ecology, ethology, etc.), as well as their use in forensic field.

In this respect, we have made an experiment in which we used specimens of *Meles meles* along a period of about 8 months (March - October 2011). We observed the succession of the necrophagous insects according to the exposure way of the corpses to different control factors: light, temperature, humidity, etc. We used three exposure methods: in open air, covered by plastic and buried in the ground. The experiment monitoring was made every day, recording the temperature and humidity values using some humidity and temperature meters, making observations on the weight of the corpses, and not the least, making photos of the decaying stages. The presence time of the necrophagous insects was recorded, according to the factors which influenced the local entomological fauna along the experiment, as well as the altering process of the corpses.

Dipteran species belonging to the families Calliphoridae, Muscidae etc. were identified subsequently, as well as numerous coleopteran species. Most of the observed and caught specimens belong to the order Diptera. A number of 271 specimens (33 pupae, 139 larvae and 99 adult specimens) were captured, and of the order Coleoptera, counting 53 specimens (43 adult specimens and 10 larvae). It was observed that the species *Calliphora vicina* was present along the entire experiment, representing one of the prevalent insects of the colonizing necrophagous insect wave.

The entomological importance of the knowledge of the importance of these insects relies on the fact that they are present from the very beginning till the last stages of the decaying process, beginning from the corpses which do not spread pestilential smell (species of Calliphoridae, Muscidae, etc.), till to total drying of the tissues (species of Dermestidae, Tineidae, etc.).

## Testing the enemy hypothesis: the case rose galls

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**Key words:** *Diplolepis*, parasitism rate, parasitoid presence, gall morphology, differential adaptation.

The Enemy hypothesis predicts that natural enemies increase the morphological diversity of galls. To test this hypothesis we studied gall morphological traits and their effects on parasitoid community structure and presence probability in two closely related gall inducers, *Diplolepis rosae* and *D. mayri* on wild roses.

Studies targeting relationships between gall morphology and gall inducer fitness at intraspecific and broader taxonomic levels (i.e. between genera) support Enemy hypothesis, but at intermediate taxonomic levels (i.e. closer interspecific level) there remains more to be examined.

In galls of *D. mayri* chamber wall thickness was linked with a lower parasitoid presence probability and a constant parasitism rate across its gall size interval. In galls of *D. rosae* chamber wall thickness was linked with a higher parasitoid presence and a diminishing parasitoid rate towards larger galls. Thus, morphology of galls of the two species were consistent with the Enemy hypothesis: lowering parasitoid rate by increasing gall size and lowering parasitoid presence probability by increasing chamber wall thickness.

These findings confirm Enemy hypothesis and the adaptive significance of gall morphology in two closely related gall inducing cynipids which initiate multilocular galls on *Rosa* shrubs. At a lower taxonomic level such comparisons are scarce, therefore, we suggest laying emphasis not only on broad taxonomic level surveys.

## **Microhabitat selection and feeding ecology of the *Ablepharus kitaibelii* populations in Northern areal limit**

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**Key words:** skinks, Romania, habitat selection, compositional analysis, microecology.

Snake-eyed skink (*Ablepharus kitaibelii*) is the single representative belonging to Scincidae family occurred in to Romania. Snake-eyed skink is distributed mainly in Southern Romania (Banat, Romanian Plain and Dobrogea), in low-land forests with *Quercus* sp. and many species of Graminaeae and with leaf-cover. The present paper deals with the results on microhabitat selection of two populations of snake-eyed skink from Dobrogea (Măcin and Babadag forests) and one population from Banat (Dubova). The similarities between populations were calculated using Jaccard Similarity Coefficient. The coefficient reveals that Dobrogea populations are very similar, but very different in comparison with Dubova population. Under these circumstances, we analyzed the microhabitat data in a manner to figure out if the Dobrogea populations have different microhabitat preferences than the population from Dubova. For microhabitat selection analysis, we recorded 24 microhabitat variables for each observed lizard spot. As a result, *Ablepharus kitaibelii* from Dobrogea does not select its microhabitat, mostly probably because of the homogeneity of habitats from Dobrogea. According to our studies, the *A. kitaibelii* population from Dubova selects its microhabitat, mainly because the habitat is more heterogeneous at Dubova and the individuals need to select their microhabitat for better sunny areas. We also analyzed the food preference of *A. kitaibelii* in these studied populations. All statistics were made using XL Stat Pro 2010 for Microsoft Excel.

## Possibilities of modeling of underground systems as bats' hibernacula

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**Key words:** Chiroptera, modeling of underground systems, refugioclimate, strategy of hibernation.

Species of bats are protected – to varying degrees – in every country on the European continent. This issue has been comprehensively discussed in many publications (Kunz, Fenton, 2003; Mitchell-Jones et al., 2007; Wołoszyn, 2008). However, despite numerous studies there are still a lot of „missing pieces” on the map of knowledge of bats. There have been some attempts to aim at the developing ways of protecting and managing underground systems that take into account the needs of bats (Mitchell-Jones et al., 2007). So far, however, this issue has not been fully explained. The attempts that have been currently undertaken are conducted rather intuitively, i.e. without sound scientific basis. Until now, factors that allow for settlement in underground systems as well as factors whose existence may affect the distribution of bats have not been identified.

Previous studies have focused mainly on measurements of temperature and humidity as well as airflow - the latter one has been rarely addressed (Kłys, 2008). Knowledge of the most important factors determining the habitat of bats and allowing for their entering hibernation as well as the knowledge of the relationship between determinants of habitat and ecoclimate may be of important theoretical and practical value. Knowledge of these relationships may also enable one to predict and create artificial habitats for endangered species of bats. There is a possibility of modeling a refugioclimate conditions for the purposes of hibernation – the creation of artificial hibernacula as well as protection of existing ones.

The publication entitled „Multivariate analysis of refugioclimate in the place of hibernation of selected species of bats” (Kłys, 2011) has been the first attempt to describe the rudiments underlying conditions of refugioclimate during hibernation of the most popular six species of bats found in underground systems: *Rhinolophus hipposideros* lesser horseshoe bat, *Myotis myotis* greater mouse-eared bat, *Myotis daubentonii* Daubentons bat, *Myotis nattereri* Natterer's bat, *Plecotus auritus* brown long-eared bat and *Barbastella barbastellus* barbastelle.



In addition to numerous biological factors, such as security from predators, there is a large number of physical factors affecting hibernation: the physical and chemical composition of air, the ability to attach to the ground, air movement, air temperature, temperature of surrounding objects (rocks), air humidity, thermal conductivity of rocks, the air phase transitions, geothermal heat penetrating rocks, air pressure and, finally, the influence of external conditions.

In this study, the aforementioned bat species are compared and contrasted with each other; in particular, their hibernation strategies, and basic physical correlations of refugioclimate:  $T_s$  - dry temperature,  $rh$  - relative humidity,  $v$  - air flow velocity (speed),  $p$  - air pressure and  $\lambda$  - the degree of thermal conductivity of rocks. The analysis enabled one to present and calculate the linear and quadratic functions for both individual species as well as hibernation strategies. Below, one may find an example of a calculation for the species *Barbastella barbastellus* in the strategy individual hibernation, "Ia" (free hanging), where the decisive factor impacting cooling down is convection.

$$Rh = 19.6503 - 394,0034 \cdot 70,7881 * T_s * v * 2.3965 * T_s T_s T_s 47.5522 * * v - 411, 4992 * v * v$$

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## Small mammals' communities in a mosaic landscape from southern Transylvania, Romania

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**Key words:** rodents, insectivores, habitat preferences, community structure.

Small mammals' communities were studied by live trapping during August-September 2010 and June-September 2011 in three localities from Hârtibaciu Plateau, in southern Transylvania. The area is situated between 420 and 550 m a.s.l., and represents a mosaic of small patches of different land use.

200 traps were set in line transects for three consecutive nights, in 50 different habitats representing 11 habitat types, both cultivated (wheat, maize, alfalfa) and semi-natural fields (hayfields, pastures, forest edges, unused fields along canals or roads).

Over 1000 small mammals, belonging to 15 species (4 insectivores and 11 rodents) were trapped. For each specimen species, sex, age class and weight were recorded. Abundance of small mammals was expressed by means of capture index (number of individuals caught per 100 active trap-nights).

Small mammals' community structure is strongly shaped by habitat type, even in case of small land patches. The rodents' assemblages are habitat characteristic. *Microtus arvalis* prevails in the investigated area, being the dominant species in open fields with high grassy vegetation (especially hayfields, where it is the only frequently captured species). The density of this species increases from the beginning of summer to autumn, when the capture index can reach values close to 100, in suitable habitats. In unused fields along riverbanks or canals *Apodemus agrarius*, prevails and *Pitymys subterraneus* is a characteristic species. Maize fields are inhabited by *Apodemus uralensis*, *A. agrarius* and *Mus musculus*, while alfalfa patches are dominated by *M. arvalis*. Along forest edges *Apodemus flavicollis* is most frequently encountered, being a typical forest species. *Clethrionomys glareolus*, another woodland species, has low densities in the area, being outside its optimal range (mountain forests). Insectivores seem to be less dependent on the habitat type.

## **New data on bycatch and strandings of the Black Sea cetacean situation in the Romanian coast, and measures to limit bycatch deaths/fatalities**

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**Key words:** Black Sea, cetaceans, bycatch, stranding, acoustic deterrent devices, new data, Romanian coast.

In the Black Sea the cetaceans are represented by three species, *Phocoena phocoena relicta*, *Tursiops truncatus ponticus* and *Delphinus delphis ponticus*. The main threat and cause of decline for the Black Sea dolphins are the fishing nets, so-called bycatches.

For protection of the dolphin populations from Romanian Black Sea area in conformity with the objectives of the „National Action Plan for Conservation of Dolphins” and „Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic Area”, with finance from European Union through the Sectorial Operational Programme – Environment, NGO „Mare Nostrum” started a series of activities in partnership with National Institute for Marine Research and Development „Grigore Antipa” Constanța, Danube Delta Biosphere Reserve Authority, National Agency for Fishing and Aquaculture, Natural Science Museum Complex „Dolphinarium” Constanța, Border Police Inspectorate of Constanța County.

Among these activities we will present in the following study the situation of strandings and by-catch of dolphins in the Romanian coastal waters during 2010 and 2011. The data were collected from the entire Romanian coast, from Sulina to Vama Veche.

During the study more than 100 expeditions were done by land and water along the coast. Data collected recorded over 140 dead cetaceans and 1 alive; the main cause of this mortality was due to drowning in the fishing nets.

To reduce the number of bycaught dolphins we are studying the effect of pingers (ADD/Acoustic deterrent devices) on cetaceans and fishes. In this order data were collected from five fishing units (Sulina, Vadu, Corbu, Midia, Costinești) equipped with these technologies. This measure of protecting the dolphins from the fishing nets is proposed also in ACCOBAMS.

## **Contributions to the scientific study of physiological and molecular bases of mammal hibernation and their practical applications**

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**Key words:** hibernation, heart cryosurgery, organs preservation, hypothermia, ischemia, muscular atrophy.

Hibernation, a cold avoiding mechanism, consists in an inactivity state that small mammals maintain for a few weeks at a temperature between 2-5°C. Mammals save almost 88% of their energetic resources by lowering their metabolism thus ensuring their survival in unfavourable conditions.

The process is initiated by the decrease of the hibernation proteic complex (HPC) in blood and its increase in the cerebro-spinal liquid. Hormonal signals essential for hibernation are transported to the brain by Hpc and are responsible for seasonal behaviour changes.

The temperature threshold for the metabolism activation through hypothalamic stimuli decreases daily, while the level of serotonin, melatonin, insulin and cerebral opioids increases. The reset of metabolic equilibrium at low temperatures consists in: changing the ratio between ionic channels and pump like proteins, the suppression of Na<sup>+</sup>, K<sup>+</sup> -ATP-ase, structural changes of protein isoforms, the redistribution of proteins between the soluble and the membrane bound forms, some enzymatic activities and lipidic environment changes. Lipolysis, gluconeogenesis and the restriction of carbohydrates use are promoted. The carbohydrates deposits decrease and their use is inhibited in most organs. Gluconeogenesis from glycerol and amino-acids produces glucose used by the brain. During hibernation the central nervous system uses also ketonic bodies. The changes in electron transporter chain inhibit the thermogenesis. The use of apneal respiratory ways induces respiratory acidosis, decreases sanguine pH, which influences the equilibrium between the tetramer and dimer of muscular phosphofructokinase, and limits the stimulation of brown adipocyte lipase by norepinephrine.

Understanding hibernation's mechanism of avoiding cardiovascular and oxidative stress could help achieving better results in heart and brain cryosurgery, organs preservation before the transplant and treatment of lethal diseases, hypothermia, ischaemia, muscular atrophy, bacterial infections and tumour genesis.

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## Recent distribution of *Dreissena* species in Bulgaria

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**Key words:** *Dreissena polymorpha*, *Dreissena bugensis*, native range, invasive species, reservoirs, river basins.

The native range of zebra mussel *D. polymorpha* in Bulgaria included the Danube River and the Black Sea coastal rivers and lakes. In the Bulgarian stretch of the Danube River, the quagga mussel *D. bugensis* was first recorded in 2005. Recently, a rapid spread of *Dreissena* species in the inland waters of Bulgaria was observed. All published and original data on *Dreissena* occurrence in the Bulgarian rivers, lakes and reservoirs were summarized for the present study.

So far adult forms and shells of zebra mussel were recorded in 48 inland water bodies in Bulgaria and adult forms and shells of quagga mussel in 3 water bodies. 5 of the water bodies belong to the zebra mussel native range – three Black Sea coastal lakes and two rivers. There is one new record in a Black Sea river. The rest of the inland water bodies are considered as a part of *Dreissena* invasive range. A total of 18 of the infested water bodies belong to the Danube River basin, 15 to the Aegean Sea basin and 9 to the Black Sea. Before 2005, *Dreissena* species were reported as introduced only in five reservoirs and one lake, while after 2005, the species was found in 43 more. The potential dispersal mechanisms and pathways of introduction of the species are discussed.

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## Current threats of indigenous crayfish species in Romania

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**Key words:** indigenous crayfish, non-indigenous crayfish, crayfish plague, *Aphanomyces astaci*, Romania.

Three native species of crayfish live in Romania, i.e. *Astacus astacus*, *Astacus leptodactylus* and *Austropotamobius torrentium*. In the present situation all the three species are profoundly threatened in the long term. Natural habitat degradation overlaps with the invasion of the North American species, these species led to the replacement of the European native species. Two of these invaders, *Pacifastacus leniusculus* and *Orconectes limosus*, have extended their distribution in the River Danube catchment; the latter was detected for the first time in Romania in 2008. It also carries the crayfish plague agent *Aphanomyces astaci* that is deadly to all native species of crayfish in Europe. *O. limosus* expanded downstream at a rate of ca. 15 km yr<sup>-1</sup>, in August 2011 it already occurred in the upper 105 km of the Romanian Danube. An agent-specific real-time PCR analyses demonstrated the presence of *A. astaci* DNA in analysed invasive and native crayfish coexisting in the Danube. Furthermore, *A. astaci* was also detected in *A. leptodactylus* captured about 70 km downstream of the *O. limosus* invasion front (at the time of sampling). Assuming a steady rate of expansion, *O. limosus* may invade the sensitive Danube Delta area in the mid-2060s, even without involving long-distance dispersal. The crayfish plague agent, however, may reach the delta substantially earlier, through dispersal downstream among populations of native crayfish. So far, a solution has not been found in eradicating the disease or the non-indigenous crayfish species, the only viable solution is the conservation of native species protected by the barriers known as “arc sites”.

***Leptoglossus occidentalis* Heidemann, 1910 (Heteroptera: Coreoidea):  
a new record for the invasive true bugs fauna of Romania**

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**Key words:** alien species, Coreoidea, *Leptoglossus occidentalis*, Romania.

This paper presents a new record of *Leptoglossus occidentalis* Heidemann, 1910 in Romanian Fauna. *Leptoglossus occidentalis* is an invasive coreoid true-bug in Europe Fauna, originating in western North America where it is considered a pest of conifer seeds on account of which it feeds (Taylor, Tescari & Villa, 2001). This species has been introduced in Europe in 1999 (Bernardinelli & Zandigiaco, 2001), and its presence was firstly reported in northern Italy, then spreading in Slovenia (2003), Croatia (2004), Hungary (2004), Austria (2005), Hungary (2006), France (2006), Germany (2006), United Kingdom (2007), Slovakia 2007, Belgium (2007), Poland (2008) (Kment & Banar, 2008; Barta, 2009), Montenegro (2008), Serbia (2008), Bulgaria (2008), Norway and Denmark (2009), Republic of Moldova (2010) (Rabitsch, 2010). In 2009 the species has been reported for the first time in Romania in two specimens, collected in the Cluj county area (Ruicănescu, 2009).

In 2011, the species was found in Galați city and in Greci village too, close to Măcin Mountains National Park, both sites being located in south-eastern Romania. This paper presents also aspects of *Leptoglossus* biology, economic importance, impacts and control methods (Lis J. A., Lis, B. & Gubernator, 2008).

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## ***Trichoferus campestris* (Faldermann, 1835): an alien longhorn beetle in Romania**

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**Key words:** Cerambycidae, alien wood-boring beetle, Romania.

*Trichoferus campestris* (Faldermann, 1835) is an alien wood-boring beetle in the family Cerambycidae (longhorn beetles) native to an area from the Caucasus and Central Asia to Japan. The immature stages are developing in the dry wood of both broadleaf and coniferous tree species and are thus a potential threat to timber. It was never published for Romania before the last Catalog of Palaearctic Coleoptera. We confirm the presence of *Trichoferus campestris* in south and east Romania based on several specimens from different localities (Craiova, București, Agigea, Ivești, Iași etc.), the first specimen being collected in 2003. Judging by the available records, it seems that this species is spreading in Europe according to an east to west pattern, starting most probably from Southeast of European Russia where it was recorded in the 80s. Judging from the number of reported specimens it seems that the species became already established in several Central and East European countries, including Romania, and this creates new quarantine problems. Even if phytosanitary interceptions at borders prevented for the moment its introduction in Western Europe from Asia, as a consequence of intense commercial traffic, this species will probably colonize most of Europe in the near future, due to its natural dispersal.

## **New data on the distribution of unicellular parasites along central corridor of trans European migration of Ponto-Caspian gammarids (Crustacea, Amphipoda)**

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**Key words:** migration, central corridor, Gammaridae, Microsporidia, Gregarinida.

Central migration corridor (CMC) covers the network of reservoirs and canals, connecting the Black Sea, Southern Baltic and North Sea. It performs a vital role in the inter basin transfer of aquatic organisms and their parasites. Ponto-Caspian amphipods belong to the most expansive migrants in the waters of Central and Western Europe.

Our studies conducted between 2008 and 2011 established several patterns of distribution of Amphipoda parasites throughout the CMC, from the North-Western Black Sea to the Rhine estuary (Black Sea Limans, Dnieper Estuary, Middle Dnieper, Prypiec River, Prypiec - Bug Canal, Bug River, Vistula River, Brandenburg Canal, Mittelland Canal, Issel Canal, Baltic Sea). Fourteen species of gammarids, were examined for the presence of parasites. Representatives from five taxonomic groups of parasites (Apicomplexa, Microsporidia, Acanthocephala, Trematoda, Nematoda) were detected.

Unicellular parasites (Apicomplexa and Microsporidia) were predominant in all tested parts of CMC. High prevalence of unicellular parasites (9.3-48.0%) was observed. Maximum prevalence of gregarines (42.9-48.0%) was noted in Dnieper Estuary and Baltic Sea (Hel Peninsula). From 4.8 % to 37.5 % of investigated gammarids were infected by microsporidians. Their maximum prevalence (37.5 %) was noted in Brandenburg Canal (Germany). Only gregarines (*Cephaloidophora* spp.) were noted in gammarids from Baltic Sea.

Significant reduction in parasite species diversity was observed in the western parts of CMC. Moreover increase of prevalence of unicellular parasites infecting Ponto-Caspian invaders (*Dikergammarus villosus*, *Chaetogammarus trichiatus* and *Ch.ischnus*) was noted.

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## Ectoparasite infestation of rodents in Hârtibaciu Plateau, Romania

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**Key words:** mites, ticks, fleas, lice, prevalence, infestation intensity, host preferences.

The data published up to the present on rodents' ectoparasites from Romania are mainly faunistic, few mentions are made on the ecology of parasites, on their spatial distribution and temporal dynamics. Also, very few data on Ixodidae (ticks) and Trombiculidae hosted by rodents are available from Romania.

The present study aims to present some data on the host specificity of ectoparasites in the investigated area, the dynamics of prevalence and infestation intensity of some parasite groups during the warm season, and the influence of habitat characteristics on these parameters.

Data on the ectoparasites taxa were collected from rodents trapped during August-September 2010 and June-September 2011, periods in three localities from Hârtibaciu Plateau, in southern Transylvania. The area is situated between 420 and 550 m a.s.l., and represents a mosaic of small patches of different land use. 200 traps were set in line transects in 50 different habitats representing 11 habitat types, both cultivated (wheat, maize, alfalfa) and semi-natural fields (hayfields, pastures, forest edges, unused fields along canals or roads).

Over 600 rodents belonging to 10 species were examined for ectoparasites. Prevalence was expressed as number of infested rodents per total number of captured specimens, and infestation intensity was expressed as number of parasites belonging to a certain taxa (we considered only ticks and fleas) hosted by a rodent. Of the four taxa of ectoparasites known from Romanian rodents we identified only three on the captured specimens, namely: Acarina (including Ixodoidea), Siphonaptera, and Anoplura. Confirming our previous results, beetles (Coleoptera) were not found in this lowland area. Mites, and among them *Trombicula autumnalis*, followed by fleas, have the highest prevalence. Tick infestation intensity varies significantly during the warm season, being highest in July.

## Chewing lice of wild birds in Iran, with new records

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**Key words:** Lice, Birds, Iran.

This study was performed between 2008–2010 in Iran. For this purpose we tried to check some of the available wild bird species and mostly not checked before, in order to identify the infestation with lice. In this way we checked 79 specimens of 6 bird species.

We identified 11 lice species on the birds and overall 15.2 % of the examined birds were infested by the lice. *Aquanirmus podicipis*, *Pseudomenopon dolium*, *Ardeicola* sp., *Ciconiphilus decimfasciatus*; *Menacanthus* sp., *Austromenopon transversum*, *Pectinopygus gyricornis*, *Colpocephalum turbinatum* and *Hohortstiella lata* were recorded for the first time on the birds in Iran. One specimen of *Menacanthus* sp. was found on the Purple Heron for the first time in the world, in this study.

## **Chewing lice (Phthiraptera: Amblycera, Ischnocera) from wild birds - Taxonomical and parasitological novelties**

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**Key words:** chewing lice, birds, prevalence, first description, new host-parasite association, new records, Romania, Slovenia.

We present the results of our studies on the chewing lice from wild birds in Romania and Slovenia, developed in 2011. The controlled birds were captured with mist nets during the pre-breeding and post-breeding migration (April, May, August and September), and during the breeding season (July and early August). The birds were caught in 7 sites, as follows: Letea, C. A. Rosetti (the Danube Delta, Tulcea County, Romania); Visterna (Babadag Forest, Tulcea County, Romania); Vadu (Constanța County, Romania); Poiana Stampei (“Tinovul Mare”, Suceava County, Romania); Stăncuța (Brăila County, Romania); Vrhnika (Ljubljansko Barje Park, Slovenia).

A total number of 771 birds from 7 orders, 27 families and 66 species, with different ages (301 adults, 464 juveniles and 6 of an unknown age) were examined. We found chewing lice on 129 individuals (91 adults and 37 juveniles), from 5 orders, 17 families and 29 bird species. The total prevalence of the chewing lice was of 16.73 (n=771). The rest of 642 controlled birds (210 adults, 427 juveniles and 6 of an unknown age), from 6 orders, 21 families and 54 bird species, were not infested with ectoparasites of this group. In the case of Ciconiiformes and Falconiformes orders, the prevalence of the chewing louse infestation was zero (meaning that none of the controlled birds were infested with chewing lice). From the other bird orders, the lowest value of the prevalence occurred in Passeriformes, and the highest value in Piciformes and Charadriiformes, as it can be seen from the following data (between brackets it is the number of the infested birds with chewing lice / the number of the controlled birds): Ardeidae (0/1) [Ciconiiformes]; Accipitridae (0/2) [Falconiformes]; Haematopodidae (1/1), Recurvirostridae (3/3), Charadriidae (2/2), Scolopacidae (19/22), Sternidae (1/6) [Charadriiformes]; Strigidae (2/4) [Strigiformes]; Alcedinidae (2/9) [Coraciiformes]; Picidae (5/5) [Piciformes]; Hirundinidae (0/2), Motacillidae (0/18), Troglodytidae (1/1), Prunellidae (0/1), Turdidae (8/47), Muscicapidae (0/2), Sylviidae (27/413), Timaliidae (40/95), Paridae (2/39), Aegithalidae (0/8),

Remizidae (0/7), Laniidae (6/10), Corvidae (0/3), Sturnidae (5/5), Passeridae (1/12), Fringillidae (0/4), and Emberizidae (4/49) [Passeriformes].

We have remarked a high difference in the total prevalence of chewing lice in pre-breeding and post-breeding periods. Therefore, the prevalence of the chewing louse infestation was of 57.6 (n=158) within pre-breeding period and of 5.26 (n=570) within post-breeding period.

Also, it can be observed a high difference between the prevalence of the infestation with chewing lice in adult birds ( $P=30.23$ , n=301) in comparison with that in the juvenile ones ( $P=8.19$ , n=464).

From the 51 chewing louse species identified in the studied material, two are new reports for the Romanian parasitological fauna, namely: *Penenirmus phylloscopi* (Złotorzycka, 1976) (from *Phylloscopus trochilus*); and *Brueelia amsel* (Eichler, 1951) (from *Turdus merula*).

In this study we made, for the first time, a complete description of a male of *Penenirmus visendus* (Złotorzycka, 1964) (from *Panurus biarmicus*).

The following new chewing louse – bird species association is reported for the first time all over the world: *Menacanthus alaudae* (Schrank, 1776) on *Emberiza schoeniclus*.

Also, we report, for the first time in the parasitological fauna of Romania, a chewing louse species – bird species association, namely: *Menacanthus eurysternus* (Burmeister, 1838) on *Panurus biarmicus*.

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## **Conservation biology of the critically endangered Moldavian meadow viper (*Vipera ursinii moldavica*): an integrative approach**

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**Key words:** reptiles, threatened species, conservation, ecology, genetic diversity.

Snakes exhibit many of the biological characteristics which increase an organism's proneness to extinction. This, together with the ongoing pressures of habitat loss and intentional human persecution, rendered European snakes, especially venomous species, particularly vulnerable. The meadow viper (*Vipera ursinii*) has a wide but fragmented range, covering parts of Italy, France, Hungary, Romania and the Balkan Peninsula and is considered extinct from Bulgaria, the Republic of Moldova and Austria. *Vipera ursinii* is regarded as the most endangered viper in Europe, being labeled as vulnerable in the IUCN Red List and included in Annex II of the European Habitat Directive and listed in CITES Appendix I. The Moldavian meadow viper (*Vipera ursinii moldavica*) is a subspecies of *V. ursinii* endemic in Eastern Romania and is considered to be a critically endangered taxon. In this study, we investigated several biological characteristics relevant for the conservation of the Moldavian meadow viper populations from Eastern Romania. Thus, we modeled the potential distribution, studied the mitochondrial genetic diversity, habitat characteristics, activity patterns and microhabitat selection, the reproductive ecology, feeding habits, population size and density of the Moldavian meadow viper populations in order to provide a solid scientific background for the conservation of this highly threatened vertebrate species.

## **Structure and multiannual dynamics of winter colonies of bats in Peștera cu Apă din Valea Leșului Cave (Apuseni Mountains, Romania)**

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**Key words:** bat species, Peștera cu Apă din Valea Leșului Cave, *Myotis myotis/oxynathus*, *Rhinolophus ferrumequinum*, hibernating colonies.

The Peștera cu Apă din Valea Leșului is an active cave of about 800 m in depth, located in a limestone area at an elevation of 642 m a.s.l. This is one of the most important hibernacula in the Apuseni Mountains. We have carried out 15 censuses in the winter period between 1995-2010 and 12 bat species were identified inside the cave. Very high numerical fluctuations have been reported from one year to the other, respectively from 1,385 individuals in the 1995/1996 winter to 7,584 individuals in the 2005/2006 winter. The dominant species were *Myotis myotis/M. oxynathus* (max. 6,954 individuals in 24.03.2006) and *Rhinolophus ferrumequinum* (870 individuals in 01.03.2003) which represents 97.1 – 99.9 % from the total number of individuals. We have seen a very active colonization of the cave during winter time for the *Myotis myotis/M. oxynathus* species; there was an 82 % growth in the number of individuals between 12.12.2009 and 11.01.2010. In the same period, the number of Greater horseshoe bat individuals remained constant. The configuration of the cave ceilings represented the most important influential factor in the distribution of *Myotis myotis/M. oxynathus* colonies inside the cave. Colonies and/or isolated individuals belonging to this species were found only in the first 100 m and last 200 m of the cave due to the uneven ceilings, offering proper shelter for bats. In the middle section (of about 250 m) the ceiling is horizontal and very smooth so this area is not populated by any bats. During the months of deep sleep (December, January) the *Myotis myotis/M. oxynathus* is more frequent in the terminal part of the cave (also with uneven ceiling), whereas in March most of the individuals hibernate in the entrance sector, despite the high thermal fluctuations (3.8 – 7.1°C). Greater horseshoe bat forms a compact hibernating colony only in the terminal region of the cave. Ever since the beginning of the 2008/2009 winter, there has been a significant decrease in the number of bats from this cave (especially *Myotis myotis/M. oxynathus*).



## Long term dynamics of bat species colonies from Bulz Water Cave (Bihor County, Romania)

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**Key words:** *Miniopterus schreibersii*, *Myotis myotis*, *Rhinolophus ferrumequinum*, maternity colony, hibernating colony.

The studies on bat dynamics from the Bulz Water Cave, Iadului Valley (Bulz village, Bihor County, Romania) were initiated in 1995. During the detailed 17 years of study (summer-winter), we recorded considerable changes both in the hibernating colonies and in the maternity colonies. At the beginning of our research, in 1995 until 2006, *M. schreibersii* varied between 100 and 2800 individuals while the colony of *R. ferrumequinum* did not reach more than 210 individuals. Our recent studies (2006-2011) put us in front of a twist between these species. In time, some reversals have been identified on dominant values. The number of *R. ferrumequinum* increased annually (from 80 individuals in 03.2001 to 387 individuals in 03.2009) until they took the place of the *M. schreibersii* colony (from 2800 individuals in 03.2009 to 22 individuals in 03.2009). An explanation of this phenomenon may lie in the fact that the cave is the only suitable place in this region where bats can colonize. The cave entrance only offers a limited space for maternity and hibernating colonies, the rest of the cave being covered with dripping water. It seems that the *R. ferrumequinum* species had adapted better and occupied the older species habitat. The increase of the new bat population shows that they are attracted by the mosaic of feeding habitats around the cave. This effect is enhanced by the status of local water sources. The decrease of the earlier bat populations is due especially to the disturbance induced by speleotourism. The bat colonies are disturbed all year round because the cave is easily accessible. A very important habitat of the bats could be saved by protecting the cave.

## **Pattern for the conservation of a Greater mouse-eared bat (*Myotis myotis*) nursery colony in a man-made overground roost**

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**Key words:** *Myotis myotis*, maternity colony, conservation pattern, church attic.

In 2009, a nursery colony of Greater mouse-eared bats (*Myotis myotis*) was identified in the attic of the Orthodox Church in Prundu Bârgăului (Bistrița-Năsăud county, Romania), estimated at about 640 individuals. The impressive amount of guano in the attic and its infiltration through the ceiling led to extensive rehabilitation work done to the ceiling and church painting in order to prevent further infiltrations and leaks. These procedures proved to be a threat to the colony of bats and affected its size and stability. Therefore we initiated the first conservation and ecological reconstruction project for a bat roost in man-made overground structures in Romania. The colony is located under the roof throughout the entire active period and uses a single gateway for entrance and exit. This allowed us to build a wooden structure for guano collection and protection of the church ceiling and to develop an original method for protection of beams affected by bats urine. The procedures for conservation and ecological reconstruction of the roost were carried out according to EUROBATS regulations (Fairon et al., 1995; Marnell and Presetnik, 2010). In 2010, the colony size was of 790 individuals with a reproductive success rate of 72% and in 2011 it consisted of 680 individuals with a reproductive success rate of 73.5%. The duration of exits in 06.2011 (22.10h - 23.20h) was significantly lower than that of entrances (01.00h - 04.30h). Public lighting around the church was the most important factor of disturbance for the bats' exits and entrances. Breeding colonies of this protected species are relatively common in churches in Transylvania and therefore it is necessary to develop feasible conservation programs that could be successfully applied in similar cases.

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## **The analysis of favourability factors that determine choosing of dens by brown bears in south-eastern part of the Eastern Carpathians**

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**Key words:** brown bear, den, winter sleep.

One of the most important adaptations of the brown bear (*Ursus arctos*) to the conditions imposed by ambient is winter sleep. Superimposed on about a third part of the time of a calendar year, this stage of bear life is very important in terms of influence on survival and especially of natural growth dynamics, knowing the fact that bear females born in dens during winter.

In a Life Nature project dedicated to conservation of bears in Vrancea, Covasna and Harghita counties, 64 dens used by bears during winter sleep were identified, measured and monitored during 2010-2011. For each den it was filled a paper sheet containing coordinates of the location, type of cavity (dug in the ground, cave, hollow, fallen tree), physical characteristics (slope, exposition) of slopes, direction of orientation of the cavity axis, physical parameters of cavity (dimensions), vegetation in proximity, distance from water sources, and to the ways of communication.

Fifteen active dens in winter season 2010-2011 were monitored using video cameras with motion sensors and some recording equipment for temperature and relative humidity mounted inside the cavities, so that information were obtained on the bears activity during sleep winter and the dynamics of the ambient parameters inside dens.

Analysis of den locations revealed that bears prefer caves located in rocky slopes with sunny exhibition located at altitudes between 800-1200 m and cavities dug at the old tree bases (over 120 years) located on the eastern and south eastern slopes with gradients over 35 degrees. Microclimatic parameters monitored within dens showed that thermal amplitude and relative humidity value is linear, being recorded values approximately constant throughout winter period.

## **The analysis of the scores awarded to the trophies of brown bear skulls in the south-eastern part of the Eastern Carpathians - reflection on the wildlife management**

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**Key words:** brown bear, trophy, skull.

In Covasna, Harghita and Vrancea, approx. 60 individuals of brown bear are harvested annually. Measurements to determine the scoring of the trophies, watch full length and width summation of the skull of a bear. Armed with scores given values for 304 copies bear trophies (50 females and 254 Males), we considered that this information can be useful to identify some aspects of biology and ecology of the brown bear. We found that the average amplitude of the score values at the obtained trophies for bears with age estimated between two and six years is greater than the average amplitude of the scores values at the obtained trophies for bear specimens with age estimated between six and twenty-eight years. These data indicate that after the age of six-seven years, growth in size of the skull of a bear is relatively low but is continuing. There are also significant differences between the skulls of female's increases and those of males. Analysis of the scores continues following the differences between the season and geographic area on which the bears were shot.

## **Biodiversity Conservation in the Rams Genetic Selection Programs for Scrapie**

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**Key words:** TSEs, genotyping, polymerase chain reaction (PCR).

The paper describes the rams genotype profile, in a traditional Romanian sheep farm from southeast area. The main objective of the genotyping is to identify the resistant genotype (ARR/ARR) rams and that will be used for reproduction.

The results proved the highly variation of susceptibility in non-genetically selected herd. Even more, the number of rams susceptible and highly susceptible to scrapie was significant, 14 rams (56%) in class 2, making difficult the genetic selection. In the same herd, 1 ram (4%) in class 1, 8 rams (32%) in class 3, 1 ram (4%) in class 4 and 1 ram (4%) in class 5 were identified. The frequency of PRNP risk genotypes, susceptible and highly susceptible to scrapie (classified in risk groups 4 and 5, respectively), have been at 4% ARH/VRQ, 4% ARQ/VRQ. PRNP genotypes also associated with scrapie susceptibility (risk group 3) showed a frequency of 16% AHQ/ARQ, 4% ARH/ARQ and 16% ARQ/ARQ. All haplotypes have been found in the studied herd rams. The ARQ variant was the most frequent (56%). The ARR variant was present but in one ram.

The sheep PRNP gene genotyping by PCR with melting curve analysis revealed the presence of all five classes of scrapie susceptibility. Most of the rams were in class 2 (56%), meaning sheep genetic resistant to scrapie, but asking a special attention to be used in selection programs.

The development of programs for scrapie genetic selection should be preceded by genotyping rams so that they can determine the best strategy to prevent disruption of sheep genetic biodiversity.

## **Catalogue of crustacean collection of “Grigore Antipa” National Museum of Natural History from Bucharest. Part I.**

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**Key words:** catalogue, Crustacea, Mihai Băcescu.

It contains species from Infraorder Caridea, Achelata and Astacoidea from 106 species, 51 genera and 20 families. *Astacus fluviatilis* (*Astacus astacus*) and *Cancer pagurus* from Valștain’s period (1837-1860) are the most ancient crustacean from our museum. Crustaceans were mentioned as generic name in Ferreratti’s documents (1860-1867). Crustaceans are missing from Grigore Ștefănescu’s inventory (1867-1893). First ones that are still present in the museum seems to be those donated by dr. Hilarius Mitrea from Indonesia; 289 specimens were mentioned in Grigore Antipa’s inventory from 1932. From the total of 8254 decapods, 1144 specimens belong to the above mentioned infraorders. Some of them were bought from specialized companies like Wilhelm Schlutter or from others less known. First Romanian specialist in Crustacea who ever worked in this museum (1940-1999) was the late Mihai Băcescu (1908-1999). A great majority of our collection is due to his prodigious activity, being collected during Museum’s expedition in Tanzania (1973-1974), to his participation to different foreign expedition in Mauritania (1971) and Indian Ocean (1977) and to changes with specialist from other museums and research institutions. Other specimens were added by his younger colleagues, Dr. Modest Guțu, Dr. Ileana Negoescu and others, some of them collected during the Museum’s expedition in Indonesia (1991).

## **Ornithological collection of “Grigore Antipa” National Museum of Natural History of Bucharest - Catalogue of the egg collection**

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**Key words:** egg, collection, archive documents, Romania.

Ornithological collection of “Grigore Antipa” National Museum of Natural History of Bucharest has three published catalogues, till now: that of the skins and naturalized mounted birds of the Romanian fauna (Papadopol and Tălpeanu, 1986, 1987), nest collection (Petrescu, 2005) and skull collection (Petrescu and Chișamera, 2003). In the archive, I haven’t found documents which confirm the presence of an egg collection in the early years of the museum, when the collection curator was Carol Valstein, and later, Carlo Ferreratti. The first recorded data come from Robert Dombrowski, who collected 52 eggs of 13 bird species from Dobrogea, in July 1897. At the beginning of the 20<sup>th</sup> century, after several expeditions in Dobrogea, the collection made by Dombrowski, included over 300 eggs. In June 1904, Ion P. Licherdopol’s collection, consisting of 414 eggs of 133 species and 72 nests (72 species) is acquired, being evaluated at 251.68 lei. Ion P. Licherdopol worked as assistant at the Museum of Zoology of Bucharest, for ten years, between 1877-1887, and he was encouraged by Grigore Ștefănescu, director of the museum and his professor, to deal with molluscs. In that period, the end of the 19<sup>th</sup> century, it was fashionable for mallacologists to make bird egg collections. The Ion P. Licherdopol egg collection was much larger. It was sold just by collector, partially to the Museum of Craiova, 312 specimens (Ridiche, 2003), partially to the Faculty of Biology of Bucharest (used as didactic equipment for students for almost 100 years), and partially to the Museum of Zoology, the present “Grigore Antipa” Museum, where it is hosted up to now.

After Robert Dombrowski’s departure from the museum, in August 1916 till 1950, we haven’t found other data on this collection. The two ornithologists of the museum, Aurel Papadopol and Matei Tălpeanu, together with other specialists (colleagues), collected eggs and nests during the expeditions throughout the country, but after 1950. In 1990, the egg collection belonging to the famous Romanian ornithologist Dimitrie Radu is acquired, it containing 154 eggs of 21 species. Today, the egg collection of “Grigore Antipa” National Museum of Natural History of Bucharest is formed of 1747 specimens of 53 families, 114 genera, and 168 species of the Romanian fauna.

The paper is a short history of this collection, accompanied by archive documents and the catalogue structured by families, genera and species. Besides the collecting data, collectors' or donors' names, the egg size are also mentioned. Although it is a small collection, it includes important items as the eggs of some vanished species from the Romanian fauna: Great bustard (*Otis tarda*), Cinereous vulture (*Aegypius monachus*), Griffon vulture (*Gyps fulvus*) and others, all collected at the beginning of the 20<sup>th</sup> century.

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## **Working steps for mounting small mammals**

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**Key words:** taxidermy, naturalized animal, mammal, cotton-top tamarin, museum heritage.

Small mammals have always been a challenge to taxidermists, since the eye for details is so important for the final stages of the preparation. In this case the challenge came from a cottontop tamarin (*Saguinus oedipus*). Being a rare piece to get your hands on, it was vital that as many components as possible were saved, and so, an unique technique was necessary to accomplish that. After intense research, we've decided on a technique that allowed us to also keep the skeleton of the animal, except for the claws, that would be a part of the mounted animal. In order to illustrate the details of the face to the mounted animal, being covered with hair, we proceeded to prepare the mortuary mask, that was later kept as model. After the skinning, the head was crafted on a body-sized wire structure, in order to keep the exact measures. The bones of the legs and the muscles have been replaced with artificial materials, preserving the natural form of the body. The skin was treated for preservation, the body was created and the artificial eyes were installed. The final mounting was done by studying photographs of wild specimens. The skeleton was also prepared in order to compare it to the mounted animal.

## **Catalogue of Theodor Adensamer's donation (Austria) to the Museum of Natural History from Bucharest**

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**Key words:** donation, Adensamer, Vienna, Indonesia.

Collection donated by Theodor Adensamer from Imperial Museum of Natural History from Vienna in 1896 and 1897 contains molluscs, insects, crustaceans, fishes and reptiles from Indonesia.

Marinescu & Ionescu (1985) firstly mentioned this donation as being made in 1895 as it resulted from Antipa's letter to the Ministry of Culture and Public Instruction from 26<sup>th</sup> of July 1895 that Theodor Adensamer from Vienna donated a part of the material that he collected in 1893-1895 from Indonesia (Borneo, Sumatra, Java, Moluccas) and Japan. They also added that the collection (preserved in alcohol or dried items) arrived in three cases to Bucharest and contained specimens from almost all groups of animals.

According to information received from the Museum of Natural History from Vienna, Theodor Adensamer was born on 6th of July 1867 in Gross-Siegharts and died on 16th of November 1900 in Baden, Austria. He studied in Vienna and Germany, Leipzig and Jena. Doctoral thesis in Vienna (1891). He made an expedition in Indonesia (Java, Celebes, Moluccas) (1893-1894). After he returned, to Vienna he donated a large part of his collection to the Hofmuseum and to the University. From 1896 to 1899, he worked as volunteer in that museum and last year of his life as asistant, specialist in Crustacea, Arachnoida and Myriapoda.

His donation to the Museum of Natural History from Bucharest consisted in Invertebrates (Mollusca, few Polychaeta, one crustacean and Echinoidea) and Vertebrates (fishes, amphibians and reptiles and a mammal species). Most of them are different than those donated by Hilarius Mitrea from the same area.

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## **Donation of Kingdom of Sardinia and Piedmont to the National Museum from Bucharest**

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**Key words:** donation, Torino, Ferreratti, National Museum.

List of materials sent from Torino (211 minerals from Mineralogical Museum, 10 species of mammals, 98 birds, 11 reptiles from Zoological Museum) and Genova (Royal Museum of Natural History, 117 mounted and skins of birds, 72 shells, 7 amphibians and reptiles, 16 fishes). This is the first large donation ever received by the Museum from Bucharest, in October 1859. The donation was transported to Giurgiu by an Austrian shipping company. From the ceremony of presentation of donation to Romanian authorities, on the 2<sup>nd</sup> of December, Carol Valștain, director of the National Museum at that time, was missing (Boicescu & Duployen, 1971, said that it was received during Valștain’s period, Marinescu, 1995, mentioned that Valștain was retired before the end of 1859). Anyhow it seems that receiving of this donation was connected with choosing of Carlo Ferreratti, second preparatory in Torino museum, as director of the National Museum from Bucharest, in 1860. Cristache-Panait & Panait (1966), wrote that this donation contains 211 minerals, numerous mammals, reptiles, fishes, etc., later, Marinescu (1995) affirmed that it had 1119 specimens (660 of them being minerals) from 417 species. Minerals were collected from different Italian localities, mainly from the North, but also from Sardinia and Sicily. Mammals are from Africa and Brazil, birds, from both Americas, Africa, Asia (China, India, Indonesia, a large collection from Italy from Genoa Museum. Reptiles are from Egypt, Brazil, Mexico, China and Cyprus; reptiles, fishes and mollusks from Genoa had no collecting data. It’s quite hard to say how many of them are still existing in our museum, because of evidence of collection, because of lack of care for original labels.

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## **Ethnographic pieces donated by Hilarius Mitrea to the Museum of Natural History from Bucharest**

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**Key words:** donation, ethnography, Dr. Hilarius Mitrea, Indonesia, Japan.

According to the existing documents, published catalogues of the first donations made by Mitrea in 1881 and 1882 (Transylvania, 1882) and to the letter sent by Hilarius Mitrea on the 3<sup>rd</sup> of July 1895 from Vienna to the Ministry of Culture and Public Instruction, Take Ionescu, in which he informed about the contain of his new donation for the Museum of Natural History from Bucharest, to the few photos from Indonesia representing native people, their architecture, few words of Mitrea remembered by some of his descendents regarding the tribes from Borneo and their customs, could offer a suggestion that Mitrea was also interested in ethnography.

Ethnographic pieces were donated only after his retire from the medical service in 1894. In the letter from 1895 he mentioned: „an armored jacket from the Island of Celebes; 12 silver objects manufactured in Padang (Sumatra Island)”. The catalogue of this donation was lost.

We could reconstruct the contain of this donation based only on Grigore Antipa’s inventory of collections from 1932, where we could find 140 pieces of ethnography from Mitrea. Most of the pieces are from Indonesia, belonging to about 20 ethnic groups and few Japanese ones (a traditional sword). We presume that Mitrea collected such artefacts during his all Indonesia period (1869-1894) and select some of them for the museum from Bucharest. Others were preserved for himself and after his death in 1904 were sold within unknown circumstances to Goga family and from Goga to Aurel Filimon family from Târgu Mureș.

Mitrea’s ethnographic donation was firstly shown to the public in an exhibition dedicated to Hilarius Mitrea, organized at the Museum „Grigore Antipa” in 1980. Some pieces are now long time exhibited for the first time in the new museum, since 2011.

# **POSTER PRESENTATIONS**



## Fauna of Early and Late Iron Age in Sites of Vojvodina (Serbia)

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**Key words:** fauna, archaeological site, Early Iron Age, Late Iron Age, Vojvodina.

Based on the large sample of animal bones from the Early Iron Age (950-300 B.C.) on the territory of Vojvodina, it can be concluded that cattle breeding was centred around six domestic species (ox, sheep, goat, pig, horse and dog). Hunting and fishing were of minor significance in diet.

In settlement Kalakača, the existence of 14 animal species were identified. The ratio of domestic and wild species was 94.77% to 5.22%. There were 6 domestic species, while the most hunted game was deer. In this period rabbit, turtle and some fish species occurred.

Animal remains from this period from Gomolava site indicate the growing significance of cattle breeding because domestic species comprise 73.6% (the dominance of ox). For the first time, poultry bones appear (1.96%). Concerning the wild species, the most common game is deer, and to a lesser extent rabbit, beaver, wolf, bear, pine marten, and very rarely aurochs.

At Feudvar site 73.9% of the important sample belongs to domestic species. Unlike other sites, in this sample sheep and goats were the dominant species, while significant portion of the sample was comprised of horse remains (14.6%). Concerning the wild species, the predominant species is deer, with 22.7% of the total sample.

The main characteristic of the Late Iron Age (4<sup>th</sup> century B.C. - 1<sup>st</sup> century A.D.) is developed cattle breeding but also lower withers of domestic animals.

At Gomolava site in the Late Iron Age, 20 animal species were identified. Bone fragments of domestic animals comprise 92.9% of the sample. Ox is the dominant species, but relatively large number of horses and dogs was recorded.

Fauna of Čarnok site includes 17 species. The ratio of species is somewhat changed in comparison to sites of the same period in favour of wild species (31% of the sample).

## **Fauna of Neolithic Sites in Vojvodina (Serbia)**

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The Neolithic Age (6000-3200 B.C.) is characterised by the appearance of farming and cattle breeding economy and the process of domestication. At the beginning, the human diet was predominantly based on hunting, while the cattle breeding was focused towards sheep and goats, but soon shifted towards ox breeding and the role of hunting diminished. In Vojvodina, there are 5 Neolithic sites with the significant osteological findings.

The beginning of domestication is best seen at Nosa-Biserna obala site. The first evidence of ox breeding was found there and the domestication of sheep and goat was dominant among domestic species with 24% of the sample.

Ludaš-Budžak site is characterised by advanced domestication, given that 79.08% of the bones belongs to domestic species (5 species).

The composition of Starčevo site fauna shows that breeding of domestic species played an important role in diet. More than half of the total number of found bones belongs to domestic ox, while sheep and goats were present in 19%. Wild species comprise 25% of the sample with 5 fish species among them: pike, asp, bream, carp and catfish.

Fauna of the Golokut site somewhat differs from the rest of the sites of the Starčevo culture because there is a great presence of wild species.

Gomolava site is one of the most significant archaeological sites in this part of Europe, because of its rich cultural layers. The animal bone remains from the Vinča layer clearly show the specialised cattle breeding, which is the characteristic for the early Neolithic Age. Fauna is diverse (19 species) with 63% of domestic species. Among domestic species, ox is the most numerous one, while the following species are: domestic pig, goat, sheep and dog. The registered game species are: deer, roe deer and wild boar, pike, carp and catfish.



## **Beaver (*Castor fiber*) remains in archaeological sites from Romania: archaeozoological approach**

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**Key words:** beaver, archaeozoological data, Romania.

The beaver has been identified in fauna samples on the Romanian territory, from the neolithic period until the Middle Age. At the beginning of the second millenium A.D., the beaver still lived on the shores of the Danube, according to the archeozoological data. During the 18th century, the beavers become more and more rare. The species is recorded for the last time, in the documents of that time, in 1823, on the Danube shores (in Moldova Veche), by the pharmacist Schmitz. Nowadays, there is a great action of repopulating this species in Romania.

This study was supported by the Romanian research programs CNCSIS-PN II-IDEI 2116/2008 and POSDRU/89/1.5/S/49944.

## **Pigs' husbandry (*Sus scrofa domesticus*) in East and South-East of Romania over the past two millennia: archaeozoological data**

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**Key words:** pigs, husbandry, Romania, archaeozoological data, first and second millennium A.D.

Animal husbandry was an important subsistence practice in the economy of settlements over the past two millennia. Most farmers were raising cattle, pig, sheep and goats, their ratios varying according to local geographic factors.

During the first millennium, in some samples cattle represent half of the live-stock. In the settlements from the lower parts of the Moldavia (Moldavian plain and the Bârlad tableland), sheep/goats are on the second place (28% MNI) and swine on the third place (24.28% MNI), the quite small difference being only a four percent. In the Suceava tableland and the Moldova-Siret rivers narrow strait pigs are on the second place (38%) quite close to cattle (43.1% MNI) and almost double the percentage of sheep/goat (18.87% MNI), evidencing another type of animal breeding, predominating cattle and swine. In Dobrudja, cattle are the predominant part of the livestock, while sheep/goats and swine detain almost the same percentage (sheep/goats are a little more numerous).

For the second millennium, in the Sub-Carpathian zone of Moldavia, a region with high levels of humidity and large forest, the breeding of pigs was prevalent. Sheep and goat remains have higher frequencies, although not predominant, in settlements situated in the more arid areas of the plains usually characterized by a xerophile vegetation, such as Bârlad region. For other region (Suceava Plateau, Moldavian Plain, Bârlad Plateau) the medieval livestock was dominated by cattle.

This study was supported by the Romanian research programs CNCSIS Idei PN-II-RU-TE-2011-3-0146.

## Considerations on terrestrial gastropod assemblages of deciduous forests and limestones of the Ciucaș Mountains

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**Key words:** terrestrial gastropods, fauna, communities, Ciucas Mountains, endemic species.

Part of the southern branch of Eastern Carpathians, the Ciucaș Mountains have a development of the relief on three levels, with Cretaceous limestones, but also with gravel and rounded blocks of crystalline schists, gneiss, limestone, sandstone, etc., caught in a limestone matrix which allow a significant development of landsnail populations. Terrestrial gastropod fauna was analyzed, from deciduous forests, from altitudes ranging between 791 and 1759 m. In each station snails were collected by visual searching, by two people, for one hour, and all the living snails and fresh empty shells were collected. The sampling stations were chosen so that their size allows the collection of all individuals identified in an hour by two people, without compromising the terrestrial snail populations. All the collected animals and fresh empty shells were identified and included in the inventory. The results were statistically analyzed. A number of 67 species of terrestrial gastropod species were identified. Three endemic species belonging to *Alopi* genus were found, *A. helene*, *A. canescens* and *A. nefasta*, the first two mostly on limestone, while the latest only in forest habitat. The number of species per station was between 6 and 30, generally with the highest number of species present in forest habitats. The aridity associated with limestone act as a limitative condition for terrestrial snail communities, which are constituted by a high number of individuals but a small number of species. A significant relation was found between the number of species and the altitude, which seem also to act as a restrictive factor.

**Preliminary data on the distributions of three Branchiobdellidae species: *Branchiobdella parasita*, *Branchiobdella pentodonta* and *Branchiobdella balcanica* (Annelida: Citellata) in Romania**

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**Key words:** Branchiobdellidae, crayfish, distribution, Romania.

The family Branchiobdellidae is a small group of ectosymbiotic annelids living almost exclusively on the Holarctic freshwater crayfish of the superfamily Astacoidea. They inhabit specific microhabitats at the exoskeleton of crayfish and feed, among others, on algae, protozoa and small invertebrates from the exoskeleton of the crayfish. Presumably their distribution patterns follow those of their hosts. The Branchiobdellidae are clearly separated at the genus level between Eurasia and North America. Only the genus *Branchiobdella* is native in Eurasia. In Romania, the presence of five species (*Branchiobdella parasita*, *B. pentodonta*, *B. astaci*, *B. hexodonta* and *B. balcanica*) is documented. The only record of *B. balcanica* dates back to 1937. For the other four species the latest data are from 1965 and 1967. We confirm the presence of three species in Romania, morphologically identified as *B. parasita*, *B. pentodonta* and *B. balcanica*, on three native species of crayfish – *Austropotamobius torrentium*, *Astacus astacus* and *Astacus leptodactylus*. No alien species of branchiobdellids were found. The purpose of this study is to make an inventory of the species of the family Branchiobdellidae for Romania and to describe their distribution. Moreover, this survey contributes to a comparative genetic study of phylogeographic patterns of European crayfish and branchiobdellids.

## Identification of Laelapidae (Acari: Mesostigmata) associated with insects and soil in Iran

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**Key words:** Laelapidae, Coleoptera, ants, Hymenoptera, soil, Iran.

Mites of the family Laelapidae are abundant in agricultural ecosystems, especially in association with Coleoptera and Hymenoptera. The family includes several important beneficial species that contribute to the control of pests in soil. This project is based on a survey of Laelapidae that was carried out during 2007-2010 in the area around Tehran, Iran. During this study, 25 species from 10 genera and 3 subfamilies were collected and identified. Ten of these species are new to science, and one genus and nine species are considered as new records for the mite fauna of Iran. The genera and species marked with one and two asterisks are new to science and the Iranian fauna, respectively. The name of the host is written in square brackets after the stage of the mite that is found associated with its host:

*Coleolaelaps asiaticus* Karg, 1999\*\* ♀ [*Polyphylla olivieri*]

*Coleolaelaps costai* Joharchi & Halliday, 2011\* ♀ [*Polyphylla olivieri*]

*Hypoaspis integer* Berlese, 1911\*\* ♀ [*Polyphylla* sp.]

*Hypoaspis larvicolus* Joharchi & Halliday, 2011\* ♀, ♂ [*Polyphylla* sp., larva]

*Hypoaspis maryamae* Joharchi & Halliday, 2011\* ♀ [*Polyphylla olivieri*]

*Hypoaspis melolonthae* Joharchi & Halliday, 2011\* ♀ [*Melolontha melolontha*]

*Hypoaspis pentodoni* Costa, 1971\*\* ♀ [*Polyphylla olivieri*]

*Hypoaspis phyllognathi* Costa, 1971\*\* ♀ [*Polyphylla olivieri*]

*Hypoaspis terrestris* (Leonardi, 1899) \*\* ♀ [*Polyphylla olivieri*, larva and adults]

*Pseudoparasitus dentatus* (Halbert, 1920) \*\* ♀ [Soil]

*Ololaelaps placentula* (Berlese, 1887) \*\* ♀ [Soil]

- Gymnolaelaps messor* Joharchi et al., 2011\* ♀ [*Messor* sp.]  
*Gymnolaelaps prestoni* Joharchi et al., 2011\* ♀ [*Myrmica* sp.]  
*Laelaspis equitans* (Michael, 1891) \*\* ♀ [*Messor* sp., *Camponotus* sp.]  
*Laelaspis* sp. nov. 1\* ♀ [Ants]  
*Laelaspis* sp. nov. 2\* ♀ [Ants]  
*Laelaspis* sp. nov. 3\* ♀ [Ants]  
*Myrmozercon*\*\* *karajensis* Joharchi et al., 2011\* ♀ [*Camponotus* sp.]  
*Pneumolaelaps colomboi* (Evans and Till, 1966) \*\* ♀ [*Bombus* sp.]

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**Study on Biology of Brown Mite, *Bryobia rubrioculus* (Scheuten) (Acari: Tetranychidae) in Plum, Sweet Cherry and Black Cherry Orchards in Hamedan province (West of Iran)**

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**Key words:** Brown mite, fruit trees, Hamedan, Iran.

Brown mite, *Bryobia rubrioculus* (Scheuten) is one of the most important pests of cherry, plum and black cherry trees in west of Iran. This pest was found bluntly on fruit trees in Hamedan (West of Iran). It causes considerable damage in some orchards of this area. So, its biology was studied during 2009-2010. The result showed that, this pest overwintered as egg on fruit trees shoots. The larvae of first generation appear early in April; at temperature  $>10.58$  °C. This pest creates 4-5 generations per year. Its high population was occurred in September in Hamedan orchards west of Iran.

## A synonymy in the genus *Erythraeus* (Acari: Trombidiformes: Erythraeidae)

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**Key word:** Synonymy, *Erythraeus* (*Z.*) *ueckermanni*, *E.* (*Z.*) *hamedanicus*, Acari, Iran.

The larvae of Erythraeidae are parasites of various arthropods, including insects and spiders whereas erythraeids are predators (Saboori & Cobanoglu, 2010). Southcott (1995) erected the subgenus *Erythraeus* (*Zaracarus*) for his new larval species, *E. (Z.) lansifer* Southcott, 1995. This material was collected as ectoparasite on a dolichopodid fly in Spain (Southcott, 1995; Goldarazena & Zhang, 1998; Saboori, 2000). Currently, about 56 larval species belong to genus *Erythraeus* including subgenera of *Erythraeus* and *Zaracarus* have been described. In the present study, character validity and taxonomic situation of genus *Erythraeus* were taken into consideration. In a part of this study, few specimens of *E. (Z.) hamedanicus* Khanjani, et al., 2010 and *E. (Z.) ueckermanni* Saboori et al, 2004 were re-examined. In both descriptions, all meristic characters (such as number of normal setae on basifemur and tibia and non-normal setae on all legs), except number of normal setae on tarsi I-III, were similar and morphometric data (such as length of all segments of legs and length and wide of scutum) show no significant differences. After re-examination of holotype and paratype specimens, number of normal setae on tarsi I-III were noted to be constant as: 25-20-22. Shape of scutum is completely similar in both materials, and therefore *E. (Z.) hamedanicus* was considered a junior synonym of with *E. (Z.) ueckermanni*.

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## New records for Iran fauna: one subgenus and three species of the family Oppiidae (Acari: Oribatida)

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**Key words:** Oribatida, Oppiidae, Fauna, new record, Shendabad, East Azerbaijan province, Iran.

Suborder Oribatida called “beetle mites” or “armored mites” because of their sclerotized and beetle-like body (Norton and Behan-Pelletier, 2009). Among them, the family Oppiidae Sellnick, 1937 is the largest family with 131 genera and 969 described species all over the world (Subias, 2011). Oppiid mites found in soil and leaf litter are fungivorous (Smith et al., 1998). Oppiid mite fauna of Iran was studied by Haddad Irani-Nejad et al. (2000); Haddad Irani-Nejad et al. (2004); Akrami & Subias (2007); Akrami (2008); Akrami & Subias (2008) and Mirzaie (2010).

Shendabad region is located in Shabestar township (38°08'N, 45°37'E and 1400 m above sea level), East Azerbaijan province in north-eastern Iran. In this paper Oppiid mites fauna of Shendabad region were studied at three different times of the year 2008 (mid-July, mid-August and mid-September). Soil samples were taken from different locations of Shendabad. The mites were extracted using the Berlese funnel and stored in 75% ethanol, cleared by Nesbitt's fluid and then microscopic slides were prepared. In this study three genera and four species identified, of which one subgenus and three species were new records for mite fauna of Iran (marked with one asterisk) and one species were new records for mite fauna of East Azerbaijan province (marked with two asterisks): *Graptoppia* (*Graptoppia*\*) *neonominata* Subias, 2004\*; *Ramusella* (*Ramusella*) *clavipectinata* (Michael, 1885)\*; *Ramusella* (*Rectoppia*) *fasciata* (Paoli, 1908)\*; *Anomaloppia mazandaranica* Akrami & Subias, 2007\*\*.

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## Three species of the family Suctobelbidae (Acari: Oribatida), new records for Iran fauna

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**Key words:** Oribatida, Suctobelbidae, Fauna, Shendabad, East Azerbaijan province, Iran.

Oribatid mites of the family Suctobelbidea Jacot, 1938 with 22 genera and 323 described species belong to the superfamily Trizetoidea (Subias, 2011). They live in soil and litter and feed on fungi (Smith et al., 1998). In this family prodorsal lamellae are absent, apodemata III absent and chelicerae long and peloptoid (Balogh & Balogh, 1992). A few studies have been carried out on suctobelbid mites in Iran, to the genus level (Akrami, 2008; Mirzaie, 2010; Mortazavi Lahijani et al., 2010).

Shendabad region is located in Shabestar township (38°08'N, 45°37'E and 1400 m above sea level), East Azerbaijan province in north-eastern Iran. Faunistic survey of suctobelbid mites of Shendabad region, were studied at three different times of the year 2008 (mid-July, mid-August and mid-September).

The mites were extracted using the Berlese funnel and stored in 75% ethanol, cleared by Nesbitt's medium and mounted in Hoyer's medium. All material was collected by M. Mirzaie. In this study three species belonging to the genus *Suctobelbella* were collected and identified. This is the first report of these species for mite fauna of Iran. The scientific name of species are listed as follows: *Suctobelbella (Flagrosuctobelba) elegantula* (Hammer, 1958); *Suctobelbella (Flagrosuctobelba) nana* Shtanchaeva and Subias, 2009; *Suctobelbella (Suctobelbella) acutidens* (Forsslund, 1941).

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**Some Mediterranean centipede species (Myriapoda: Chilopoda) from the collections of “Grigore Antipa” National Museum of Natural History**

**[Results of “Atlas” 2007, “Bolkar” 2009 Expeditions]**

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**Key words:** Chilopoda, Mediterranean expeditions, distribution, Morocco, Turkey.

This paper presents the preliminary results of the study on the material of Chilopoda collected during the expeditions carried out in some Mediterranean countries, part of a science project entitled “Romanian Contributions on the Mediterranean fauna”. The research team was led by the “Grigore Antipa” National Museum of Natural History, Bucharest, in collaboration with Oceanic Club Oceanographical Society of Exploration, a NGO from Constanța.

The centipedes from the zoological material collected during two expeditions in Morocco (Atlas, in 2007) and Turkey (Bolkar, in 2009) belong to four orders, with Geophilomorpha and Scolopendromorpha being best represented. Families Oryidae, Himantariidae (order Geophilomorpha) and Scolopendridae (order Scolopendromorpha) - the later with two genera and five species- were identified in the collection.

A relatively recent interest in centipedes around the Mediterranean Sea underlined the necessity for reliable records on some Scolopendridae species in North Africa. As in older papers (still used as a main source of information) *Scolopendra cingulata* Latreille, 1829 was cited as being present throughout northern Africa (with no exact localities), it is difficult to outline the distribution of this species in this area. The presence *S. cingulata* in Morocco is confirmed here, and new localities for the distribution in Turkey are added.

Among the collected material, an interesting individual was examined. A curved anterior transverse sulcus on tergite 1 suggested that it was *Scolopendra valida* Lucas, 1840, the only *Scolopendra* species with such character outside the Americas. Distribution: Canary Islands, Cameroon, Sudan, Eritrea, Ethiopia, Somalia, Saudi Arabia, United Arab Emirates, Oman, Yemen, Iran, India. It is recorded for the first time from Morocco (and also for Maghreb).

## Aquatic insects of Karun River at Ahvaz city, SW Iran

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**Key words:** aquatic insects, fauna, Karun, Ahvaz, Iran.

The Karun is Iran's most affluent, and the only navigable river. The river is around 950 kilometers long and has an average discharge of 575 cubic meters per second (20,300 cu ft/s). It receives many tributaries, such as the Dez before passing through the capital of the Khuzestan Province of Iran, the city of Ahvaz. Faunistic surveys were carried out on the Karun's aquatic insect fauna in the residential area of Ahvaz, during 2010-2011. The total number of specimens of aquatic insects collected in this study amounts to 283. Provisionally, 57 species belonging to 22 families and 7 orders of Collembola (1 species), Ephemeroptera (4 species), Odonata (6 species), Hemiptera (9 species), Coleoptera (34 species), Diptera (2 species) and Trichoptera (1 species) were collected in the present study. Three species are new to the fauna of Iran and several species new to the province. The beetle *Hydroglyphus signatellus* (Klug, 1834) (Coleoptera: Dytiscidae) was the most abundant species among the collected aquatic insects. The ecological significance and distributions of species in Iran is discussed. This study could be a starting point for extensive investigations on the aquatic insects of less explored Karun River as well as other rivers in the Khuzestan province. As this river is subject to anthropogenic disturbance, especially around urban areas, we suggest to be used as reference point in the future conservation and/or biomonitoring programs.

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## Distribution of *Isophya stysi* in Romania (Orthoptera: Phaneropteridae)

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**Key words:** *Isophya stysi*, distribution, fragmented populations, Romania.

Genus *Isophya* is one of the richest in species of the Palearctic Orthoptera, with 88 species and subspecies according to Orthoptera Species file online (Eades et al., 2011). *Isophya stysi* Čejchan, 1957 is an endemic species to the Carpathian Basin (Heller et al., 2004). It was described from Slovakia and it is also known from Hungary, Poland, Ukraine and Romania. In Romania, it is common in the Apuseni Mountains and Transylvania and rarer in the Eastern Carpathians and in forests of Western Moldavian Plateau. The species is usually found in isolated populations of low density and close habitat-dependence, partly due to their dicotyledonous plant-feeding preferences.

We found the species in 19 new distribution sites and assembled a map with both literature and original data in UTM format, comparing the knowledge on species' distribution of *I. stysi* before and after the 90's. We have also compared biometrical and bioacoustical data from two populations of *I. stysi*: one from the Transylvanian Plateau (Nucșoara, Hunedoara county) and one from Moldavia (Codrii Pașcanilor, Iași county). We measured: body length, front left tibia, front left femur, tegmina length and width, stridulatory file length, pronotum length and width, ovipositor length and width, cerci length in both Nucșoara (n=19) and Codrii Pașcanilor (n=11) populations. Significant differences were found especially in female tegmina length (AV=3.361 in Nucșoara and AV=2.66 in Codrii Pașcanilor) and tegmina width (AV=3.674 in Nucșoara and AV= 3.745 in Codrii Pașcanilor). However no major acoustic differences were noticed in the two studied populations.

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## **Bush-crickets, crickets and grasshoppers (Insecta: Orthoptera) from Letea Sand Bank (the Danube Delta Biosphere Reserve)**

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**Key words:** Orthoptera, faunistics, bioacoustics, ecology, Letea.

Letea Sand Bank is located in the North-eastern part of the Danube Delta Biosphere Reserve, between Chilia and Sulina channels. The Orthoptera fauna from Letea was investigated in the period 2007-2011 and the results are presented in this study. Sampling was performed in 6 habitat types: hygrophilous meadows, mesophilous lawns, saline soils, ruderal vegetation in Letea village, sand dunes, forest glades and fringes. During ten field trips, 51 Orthoptera species were collected and examined, some of them being also audio recorded. One of the most interesting species found in hygrophilous and mesophilous lawns is *Gampsocleis schelkownikovae*, whose calling song was unknown so far. In the sand dunes from Letea forest the dominant species are *Sphingonotus caeruleans*, *Calliptamus barbarus*, *Acrotylus insubricus* and *Acrotylus longipes*, while in the forest fringes *Omocestus miutus* and *Chorthippus loratus* are the most encountered grasshoppers. Former European “plague” but now the rarest species in Danube Delta, *Locusta migratoria* was scarcely seen in Letea - with only one female collected in July 2008 and 2 individuals observed in September 2010. Also the interesting bush-cricket *Phaneroptera gracilis* is a very rare sight, found so far only in *Salix rosmarinifolia* bushes. Few interesting species were observed in the ruderal vegetation inside the village, like *Eumodicogryllus bordigalensis* and *Gryllotalpa unispina*. *Gryllus campestris* and *Oecanthus pellucens*, may be heard singing everywhere in Letea Sand Bank, first in late spring and second in late summer.

## ***Arctocoris carinata* (Heteroptera: Corixidae) rediscovered after eighty years in Retezat National Park (Romania)**

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**Key words:** *Arctocoris carinata*, Corixidae, Heteroptera, Nepomorpha, Retezat National Park, Romania.

*Arctocoris carinata* (Sahlberg, 1819) inhabits water bodies at high altitudes, in arctic regions having only few geographically isolated populations in Europe: in Sweden, Finland, Lapland, British Isles, Faroe Islands, Iceland, Alps and Pyrenees Mountains. The distribution of *A. carinata* is a result of climatic changes that have occurred since the last glaciation, the populations existing today being isolated from each other for several thousands of years.

In Romania, *A. carinata* is mentioned only from Zănoaga Lake by Soós in 1931. The researches made in august 2011 reveal that the corixid is still surviving in small glacial ponds at over 2.000 meters altitude in Retezat Mountains and is absent from the big lakes. *A. carinata* is present in Tăul Bucurel, Tăuțul Agățat, Tăul Porții and other three small ponds near Lia, Florica and Bucura Lakes. It is absent from the big lakes investigated: Bucura, Tăul Agățat, Știrbu, Gemelele and Negru due to the presence of *Salmo trutta* and *Phoxinus phoxinus* as predators ( $R = -0.828$ ) and the absence of aquatic vegetation. Seventy eight individuals were collected: 19 ♂, 23 ♀ and 36 larvae. In Tăul Bucurel it was also found *Notonecta glauca* (Linnaeus, 1758) which usually occurs in lowland localities with rich aquatic vegetation.

**The first recording of the species *Allonyx quadrimaculatus* (Schaller, 1783) (Insecta: Coleoptera: Cleridae) for Romania**

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**Key words:** *Allonyx quadrimaculatus* (Schaller, 1783), Coleoptera, Cleridae, Romania, Băile Herculane.

The species *Allonyx quadrimaculatus* (Schaller, 1783) has been recorded in the recent specialized literature (Gerstmeier, 1998) as presenting a discontinuous range, being no records for Romania. In the consulted Romanian specialized literature, any location for this species has not been found. On the basis of a specimen collected by Dr. Nicolae Săvulescu in 1952 at Băile Herculane, identified in the collection of “Grigore Antipa” National Museum of Natural History from Bucharest, and based on the arealographic analysis (superposition vs. vicariance) of the ranges of *Allonyx quadrimaculatus* (Schaller, 1783), *Pinus nigra* and *Pinus nigra banatica*, corellated with the local climates, we can ascertain the presence of this species for Romania, thus confirming the possibility that its range may not be a discontinuous-type one, as it was considered until now.

**References:**

GERSTMEIER, R., 1998 - Checkered beetles, Illustrated Key to the Cleridae and Thanerocleridae of the Western Palaearctic. Margraf Verlag, 241 pp. + 8 plates.

## **Zoogeographical and distributional analysis of the checkered beetle (Coleoptera: Cleridae) faunas of Romania and the neighbouring countries**

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**Key words:** Coleoptera, Cleridae, Romania, zoogeographical analysis, distribution.

On the basis of the collections and the specialized literature investigated until now by the author, the distribution of the checkered beetle fauna in Romania and the neighbouring countries was analysed. Several methods and indices were used, “classical” ones (ecological - Jaccard, Jaccard distance, Sørensen, Kulczinski, Simpson; faunistical and zoogeographical similarity - Ekman (faunal similarity), medium endemicity (Lees et al.), faunal interdependency (Stugren & Rădulescu), Smith, Huheey (faunistical divergence) and some quite unconventional ones (cladistic analysis and panbiogeographical methods). By the combination of those two kinds of analyses, some interesting conclusions were made, regarding the compared faunistics and the most probable range-extending routes. So, the number of species characteristic to each country fauna decreases according to a south-north gradient and it's proportional to the increase of the mean annual temperature and to the decrease of the country area. The similarity between the clerid faunas are represented as cladograms, and the range-extending routes are analysed by the panbiogeographical method.

## **Data concerning the butterflies (Lepidoptera: Rhopalocera) from the Breana Roșcani Forest Nature Reserve, Galați (Romania)**

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**Key words:** Butterflies, Breana Roșcani Forest.

This study brings new data about the diurnal Lepidoptera of a protected area: The Nature Reserve Breana Roșcani Forest. There is no other available list of butterflies from this protected area. *Euphydryas maturna partiensis* Varga, 1973 – is a rare and localized species (Székely, 2008), it's presence is reconfirmed for South Moldova, *Carcharodus orientalis orientalis* that is a rare and poorly known species was also identified in the studied area. Other species are protected in Romania (Rákosy et. al. 2003) and also are included in the lists of Habitat Directive (*Neptis hylas hylas* Linnaeus, 1758), Bern Convention and Red Data Book of European Butterflies (*Glaucopsyche alexis alexis* Poda, 1761; *Pseudophilotes schiffermüelleri schiffermüelleri* Hemming, 1929).

There were identified 40 species of butterflies belonging to 5 families: HesperIIDae, Papilionidae, Pieridae, Lycaenidae and Nymphalidae.

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## New records of Noctuidae (Insecta: Lepidoptera) from North-East Romania

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**Key words:** Lepidoptera, Noctuidae, new species, distribution, Romania.

In this paper the authors present the new faunistical data of the last 3 years (2009-2011).

The reported species were found in the North-East of Romania, between the Prut River and Siret River.

The species were collected using a light trap (125-400 watt).

The following species are recorded for the first time in the North-East of Romania (Rákosy, 1996; Rákosy & al., 2003): *Simyra nervosa* (Denis & Schiffermüller, 1775), *Dysgonia algira* (Linnaeus, 1767), *Prodotis stolida* (Fabricius, 1775), *Calyptra thalictri* (Borkhausen, 1790), *Mycteroplus puniceago* (Boisduval, 1840), *Dichonia (Griposia) aprilina* (Linnaeus, 1758).

There are presented new collecting places for several species which have few records in Moldova (Romania), such as: *Simyra albovenosa* (Goeze, 1781), *Aedia leucomelas* (Linnaeus, 1758), *Eucarta virgo* (Treitschke, 1835), *Hydraecia ultima* Holst, 1965, *Hyssia cavernosa* (Eversmann, 1842).

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## **New data on the distribution of Sand lizard (*Lacerta agilis* Linnaeus, 1758) in South Dobrudja, Bulgaria**

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**Key words:** Sand lizard, Balkan Wall lizard, distribution, Bulgaria.

Sand lizard (*Lacerta agilis* Linnaeus, 1758) has highly fragmented distribution in Bulgaria, mainly in the mountain areas between 850 m and 2800 m above the sea level. There are only three records of the species at the Northwestern Black Sea coast and one near the town of Dobrich. The present study covers the central part of South Dobroudja. Over 20 km<sup>2</sup> in 20 plots was examined. In six localities (Lomnitsa, Ovcharovo, Snyagovo, General Kolevo, General Toshevo and Senokos) Sand lizards were found. At three of them only Sand lizards were registered while in the other three localities they were found in proportion 1:4.5 to the Balkan Wall lizards (*Podarcis tauricus*). At five localities only Balkan Wall lizards were found. Sand lizard was absent in the Bulgarian Black Sea steppe habitats. In all localities except one, it was found in grassland (height 20-45 cm) without shrubs and trees. In one case, the Sand lizard was found in a mowed alfalfa field. The present study adds new information about the distribution of Sand lizard in South Dobroudja.

## **Preliminary data regarding the ornithofauna of “Breana-Roșcani” Protected Natural Area (Galați County)**

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**Key words:** ornithofauna, Protected natural area “Breana-Roșcani”, Birds Directive.

The birds have an important role in nature and in human life. By their activity the birds maintain the ecological balance in nature, regulating the number of insects and rodents harmful for agriculture and forestry. Nowadays, all the specialists are regarding the birds like important bio-indicators to assess the human impact on the biodiversity.

Protected natural area “Breana-Roșcani” is situated on the territory of the Băneasa commune, near the village Roșcani, in north-central area of the Galați County and covers an area of 78.3 ha. The studied area is characterized by hilly ridges, extended, monoclinic, with parallel arrangement and separated by consistent valleys with fairly developed slope processes that offers a subsided view with separated ranging from 5 to 10 m. Naturally, the trees allow the formation of glades which create the conditions for the Romanian peony (*Paeonia peregrina* var. *romanica*), a declared natural monument, to grow. Herbaceous associations are mostly constituted by the gramineous plants.

The present study has been made in a period of 2 years: 2009 through 2010, and the species listed include 62 different kinds grouped in 9 orders and 26 families from the systematic point of view. The most frequently work methods used were the transect method and the direct observation method. According to the Birds Directive, there were identified 8 species belonging to Annex I: *Caprimulgus europaeus*, *Lanius collurio*, *Lanius minor* etc.

The purpose of this paper is to bring new data regarding the avifauna of this area.



## **Dynamics of ornithological fauna along the Black Sea Shore in the Danube Delta**

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**Key words:** ornithological fauna, dominance, geographic origin, species mix.

Birds can fly over long distances and cross vast geographic areas which include large natural habitats and regions with dense human population as well. The data collecting camps were stretched along the Black Sea Shore, a bird concentration area, part of one of the most important migration route in Europe, the European-Asian-African route.

We have explored this domain as we have intended to provide general information about bird abundance, migration, geographic origin and species mix during migration. In such a context, we took into account also climate influences related to the global warming, as they are important factors in the dynamics structure.

From the table including ringed species it comes out that there were ringed 7495 birds in 2007 and 7091 birds in 2008, those birds belonging to 15 orders, one sub-order, 43 families and 19 species, which reveals a great specific abundance and also the many and varied possibilities of investigation.

As for the specific dominance related to numerical abundance, 48% of the species were found frequently or very frequently and 99% of the species with representative populations had been ringed.

By relating bird population frequency to geographic regions, we found out that dominant species are those characteristic for the respective regions: 85% in the Palearctic region, including 17% in the European sub-region, 19% in the Holartic sub-region, 10% in the Arctic region, 6% in the European-Turkestanian, 5% in the Turkestanian region and 9% in the cosmopolitan one.

## Colour aberrations of the bird plumage recorded in Romania

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**Key words:** plumage anomalies, colour aberrations, partial albinism, leucism,

Plumage colour is given by the chemical pigments and optical phenomena of light diffraction and interference. Chemical pigments present in plumage are: *melanin*, *carotenoid pigments*, porphyrins. Melanin is of two types: eumelanin (black and grey colour); pheomelanin (brownish, red, reddish, dark yellow colour). Carotenoid pigments are *carotenoid hydrocarbons*, made of carbon and hydrogen, and *xantophylls* (oxygenated derived of carotenoid hydrocarbons). Carotenoids are deposited in tissues in the fat drops, from where the frequent name of “lipochrome” derived. The pigment dissolved in the horny-like substances gives the yellow, orange, red, violet, seldom blue colour. Green appears as a result of the coexistence of yellow of the carotenoid pigments with melanin or with the structural colours. Porphyrins from the bird plumage are chromoproteids which include in their molecule a prosthetic group. Porphyrin chromoproteids belong to the same category with haemoglobin, but they have porphyrinic nuclei bound by an atom of Cu <sup>++</sup>. The most known porphyrins are *turacin* and *turacoverdin* which colour in red-violet and in green the feathers of the musophagids, but they are very rare.

Because of pathological, genetic, hereditary, food regime, senility, shocks, diseases, hits or accidents, etc. causes, the distribution of these pigments is modified in feathers. Therefore, they can be in a small quantity and then the plumage is faded, colourless (hypochromic); they can be in a higher quantity, and the plumage colour becomes more intense than normal (hyperchromic); or when there are two pigments, one disappears completely, and the plumage colour is given by a single pigment (schizochromic).

Along time, the ornithologists observed numerous aberrations in the colour of the bird plumage. The first written report of these anomalies belongs to Deane (1876), who synthesized the observations on the albinism and melanism in the birds of North America. Since then, hundreds of observations were published. Some of their syntheses were published by Ross (1963) and by Gross (1965). In Europe, such a compilation was published by Sage (1962, 1963). In Europe,

over 160 bird species were reported for the white plumage (also named leucism and often confounded with the albinism) occurred in bird species which have other colours than white, in the group of corvids and thrushes the leucism being frequently occurred.

In Romania, the first report of a colour aberration in the bird plumage was published by Rettig (1912). Since then, several observations were published in the Romanian ornithological literature, and in this paper we make a synthesis of them, besides the list of the species with colour aberrations which are in the collections of the natural science museums of Romania. The paper includes also our own remarks of some colour anomalies, recently observed, in some bird species from Romania.

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## Bats Ossuary in Bulba Cave, Mehedinți County (Romania)

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**Key words:** bats, ossuary, new records, Bulba.

The present research is an osteological study from Bulba Cave and brings important data on the bat colonies from SV Romania.

Bulba Cave, a speologic reserve classified in the A category, is part of the hydrocarstic Zaton-Ponoarele-Bulba basin and is a mixt, subhorizontal cave, formed by a 4860 m gallery network, disposed on three floors.

In a recent visit made on September 19<sup>th</sup>, 2011, on one of the less accessible side galleries of the superior floor, a recent ossuary was found, which raises some important question marks on the colonies living in this cave.

According to literature, chiropters are present in the first sector of the cave (in the first 50m of the active gallery), as being mentioned by sporadic studies. On the gallery under research by our team, traces of the summer colony are present in the form of a big fresh guano lot and biocorrosion observed on the ceiling, which attests the colony age and that the bats did not leave this site. Based on the determination of skulls and mandibles, a number of 39 individuals resulted to belong to the *Rhinolophus euryale* species, 6 individuals to *Rhinolophus ferrumequinum* and 3 individuals to *Myotis myotis*.

The high percentage of *Rhinolophus euryale* (81%) attests the presence of a large maternity colony. This species is for the first time attested in this underground habitat of national importance.

## **Bats (Mammalia: Chiroptera) of Racovița village and its surroundings (Făgăraș Depression, Transylvania)**

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**Key words:** bats, fauna, new record, Făgăraș Depression, Racovița.

The studies made along 2011 in the administrative territory of Racovița village are presented. Bat calls recorded in 28 points in different type of habitats, within the period May-September 2011 were analysed. The purpose of this study was to obtain data on the abundance of species from different regions of the area and to design species distribution maps. There are no data regarding bat communities for the Făgăraș Depression and also Racovița village. We identified ultrasounds belonging to 17 bat species, the most common species being *E. serotinus* on anthropic area of Racovița village and the genus *Myotis* on Sebeșu de Sus area in half-open habitat of deciduous forest. The least abundance of cave dwelling bats (1 individual of *R. hipposideros* and 2 individuals of *M. schreibersii*) is related to the absence of caves. The highest activity was recorded in anthropic area, near a watercourse and light poles in Racovița village.

## Molecular diagnostic tests in Romanian sheep breeds

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**Key words:** sheep, disease, molecular markers, diagnostic.

The prions represent infectious particles that cause neurodegenerative diseases which are characterized by the degeneracy of central nervous system. The process that causes the disease is represented by the conversion of the normal protein, synthesized in all mammals' brain in an abnormal, mutant one. Genomic DNA was isolated using a High Pure PCR Template Preparation Kit (Roche Diagnostics) and genotype analysis for codons 136, 154, and 171 (PrP gene) was performed using a Real-Time PCR system. In the Romanian sheep breeds the identified allelic variants were ARQ/ARQ, ARH/ARQ, ARR/ARH, ARR/ARQ, ARR/ARR and ARQ genotype was the most frequent one. The different genotypes obtained in Real-Time PCR were sequenced in order to confirm the results.

One disease that can affect negatively the production efficiency is represented by the Spider Lamb Syndrome. The causative mutation was identified in the fibroblast growth factor receptor 3 and induces elongation of bones formed by endochondral ossification and inhibition of chondrocyte proliferation. The nucleotide mutation T/A from position 69 of the ovine FGFR3 determines the non-conservative substitution valine/glutamate at residue 700 in the second tyrosine kinase domain of the receptor. In order to evaluate the presence or absence of SLS carriers, the PCR products were subjected to enzymatic digestion using the *BtgI* restriction enzyme. The possible polymorphism will modify the restriction site of this enzyme and thus we will be able to differentiate between carriers and non-carriers. In the five analyzed Romanian sheep breeds we have identified no SLS carrier.

The eradication of carriers' individuals from different populations can positively affect the ovine industry. For this reason we developed modern, efficient and economic tests in order to identify the animals carrying genetic disorders.

## Study on mites associated with forests in north-west Iran

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**Key words:** predator, Stigmaeidae, mites.

Most mites are benefit for agricultural systems because they feed on phytophagous insects and mites. Some of them have two roles in biological control; they are parasitic in larval stages and predatory in post-larval stages on insects. The predator and parasitic mites were collected and preserved in 70 % alcohol. The mites were mounted on slides in modified Hoyer's medium and studied with a phase contrast microscope. The sketches were made using camera clara. In this study 8 species were collected and indentified. These mites, according to their hosts, were as follows: *Bdella lattakia* Soliman & Zaher (1976) (Bdellidae), *Mollognathus* sp. nov. (Caligonellidae), *Eustigmaeus nasrinae* Khanjani & Ueckermann (2002) (Stigmaeidae), *Eustigmaeus segnis* Koch (1836) (Stigmaeidae), *Stigmaeus malekii* Haddad, Bagheri & Khanjani (2006) (Stigmaeidae), *Stigmaeus uekermani* nov. (Stigmaeidae), *Stigmaeus longipilis* Canesterini (1889) (Stigmaeidae), *Trombicula* sp. nov. (Trombiculidae), *Labidostoma* sp. nov., (Labidostomatidae). They are recorded from Heyran region (Ardabil Province) of North West of Iran.

## **SEM description of the *Mesoniscus graniger* mouthparts – implications for the systematics of the family Mesoniscidae (Oniscidea, Crustacea)**

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**Key words:** *Mesoniscus graniger*, mouthparts, SEM, systematics.

The systematics and the phylogeny of the family Mesoniscidae raise some difficulties due to the gradual transition of the terrestrial Isopoda (Oniscidea) from the aquatic to the terrestrial environment and as a result, the morphological and the physiological changes inherent to such an evolution, took place in several parallel lineages. Especially, the position of the family Mesoniscidae within the Oniscidea is still one of the most intensely discussed problems.

In the present, there are four main opinions about the position of the Mesoniscidae in the suborder Oniscidea: (1) Wägele considers the Mesoniscidae as a sister-group of the Tylidae; (2) Schmalzfuss regards the Mesoniscidae as the sister-group of the Synocheta + Crinocheta ; (3) Tabacaru & Danielopol propose the Mesoniscidae as the sister-group of Synocheta; and (4) Erhard classifies the Mesoniscidae as the sister-group of the Synocheta + Crinocheta.

Searching for more significant morphological characters using modern techniques we can provide an answer to this contradictory debate. To contribute to this issues, we propose a more accurate description of the mouthparts of the species *Mesoniscus graniger* sampled in the Roumanian Carpathians. Detailed observations have been undertaken using the scanning electron microscope JEOL JMS-7401F.

The technique and the resulting description allowed us not only a better understanding of the morphology of the *M. graniger* mouthparts but also to draw a series of implications regarding the systematic position of the entire family Mesoniscidae within the Oniscidea.



## A hypothetical phylogeny of some Ponto-Caspian neogobiin species (Gobiidae, Perciformes)

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**Key words:** neogobiin, phylogenetic tree, sister clade.

Ponto-Caspian gobies include, till now, a flock of 24 “neogobiin” species of gobies (Gobiidae, Perciformes), from which only 11 species populated Romanian coastal waters (*Neogobius fluviatilis*, *Apollonia melanostomus*, *Babka gymnotrachelus*, *Ponticola eurycephalus*, *P. cephalargoides*, *P. ratan*, *P. syrman*, *Muellerigobius (P.) kessleri*, *Mesogobius batrachocephalus*, *Proterorhinus marmoratus*, *Pr. semilunaris*). In this paper, we propose a phylogenetic tree of some species based on external and internal morphological features comparison, included ecological affinities and caryotip structure. The characters derive both from personal data, for Romanian coastal waters gobies, and from literature’s descriptions, for other neogobiin species. Separated clades are represented by *Proterorhinus* and *Mesogobius* genera. *Babka* seems to be the sister clade of *Neogobius* and *Apollonia* genera, and *Ponticola* (including *Muellerigobius*) species form the sister clade of these latest three genera. Insufficient existing information about some taxa hasn’t allowed to include all species in our current taxonomical tree. Collecting and analyzing more data referring to these gobies will permit us to reconfigure the hypothetical phylogenetical tree with some adjustment of clades.

## **Studies on the invertebrates' communities in biological cherry tree cultures at SC Fructex SA Bacău**

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**Key words:** fruit-growing cultures, epigean fauna, mining insects.

The study on invertebrates' communities in biological cherry tree cultures with a variety of breeds and hybrids in the area of SC Fructex SA Bacău was performed in July – August 2010.

The researches on the pests of fruit-growing cultures and their control have proved that local pests, which are very well adapted to climate conditions, can't be eradicated. This means that pest control requires both special pest monitoring and maintaining their number under the economical pest threshold.

During the study carried on different kinds of cherry trees we concentrated on monitoring the useful fauna and the pests, in order to establish preventive and curative measures for limiting pest attacks.

The researches performed in SC Fructex SA Bacău resulted in setting out the qualitative and quantitative structure of both epigean fauna, collected by means of Barber pitfalls, and of plant feeder species (mining insects, aphids) found in the foliage of fruit trees.

The collected material was brought to the lab, was identified by classes, orders, families and in case of some individuals, even by genus / species. We established as accurately as possible the sorts of food for the taxa we identified using specialized literature.

Within the epigean fauna, the *Coleoptera* (with the families *Carabidae*, *Cucurlionidae*, *Staphylinidae*) and the *Heteroptera* orders registered the greatest abundance and diversity.

We performed the monitoring of potentially harmful species in order to intervene in stopping or limiting the pests' destructive actions in cherry tree cultures.

## **Data regarding diversity of some benthic invertebrates from Bistrița and Dorna Rivers**

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**Key words:** Bistrița, Dorna River, benthos, invertebrates, synecological analyze.

Bistrița River Basin is part of the largest river in eastern Romania, Siret (with a total length of 726 km), and has its mouth at the boundary between the middle sector and downstream sector. This river is one of the most important in Suceava County and has a total area of 7042 km<sup>2</sup>. From source up to the mouth, this river runs through all forms of relief, with mountain, hill and lowland areas. Bistrița River fall into class I indicators CCO-Mn, oxygen, fixed residue, but has increased to unite indicators metal concentrations: manganese, iron and zinc due to mining upstream (Tolovanu) and specific composition of the substrate fits into category 3 by these indicators.

The paper presents ecological data regarding benthic fauna from Bistrița and Dorna Rivers, upstream and downstream of Vatra Dornei, Romania. The researches were done during summer – autumn of 2009, sampling being done from hard and mobile substrates, in each river. Four sites were investigated in the Bistrița River and three in the Dorna River.

Taxonomic identification and counted was made for large phylogenetic groups (for some genera and species the identification was up to species) and some photos of main macro invertebrate individuals were done. The evaluation of benthic fauna distribution was reported at 1 m<sup>2</sup> area.

In order to evaluate the composition and distribution of benthic communities from the zone in which the study started, systematic qualitative and quantitative evaluations were done, making also determination for some ecological indices.

A list with main identified invertebrate groups and taxa will be presented.

Data regarding alpha diversity and percent composition in the studied rivers are commented.

Frequency, relative abundance, Dzuba indices (W %) and other synecological indices will be analyzed for main representatives of Acarina, Ephemeroptera, Plecoptera, Trichoptera, Heteroptera and Diptera, found in the samples.

## Characteristic soil mites communities (Acari: Gamasina) for different types of ecosystems from Doftana Valley - Prahova County, Romania

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**Key words:** forest, shrub, cliff, gamasid, population.

The response of the mite soil communities to the specific environmental conditions for each type of ecosystems (forest, grasslands, arable field, dunes, etc), quantified in changes of populational parameters (abundance, species diversity, distribution, dominance, frequency) have generally been examined, but less concerning gamasid populations from shrub and cliff ecosystems (Koehler, 1997, 1999; Minor & Cianciolo, 2007; Gwiazdowicz, 2007; Bedano & Ruf, 2007, 2010; Salmane & Brumelis, 2010). This study brings new information concerning the structure of gamasid communities in seven types of ecosystems from Doftana valley, Prahova district, Romania: 4 deciduous forests; 2 hilly-mountain shrubs and one adjacent area to an inland cliff ecosystem. A total of 240 soil samples, 63 species and 475 individuals were analysed. The samples were collected from May 2006 till September 2010. Ecosystem located nearby to an inland cliff, which is in yearly sucesion stage, was characterised by the highest numerical abundace and species diversity. Considering the dominance and constance indices quantified for mites from all investigated areas, the highest percent was recorded by the recedents - subrecedents and accessory - accidents species. *Veigaia nemorensis* C.L. Koch, 1839 was identified in six ecosystems, having the widest ecological plasticity. Based on similarity index (Jaccard), two characteristic groups of gamasid populations were established: for deciduous forests and for shrubs.

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## **Danube's hydrology influence on colonial piscivorous birds from the Inner Danube Delta**

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**Key words:** piscivorous birds, colonial waterbirds, Great Cormorant, *Phalacrocorax carbo*, hydrology, Danube, Inner Danube Delta.

Colonial piscivorous birds, in particular the cormorants, have received much attention due to their competition with humans for fish resources. Most studies, undertaken in the last twenty years on the European scale, revealed the increasing of the cormorants' populations and suggested their growing impact on fisheries. In this context, much research is needed regarding the drivers that control the populations' dynamics of these colonial breeders.

This study examined the influence of Danube's hydrology, as a key driver, on the populations of colonial waterbirds nesting in Inner Danube Delta (IDD). The research area is situated along the Danube River, between Calarasi and Braila, and between Southern Romanian Plain and the Dobrogea Plateau. This area supports breeding populations of Great Cormorant (*Phalacrocorax carbo*), Pygmy Cormorant (*Phalacrocorax pygmeus*), Night Heron (*Nycticorax nycticorax*), Squacco Heron (*Ardeola ralloides*), Little Egret (*Egretta garzetta*), Grey Heron (*Ardea cinerea*), Great Egret (*Ardea alba*), Spoonbill (*Platalea leucorodia*) and Glossy Ibis (*Plegadis falcinellus*).

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## **Mayflies (Insecta: Ephemeroptera) community structure in lower gorge area of the Mureş River (Western Romania)**

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**Key words:** mayflies, Mureş River, Romania.

Ephemeroptera (mayflies) is one of the dominant groups of benthonic reophilic fauna, having an important role in the transfer of matter and energy of aquatic ecosystems; by their microphage nutrition, they contribute to the reduction of slime (detritus), while the larvae stages (also adults, but to a lesser extent) represent an important percentage in fish nutriment. Moreover, mayflies are among the most important bioindicators of water quality, both on a group level and especially on a species level.

The present study aims at presenting a list concerning the different species of mayflies identified in the larva stage in the lower gorge area of the Mureş River. Quantitative samples were collected in the summer of 2010, in 13 stations. The samples were collected by using a Surber sampler (surface of 1072 cm<sup>2</sup>, dimension of the meshes in the net of 250 µm). There were identified 11 species, from 7 genera, included in a number of 6 families. The most frequent species were *Caenis luctuosa*, *Baetis fuscatus*, *Baetis rhodani*, *Serratella ignita*, *Ecdyonurus venosus* and *Ephemera danica*.

At the points where no major anthropogenic interventions in aquatic ecosystems were found, or they were represented by low intensity (the extraction of gravel and sand on small areas, the occasional entry of agricultural and domestic animals, the accumulation of waste products in river bed), was found a high density of mayflies, and a great diversity of these insects.

## Stage-frequency analysis of alfalfa weevil, *Hypera postica* (Coleoptera: Curculionidae) in Hamedan using Manly-1997 model

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**Key words:** alfalfa, *Hypera postica*, Hamedan, stage-structured population, survival, Manly-1997.

Quantification of vital rates in a demographic frame is very critical in population dynamics of alfalfa weevil. During 2004-2007, the stage structured populations of alfalfa weevil, *Hypera postica* (Gyllenhal) were sampled in three alfalfa fields established in Educational and Research Farm of Bu Ali Sina University (48°26' E, 34°58' N; 1710 m a.s.l.) to estimate demographic parameters of the natural population. Estimates of numbers entering successive stages in an entire weevil generation were derived using stage frequency analysis method of Manly-1997 which integrates the population densities over the sampling period to form a single value for each stage interval: egg, period one larva, period two larva and pupa. Stage duration and stage-specific survival rates were also obtained on physiological time scale (based 9°C). Maximum likelihood estimates of all parameters were obtained using standard algorithm of MAXLIK. Mean durations for egg, period-one and period-two larva were estimated to be 34.30±1.98, 20.67±1.34 and 40.21±1.20 (mean±SD) day-degrees centigrade, respectively. Mean entries to stages potential egg, egg, period-one larva, period-two larva, pupa, diapausing adult, postdiapausing adult and overwintered adult were considerably varied among field-years and estimated to be 1247.7±420.34, 654.7±160.21, 248.8±85.6, 161.2±45.91, 53.6±8.31, 44.3±7.03, 2.6±0.61 and 1.4±0.34 (mean±SD), respectively. Stage-frequency of alfalfa weevil was best modeled using Manly-1997 while none of the antecedents such as KNM-1985, Kempton-1979 and Bellows & Birley-1981 models did meet our case with much success where the unit time survival rate was supposed to be variable from stage to stage and where the entry time distribution to stage one (i.e. egg) was too complicated during autumn, winter and spring to be fitted with a simple parametric model such as a normal, gamma or Weibull distribution.



## **Caddisflies (Insecta: Trichoptera) community structure in Lunca Mureşului Nature Park (Western Romania)**

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**Key words:** caddisflies, Lunca Mureşului Nature Park, Romania.

The different sensibility of the benthic macro-invertebrates has been used in determining the manner in which these communities are being influenced by the alteration of the water quality. Moreover, the characterization of fresh and stagnant streams of water is closely related to the presence of caddisflies, since these are considered important bio-indicators as the surviving of larval stage entities only in certain types of streams and under certain conditions, some of them being more or less stenobiont. These species also represent an important source of food for fish, both benthonivorous and planctonivorous, at the same time helping to filter the water as well.

The present study aims at presenting a list concerning the different species of caddisflies identified in the larval stage in the Lunca Mureşului Nature Park perimeter. Qualitative and quantitative samples were collected in the summer of 2010, in 13 stations. The samples were collected by using a hand net (meshes of 250 µm - qualitative samples) and a Surber benthometer (surface of 1072 cm<sup>2</sup>, dimension of the meshes in the net of 250 µm - quantitative samples). There were identified 6 genera included in a number of 4 families for the qualitative samples and 9 genera included in 7 families for the quantitative samples, in total a number of 20 species included in 7 families. The most frequent species were *Hydropsyche instabilis*, *Hydropsyche fulvipes* in qualitative samples and *Hydropsyche instabilis*, *Hydropsyche fulvipes* and *Ecclisopteryx madida* in quantitative samples respectively.

## Researches on the fish communities in the middle basin of River Mureş in 2009-2011

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**Key words:** fish communities, biological integrity, River Mureş.

The study was carried out in the middle basin of the River Mureş, on the main course of the river and on some of its tributaries over the period 2009-2011. The aim of the study was to assess the actual state of fish communities in the middle basin of River Mureş, and also to highlight significant changes in fish communities. The biological material was collected by electrofishing from 21 sampling sites. Over the period 2009-2011, 27 fish species were found, with an amount of 5256 individuals and 32438.6 g. One of the 27 fish species is non-native and 26 are native species. It was noticed the lack of a number of 11 species of the 35 found by Bănărescu in the area where the study was carried out in 2009-2011. On the other hand, over the period 2009-2011, four new fish species were found in addition to the situation recorded by Bănărescu in 1964, respectively *Leuciscus idus*, *Pseudorasbora parva*, *Carassius gibelio*, and *Sabanejewia balcanica*.

Based on the ecological indices, three fish zones were found in the middle basin of the River Mureş: brown trout zone, mediterranean barbel zone and chub zone. Unlike the situation in the past, the fish zones are changed. Thus, the common nase zone was replaced by the mediterranean barbel zone in the upper part and by the chub zone in the lower part of the area.

Changes in the composition of fish communities are due to the extension of the spreading area of some of the most resistant species. In the same time, some of the most sensitive fish species have special ecological requirements and a more limited area of distribution. Undoubtedly, some of these changes are also due to the increasing of the human impact.

However, the fish populations still have a good self-support capacity.

## **Habitat selection of Common Kestrel in eastern Moldavia (Romania)**

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**Key words:** Common Kestrel, habitat, selection, nesting.

The Common Kestrel (*Falco tinnunculus* Linnaeus, 1758) has been reported as declining in many European countries, most probably because its main prey, the voles (*Microtus* spp.) decreased as a result of farming intensification.

The authors analyzed the Common Kestrel's nesting habitats in Eastern Moldavia (Romania) and the nests were catalogued during the nesting season in the period 2010-2011. During field researches, data were collected on the position and the support of the nest; in the case of nests located in colonies of crows, the total number of Corvid nests and Common Kestrel nests have been established, as well as species and number of trees on which the colony is formed. A total number of 300 nests were identified, 92% of those being located in trees that form alignments along the roads. The habitat types from *Falco tinnunculus*' activity area were also established, those being grouped in the following categories: artificial surfaces, agricultural areas, vineyards, orchards, natural and planted forests, pastures and herbaceous vegetation associations, wetlands and water bodies. Nest density of Common Kestrel was analyzed for each habitat category aside and the highest values were recorded in agricultural terrains. We established that there is a direct relation between the nests support in Corvid or the simple presence of Corvid nests and the habitat selection for nesting in the Common Kestrel.

## **Bats in different types of forests from Iași and Neamț counties (Romania): bat species richness, habitat use and activity patterns**

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**Key words:** Chiroptera, detector, forests, habitat use.

Most of the forests from Romania were cut, regenerating forests probably will never resemble with those that have been cut, and old pieces that were left are small and isolated. We investigated the activity of bats in different types of forests (SCI's) from 16-1877 m altitude in Iași and Neamț counties (Romania). Recordings of echolocation calls were made in 55 points distributed in five distinct types of forests (conifers, mixed, beech, oak, riparian forests) during May to September 2011. We recorded the passing bats for 10 minutes in each point. Time-expanded calls were subsequently identified with the use of Batsound program. The majority of the passes originated in *Nyctalus* sp. (45%), *Myotis* sp. (15%) and *Barbastella barbastellus* (10%). Other recorded species were: *Eptesicus serotinus*, *Eptesicus nilssonii*, *Hypsugo savii*, *Myotis bechsteinii*, *Myotis dasycneme*, *Myotis daubentonii*, *Myotis emarginatus*, *Myotis mystacinus/Myotis brandtii*, *Myotis myotis/Myotis oxygnathus*, *Myotis nattereri*, *Nyctalus lasiopterus*, *Nyctalus leisleri*, *Pipistrellus kuhlii*, *Pipistrellus nathusii*, *Pipistrellus pipistrellus*, *Pipistrellus pygmaeus*, *Plecotus auritus/Plecotus austriacus*, *Vespertilio murinus* and *Tadarida teniotis*.

Bat activity was positively correlated with air temperature especially at the beginning and the end of the season. Higher number of bat species was found in large fragments in comparison with lumped small and medium fragments. A strong association was found between the presence of *Barbastella barbastellus* and large beech woodland with a well-developed understorey. The maintenance of the existing mature native woodland is paramount for conservation.

## Spring and autumn bat activity in Letea Area (the Danube Delta, Romania)

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**Key words:** seasonal movement, *Pipistrellus pygmaeus*, *Pipistrellus nathusii*.

Regional migrations are some of the most important elements of bat biology, yet poorly understood. Migration by temperate zone bat species takes place in autumn and spring. We investigated the activity of bats in Letea area (the Danube Delta Biosphere Reserve) in spring and autumn between 2006 and 2011. Echolocation call recordings were taken in transects and some fixed points: in open areas (Letea village, the dam and the pasture with salty vegetation), near Letea channel and at the street lamps from village. Out of the 10 recorded species, the commonest and most abundant were: *Pipistrellus pygmaeus*, *Pipistrellus nathusii* and *Myotis daubentonii*. In the autumn of 2010 we captured *Pipistrellus kuhlii*, reported here as a new species for the Danube Delta.

Comparing the seasonal activity in spring and autumn, bat activity was higher in September than in March-April, although the corresponding difference in temperature was not significant. The highest flight activity was recorded on the channel and at street lamps, those being foraging areas. The activity of *Pipistrellus pygmaeus* and *Nyctalus* sp. is similar in the two seasons, but the activity of *Pipistrellus nathusii* and *Myotis daubentonii* is higher in autumn. We conclude that Letea area could be part of bat migration flyways in the North-Eastern Danube Delta.

## Demographic structure of *Microtus arvalis* population in agrocenoses from the Republic of Moldova

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**Key words:** *Microtus arvalis*, population, density, reproduction, depression, peak phase.

In agrocenoses, it wasn't registered a strict periodicity of population number of *Microtus arvalis*, which is not completely realized because of the anthropic factor. The data from the last 25 years regarding the oscillation of *M. arvalis* number prove that on R. Moldova territory 4 complete cycles occurred with the phases of maximum 5, 6, 7 years. Depending on intensity and duration of biotic and abiotic factors the peak phase lasts 4-7 months. On the fields of multiannual herbs the highest number was registered in autumn months, while in fields of gramineae - after the dispersion of individuals. At the same time the increasing of population density is registered in forest shelter belts.

The phase of *M. arvalis* number increasing that precedes the peak phase lasts 1.5-2 years after the population depression. An obvious feature of growth phase is the reproduction of individuals during winter period. The reproduction starts in the second half of February – beginning of March. 50% of adult females are involved in reproduction process. It was registered a highly intense temp of reproduction since the end of March till the beginning of October, when 95% of adult females are reproducing. The density of *M. arvalis* in May in alfalfa crops was of 25 colonies/ha due to survival of young individuals in spring. In June, as result of precipitation quantity reduction, the density in alfalfa crops was 6–12 colonies/ha. The abundance of precipitations in august favored the individual survival and in September the *M. arvalis* density was 100 col./ha, when 45% of adult females were pregnant and 20% – lactating. In the second decade of October on fields with perennial herbs the peak phase was recorded with a density of 300-400 col./ha, when 50% of females were pregnant. The passing into the next phase of number decreasing occur more steadily.

## ***Metcalfa pruinosa* (Say) (Hemiptera: Flatidae) identified in a new South Eastern area of Romania**

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**Key words:** *Metcalfa pruinosa*, fruit trees, grapevines, urban gardens areas.

During August-October of 2011, the presence of *Metcalfa pruinosa* (Say), a nearctic invasive flatid planthopper introduced to Europe, has been detected on fruit trees and grapevines and also in private gardens and public institutions in adjacent and Northern areas of Bucharest city. *M. pruinosa* adults were directly observed and captured on the yellow sticky traps set up to detect the specific phytoplasma insect vectors in apple orchards and grapevine plots with or without protective management. The large white waxy filaments amount and the honeydew production caused unaesthetic damages to garden plants, terraces and ornamental plants. In the evenings, the adult insects were observed as invading the house walls attracted by the electric lights, thus creating discomfort to people. Because *M. pruinosa* feeds on the phloem, it induces a particular risk, this insect being suspected to be involved in the epidemiology of economically important diseases such as phytoplasmas in western European countries. In Romania, this species has already a status of established species in South-Eastern and Western zones on plant species from several botanical families, found in urban green areas and in parks since 2009. Therefore, this species may be considered a real pest for such plants, its presence thus being expected in new areas. The damage potential for horticulture production systems continues to increase in the future period, therefore further studies on various aspect of this species will be expanded, especially its ability to transmit phytoplasmas to economic crops.

## **Preliminary considerations regarding *Carassius* interspecific variability using COX I DNA Barcoding Gene**

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**Key words:** *Carassius carassius*, *C. gibelio*, *C. auratus*, COXI.

Globalisation and river basins connections have facilitated one of the least reversible human-induced global changes: the homogenisation of the Earth's life forms through the establishment and spread of non-indigenous species. For the territory of Thrace, the main route for alien freshwater fish immigration seems to lead from Greece and Bulgaria via River Meric, but also by stocking of foreign fish.

In Europe, three species of the genus *Carassius* Nilson, 1832 are known: the Goldfish, *Carassius auratus* (Linnaeus, 1758), the Crucian carp, *C. carassius* (Linnaeus, 1758) and the Prussian (Gibel) Carp, *C. gibelio* (Bloch, 1782). Only *C. carassius* is considered a native species of the British Isles, Central and Eastern Europe. The natural distribution of *C. gibelio* is still under discussion and it might be native to northern Europe (Kottelat, 1997). It is widespread in Central and Eastern Europe and the Balkans, but recorded in Thrace just in 1988 in Lake Gala.

The aim of this study is to identify the interspecific variability in *Carassius* genus, by cytochrome oxidase's first subunit DNA sequencing.

The sampling process refers to three species *C. carassius*, *C. auratus* and *C. gibelio* and also to individuals which were identified as hybrids on morphological aspects. Tissue samples (dorsal muscle and fin-clippings) were stored in 98% ethanol for DNA isolation and purification, performed by the phenol:chloroform:isoamyl alcohol (25:24:1) protocol. The total DNA was resuspended in 50µl Tris-EDTA and was quantitatively and qualitatively determined by spectrophotometry and electrophoresis in 1% agarose gel stained with ethidium bromide and visualised under UV light.

PCR was performed in a 25 µl reaction volume containing GoTaq Green Master Mix (Promega), direct and reverse primers, DNA and nuclease free water to 25 µl. The sequencing reaction was performed using the Beckman Coulter CEQ 8000 Genetic Analysis System.

Sequence analysis revealed 16 haplotypes, which indicate a 37.20% variability.



## Blood parasites of free living European bison (*Bison bonasus*) from Poland

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**Key words:** *Bison bonasus*, *Trypanosoma*, microfilaria, parasite.

The North-Eastern part of Poland is an area of high risk of zoonotic diseases infections of human and domestic animals. The wild ruminants play an important role in the transmission and maintenance of parasites in natural foci. The aim of our study was to determine the prevalence of blood parasites infection of European bison in free-living population in Białowieża Primeval Forests.

The European bisons from Białowieża Primeval Forest (North-East part of Poland) were studied for the blood parasites. The blood samples were collected in years 2007 - 2010. In total, the samples from 125 European bison were examined. The infections with blood parasites were diagnosed using direct microscopic examination of blood smears stained with Giemsa or Hemacolor (Merck) set and centrifugation in microhematocrit tubes.

Using the microhaematocrit centrifugation technique, there were detected the following species of blood parasites: *Trypanosoma (Megatrypanum) wrublewskii*, microfilariae of *Onchocerca lienalis*, *Onchocerca gutturosa* and *Setaria labiatopapillosa*. The prevalence of infection with *T. wrublewskii* was 14.4%, *O. linealis* 17.6%, *O. gutturosa* 7.2%, *S. labiatopapillosa* 19.2% respectively. Using the blood smears technique, blood parasites were not detected.

*Trypanosoma (Megatrypanum) wrublewskii* and microfilariae are the most common blood parasites of free-living European bisons. Moreover, the level of infection is enough to make possibly the detection using traditional microscopic technique. Apart the parasites described above, European bisons are the hosts of *Babesia divergens* and *Anaplasma phagocytophilum*. The infections with these parasites was detected previously by PCR methods and the prevalence was 33.0% and 62.5% respectively (Karbowski et al., 2004; Grzeszczuk et al., 2004). The absence of these parasites on the blood smears indicate the low level of infection intensity, below the microscopic techniques sensitivity.

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## Helminthologic study of snail population of the *Melanopsis* and *Melanooides* genera in Spanish hot springs

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**Key words:** *Melanopsis*, *Melanooides*, Trematoda, cercaria. Spain, Spa.

In the hot springs of Alhama de Aragón and Jaraba (Zaragoza, Spain) two genera of snails were found, *Melanopsis* (native) and *Melanooides* (invasive). These snails can participate as intermediate host in the life cycle of several digenetic trematodes, as *Paragonimus*, *Clonorchis* or *Schistosoma*, thus transmitting several animal and human diseases. It is in these snails where the motile larval stage called cercaria forms, which leaves the snail to roam around the water until it finds its secondary intermediate host or a definitive host, depending on the genus.

The need to study the types of parasites that exist in these snails aroused when considering that the hot springs they inhabit are being exploited by a spa. As a result of this, humans are in contact with these snails. And since humans are the definitive host of someone of the parasites that may be involved, knowledge of what kinds of parasites exist was needed, as to whether there is any risk of infection in the area. In order to carry out this study, different cercariae emitted by snails were collected and identified in the laboratory, thus knowing the type which they belong.

The study was conducted for two weeks, affecting 14 groups of snails from both zones. During this time, approximately 600 cercariae were collected from two different kinds, all found in snails of the genus . The two kinds of the obtained cercariae belong to *Pleurolophocerca* and *Vivax cercariae* groups.

After identification, our study concluded that the found cercariae do not pose a direct health risk to bathers. However, this study has given us the status of helminth parasitism in a very specific time window, making it necessary to extend it to other seasons, as there may be other digenetic trematodes with different seasonal patterns.

## **Spatial distribution of *Paradiplozoon homoion* (Monogenoidea) individuals within the gills of Kessler's Gudgeon (*Gobio kessleri*)**

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**Key words:** *Paradiplozoon homoion*, Paraectoparasite, *Gobio kessleri*, spatial distribution, microhabitat.

The present study aims to identify some of the factors responsible for the particular repartition of different ontogenetic stages of the parasite *Paradiplozoon homoion* (diporpaе, juveniles, adults) within the microhabitat formed by the gills of Kessler's Gudgeon. During the study, 236 individuals of *Gobio kessleri* captured using electric equipment from one population were thoroughly examined for parasites. In the case of the diporpaе, juveniles and adults, the authors investigate if the infestation of the gill cavities (left and right) is symmetric. Also, the study follows correlations between ventilator stream dynamics, number and distribution of the three life stages, position of the hemibranchii, disposition of gill arches and gills projection surface.

Furthermore, the present study investigates whether the populations of diporpaе, juveniles and adults from the gill cavities of *Gobio kessleri* follow a random distribution (Poisson) or a grouped one (negative binominal).

Diporpaе and juveniles show no preference for the internal or external gill arches, while the infestation with adults is more pronounced on the external arches. The number of diporpaе and juveniles is higher on the first gill arch and adults are uniformly distributed between the first three arches. Also, the top part of the gill arches is preferred by juveniles, but the adults are largely gathered towards the middle part of the arches.

## **Gamasid mites (Acari, Mesostigmata) in the nest holes of three passerine species from Kamchia Mountain (Northeastern Bulgaria)**

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**Key words:** Gamasida, nests, bird, Bulgaria, dominance, prevalence.

A total of 726 specimens belonging to 5 gamasid mite species were found in nests of great tit *Parus major*, semi-collared flycatcher *Ficedula semitorquata* and Eurasian nuthatch *Sitta europaea*. The mites were present in 73.3% (n = 30) nests, averaging 24.2 specimens per nest. The species *Androlaelaps casalis* and *Dermanyssus gallinae* occurred in the nests of all three examined bird species, *Ornithonyssus sylviarum* was found in nests of *Parus major* and *Ficedula semitorquata*, and *Dermanyssus hirundinis* and *Hirstrionyssus musculi* – only in nests of *Parus major*. The highest dominance and prevalence were recorded of the species *Dermanyssus gallinae* and *Ornithonyssus sylviarum*, which were found in 11 and 9 of the surveyed nests respectively and constituted 89.8% of the total number of specimens collected. Host species and the localities in Bulgaria where the studied mite species have been found up to now is provided.

## Studies on chewing lice (Phthiraptera: Ischnocera, Amblycera) found on the wild birds in Turkey

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**Key words:** Lice, Birds, Iran.

This study was performed to detect the louse species found on the wild birds between June 2010 – October 2011 in Turkey. For this aim, the birds were checked for the louse species macroscopically. Later, the birds were placed in a carton box and treated with a pyrethroid spray and the lice fell into the bottom of the box were collected. They were preserved in alcohol 70 %, cleared in KOH 10% and mounted in Canada balsam on the slides.

In this period, total 80 bird samples belonging to the 29 bird species in six ordo were examined, and 34 (42.5%) of them were found to be infested by lice, and 33 louse species were identified. No louse specimen was found on the other birds. Two genera; *Falcolipeurus* Bedford, 1931 and *Coloceras* Taschenberg, 1882 and 12 species; *Laemobothrion vulturis* (Fabricius, J. C., 1775); *Holomenopon tadornae* (Gervais, 1844); *Philopterus fringillae* (Scopoli, 1772); *Brueelia apiastri* (Denny, 1842); *Degeeriella nisis* (Giebel, 1866); *Falcolipeurus quadripustulatus* (Burmeister, 1838); *Coloceras piageti* (Johnston and Harrison, 1912); *Coloceras israelensis* (Tendeiro, 1974); *Anatoecus dentatus* (Scopoli, 1763); *Anatoecus regina* Ansari, 1955 and *Anaticola magnificus* Ansari, 1955 were recorded for the first time on the birds in Turkey. *Trinoton* sp. was reported for the first time from *Tadorna ferruginea* and *T. tadorna* in the worldwide.

## **Monitoring conservation status of habitats and species in Natura 2000 sites – case study ROSCI0190 Penteleu**

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**Key words:** monitoring conservation status, Penteleu, Natura 2000, Habitat Directive.

Monitoring conservation status of habitat and species in NATURA 2000 areas are an important research topic in European countries since Habitat Directive specifies the obligation to implement monitoring systems. Despite this, no standardized monitoring scheme for different habitat and species exist. Recognizing that sustainable development could be achieved only by a strong support to the conservation of the natural capital within the limits of the productive and carrying capacity of the components of natural capital (Vadineanu, 2001), important efforts should be directed both towards monitoring of the conservation status of habitats and species (Directive 79/409/CEE and Directive 92/43/CEE) and also towards monitoring the changes in the conservation status. This article is focusing on a conceptual and also a practical approach on monitoring conservation status of habitats and species of community importance in ROSCI0190 Penteleu, a Natura 2000 site. For this area a monitoring system was designed based on i) identification and delineation of habitats of European importance; ii) mapping the distribution of species of European importance; iii) identification of main characteristics (indicators) to be monitored. These characteristics are mainly dealing with: i) total habitat surface; ii) habitat structure and functioning (species composition); iii) the fact that characteristics species are in good conservation status and iv) there are no important pressures or threats on habitat or species. The monitoring system was developed for 7 habitat types and 14 species of community importance. The base for the monitoring system for ROSCI0190 Penteleu is a spatial grid derived from Common European Chorological Grid Reference System with a spatial resolution of 1 km<sup>2</sup>. Monitoring protocols were specifically established for habitats and species and are aimed at assessing the conservation status.

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## **Mapping Natura 2000 habitats and species distribution – a case study ROSCI0190 Penteleu**

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**Key words:** Natura 2000 habitats, geographic information system, species distribution.

The present paper is aimed at describing the methodology used in mapping the Natura 2000 habitats and species distribution in a Site of Community Interest. ROSCI0190 Penteleu is a site located in a mountain area covering a surface of 11268 ha, at an altitude varying from 640 m up to 1770 m. The area is dominated by forest habitats consisting in a mixture of beech and spruce. Mapping methodology was based on integrating field collected data within a Geographic Information System. Habitat identification was based on the information presented in the site Natura 2000 standard form, Natura 2000 habitat interpretation manual as well as field methods consisting in vegetation survey. A statistically based approach was used in order to cover the entire area heterogeneity taking into account the accessibility and available resources. For species listed in the annexes of the Habitat Directive 92/43/EEC and mentioned as present within the site, field protocols were established based on Natura 2000 fact sheets, so that their distribution and conservation status could be determined. After on-site validation a number of 7 habitats were found in the site, the dominant ones are represented by the forest habitat type 9410 “Acidophilous *Picea* forests of the montane to alpine levels (*Vaccinio-Piceetea*)” covering a surface of 1740 ha and 91V0 “Dacian Beech forests (*Symphyto-Fagion*)” covering a surface of 1688 ha, their conservation statutes varied from favorable to unfavorable. A number of 14 species of community interest were found in site. The species distribution pattern reflects their habitat preferences especially for the plants, invertebrates, fishes and amphibians while the large carnivores shown no habitat preferences.

## **Contributions to the mapping and conservation status evaluation of amphibian populations in the natural site ROSCI 0190 Penteleu**

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**Key words:** *Bombina variegata*, *Triturus montandoni*, *Triturus cristatus*.

The natural site of Penteleu ROSCI 0190 measures an area of 11233 ha and is located in the alpine region at the latitude of 45°37'32" North and longitude of 26°23'49" East, varying between 639 m and 1759 m in altitude.

The following classes of habitat were detected: meadows, steppes, broadleaf, coniferous and mixed forests, the latter occupying 64 % of the site's area. The Penteleu site, yet abundant in plant and animal species protected by Romanian and European community laws, is vulnerable against human activities such as forest clearing, grazing and poaching. The area is also the subject of landslide due to illegal forest clearing and seismic activity.

The aim of this study was the mapping and the conservation status evaluation for three protected amphibian species: *Triturus cristatus*, *Triturus montandoni* and *Bombina variegata*.

Only one female specimen of *Triturus cristatus* was found on the site in the Valea Patacu area. There was no mass mortality recorded in this study. Most ponds are temporary and shallow and less than 25% of those accounted are suitable for the development of dense aquatic vegetation. The ponds are not populated by fish or bird species but they are contaminated with forest exploitation wastes. At high altitudes, where water transparency is total or reaches 50 cm, the aquatic eutrophication is poor or even absent for shallow waters. The conservation status has been declared unfavorable.

*Triturus montandoni* specimens were found in mixed forests in an altitude range between 800 and 1200 m in temporary pools. The conservation status of the *Triturus montandoni* population has been declared unknown based on the fact that the distribution area and the future perspectives could not be estimated with the data recorded on the site.

*Bombina variegata* was located at an altitude range of 700-1400m, in temporary and permanent ponds of the mixed forest area, in the proximity of Bâsca Mare, Patacu and Bâsculița rivers. Based on the analysis of the distribution area, the population size, the habitat's condition and the future perspective, we have declared a favourable conservation status for this population.



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## **Long-legged Buzzard (*Buteo rufinus*) expansion in the Historical Region of Moldavia**

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**Key words:** Long-legged Buzzard, *Buteo rufinus*, expansion, Moldavia.

The Long-legged Buzzard (*Buteo rufinus*) is a medium size raptor that nests in the southern Palearctic region, mostly in warm, dry areas. In Romania, the known breeding area is limited to the S-E (Dobrogea Region), but the available literature on this subject is rather poor. Records of Long-legged Buzzard northern than this area are rare but regular and not only from the migration period. There are observations from other parts of Romania during the breeding and wintering periods. Data on breeding individuals is almost absent. During our field studies in the last five years we recorded breeding couples of Long-legged Buzzard in ten localities from the Historical Region of Moldavia (Moldavian Region from Romania and Republic of Moldova). For the Republic of Moldova, this is the first observation-based data on the Long-legged Buzzard. As new breeding areas, the Long-legged Buzzard was found in small forests and river canyons surrounded by large agricultural fields or pastures. The reasons for the expansion are not yet known, but some potential factors driving it could be: land use change, intraspecific pressure, empty niche, interspecific pressure, climate change.

The Long-legged Buzzard is listed in Annex I of the Bird Directive as subject of special habitat conservation measures in order to ensure survival and reproduction.

**Little Ringed Plover (*Charadrius dubius* Scopoli, 1786) and Sand Martin (*Riparia riparia* Linnaeus, 1758) population on the last sector of the Danube banks: evaluation and distribution**

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**Key words:** Little Ringed Plover, Sand Martin, distribution, population, banks, Danube.

The Little Ringed Plover (*Charadrius dubius* Scopoli, 1786) and the Sand Martin (*Riparia riparia* Linnaeus, 1758), inhabits specific dynamic river habitats and prefer natural river banks.

In the summer of 201, we conducted a study in order to evaluate the population and distribution of the two species on the banks of the last sector of the Danube: from Călărași to Sfântu Gheorghe localities. The data was gathered in two field trips during the high activity period for the species. All the colonies of Sand Martin and nesting territories of Little Ringed Plover were mapped in GPS system and number of individuals was recorded. This way, important data, as population size in the studied area, distribution and habitats characteristics was obtained for both species.

Because the surveys were conducted in two successive periods, one at the beginning of the breeding period and another at the peak of this period, we were able to make observations regarding the dynamics of the populations, colonies for Sand Martin and nesting territories for Little Ringed Plover.

This study revealed the most important breeding areas on the banks of the last sector of Danube for the Little Ringed Plover (*Charadrius dubius* Scopoli, 1786) and the Sand Martin (*Riparia riparia* Linnaeus, 1758) and supports further efforts for proposing conservation measures regarding these species as well as their habitats.

## Low level of genetic variability in *Bison bonasus* population from Vânători-Neamț National Park

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**Key words:** *Bison bonasus*, cytochrome b, mitochondrial, DNA.

The European bison is characterized by a very low level of genetic diversity, most likely resulting from the population decline in the nineteenth century. In order to clarify the origin and genetic diversity of *Bison bonasus* in Vânători-Neamț National Park, we carried out phylogenetic analysis of representatives of those breeds by employing mitochondrial gene polymorphism. Complete cytochrome b gene sequences, 1128 bp in length, were determined for a total of 5 individuals. The study also includes 5 NCBI reference sequences, used for inferring the phylogeny.

This data is valuable for conservation plans of this impressive species, especially for the control of breeding success in these animals

The sampling process refers to blood samples loaded in Queen's buffer and stored in 98% ethanol for DNA isolation and purification, performed DNAIQ (Promega). The total DNA was resuspended in 50μl Tris-EDTA and was quantitatively and qualitatively determined by spectrophotometry and electrophoresis in 1% agarose gel stained with ethidium bromide and visualised under UV light.

PCR was performed in a 25 μl reaction volume containing GoTaq Green Master Mix (Promega), direct (mit\_H2) and reverse (mit\_L1) primers, DNA and nuclease free water to 25 μl. The sequencing process was performed using the Beckman Coulter CEQ 8000 Genetic Analysis System.

The analysis of the cytochrome b gene diversity shows a maximum of 2.4% haplotypes divergence.

## Armoured crickets (Orthoptera: Tetigonidae, Bradyporinae) in the Natural History Museum Collections of Sibiu (Romania)

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**Key words:** armoured crickets, museum collections.

The present paper consists of data on some armoured crickets (Bradyporinae) from the collections of the Natural History Museum from Sibiu. The preserved material is part of several collections: “Dr. Arnold Müller”, “Rolf Weyrauch”, “Dr. Eugen Worell” and “Dr. Eckbert Schneider”.

Vasilie & Agapi (1958) published valuable data from the “Arnold Müller” collection, more than 50 years ago. No further collection research has been undertaken since.

The identified species are: *Bradyporus dasypus* (Illiger, 1800), *Callimenus macrogaster longicollis* (Fieber, 1853) and *Ephippiger ephippiger* (Fiebig, 1784), which are present in the Romanian fauna (Iorgu et al., 2008). Additional foreign species such as *Callimenus oniscus* Burmeister, 1838, *Ephippiger ephippiger cunii* Bolívar, 1877, *E. provincialis* (Yersin, 1854), *E. discoidalis* Fieber, 1853, *Uromenus laticollis* (Lucas, 1849), *U. rugosicollis* (Serville, 1839), *U. brunnerii* (Bolívar, 1877) and *U. stalii* (Bolívar, 1877) are also recorded in the museum collections. Most of these specimens were collected from Bulgaria, the Czech Republic, Serbia, Spain, Greece and Algeria; however, others were obtained through exchanges with other collectors or museums.

Nomenclature and systematical order are according to Orthoptera species file (<http://orthoptera.speciesfile.org>), online version at 01.10.2011 (Eades & Otte, 2011). The distribution map of the collecting sites and biology data for some of the recorded species are given.

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## **Case study: physiological and behavioral aspects of certain mouflon lambs (*Ovis ammon mussimon* Pallas)**

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**Key words:** mouflon, lamb, growth, behavior, hunting fauna.

Considering the importance of care for the newborn lambs, care which has to obtain a normal corporal growing and a normal behavioral development, a study was made, concerning the mouflon lambs (*Ovis ammon mussimon* Pallas) in their first 5 months of life. There were a relatively distinct set of conditions for every lamb.

This work presents three different cases, when the presence of the mother sheep and/or the human has had a significant impact on growing and on behavioral development. These three mouflon lambs are from the patrimony of Museum Complex of Natural Sciences of Constanta, “Micro reservation” section. They are representing the 7th generation of lambs born in captivity and their selection was based on the following facts:

- Lamb nursed and fed by the own mother (ewe),
- Lamb nursed and fed by an adopting mother (ewe),
- Lamb nursed and fed by a human.

The part of the study concerning the corporal developments of the lambs was made by monitoring 12 somatometric parameters and by calculating the daily gain of each individual lamb.

The general aim of the study is the increase of knowledgebase which is necessary for the improvement of nursing conditions of mouflon lambs and their preparation for survival in their natural environment and. This aspect is also important because other hunting complexes across the country have to be populated with mouflons.

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