

Annual Zoological Congress of “Grigore Antipa” Museum

CZGA



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of "Grigore Antipa" Museum

**21-23 November 2012
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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CZGA 2012 PROGRAMME

WEDNESDAY, 21st OF NOVEMBER 2012

08:30-12:00

Registration

09:00-09:10

Dumitru MURARIU - Welcome and greetings

09:10-09:30

Marian-Traian GOMOIU - Our bits of zoology – yesterday, today, what about tomorrow?

Invited speakers

09:30-10:10

Octavian POPESCU - Species concepts and speciation

10:10-10:50

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

10:50-11:20

Coffee break

Invited speaker

11:20-12:00

Boris KRYŠTUFEK - Mammalian alpha-taxonomy in Europe over the last century: convergences and divergences in number of recognized species

Taxonomy. Faunistics. Zoogeography

Chair: Dumitru MURARIU (Bucharest, Romania)

12:00-12:15

Marian-Traian GOMOIU - Early fauna mentions on the Romanian territories

12:15-12:30

Ümit KEBAPÇI, İskender GÜLLE - Malacofauna, zooplankton and macrohydrophytes of Göllhisar Lake (Burdur, Turkey)

12:30-12:45

Mehmet Zeki YILDIRIM, Ümit KEBAPÇI - Extinction in land and freshwater snails in Lakes Region (Turkey)

12:45-13:00

Liviu Aurel MOSCALIUC - New additions to the Romanian spider fauna: the family Oecobiidae Blackwall, 1862 and the species *Agelena orientalis* C. L. Koch, 1837; an anecdotal discovery and the need for a further taxonomic and biogeographic study

13:00-14:00

Lunch break

Chair: György MAKRANCZY (Budapest, Hungary)

14:00-14:15

Ioana-Cristina CONSTANTINESCU - Description of the female of *Nenteria kieviana* (Wiśniewski & Hirschmann, 1993) (Acari: Anactinotrichida: Uropodina)

14:15-14:30

Omid JOHARCHI - Laelapidae (Acari: Mesostigmata) mites associated with insects in Iran

14:30-14:45

Lucian PÂRVULESCU, Claudia ZAHARIA, Alina SATMARI, Lucian DRĂGUȚ - Distribution pattern of the Stone crayfish in Romania is driven by karst: a consequence of the Pleistocene glaciations?

14:45-15:00

Ionuț Ștefan IORGU, Elena Iulia IORGU - Genus *Chorthippus* (Insecta: Orthoptera: Acrididae) in Romania - an overview

15:00-15:15

Melanya STAN - A few interesting beetle species (Insecta: Coleoptera) from Bârnova-Repedea Forest (Iași, Romania)

15:15-15:30

Lavinia PAUL, Corneliu PÂRVU - The possibilities of determining the post-mortem interval (P.M.I.) analyzing necrophagous insect species (Diptera, Coleoptera) using jackal skulls in Romania

15:30-15:45

Alexandru Filip VLADIMIRESCU, Gabriela Maria NICOLESCU, Elena Claudia COIPAN, Valeria CIULACU-PURCĂREA, Simona BICHERU, Lucia IONESCU, Yvonne-Marie LINTON, Theresa HOWARD, Ralph HARBACH - *Anopheles daciae* – a new Culicidae species identified on molecular basis

15:45-16:00

Saeed MOHAMMADZADE NAMIN - Study of the fruit flies of the genus *Urophora* (Diptera: Tephritidae) in Iran

16:00-16:30

Coffee break

Chair: György MAKRANCZY (Budapest, Hungary)

16:30-16:45

Mihai STĂNESCU - Considerations on three Geometridae species described by Vladimir Olaru (Lepidoptera: Geometridae: Sterrhinae)

16:45-17:00

Lucian FUSU - Taxonomic revision of the Palaearctic species of *Reikosiella* (Chalcidoidea, Eupelmidae): a group of mysterious and little known parasitoid wasps

17:00-17:15

Irinel E. POPESCU - Chalcidoids (Hymenoptera: Chalcidoidea) from flowers of *Campsis radicans* (L.) (Lamiales: Bignoniaceae) from eastern part of Romania

17:15-17:30

Ovidiu Alin POPOVICI, Lubomir MASNER, Norman JOHNSON, István MIKÓ - Gross morphology of maxillo-labial complex in scelionids (Hymenoptera: Platygastroidea) with phylogenetic implication

17:30-17:45

Ümit KEBAPÇI, Tuba CANBEYLİ, Cansu BAYKUŞ, Melike AKCALAR, Mehmet Zeki YILDIRIM - Changes in the mammalian fauna of Lake Burdur (Turkey) basin during Holocene

17:45-18:00

Edita MIKOVÁ, Marcel UHRIN, Sándor BOLDOGH, Péter ESTÓK, Péter GOMBKÖTŐ, Szilárd BÜCS, István CSÓSZ, Csaba JÉRE, Zoltán L. NAGY - Population processes in Mediterranean horseshoe bats (*Rhinolophus euryale*) in the Carpathians

18:00-18:15

Andriy-Taras BASHTA, Bronislaw W. WOŁOSZYN - Bat species diversity in Polish and Ukrainian parts of the International Biosphere Reserve “Eastern Carpathians”

18:15-18:30

Edoardo VERNIER, Bronislaw W. WOŁOSZYN - The Bats of the cave “Grotta A di Ponte di Veja”, in the natural regional Park of Lessinia (Province of Verona; N.E. Italy)

18:30-18:45

Anatol SAVIN, Victoria NISTREANU, Andrei MUNTEANU, Veaceslav SÂTNIC, Alina LARION, Vlad POSTOLACHI - Actual state of European (*Spermophilus citellus*) and Spotted ground squirrels (*Spermophilus suslicus*) in the Republic of Moldova

18:45-19:00

Discussions

19:00-19:30

Poster session

THURSDAY, 22nd OF NOVEMBER 2012

08:30-12:00

Registration

Invited speakers

09:00-09:40

Leopold FÜREDER - Arctic and alpine streams as indicators of a changing world

09:40-10:20

Martin REICHARD - Coevolutionary host-parasite relationship between bitterling fish and unionid mussels and the lessons for ecology of invasions

10:20-11:00

Marian-Traian GOMOIU - Video observations in the *Phyllophora* field of NW Black Sea – R/V Akademik Black Sea Benthos Cruise 2006

11:00-11:30

Coffee break

Systematics and evolutionism

Chair: Dumitru MURARIU (Bucharest, Romania)

11:30-11:45

Denis COPILAȘ-CIOCIANU, Lucian PÂRVULESCU, Adam PETRUSEK - Phylogeography of the *Gammarus balcanicus* species complex (Crustacea: Amphipoda) in the Carpathian Arc suggests persistent effects of Tertiary sea level changes

Palaeontology

Chair: Dumitru MURARIU (Bucharest, Romania)

11:45-12:00

Emanoil ȘTIUCĂ, Alexandru PETCULESCU, Ștefan VASILE, Rodica TIȚĂ - Macro- and micromammal faunas associated with *Mammuthus (Archidiskodon) meridionalis* in the Lower-Middle Pleistocene from Copăceni (Ilfov County, Romania)

12:00-12:15

Theodor OBADĂ - The systematic structure of Order Proboscidea (Mammalia) from the territory of Republic of Moldova, during the Late Neogene – Early Quaternary: preliminary data

Ecology

Chair: Dumitru MURARIU (Bucharest, Romania)

12:15-12:30

Ion DEDIU - Romanian contribution to the development of ecology

12:30-12:45

Michal RENDOŠ, Andrej MOCK, Eubomír KOVÁČ, Tomáš JÁSZAY, Jaroslav SVATOŇ - Diversity and vertical distribution of terrestrial invertebrates within the slope limestone deposit in Carpathian forest (Slovakia)

12:45-13:00

Ioan SÎRBU, Ana Maria BENEDEK, Lorena POPESCU - Effects of environment fluctuations and anthropogenic perturbation on the mollusc communities from Balta Mică a Brăilei Nature Park (Lower Danube River, Romania)

13:00-14:00

Lunch break

Chair: Ioan SÎRBU (Sibiu, Romania)

14:00-14:15

Tiberiu-Andrei FERMAȘ, Sergiu CRISTOFOR - Observations on the distribution and dynamics of the populations of *Hirudo verbana* in the Brăila Marshes complex (Romania)

14:15-14:30

Negar DANESHNIA, Mohammad Ali AKRAMI, Maryam ALEOSFOOR - Life table parameters of fig mite *Eotetranychus hirsti* Pritchard & Baker, 1955 (Acari: Tetranychidae) under laboratory conditions

14:30-14:45

Jabraeil RAZMJOU, Bahram NASERI, Seyed Ali HEMATI - Life history traits of the cotton bollworm, *Helicoverpa armigera* (Hübner) (Lepidoptera: Noctuidae) on various host plants

14:45-15:00

Elena BUHACIUC, Paul J. SZÉKELY, Diana SZÉKELY, Dan COGĂLNICEANU - A comparative study of early post-metamorphic growth in two species of spadefoot toads (*Pelobates fuscus* and *Pelobates syriacus*)

15:00-15:15

Jelena LUJIC, Zoran MARINOVIĆ, Milica MATAVULJ, Desanka KOSTIĆ, Branko MILJANOVIĆ - Fish gills as a biomarker of water pollution in Tamiš River

15:15-15:30

Jelena LUJIC, Zoran MARINOVIĆ, Anca DINISCHIOTU, Andrea Cristina STAIUCU, Bratislav STOJILJKOVIĆ, Zorica SVIRČEV - Cyanotoxin effects on fish from blooming fishponds

15:30-15:45

Paul C. DINCĂ, Alexandru STRUGARIU, Iulian GHERGHEL, Ștefan R. ZAMFIRESCU - Seasonal variations in activity patterns and microhabitat selection in the Sand lizard (*Lacerta agilis*) in two steppe environments of eastern Romania

15:45-16:00

Alexandru STRUGARIU, Tiberiu C. SAHLEAN, Iulian GHERGHEL, Ștefan R. ZAMFIRESCU - Population characteristics and ecology of the nose-horned viper (*Vipera ammodytes montandoni*) at its northern range limit, in Romanian Dobruđa

16:00-16:30**Coffee break****Chair: Ioan SÎRBU (Sibiu, Romania)**

16:30-16:45

Emanuel Ș. BALTAG, Lucian FASOLĂ, Viorel POCORA, Lucian E. BOLBOACĂ, Lucian SFÎCĂ, Constantin ION - Hen Harrier (*Circus cyaneus*) distribution and habitat selection in Eastern Moldova (Romania)

16:45-17:00

Sidi Imad CHERKAoui, Adel BOUAJAJA - Relative importance of habitat area, isolation and quality for the occurrence of Mistle Thrush *Turdus viscivorus* (L.) in fragmented lowland Cork oak forest in Morocco

17:00-17:15

Dragoş Ş. MĂNTOIU, Ionuţ C. MIREA, Laurenţiu BURLACU - GIS based analysis of the hibernation preferences for several bat species from the Gura Dobrogei Cave (Romania)

17:15-17:30

Dominika OLSZEWSKA, Bronisław W. WOŁOSZYN, Piotr KRUPA - Intestinal microflora of selected bat species as an indicator of population health and environment quality

17:30-17:45

Victoria NISTREANU, Alina LARION, Vlad POSTOLACHI, Larisa BOGDEA, Alina RAŢA - Preliminary data on long-eared owl (*Asio otus otus* L.) diet during winter period in Chişinău city (Republic of Moldova)

17:45-18:00

Alina LARION - Growth and development rythm of the species *Mus spicilegus* Petenyi, 1882 (Rodentia: Muridae)

18:00-18:15

Ana Maria BENEDEK - Small mammal assemblages in mountain forests of Romania

18:15-18:30

Anamaria LAZĂR - Seasonal dynamics of the small mammal communities (Ord. Insectivora and Rodentia) of Ozun locality (south-eastern Transylvania)

18:30-18:45

Discussions

18:45-19:00

Poster session

19:30-20:30

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

20:30-22:30

Gala Dinner

FRIDAY, 23rd OF NOVEMBER 2012

08:30-12:00

Registration

Invited speakers

08:30-09:10

György MAKRANCZY - The passing of the “Ink Age” - Illustration techniques for small beetles (Coleoptera)

09:10-09:50

Miklós SZEKERES, Zoltán FEHÉR, László NÉMETH, Alexandru NICOARĂ - Left or right? - Chiral determination and phylogeny of the alpine land snail genus *Alopi* (Gastropoda: Clausiliidae)

Invasive species

Chair: Abraham bij de VAATE (Lelystad, The Netherlands)

09:50-10:05

Abraham bij de VAATE, Egbert A. JANSEN - The quagga mussel in Western Europe, particularly in The Netherlands

10:05-10:20

Pedro MORAIS, Martina ILARRI, Ester DIAS, Ronaldo SOUSA - Ecosystem-level impacts of a non-indigenous bivalve in a temperate estuary

10:20-10:35

Gabriela NICOLESCU, Alexandru VLADIMIRESCU, Valeria PURCĂREA-CIULACU - Invasive mosquito species – potential risk for Romania

10:35-10:50

Adrian GAGIU - The first occurrence of *Sceliphron caementarium* (Drury, 1770) (Hymenoptera: Sphecidae) in Romania

10:50-11:20

Coffee break

Invited speakers

11:20-12:00

Doina CODREANU-BĂLCESCU, Radu R. CODREANU - Current concerns and trends in the development of Parasitology in Europe

Parasitism in the animal kingdom

Chair: Doina CODREANU-BĂLCESCU (Bucharest, Romania)

12:00-12:15

Ioan CIRONLEANU - Some epidemiological aspects in the trichinellosis development in Romania during the second half of the 20th century

12:15-12:30

Ion TODERAȘ, Alexandru MOVILA, Andrey N. ALEKSEEV - Co-infection communities of tick-borne pathogens in some foci of Eastern Europe and North Western Russia

12:30-12:45

Asadollah HOSSEINI, Majid TAVAKOLI - *Argas vespertilionis* (Ixodida: Argasidae): parasite of Common pipistrel bat in west of Iran

12:45-13:00

Ioana-Cristina CONSTANTINESCU, Viorel POCORA, Gabriel CHIȘAMERA, Costică ADAM - Feather mites fauna (Acari: Astigmata) of the Danube Delta Biosphere Reserve. Preliminary data

13:00-14:00

Lunch break

Chair: Doina CODREANU-BĂLCESCU (Bucharest, Romania)

14:00-14:15

Costică ADAM, Gabriel CHIȘAMERA, Cătălin-Răzvan STANCIU, Sidi Imad CHERKAOUI - Chewing lice (Phthiraptera: Amblycera, Ischnocera) from wild birds of Morocco [Scientific results of “DAKHLA” (2012) expedition]

14:15-14:30

Gabriela NICOLESCU, Alexandru VLADIMIRESCU, Valeria PURCĂREA-CIULACU - Potential *Anopheles* malaria vectors in Romania

Studies and recovery of the natural history museum patrimony

Chair: Dumitru MURARIU (Bucharest, Romania)

14:30-14:45

Rodica SERAFIM - Palearctic Longhorn beetles (Coleoptera: Cerambycidae) from the collections of “Grigore Antipa” Museum (Bucharest)

14:45-15:00

Dorel M. RUȘTI - Ethnozoology in Romania: current status and perspectives

Biodiversity Conservation

Chair: Dan COGĂLNICEANU (Constanța, Romania)

15:00-15:15

Matei-Ionuț DRAGOMIR, Cosmin STÎNGĂ, George VLAD - The regional center for wildlife care and treatment (CZITAS) from Petrești, Vrancea County (Romania) - useful element in ex-situ conservation of wildlife

15:15-15:30

Marius CICÎRMA, Ștefania IVAN, Anca DINISCHIOTU, Andrea Cristina STAIU - Histological changes induced by Hyamine 1622 acute intoxication in *Cyprinus carpio* (Actinopterygii: Cyprinidae)

15:30-15:45

Ruben IOSIF, Laurențiu ROZYLOWICZ, Viorel POPESCU - Modeling road mortality hotspots of Eastern Hermann's tortoise in Romania

15:45-16:00

Corina IȚCUȘ, Ioan COROIU - Investigations on bat colonies from Măgurici Cave (Sălaj County, Romania)

16:00-16:30

Coffee break

Chair: Dan COGĂLNICEANU (Constanța, Romania)

16:30-16:45

Grzegorz KŁYS, Bronislaw W. WOŁOSZYN - Biodiversity of the cave environment of Tajikistan and its position in relation to the underground fauna of Palearctic

16:45-17:00

Bronislaw W. WOŁOSZYN - Biodiversity virtual vs. real. Case study: Bats of the Carpathians

17:00-17:15

George BOUROȘ - New data on the presence and distribution of the Otter (*Lutra lutra*) in two Natura 2000 Special Areas of Conservation (SAC) from Iași County (Romania)

17:15-17:30

Lucian Marius PĂTRAȘCU, Silviu CHIRIAC - *Lynx lynx* coat pattern analysis using extract Compare Image Recognition Software in Putna-Vrancea Natural Park (Romania)

17:30-17:45

Maria Rodica OȚELEA, Stelian BĂRĂITĂREANU, Mihaela ZĂULEȚ, Doina DANEȘ - The polymorphisms of *Ovis aries* prion protein gene in Romanian breeds

17:45-18:00

Discussions

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Poster session

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Luminița BEJENARU, Simina STANC - Archaeozoological consideration on wild fauna changes under human impact in south-eastern Romania since Prehistory until middle Ages

P 02.

Simina STANC, Luminița BEJENARU - Suines (*Sus scrofa domesticus* and *Sus scrofa ferus*) importance in the subsistence economy of the Bronze Age settlements from Romania

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Zdravko K. HUBENOV, Teodora A. TRICHKOVA, Ivan S. BOTEV, Lubomir A. KENDEROV - Faunistic diversity of Bulgaria

P 04.

Mehmet Zeki YILDIRIM, Ümit KEBAPÇI - Gastropod fauna of Akdağ Mountain (Isparta, Turkey)

P 05.

Ioana GOGOLINCĂ, Ioan SÎRBU - Study on the freshwater Mollusca fauna from the Hârțibaciu River Basin (Middle Olt River Basin, Romania), with notes on its conservation status and human impact

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Lyubomir HRISTOV - Morphological characterization of *Cornu aspersum maximum* Taylor, 1883 (Gastropoda: Helicidae) from Bulgaria

P 07.

Monica AXINI - Data on biogeography of gastropod species *Chondrula tridens* in Southern Dobrogea, Romania

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Denis COPILAȘ-CIOCIANU - Remarks on the biogeography of *Gammarus komareki* Schäferna, 1922 (Crustacea: Amphipoda), a new species for the Romanian fauna

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Ana-Maria PETRESCU, Răzvan POPESCU-MIRCENI, Iorgu PETRESCU - New records on the distribution of decapod species (Crustacea: Anomura, Brachyura) from Eastern Atlantic (Morocco) [Scientific results of "ATLAS" (2007) and "DAKHLA" (2012) expeditions]

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Simin BAROOZEH, Ali AHADIYAT - Species composition of mites of the superfamily Eviphidoidea (Acari: Mesostigmata) in main climate zones of Tehran province, Iran

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Sahebeh GHASEMI MOGHADAM, Ali AHADIYAT, Alimorad SARAFRAZI, Hasan RAHMANI - Fauna of Tetranychoida (Acari: Prostigmata) and their predator mites (Acari: Mesostigmata, Phytoseiidae), and survey of infestation rate on trees and shrubs in parks of Tehran, Iran

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Mohammad KHANJANI - Some phytoseiid mites from orchards in Hamedan, west of Iran

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Bahman ASALI FAYAZ, Mohammad KHANJANI, Farshad MASOUDIAN - Study of species diversity of phytoseiid mites associated with some medicinal plants in some parts of West and North-West of Iran

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Farshad MASOUDIAN, Mohammad KHANJANI, Bahman ASALI FAYAZ - Phytophagous mites associated with some of medicinal plants family of Asteraceae in Hamedan region

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Sahebeh GHASEMI MOGHADAM, Ali AHADIYAT - Fauna of mesostigmatic mites (Acari: Mesostigmata) associated with green spaces and parks of Tehran, Iran

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INVITED SPEAKERS

Current concerns and trends in the development of Parasitology in Europe

Doina CODREANU-BĂLCESCU¹, Radu R. CODREANU²

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Key words: EMOP XI, research concerns and directions.

After that during 41 years European Multicolloquium of Parasitology traveled through several countries in Europe (France, Yugoslavia, United Kingdom, Turkey, Hungary, The Netherlands, Italy, Poland and Spain), the 11th EMOP stopped this year in Romania. It was held in Cluj-Napoca (July 24th – 29th) under the patronage of the European Federation of Parasitologists, founded in 1966 by Polish scientist Witold Stefański.

For 6 days, a very dense scientific program was held simultaneously in seven locations, organized in 28 Symposia, 2 plenary sessions, 5 workshops and round tables, totaling over 280 oral and 190 poster presentations. Large biodiversity of parasites and host-parasite relationships were analysed in basic studies as well as in applied ones, aiming to help human or animal health authorities in fighting any emerging parasitic problems. Many of these researches were conducted by molecular techniques with reference to the serological diagnosis, immunology, immunopathology, molecular epidemiology, drug resistance, etc.

Studies were presented on different parasites (reproduction, developmental biology, ultrastructure, physiology and physiopathology, immunology, genetics, taxonomy, ecology, epidemiology etc.), with special regard to: the parasites of wildlife and of fish or other aquatic organisms, main parasites of veterinary interest (*Cryptosporidium*, *Neospora*, *Babesia*, *Eimeria*, *Toxoplasma*, Cestoda, Strongylidae, *Dirofilaria*, Acanthocephala). In a special workshop on *Trichinella*, new aspects of biology and molecular genetics were discussed, with applications in diagnosis and control. Epidemiological aspects in different zoonoses, with special regard on zoonoses in goats were presented.

In the Symposium - Challenges in the diagnosis and therapy of human parasitoses, as well as other symposia, presented results were based on molecular studies in main parasitic diseases: Chagas disease, leishmanioses, giardiasis, malaria, schistosomiasis and foodborne trematodoses (traditional K.E. Mott Symposium), intestinal and larval echinococcoses, toxocarosis etc. *Toxoplasmosis* and *Toxoplasma gondii* genotypes were analysed in different risk group of populations, in pregnancy and neonates. It was highlighted the influence of climate change on emergence of parasitic infections transmitted by arthropod vectors and the management of emerging parasitic diseases in cooperation with: the European Union Reference laboratory for parasites, ESCMID (study group for clinical parasitology), European Veterinary Parasitology College.

The first European Symposium on parasites and geospatial health was organized.

The Young Scientist Award (YSA) highlighted very competent and modern works, supported by modern young parasitologists with excellent training and passion about their studies.

The future of parasite systematics will be molecular studies targeting parasitic species concepts and its correlations with other characters defining species (morphology, biology, behaviour). Regarding parasite protists, the application of molecular phylogenetics, with incorporation of ultrastructural and some genomic event data, help us understand the connection to above observations at light microscopical level.

Arctic and alpine streams as indicators of a changing world

Leopold FÜREDER

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Key words: species traits, aquatic insects, long-term monitoring, climate change, river ecology.

Aquatic ecosystems at high altitudes and latitudes experience extremely harsh climatic conditions characterized by their severity, seasonality and unpredictability. The major factors controlling biodiversity are a long period of ice/snow cover, low precipitation, low temperatures, substantial daily and seasonal variations in discharge, as well as the reduced quantity and quality of food sources. Recent climate change prospects concluded that predicted changes in climate in the Arctic as well as in higher altitudes are expected to have far-reaching impacts on the hydrology and ecology of freshwater ecosystems. However, the structure and function of arctic and alpine freshwater systems and their basic inter-relationships with climate and other environmental variables are poorly understood. Running waters integrate catchment-scale processes, involving a set of physical, chemical and biological variables that are affected by climate and environmental change. Little is known about high arctic freshwater organisms, their distribution and adaptations to the harsh climatic conditions. In past and ongoing research in the Arctic and the European Alps, we investigate physico-chemical and biological baseline data for a further development of predictive models for the response of benthic invertebrate communities to different climate change scenarios. Spatial and temporal changes in water source, food resources, both aquatic and terrestrial are responsible for differences in invertebrate abundance and diversity, when several river systems, glacial and non-glacial, lake outlets and more nutrient-rich streams were compared. Besides applying general biological criteria and indices, we defined biological, ecological and behavioural species traits in the invertebrate fauna for the detection of causal links between climate/environmental change and ecosystem structure and function. The herein elaborated methods and their applications are now integral elements of a long-term monitoring program on running water ecosystems in high altitudes and latitudes.

Our bits of zoology – yesterday, today, what about tomorrow?

Marian-Traian GOMOIU

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Key words: zoology, taxonomy, Romania, science management.

This presentation is a warning to the scientific community of zoologists in Romania, who should strive harder to solve the difficulties this scientific discipline undergoes in our country.

After the World War II the basic biological disciplines - botany, zoology, microbiology, continued the work of the predecessors and developed steadily, involving and driving new areas and subjects of researches. The series “Fauna of Romania” as well as the series “Flora of Romania” have become world famous. As time passed and the impatience of many biologists has increased in recent years, the so called “old concerns”, especially taxonomy, declined. I often remind the students that the subject of many “modern” sciences, especially ecology, is compromised without precise knowledge of plants, animals and micro biota. Therefore, in the era of “biodiversity”, precise identification of species remains a priority task. The need for knowledge of the country’s fauna involves taking some urgent measures, including:

- Encourage and guide young researchers, PhD students to specialize in the study of various groups of animals.
- Improve taxonomic studies by reviewing all groups of organisms, using comparative diagnosis based on all methods of identification.
- Continue publication of the National Work – “Romanian Fauna” series and complete with the missing volumes.
- Review and complete the published issues and, finally, republish them in English.
- Train specialists in the country’s museums.
- Assume the moral and professional responsibility for the knowledge and description of Romania’s national fauna capital within a Zoological Society.
- Allocate special funds to study Romania’s natural capital, permanent funds to support the knowledge of the most vulnerable parts of our national dowry.

Video observations in the *Phyllophora* field of NW Black Sea – R/V Akademik Black Sea Benthos Cruise 2006

Marian-Traian GOMOIU

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Key words: underwater video observations, Black Sea, benthos, red algae *Phyllophora*.

In the latter half of the 1960s, Romanian scientists using SCUBA diving helmets made “ground” observations and collected samples in the southern part of the famous red algae *Phyllophora* field (Băcescu, Müller & Gomoiu, 1971); in the following decades, all the information concerning the benthic ecosystem was obtained blindfold, by using grabs, dredges and other equipment, diving being scarcely recorded in NW Black Sea and taking place especially in the shallow waters of the coastal sectors.

The occasion to have sea floor images from the NW Black Sea Zernov’s *Phyllophora* Field during the interdisciplinary cruise on the R/V Akademik in July-August 2006 was really a great chance.

That is why “*in situ*” underwater observations obtained during the Cruise, by means of a towed high resolution video camera array in all polygons, considerably helped the efforts of the scientists in assessing the state of benthic communities and produced new important information in addition to that obtained by conventional methods. Preliminary information on “video” utilization during the cruise was published by Stevens T., Mee L. and Hingston S. (2007). A total number of 35 locations were video investigated and images were described.

The observations made on the video monitor, despite some technical inconveniences, and dependence on some subjectivism and on the expertise of the onlooker, are presented in the paper. Besides the author’s personal comments and impressions on the image - slides captured with the video camera, in the paper there are included some checking data resulting from the preliminary processes of the sampling activity on board, as well as a few pieces of information from some on-board discussions with scientific crew members (Dr. Galina Minicheva - Macrophyta, Dr. Ivan Synegoub - Macrozoobenthos, Dr. Nina Shurova – Mussels, Dr. Tatiana Begun and Dr. Adrian Teacă - Benthos specific diversity).

The former true “**red algae jungle**” can hardly be seen nowadays, as some of the observations in the paper show:

- Hard bottom with shells, spotted by soft algae (*Polysiphonia sanguinea*); *Phyllophora* is practically absent.
- “Hard” vegetation of *Phyllophora* and “soft” vegetation of *Polysiphonia*, *Desmerestia* and *Ectocarpus*.
- “Selenic” bottoms covered with silty sand and shells with small and rare tufts of algae.
- Small clumps of *Ectocarpus* algae with more or less small-sized mussels.

- Tanathocoenosis with growing “Tunicates forest” – shelly bottom without algae, *Ciona* inhabiting.
- Monotonous “forest” of solitary ascidians *Ciona intestinalis*.
- Underwater seascape with “Tunicates forest” overlapping the former *Phyllophora* field.

Mammalian alpha-taxonomy in Europe over the last century: convergences and divergences in number of recognized species

Boris KRYŠTUFEK

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Key words: species recognitions, species delimitation, taxonomic history, polytypic species, subspecies.

A century ago E. L. Trouessart (1910) and G. S. Miller (1912) provided first comprehensive taxonomic revisions of European mammals. Particularly Miller's "Catalogue of the Mammals of Western Europe" influenced the taxonomy and nomenclature more than any other single contribution to European mammalogy. A list of 198 species, as recognized in 1912, was reduced to 130 species in the influential revision of the Palaearctic mammals (Ellerman & Morrison-Scott, 1951). The estimate of species richness remained at low number until late 1960s but started to grow steadily since late 1970s. Although the most recent revisions (Wilson & Reeder, 2005; IUCN Red List 2008) converge towards Miller and Trouessart in number of species, the similarity index based on species composition lists decays as a function of time which separates two lists. Therefore, the greater the time period between the two revisions, the more dissimilar their taxonomic lists tend to be. Species turnover index among species lists is the highest for lagomorphs and rodents, hence, these two orders had the most dynamic taxonomic history over the last century. Of the 179 species in Wilson and Reeder's compilation, 21 names were proposed since Miller's Catalogue, i.e. during the last century. Although mammalogists only exceptionally defined the species concept and operational criteria applied in delimitation of species, it is clear that the majority of taxonomic revisions adopted a biological species concept and consequently recognized polytypic species. Until late 1970s the main operational criteria in species delimitation were morphological characteristics, which were largely replaced in the last decade by genetic criteria.

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The passing of the “Ink Age” - Illustration techniques for small beetles (Coleoptera)

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Key words: inked drawings, terminalia dissection in mounting medium, uncoated SEM imaging, *Carpelimus*, New World, documentation of type specimens.

An insect taxonomist’s everyday problems are to delimit species, interpret taxa based on specimens (often fragmentary or poorly preserved, few in numbers) and to work out a classification, identification keys. These tasks usually involve illustrations of some kind, in the process itself, and also in the final output (publication). In the 21st Century illustration procedures somewhat changed from what was usual in the previous ages.

Study of small beetles with a hard, sculptured exoskeleton triggered illustration attempts from a very early age. Depicting surface sculpture has always been tricky and then the study of the genitalia added even more challenge. From the 1950s it was generally required to present an image of genitalia with species descriptions. This demand then could only be met with line drawings made from compound microscope with a drawing tube; however, man-made artwork always involves interpretation. In the second half of the past century, surface sculpture was usually illustrated by drawings or paintings; from the 1970s, Scanning Electron Microscopy (SEM) has become more widely used. In that age, colour reproduction in printed books and journals was very expensive and the printing technology generally did not offer excellent results, triggering the extensive use of black and white photographs and habitus drawings with China ink. Improvement of paper quality and printing techniques, but even more importantly photographic instruments brought back colour photography to everyday use in the digital age. The appearance of digital distribution methods (PDF and websites, electronic journals) renewed interest in the photography of tiny insects. Layered imaging and montaging softwares have evolved to a point that a colour photograph in publishable quality is now cheap enough to be available to everyone.

Illustration methods not only play part in the communication and dissemination of results, but have an integral part in the taxonomic research itself. Documenting critically important objects and comparison of hard-to-observe details all necessitate appropriate imaging. Microscopic preparations are still indispensable for study of minute, delicate details, especially if they are somewhat transparent or can be made so. The wider availability of scanning electron microscopes with variable pressure chamber made an SEM an available option for depicting type specimens, not only nanostructures. These can be made without coating (carbon-, gold-, etc.) and thereby unacceptably altering the object. Uncoated SEM images made under low pressure are rather suitable for illustration of certain surface details and free of disturbing shadow and glare effects in light microscopy and photography. The problems involve mounting technique and

background evenness. Specimens mounted with (water-soluble) wallpaper glue on a cardboard piece covered with transparent sticky tape provided good result; also easy positioning in a piece of gum over the stub used in the SEM chamber.

Illustration from microscopic preparations involves embedding small structures into mounting medium either on glass slides or small stripes of transparent plastic that can be pinned with the specimens. Dissection of the terminalia within the still fluid mounting medium allowed discovery of very delicate details in female genitalia that greatly helped solving species identity and distinctness problems. Genitalic structures (mostly aedeagus of the male) can be set and illustrated in a way that overlapping structures cause fewer disturbances to each other: either by tilting the object by 15 degrees or layers of structures moved to separate drawings.

As an example of how the aforementioned illustration skills became instrumental in solving taxonomic problems, a study of the New World type specimens of the genus *Carpelimus* Leach, 1819 (Coleoptera: Staphylinidae: Oxytelinae) is presented. The genus has 162 specific names published within the geographic scope; it is ubiquitous in wet habitats, muddy places with decaying plant material on riverbanks and shores of lakes, ponds. Most species are rather frequent and numerous - and yet, about half of the names published are based on a single specimen and within this group the majority on a single female. Moreover, almost all taxa are made available with no illustration, just with a verbal and inadequate description. Revision was never before attempted and so far constituted impossibility with the extreme high species number, great external similarity and virtually unstudied female characters. Due to these difficulties descriptive work has stopped more than half a century ago. The previously used key characters include the head and pronotal shape (and particularly that of the temples), surface sculpture and microsculpture and the internal sclerites of the male genitalia (aedeagus). Members of the genus are rather uniform in colour and externally character-poor, but very rich and varied in genitalic traits. A more elaborate study of the terminalia and the female genitalia has brought to the fore a few additional structures and features that could be used efficiently in clarifying the statuses of the available names and association of males and females where this was problematic due to strong sexual dimorphism. All 162 nominal taxa thus becoming applicable by today's standards enlighten the critical role of illustrations in the taxonomic procedure.

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 (30th 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 Bessarabia; 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.

Species concepts and speciation

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Key words: species, speciation, biodiversity, evolution.

The basic unit of biodiversity is the species. But there are many distinct concepts of species. At the most basic level, the species is a taxonomical rank represented by a group of individuals closely related to each other in terms of hereditary characters. This definition is based on morphological, biological and phylogenetic properties. As with other sciences, species is designated binomial by gender and specific epithet name. Due to several ways of defining fungal species, there are major differences between different specialists, but this reality does not decisively affects their application in practice. The speciation is an evolutionary process through which is made a gradual transformation of one species into another by detachment from a phylogenetic line, followed by the acquisition of some reproductive isolating mechanisms producing discontinuities between populations. In simple terms, the speciation can be defined as the development of two or more new species from one ancestral species. Furthermore, this complex process, responsible for the considerable amount of current biodiversity, is a major biological problem. In order to better understand the speciation, this lecture will provide recent progress in speciation research and the contribution of different species concepts to the clarification of the evolutionary mechanisms involved in species formation.

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Coevolutionary host-parasite relationship between bitterling fish and unionid mussels and the lessons for ecology of invasions

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Key words: coevolutionary arms race, freshwater mussels, *Anodonta woodiana*, interspecific associations, invasive species, glochidia.

Coevolution is the reciprocal evolution between two or more interacting species and often results in rapid evolution of traits involved in interspecific interactions. Host-parasite relationships are especially amendable systems to study coevolutionary dynamics and related ecological phenomena. Their reciprocal coevolutionary “arms race” results in an amplification of traits that enhance survival of the parasite on one hand and host defence on the other. To study complex coevolutionary interactions, I use an association between bitterling fish (Acheilognathinae, Cyprinidae) and freshwater mussels (Unionidae). Bitterling lay their eggs in the mussel gills and, in turn, unionid mussel larvae parasitize fish during their development. Both partners show a range of adaptations to exploit the other partner and counter-adaptations to prevent being exploited. I review the current state of our understanding of this relationship in Europe and Asia. Next, I focus on the European bitterling (*Rhodeus amarus*) and summarize costs and benefits for fish and mussels and discuss the current stage of the association in Europe. Currently, I use this model to investigate how an invasive species may affect coevolved relationships. The parasitic larvae of European mussels are unable to utilize the bitterling, although readily parasitize most other European fishes. Therefore, European bitterling is parasite of unionid mussels. The Chinese pond mussel, *Anodonta woodiana*, recently colonized European freshwaters from the region of high abundance and diversity of Asian bitterling species, where it evolved strong adaptations against parasitism by bitterling. We found that *A. woodiana* effectively reversed the host-parasite relationship between the bitterling and mussels – it can avoid being parasitized by the European bitterling but its parasitic larvae can develop on the European bitterling successfully. Interestingly, different *A. woodiana* populations have different consequences for the bitterling and this opens an exciting avenue for future research on inter-population differences in the effects of invasive species.

Left or right? - Chiral determination and phylogeny of the alpine land snail genus *Alopi* (Gastropoda: Clausiliidae)

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Key words: phylogeny, chirality, enantiomorph, *Alopi*, Clausiliidae, Mollusca.

While the vast majority of snails (Gastropoda) possess dextral shell and body organization, members of the Clausiliidae family are almost exclusively sinistral. Within this group *Alopi*, an endemic genus of the Romanian Carpathians, is unique by the comparable representation of sinistral and dextral taxa, and the existence of enantiomorph taxon pairs that seemingly differ only in their chirality. The possible evolution and systematic significance of coil inversions in *Alopi* have long been disputed, preventing consistent classification at the species level. Therefore the aim of our study was to find out whether the unusually high number of dextral forms descended monophyletically, which would imply extreme convergence in the cases of enantiomorph taxon pairs, or resulted from multiple independent inversions, indicating that in *Alopi* the genetic fixation of chiral stability is much weaker than in any other genera of the Clausiliidae. Our molecular phylogram that was inferred from mitochondrial cytochrome oxidase (*COI*) gene sequences revealed multiple inversion events and in each case very close evolutionary relationships between the enantiomorph pairs. The *COI* phylogeny is well supported by apomorphic morphological traits, and these together provide reliable basis for a comprehensive taxonomic revision of *Alopi* species. The deduced phylogenetic lineages gave important clues for reconstructing the zoogeographical history of the genus. Furthermore, our results also suggest that due to the relatively unstable inheritance of coil direction *Alopi* species might become attractive experimental models for genetic studies aimed at elucidating the molecular basis of chiral stability.

ORAL PRESENTATIONS

Early fauna mentions on the Romanian territories

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Key words: zoology, Romania, Publius Ovidius Naso, Luigi Ferdinando Marsigli, Anatole N. Demidoff.

Considering that the history of each science represents one of the fundamental disciplines in any specialist's training, the author is open to young biologists, briefly presenting them, as a challenge, some pieces of the early knowledge of "biodiversity" in the territories that were to become, along the passage of time, present-day Romania.

Based on the literature consulted and the exceeding journey on the internet oceans, the author holds very important information and synthesizes them to give the students an impulse to learning. The paper refers to three names of famous scholars, whose reputation has never eroded, and their literary or scientific work contains early records on the fauna and flora of the territories they visited during their journeys through Europe. These scholars were:

Publius Ovidius Naso (43 B.C.-17/18 A.D.) – Roman poet, well-known for his literary writings (among which "Triste", "Epistulae ex Ponto"). In his "Pontic" works the poet refers to the nature of the exile places, and Pliny the Elder mentions the poem "Halieutica" ("On Fishing") composed by Ovid towards the end of his life at Tomis; modern researchers consider that Pliny erroneously attributed this poem to Ovid. The Romanian historian Ioan Micu published a paper on "Halieutica", which is less known by biologists.

Luigi Ferdinando Marsigli (1658-1730) – Italian Count, officer and naturalist, the father of oceanography. Slightly mentioned in Romanian sources, he is known as one of the most brilliant men of his time in Europe, leaving us a legacy of great value, a work of more than 20 books: "Interior Osservazioni Bosforo Tracio", "Histoire physique de la Mer", "Danubius Pannonico-Mysicus Observationibus geographicis, astronomicis, hydrographicis, historicis, physicis", richly illustrated work in six volumes containing much valuable historic and scientific information on the river Danubius, and "*L'Etat militaire de l'empire ottoman*".

The life of Marsigli – "soldier and virtuoso" is well depicted in a book published in 1994 (John Stoye: Marsigli's Europe. Yale University Press, New Haven, N.J. 1994, ISBN 0-300-05542-0).

Anatole N. Demidoff (1813-1870) - First Prince of San Donato, Russian industrialist and Maecenas, one of the most talented, energetic, and extravagant of the Demidoffs – rich family ennobled by Peter Ist.

At the age of 24 he organized a scientific expedition under the scientific leadership of the French sociologist Frédéric Le Play. The expedition comprised 22 scientists, writers and painters, among them Alexander von Nordmann - zoologist, Auguste Raffet – painter, Jules Janin - the writer who chronicled the

voyage through Southern Russia, Crimea, Hungary, Wallachia, Moldavia and Turkey in the year 1837.

The results of this expedition, whose cost rose up to 500,000 Francs, were published under the title “Voyage dans la Russie méridionale et la Crimée par la Hongrie, la Valachie & la Moldavie“ (4 vol., 1840-1842), with hundreds of superb original lithographies by Raffet. The four volumes of this work can be seen in the Library of the Romanian Academy and should be seen by every naturalist.

Malacofauna, zooplankton and macrohydrophytes of Gölhisar Lake (Burdur, Turkey)

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Key words: Mollusc fauna, zooplankton, Gölhisar Lake, Karataş Lake.

Gölhisar Lake is a small (4 km²) and shallow (2 m on average, 10 m maximum) lake in Burdur, southwestern Turkey. Being a tectonic-karstic lake, it is situated in the center of an agricultural plain and it has no feeding sources except for surface runoff from surrounding areas.

As the initial stage of a general survey of limnology and the lake biota, which hasn't been studied for groups other than vertebrates, the study was conducted between March and December 2010 on bimonthly basis. Main subject of the study was the determination of seasonal distributions of mollusk faunas, zooplankton and macrohydrophytes of the lake. Furthermore trophic level of the lake was determined using parameters like total phosphate, nitrate, ammonia, secchi disc visibility and chlorophyll a.

A total of 9 recent and 3 Holocene gastropod species and 1 bivalve species from Lake Gölhisar were identified during the field research. On the other hand, 12 species from seed plants and 35 zooplankton species (21 from Rotifera, 8 from Cladocera, 3 from Copepoda, 2 from Sarcodina, and 1 from Turbellaria) were also identified.

A decrease in trophic level in Lake Gölhisar was observed. Also the small scale commercial fishing in the lake now began to be weakened by the invasion of reeds and due to the trophic level changes in the lake.

Extinction in land and freshwater snails in Lakes Region (Turkey)

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Key words: Gastropoda, extinction, Lakes Region, IUCN, endemism.

Lakes Region of Turkey is an endemism center for both land and prosobranch fresh water snails, latter of which in particular are known to be highly susceptible to environmental changes. As a general problem in the Mediterranean area, the surface waters are quite scarce and the consequent habitat alterations like dam constructions and depletion of underground waters for irrigation led to dramatical losses in the freshwater snail biodiversity of the region in the last few decades.

Only by increasing knowledge about the currently unsolved taxonomy and the distribution limitations of the most habitat specific snails of the region, actual figures about threat could be understood. Yet, according to present state of our knowledge, 4 narrow endemic species from Hydrobiidae have become extinct in the last three decades. Currently, out of 50 described species, 12 (mainly prosobranch) snails fit in the higher threat categories (CR to VU) of IUCN.

Of the endemic land snails, the distribution and populations are not known in detail. However, considering the presence of numerous single site endemics, the necessity to survey land snail populations has arisen in the last few years seeing the ongoing pace of mining activities, urbanization and touristic activities in limestone habitats across the region.

New additions to the Romanian spider fauna: the family Oecobiidae Blackwall, 1862 and the species *Agelena orientalis* C. L. Koch, 1837; an anecdotal discovery and the need for a further taxonomic and biogeographic study

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Key words: new additions, spiders, fauna Romania, *Oecobiidae*, *Agelena*.

The present communication has its origin in the mundane fact that a spider fell on a desk; however, the desk was that of an arachnologist and the spider, a very small and very fast, star-legged one (Oecobiidae) that easily caught the eye. The spider was captured on the 31st of May and was a mature female of the genus *Oecobius*. No other individual was found. Later, on the 22nd of August, a juvenile *Oecobius* was discovered running on the same desk and a close inspection of the office’s walls (these species are sometimes known as wall-spiders) revealed many 5 mm or less typical nets from which more juveniles were collected (6 in total). The nets were also found all through the Museum’s hallways.

The genus has around 79 worldwide species at least some of which had the ability to adapt to human modified environments and subsequently spread around with trade and human movements. Eight species are also present in or around Europe. The identity of the reported species remains uncertain until more bibliographic material will be procured (more drawn or descriptive details about the female epigyne) and male individuals caught.

The species *Agelena orientalis* C. L. Koch, 1837 is reported based on a female collected on the 27th of August in a house near Bucharest. Its epigyne is similar to that pictured in a recent comparative study on *A. orientalis* and *A. labyrinthica* (Clerck, 1757). The study also gives information regarding the micro-scale biogeography of the two species (they are clearly separated by habitat factors) from the Crimean peninsula that is backed by similar finds in other areas.

A. orientalis was found to have been previously collected in Romania by the arachnologist A. Roșca in 1964 near Iași, and labeled as *Agelena labyrinthica orientalis* C. L. Koch, 1837. The high possibility of confusion between the species prompted a quick inspection of specimens in the collection of “Grigore Antipa” National Museum of Natural History, with the result that individuals with quite different epigyines are labeled as *A. labyrinthica* (Clerck, 1757). A further taxonomic revision of the genus in the collection is therefore necessary and microscope slides of the vulva compared for a thorough species separation in Romania. Because female specimens that can be assigned to both species appear to have been collected in very similar habitats in Romania, a detailed micro-habitat preference analysis will be attempted once all the specimens in the collection are identified.

Description of the female of *Nenteria kieviana* (Wiśniewski & Hirschmann, 1993) (Acari: Anactinotrichida: Uropodina)

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Key words: taxonomy, Acarina, Uropodina, *Nenteria kieviana*, female description, Romania.

Currently *Nenteria kieviana* (Wiśniewski & Hirschmann, 1993) is known only from the description of the male and deutonymph, identified in soil samples collected from the surroundings of Kiev, Ukraine (Wiśniewski & Hirschmann, 1993). In this paper, for the first time, the female of the species is described and illustrated.

Samples were collected from a mixture of sand and decaying algae from the Black Sea (Mamaia, Romania), on 08.01.2012, and contained 14 individuals of this species (5 ♂♂, 7 ♀♀, 2 DN).

Species belongs, according to the classification made by Wiśniewski & Hirschmann (1985) to - *stammeri* species group, being the most similar morphologically to *Nenteria stammeri* (Hirschmann & Zirngiebl-Nicol, 1962).

Female of *Nenteria kieviana* differs ventrally from the related species by the absence of pre-anal structural line, absence of setae X₁, X₂ in postero-ventral region and the different ornamentation of genital shield. In *Nenteria kieviana* ornamentation is absent from the basis of the shield, and the rest of the shield has circular impressions of different sizes, the largest in the central area. In *Nenteria stammeri* genital shield has small circular impressions, of equal size, placed all over it.

Dorsally, this species differs both by the ornamentation of the dorsal shield and the different shape of the marginal setae that are needle-like and simple in *Nenteria kieviana*, while in the related species they are fringed on top.

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Laelapidae (Acari: Mesostigmata) mites associated with insects in Iran

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Key words: Laelapidae, Mesostigmata, Iran, Insects.

Mites of the family Laelapidae are abundant in agricultural ecosystems, especially in association with Coleoptera and Hymenoptera. This project is based on a survey of Laelapidae that was carried out during 2010-2012 in Iran. During this study, 17 species from six genera and two subfamilies were collected and identified. Six of these species are new to science, and one genus and seven 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 ferdowsi Joharchi, 2012* ♀ ♂ [larvae of *Polyphylla* sp.]
Hypoaspis campestris (Berlese, 1887)** ♀ [*Pentodon* sp.]
Gymnolaelaps kabitae Bhattacharyya, 1968** ♀ [*Pheidole pallidula*]
Gymnolaelaps laevis (Michael, 1891)** ♀ [*Tetramorium caespitum*]
Gymnolaelaps myrmecophilus (Berlese, 1892) ♀ [*Tetramorium caespitum*]
Gymnolaelaps myrmophila (Michael, 1891) ♀ [*Formica* sp.]
Gymnolaelaps canestrini (Berlese, 1903) ♀ [*Tetramorium caespitum*]
Laelaspis calidus Berlese, 1924** ♀ [*Pheidole pallidula*]
Laelaspis dariusi Joharchi & Jalaeian, 2012* ♀ [*Tetramorium caespitum*]
Laelaspis humeratus (Berlese, 1904)** ♀ [*Tetramorium caespitum*]
Laelaspis kamalii Joharchi & Halliday* ♀ [*Tapinoma* sp., *Pheidole pallidula*]
Laelaspis ovisugus (Berlese, 1904)** ♀ [*Tetramorium caespitum*]
Laelaspis pennatus Joharchi & Halliday* ♀ [*Tetramorium caespitum*]
Laelaspis persicus Joharchi & Halliday* ♀ [*Pheidole pallidula*]
Laelaspis secedens (Berlese, 1920)** ♀ [*Tetramorium caespitum*]
Pneumolaelaps hyatti (Evans & Till, 1966) ♀ [*Bombus* sp.]
*Promacrolaelaps*** sp. nov* ♀ [*Propomacrus bimucronatus*]

The ecological role of the mites discussed here is unknown but it is possible that these mites are not parasites, maybe harmless feeders on exudates from its host's body or predators that feed on other small invertebrates in the microhabitats created by its hosts.

Distribution pattern of the Stone crayfish in Romania is driven by karst: a consequence of the Pleistocene glaciations?

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Key words: *Austropotamobius torrentium*, Glacial refuge, Population history, Species distribution modelling, Boosted regression trees, GIS.

The biogeographic distribution of a species can provide a useful insight into species history, thus extending the knowledge on ecological requirements for conservation. The stone crayfish (*Austropotamobius torrentium*) is one of the oldest freshwater crayfish in Europe. Romania is an ideal case to analyse a natural crayfish distribution, which has not been disturbed by translocations. We aim to understand the reasons that explain the restriction in the distribution of this species to the western part of the country. Randomly chosen, upper river sectors were selected as sampling sites. The crayfish presence/absence and fourteen significant water and habitat parameters were recorded at 428 sites. A Geographic Information System was used for spatial analysis. The distribution pattern was analyzed by means of a generalized boosted regression model. Our results demonstrated that most of the Romanian territory is ecologically suitable for stone crayfish. The most important influences explaining the species presence were recorded for water velocity, conductivity, altitude, river size and dissolved oxygen. By including the distance from karst as a predictor in the models, it becomes the strongest explaining the presence probability. These findings, combined with the spatial distribution data for the noble crayfish (*Astacus astacus*), enable us to formulate the hypothesis of the local karstic areas as providers of ecological niches during the Pleistocene glaciations. It is likely that the Pleistocene climate conditions led to the restriction of the stone crayfish populations to karst underground refuges, enabling species survival. After the last glaciations, the stone crayfish expanded from these refuges competing with the noble crayfish, which was also colonising most of the European river basins. Nowadays, a balance was reached, the stone crayfish being restricted to insular areas in Romania.

Genus *Chorthippus* (Insecta: Orthoptera: Acrididae) in Romania - an overview

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Key words: *Chorthippus*, Romania, bioacoustics, faunistics, new species.

One of the richest in species Orthoptera genera and the second within this aspect in Europe, with 48 species, *Chorthippus* is represented by 14 species in Romania: *Chorthippus acoleucus* (Müller), *C. albomarginatus* (De Geer), *C. apricarius* (Linnaeus), *C. biguttulus* (Linnaeus), *C. brunneus* (Thunberg), *C. dichrous* (Eversmann), *C. dorsatus* (Zetterstedt), *C. loratus* (Fischer de Waldheim), *C. macrocerus* (Fischer de Waldheim), *C. mollis* (Charpentier), *C. montanus* (Charpentier), *C. oschei* Helversen, *C. parallelus* (Zetterstedt), *C. pullus* (Philippi) and *C. vagans* (Eversmann).

Many individuals from all these species have been collected in the period 2000-2012 from more than 400 different locations all over Romania, photographed and video and acoustically recorded. Distribution maps and detailed oscillographic and spectrographic song analysis were made. The calling and courtship song of one species, endemic for Romania, was unknown so far.

During that explorative study, some interesting findings were achieved: the first record of *Chorthippus oschei* in Romania, first mention of the hybrid form between *Chorthippus oschei* and *Chorthippus albomarginatus*, identified in northeastern Romania in 2007 – known so far only from the Republic of Moldova and Ukraine – and discovery of a peculiar new species, very similar in morphology and song to *Chorthippus parallelus*, surprisingly found in a recent expedition in the high Southern Carpathians. Morphological characters of this new species and the acoustic sound analysis are detailed.

A few interesting beetle species (Insecta: Coleoptera) from Bârnova-Repedeș Forest (Iași, Romania)

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Key words: Coleoptera, Nature 2000 species, rove beetles.

Bârnova-Repedeș Forest – site of community interest, ROSCI00135 - is situated in the continental bioregion of Romania, in the Moldavian Plateau, making the geographic transition between the Moldavian Plain (Jijia Plain) and the Bârlad Plateau. The site stretches for 12.216 ha and its average altitude is 299 m. The oak and hornbeam forests represent 55% while the beech forests represent 33 % of its surface, both kinds of forests having a fragmentary aspect.

The project „Services and equipments necessary for achievement of Integrate System of Management and Awareness in Romania of Nature 2000 Network”(SINCRON) was carried on during the period November 2011-September 2012 and one of the main objectives was gathering data regarding the distribution of the Natura 2000 beetle species in ROSCI0135 Bârnova-Repedeș Forest in descriptive format and GIS.

Carabus variolosus Fabricius (Carabidae), *Lucanus cervus* (Linnaeus) (Lucanidae), *Cerambyx cerdo* Linnaeus, *Morimus funereus* Mulsant, *Rosalia alpina* (Linnaeus) (Cerambycidae) are the Natura 2000 beetles which were found in June 2012.

Other interesting beetle species: *Aloconota ultima* (Benick & Lohse, 1959), *Carpelimus gusarovi* Gildekov, *Stenus doderoi* Bondroit, *Ocypus kuntzeni* (J. Müller) (Staphylinidae) and *Odontaeus armiger* (Scopoli) (Bolboceratidae) were collected with the occasion of this project. Except *Ocypus kuntzeni*, a stenotopic, silvicolous species which was collected in the beech forest under rotten trunks and *Stenus doderoi* a stenotopic, ripicolous species which was collected on the stony bank of Dobrovăț stream, the other rove beetle and scarab beetle species were collected using the light trap (mercury vapors) at the edge of deciduous forest.

Carpelimus gusarovi Gildekov and *Stenus doderoi* Bondroit are new for the Museum's Coleoptera Collection and *Aloconota ultima* (Benick & Lohse) is mentioned for the first time in Romanian fauna.

The possibilities of determining the post-mortem interval (P.M.I.) analyzing necrophagous insect species (Diptera, Coleoptera) using jackal skulls in Romania

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Key words: necrophagous species, post-mortem interval, Romania, jackal skulls.

Numerous articles have emphasized the importance of entomological proofs in forensic field and on the study of necrophagous insects, throughout time (Méglin, 1894; Smith, 1986; Greenberg, 1991); also several books have been published dealing exclusively with forensic entomology study.

Studies regarding the identification of necrophagous insect species, the determination of post-mortem interval and the way of death were experimentally made on various corpses, so that we made observations on *Canis aureus* decaying skulls.

We identified the succession of necrophagous insect species in accordance with the stages of decomposition. At the same time, we examined the possibility of using the method of forensic entomology in the establishment of time elapsed since death, if the muscular tissue, which is subjected to insect colonization, is in small quantity.

Species of the Orders Diptera and Coleoptera were identified, both adult specimens as well as immature stages. Dissections were performed, followed by drawings at camera lucida for accurately taxon identification and for the determination of larval stages of development.

Due to the fact that the forensic entomology method is used as a real tool for finding the truth in forensic investigation in Europe and United States of America, it is about time for this method to be recognized and included in the forensic field also in our country.

To strengthen the knowledge in this area it is necessary to form a database, and for doing it, many experimental models must be analyzed.

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***Anopheles daciae* – a new Culicidae species identified on molecular basis**

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Key words: *Anopheles*, maculipennis, ITS 2, CO I, *An. daciae*, *An. messeae*.

Culicid species of the *maculipennis* complex have been involved in malaria transmission in Romania. Consequently, taxonomic research have gained momentum in this narrow, yet extremely important field from the public health point of view.

The most common and frequently incriminated species in Romania are *An. atroparvus*, *An. messeae*, *An. maculipennis*, and *An. sacharovi*. The most used criterion of identification for these species is egg morphology. Very often, the study of the eggs revealed intermediate characteristics between the different mosquito species.

A joint NIRDMI "Cantacuzino" – Natural History Museum (London) project showed that, at molecular level, there are significant differences between *An. messeae* and one of the intermediate forms. Classical taxonomy and scanning electron-microscopy (SEM) studies of the eggs were not able to distinguish the two forms as different species. PCR amplification, followed by sequencing of a ribosomal DNA internal transcribed spacer (ITS-2) and mitochondrial cytochrome oxidase I gene (CO I) unveiled major genetic differences between the established *An. messeae* species and the intermediate form.

Thus, based on molecular methods, the two forms were concluded to be different species. The intermediate anopheline form was designated as a new species of the *maculipennis* complex – *An. daciae*. Up to date, the new species was reported in several locations in Romania but also in several European countries.

The assessment of this new species' vector competence will be facilitated by the advent of new molecular methods, allowing a faster and less expensive differentiation between *An. messeae* and *An. daciae*.

Study of the fruit flies of the genus *Urophora* (Diptera: Tephritidae) in Iran

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Key words: Tephritidae, *Urophora*, Iran.

The genus *Urophora* Robineau-Desvoidiy, 1830, with about 60 species, is one of the largest genera of the family Tephritidae in the Palaearctic Region. All species of known biology are associated with asteraceous plants and induce galls in their host plants. Some *Urophora* species are potential agents to biological control of astraceous weeds and recently have been successfully introduced into the Nearctic Region for biocontrol of weeds. As a results of studies on fruit flies fauna in Iran during 2008-2012 seasons, 25 species of genus *Urophora* were collected by sweeping net and also by rearing from their host plants. Two of these species are new to science and ten species and one subspecies are considered as new record for the Iranian insect fauna. The species marked with one and two asterisks are new to the Iranian fauna and to science respectively. In addition, the name of the host plants is written in square brackets and the new host plants are marked with asterisks, too:

- Urophora affinis* Frauenfeld [*Centaurea aggregata**]
- Urophora anthropovi** Korneyev and White
- Urophora aprica* (Fallen) [*Centaurea cyanus*]
- Urophora cuspidate** (Meigen) [*Centaurea* sp.]
- Urophora impicta* (Hering) [*Cousinia* sp.]
- Urophora hermonis** Freidberg
- Urophora longicauda** (Hendel) [*Cousinia* sp.]
- Urophora mauritanica* Macquart
- Urophora merzi*** Mohamadzade Namin and Nozari [*Centaurea behen**]
- Urophora pauperata* (Zaitzev) [*Centaurea behen**]
- Urophora phaeocera* Hering [*Cousinia onopordioides**]
- Urophora pontica** (Hering) [*Echinops* sp.]
- Urophora quadrifasciata quadrifasciata** (Meigen) [*Centaurea aggregata**]
- Urophora quadrifasciata sjumorum* Rohdendorf [*Centaurea calcitrapa* and *Centaurea cyanus*]
- Urophora repeteki* (Munro)
- Urophora solstitialis* (Linnaeus) [*Carduus thoermeri armenus**]
- Urophora sirunaseva** (Hering)
- Urophora stalker** Korneyev
- Urophora stylata* (Fabricius) [*Cirsium arvense*]
- Urophora tenuior* Hendel [*Cousinia sanandajensis**]
- Urophora tenuis** Becker
- Urophora terebrans** (Loew) [*Cirsium lappaceum**, *C. aduncum**, *Onopordum acanthiom* and *O. heterocanthum*]
- Urophora variabilis** (Loew)
- Urophora xanthippe* Munro [*Acroptilon repens*]
- Urophora* sp. nov.** [*Onopordum acanthiom**]

Considerations on three Geometridae species described by Vladimir Olaru (Lepidoptera: Geometridae: Sterrhinae)

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Key words: Geometridae, revision, type-specimens, Romanian fauna.

The review of the type specimens preserved in the Prof. Ioan Nemeș Lepidoptera collection (Museum of Natural Sciences Dorohoi) occasioned the retrieval of the type specimens for three species described by Vladimir Olaru: *Scopula peiui* Olaru, 1973, *Sterrha constantineanui* Olaru, 1973 and *Sterrha nemesi* Olaru, 1973. These three species have been described as part of the analysis of the Geometridae fauna from the south-eastern part of Romania, made by Vladimir Olaru during the fulfillment of his doctoral thesis (Olaru, 1973). Since the publication of the description of these species, nor Vladimir Olaru, nor any other author no longer reported them from Romania or anywhere else. Therefore, these types are being considered the only known specimens related to these taxa. Hence, despite of their relatively poor conservation status, a review of these specimens was urgently needed.

Following the analysis of the type specimens and their original description, we have concluded that *constantineanui* Olaru, 1973 is a junior synonym of *Idaea pallidata* (Denis & Schiffermüller, 1775), *nemesi* Olaru, 1973 is a junior synonym of *Idaea elongaria* (Rambur, 1833) and *peiui* Olaru, 1973 is a junior synonym of *Scopula (Calothysanis) subpunctaria* (Herrich-Schäffer, 1847). These new synonymies improve the knowledge of both systematics and distribution of several Geometridae species throughout Europe.

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**Taxonomic revision of the Palaearctic species of *Reikosiella*
(Chalcidoidea, Eupelmidae): a group of mysterious and little known
parasitoid wasps**

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Key words: Eupelminae, new species, taxonomic key.

Prior to the monograph of Bouček on Australasian Chalcidoidea, most *Reikosiella* Yoshimoto species were included in *Eupelmus* Dalman. The only Palaearctic species currently included in the genus is the European *Reikosiella hungarica*, this new combination from *Eupelmus* being only recently proposed. *Reikosiella* species are not often collected and only rarely reared from a range of plant material. In consequence, they are very rare in collections and almost nothing is known on their diversity and biology in Palaearctics. This work was instigated by an earlier cytogenetic study on several *Eupelmus* species, which showed that *Eupelmus rostratus* has a karyotype very different from that of other species in the genus. Information on the chromosome complement combined with morphological features indicated that *Eupelmus rostratus* has to be transferred to *Reikosiella*. This taxonomic revision is based on the examination of all available types plus additional specimens from seven major natural history museums and on recently collected material from Greece, Romania and South Korea. From the ten species treated here, two are new combinations from *Eupelmus* and seven are newly described (two from Greece, three from South Korea, one from United Arabic Emirates and one from Canary Islands). Although three of these species were reared from cynipid galls, their exact hosts are still unknown. For most species, where detailed labels are available, the collecting data indicates an arboreal lifestyle and this unusual feature explains their rarity in collections. Palaearctic *Reikosella* species are rather rarely collected than rare and it is possible that further research will uncover an even larger diversity of this mysterious group of parasitoid wasps.

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Chalcidoids (Hymenoptera: Chalcidoidea) from flowers of *Campsis radicans* (L.) (Lamiales: Bignoniaceae) from eastern part of Romania

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Key words: Hymenoptera, Chalcidoidea, *Campsis radicans*, trophic relations.

Campsis radicans (L.) it is a native plant from the south-eastern part of North America, preferring the wet and sunny places. It's a vine that can grow to over 12 meters high, with large tubular red-orange flowers. Because of its ornamental value it's cultivated in many regions of the world, including Europe, being a common ornamental species also in Romania. Brightly colored flowers attract many insects and we suspect that the real cause of that are some glandular structures from the petals, observing insects liking these structures. From Chalcidoidea (Hymenoptera), anterior of this research, just some encyrtids (Encyrtidae) were associated with this plant. We investigate many places from the eastern part of Romania where *Campsis radicans* is cultivated but we found insects from Chalcidoidea just in some places: in the Danube Delta at Sfântu-Gheorghe (Tulcea), close to the littoral of Black Sea at Agigea (Constanța), in Dobrogea, at Cochirleni (Constanța) and in the north-eastern part of Romania at Iași. We found species from Chalcididae, Torymidae, Eurytomidae, Leucospidae, Pteromalidae, Perilampidae, Ormyridae, Eupelmidae, Eulophidae and Encyrtidae families, all being for the first time associated with *Campsis radicans* with the exception of Encyrtidae. Plants of *Campsis radicans* are populated with many insects especially if the plants are found closely to natural areas. Inside the cities *Campsis radicans* it's a common plant on the fences of the gardens but insects from Chalcidoidea are rarely present in this conditions. If these gardens are situated closer to natural areas some chalcidoids can be found on flowers, buds, leafs and stems but the external part of flowers and buds are the more attractive parts for chalcidoids, especially because of the glandular structures present here that offer food.

This paper is a result of the project POSDRU/89/1.5/S/63663.

Gross morphology of maxillo-labial complex in scelionids (Hymenoptera: Platygastroidea) with phylogenetic implication

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Key words: Platygastroidea, maxillo-labial complex, scelionids, galeo-lacinal complex, mouthparts, ontology.

Platygastroidea, traditionally divided into two families, Platygastriidae and Scelionidae, is the third largest of the parasitic superfamilies after the Ichneumonoidea and Chalcidoidea and represents some 4460 described species worldwide, but the world fauna is estimated to be about 10000 species. The scelionids – used here as a vernacular term to refer to the subfamilies Scelioninae, Teleasinae and Telenominae – are small wasps, 0.5–12 mm in length (usually 1–2.5 mm), predominantly black, rarely yellow, multicolored, or with faint metallic shine. All known scelionids are endoparasitic idiobionts of the eggs of other arthropods, primarily insects, but also arachnids.

The aim of this study is to present a clear description of the maxillo-labial complex (MLC) in scelionids, proper recognition of homologous characters with other hymenopterans and of synonymies between terms used by different authors. The second goal is to emphasize the peculiarity of MLC in scelionids and establish the ground plan character states for scelionids and relate them to structures observed in other hymenoptera. Finally, we seek to provide a precise nomenclature for MLC in scelionids for use in systematics, and thus to contribute to further advances in our understanding of the taxonomy and interrelationships of its constituent groups.

The MLC was analyzed in 112 genera of scelionids and over 600 specimens from diverse regions of the world. We established and described 54 characters of the MLC and for each character we found between 2 and 9 character states. These character states were polarized using as out-groups the MLC from members of Proctotrupoidea (*Helorus* sp., *Pelecinius* sp., *Ropronia* sp., *Proctotrupes* sp., *Codrurus* sp., *Belyta* sp.), Cynipoidea (*Ibalia* sp., *Andricus* sp.) and Chalcidoidea (*Pteromalus* sp., *Gliphomerus* sp.).

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Changes in the mammalian fauna of Lake Burdur (Turkey) basin during Holocene

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Key words: Fauna, large mammals, Holocene, Burdur.

Lake Burdur basin is one of the areas of archaeological importance in Turkey as it possesses two of the earliest Neolithic settlements, Hacılar and Höyücek. According to the archaeological findings, plant cover and megafauna during Neolithic age significantly differs from what it is like today. However, during Roman period, the mammalian species composition was rather similar to the present structure. Today's mammal fauna of the region includes 27 species, only 4 being large mammals (wild boar, golden jackal, wolf and red fox). The Roman period was, though to lesser extent as compared to Neolithic and Iron Ages, remarkable with the presence of bear, bezoar goat, red deer and fallow deer suggesting forested environment (cf. degraded maquis today). However, this period lacks herbivores wild ox, wild horse, wild sheep and roe deer of the Neolithic. On the other hand, though some are absent from the archaeological record, presence of the large carnivores, Anatolian leopard, striped hyaena, lynx and caracal, in the area is almost certain at least till the late 20th century. According to these findings, climatic factors are found to be more affective in the large mammal extinctions before modern era, while higher human pressure has been the key factor afterwards and especially in the last century.

Population processes in Mediterranean horseshoe bats (*Rhinolophus euryale*) in the Carpathians

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Key words: species range, long term changes, synanthropisation.

We analyzed database of faunistic records on *Rhinolophus euryale* (more than 1500 data items) from Slovakian, Hungarian and Romanian range of the species, covering the period 1878–2012. We clarified the species distribution in the Carpathians. We evaluated changes at the sites (both, winter and summer roosts) where long term data were available. We analyzed the regional changes in the distribution of the respective species. We estimated the number of individuals in each subpopulation. The year-round changes in temperatures in two different roost types (caves and attics) were measured. The long term changes are ambiguous and there is increasing of the individuals in some sites (e.g. Jasovská jaskyňa cave, Baradla cave, Bánhorváti church), the decreasing in another (e.g. Líčšia diera, Rudabánya mine) or stable individuals status (e.g. Jasov monastery). We hypothesized that at least mutual population in Slovakia and Hungary is relatively stable and the decreasing numbers in some sites may be mirrored by the increasing in another site. However there is a major change in roost preference in summer observed; the species started to use lofts and roofs since the 70's of the 20th century in Slovakia and Hungary as the result of the synanthropisation process. For some data we analyzed forest cover, urbanized areas and heterogeneity of habitat for breeding colonies and winter roosts respectively with the aim to describe the differences of the natural and men-made shelters. The question is if synanthropisation and/or observed range enlargement are the function of improved quality of faunistic research and increasing number of observation data or of natural and intrinsic population characteristics.

Bat species diversity in Polish and Ukrainian parts of the International Biosphere Reserve “Eastern Carpathians”

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Key words: Eastern Carpathians, Bats, Bieszczady National Park, Uzhanskyi National Park.

Bieszczadzki and Uzhanskyi National Parks are Polish and Ukrainian parts of the threelateral International Biosphere Reserve “Eastern Carpathians”. They are bordering each other and divided administratively by the state border between Poland and Ukraine.

Fifteen bat species were reported from the territory of the Bieszczadzki NP and eighteen species were noted in the Uzhanskyi NP. As a result of the investigations, *Eptesicus serotinus*, *Nyctalus noctula* and *Rhinolophus hipposideros* were the most numerous bat species. *Myotis myotis*, *M. daubentonii*, *E. nilssonii*, *Plecotus auritus* and *Pipistrellus pipistrellus* were common species of the region. Some peculiarities of spatial and altitudinal distribution of bats were noted, which connected probably with the climatic conditions and relief of the territory.

R. hipposideros is common in karstic formations, which offer suitable underground shelters. However, in the non-karstic areas like investigated territory, maternity colonies of this species have been formed in the loft of some buildings (eg., churches and bell-towers). Record of *Myotis emarginatus* in the Bieszczadzki NP seems to be very interesting since this species belongs to the “Mediterranean” bat species, which prefer warm climate conditions. *R. ferrumequinum* which had been found in the cave of the Uzhanskyi NP, is a “Mediterranean” species as well. Probably, this area is situated at the northern border of its European distribution range.

Three bat species (*Myotis bechsteinii*, *M. emarginatus*, *Plecotus austriacus*) were recorded only in the Bieszczadzki NP. From other site, there were 5 bat species, which have been recorded in the Uzhanskyi NP only (*R. ferrumequinum*, *Myotis dasycneme*, *Pipistrellus pygmaeus*, *P. nathusii*, *Nyctalus leisleri*). Supposedly they have to be noted during the future investigations in these areas.

Sorensen similarity index of bat species compositions of investigated parts of the International Biosphere Reserve “Eastern Carpathians” consisted 75%.

The Bats of the cave “Grotta A di Ponte di Veja”, in the natural regional Park of Lessinia (Province of Verona; N.E. Italy)

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Key words: Chiroptera, Vespertilionidae, cave bat ecology, *Myotis myotis*, *Myotis blythii* N.E. Italy.

Inside the natural regional Park of Lessinia (municipality of S. Anna d’Alfaedo, province of Verona, region Veneto) under a unique limestone natural bridge, the cave “grotta A di Ponte di Veja” hosts the second most important colony of bats of the region Veneto, one of the most important cave bat colonies in north-eastern Italy. The entrance of the cave is at 580 m asl, and the limestone cave is 180 m long. This cave was used as roost by bats of different species for centuries, and has several deposits of guano. The cave was monitored for the presence of bats in the years 1978-2008, with a special two-weeks control in the year 1994 (for an accurate counting of bats of different species, and bat-banding), and in the years 2007-2008. The cave has a single entrance, and is grilled (not for bats, but for archaeological site protection), with a non-invasive grill (that permits an easy way to bats) on the great entrance. The main bat colony of the cave is a nursery colony of three species of vespertilionid bats: *Myotis myotis*, *Myotis blythii*, *Miniopterus schreibersii*. The maximum number of bats recorded in the years was about 900 specimens (mostly *Myotis myotis/blythii*; *Miniopterus schreibersii* were only 12.11%, in spring 1994), at the beginning of the reproductive season.

All bat species roost far from the great entrance of the cave; *Myotis myotis* was the most numerous and important species of the reproductive colony; about 85% of all great *Myotis* of the cave belong to this species (data extrapolated from control of specimens in the months of April and May 1994). *Myotis blythii* were only about 15% of all great *Myotis* of the colony (but this percentage is high, for N.E. Italy). In April and May (before births) all *Myotis myotis* and *Myotis blythii* checked were females; *Miniopterus schreibersii* were males and females. The total number of bats of the colony appears to be relatively constant in the years; only for *Miniopterus* were recorded some sensible declines, in some years (f.e., in 1990), perhaps due to severe rain condition. All *Myotis* bats leave the cave during September; *Miniopterus* may be found inside the cave also in October. During winter only few Rhinolophid bats hibernate inside the cave. For the cave “Grotta A di Ponte di Veja”, on the base of bone materials, skulls, dead bats, observation of the colony, checking of specimens and monitoring with bat detector, these bat species were recorded: *Rhinolophus ferrumequinum* (Schreber, 1774), *Rhinolophus hipposideros* (Bechstein, 1800), *Myotis myotis* (Borkhausen, 1797), *Myotis blythii* (Tomes, 1857), *Myotis emarginatus* (Geoffroy, 1806), *Miniopterus schreibersii* (Kuhl, 1817). In the surrounding area, on the base of mist-netting and monitoring with bat detector, these bat species were also recorded: *Eptesicus serotinus* (Schreber, 1774), *Pipistrellus kuhlii* (Kuhl, 1817), *Myotis mystacinus/brandtii*.

Actual state of European (*Spermophilus citellus*) and Spotted ground squirrels (*Spermophilus suslicus*) in the Republic of Moldova

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Key words: European souslik, spotted souslik, area, spreading, population.

The first information on the presence of *Spermophilus citellus* on the territory of R. Moldova was recorded at the beginning of the past century, where it is mentioned that the species can be met only in the northern part of Bessarabia. In the 50's the species wasn't found in the northern part of the republic, while in other studies the species is recorded in some localities of Călărași, Orhei, Cîpcereni and Susleni zones. The above data can be explained by 2 hypotheses: either the species wasn't found by the first researchers in central zone; either it moved to the south and along Nistru river tributaries. The fact is that, toward 70's, the European ground squirrel wasn't located to the north of Vărăncău village. At the end of 90's the northern limit of species range on the territory of the republic was established near Sănătăuca village and the presence of 20 populations was attested in Călărași, Orhei and Rezina districts.

At present, 22 populations of European souslik in R. Moldova are located, spread on the surface of triangle limited at north by: 48°00.423''N and 028°38.926''E 114 m a.s.l. (Napadova), at south 47°22.245''N and 028°52.143''E, 30 m a.s.l. (Paharniceni), at east 47°11.638''N and 28°18.489''E 224 m a.s.l. (Sadova). More numerous populations have nuclei with a density of 25-30 ind./ha, for the rest the density varies between 2-4 and 10-12 ind./ha. The populations with increased density usually occupy larger surfaces (Napadova-Sănătăuca – about 300 ha) with less evident number fluctuations.

Spermophilus suslicus has larger spreading and occurrence, being recorded all over the republic territory. Populations with a density of 20-25 ind./ha were registered in river's valleys. Other populations have lower densities of 4-6 ind./ha, many of them are at near extinction (0.5 – 2 ind./ha). The populations of both species have the minimum known neighborhood distance of 5 km, as in case of Paharniceni (*S. citellus*) and Trebujeni (*S. suslicus*) populations.

Phylogeography of the *Gammarus balcanicus* species complex (Crustacea: Amphipoda) in the Carpathian Arc suggests persistent effects of Tertiary sea level changes

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Key words: *Gammarus balcanicus*, phylogeography, Carpathian Arc, Miocene, landmass uplift.

South-east Europe is an important area for biodiversity and phylogeography studies of both terrestrial and freshwater organisms thanks to its complex palaeogeography and refugial role during the Pleistocene glaciations. As such, it is a reservoir of genetic variation of fish as well as benthic invertebrates. Despite their ecological importance, no detailed phylogeographic analyses have been conducted on freshwater amphipods from this region. Because of its limited dispersal abilities and wide distribution, *Gammarus balcanicus* is prone to genetic differentiation caused by vicariant events, and it has been demonstrated that numerous divergent lineages are comprised within this morphospecies in the western Palearctic. In order to analyse the patterns of genetic variation of this taxon in the Carpathian Arc we sequenced one mitochondrial (COI) and three nuclear markers (28S, 18S, EF1a) of *G. balcanicus* from 32 localities. In addition to molecular data, individuals from over 350 Romanian sites were morphologically scrutinized. Preliminary morphological and molecular data support the existence of at least two distinct species with distinct geographical ranges. Judging from the present day distribution and published estimates of mutation rates, these patterns seem to reflect Miocene geological events such as different timings of landmass uplift and sea regression/transgression. The older landmasses are inhabited by a monophyletic lineage comprised of several highly divergent clades that nevertheless remain morphologically cryptic. This fact suggests an insular evolution of several populations and possibly multiple freshwater colonization events. The newer landmasses are occupied by a morphologically and genetically distinct lineage which fits the description of a previously discarded subspecies *Rivulogammarus balcanicus dacicus* Dobrea & Manolache, 1942. The distribution of this lineage, which probably deserves a species status, overlaps with the extent of former Miocene lakes and more recent mountain ranges. It is genetically more homogenous than the aforementioned clade, which suggests a more recent radiation into freshwater.

Macro- and micromammal faunas associated with *Mammuthus (Archidiskodon) meridionalis* in the Lower-Middle Pleistocene from Copăceni (Ilfov County, Romania)

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Key words: mammals, mollusks, Lower-Middle Pleistocene.

The fluvio-lacustrine deposits cropping out along the lower course of Argeș River, west of Copăceni, Ilfov County, have yielded a new rich mammalian fauna, as well as numerous mollusk remains, useful for the biostratigraphical assessment of the fossiliferous bed.

The mammal remains can be assigned to proboscideans (*Mammuthus (Archidiskodon) meridionalis* Nesti, 1825), rhinos (*Stephanorhinus etruscus* Falconer, 1868), bovids (*Leptobos vallisarni* Merla, 1949; Antilopinae indet.), cervids (*Psekupsoceros orientalis* Radulesco & Samson, 1967, and another indeterminate smaller cervid), insectivores (*Desmana* cf. *radulescui* Știucă et al., 2003) and rodents (*Trogontherium dacicum* Radulesco & Samson, 1972; *Allactaga* sp.; *Allophaiomys pliocaenicus* van der Meulen, 1974; *Lagurodon arankae* Kretzoi, 1954; *Mimomys savini* Hinton, 1910).

Among the large mammals, the cervids are best represented (more than 22 specimens), most of them being assigned to *P. orientalis* because of the shape and size of the antlers and tibiae. Other cervid remains assigned to the same taxon include a series of cervical, thoracic and lumbar vertebrae.

The proboscidian material assigned to *M. (A.) meridionalis* is also well-represented, including more than 20 specimens (mandible and defense fragments, molars, limb bones and vertebrae).

The rhinocerotid material, belonging to *S. etruscus* is best represented by a right 3rd metacarpus, also including some maxilla fragments.

The bovids include bovine remains assigned to *L. vallisarni* (one horn fragment, a few mandible fragments and one metacarpus), as well as an indeterminate antilopine (one horn).

A rich and diverse microvertebrate assemblage was discovered by the screen-washing of the sediment.

The insectivores are represented by a single P_4 , comparable in size to the species *D. radulescui*.

T. dacicum is represented by a P_4 , showing features typical to Upper Pliocene – Lower Pleistocene beavers.

Among the other rodents, all adapted to steppe and shrub-steppe environments, the most abundant material (more than 30 specimens) belongs to

M. savini, while *Allactaga* sp., *A. pliocaenicus* and *L. arankae* are represented by only a few specimens (1-3).

The large mammal taxa are indicative for the Biharian Stage (Lower-Middle Pleistocene, MN17-MQ18 Zones). This assemblage is comparable to those discovered at Drăgănești-Olt, Tetoiu 2, and Izvoru.

The *M. savini*, *L. arankae* and *A. pliocaenicus* assemblage is typical for the Lower Pleistocene (Biharian/Menapian) faunal complexes from the Lower Danube, Dniester and Don basins, comparable to MmQ-3 Tamanian Complex. A similar micromammal assemblage was also reported from Betfia VII 1-3, in Romania, and from the Taganrog Bay area (Azov Sea), in Ukraine.

The mollusk fauna belongs to the *Unio apscheronicus* (Ali-Zade, 1936) – *Bogatschevia sturi* (Cepalyga, 1972) QM3-QM4 Zones, supporting the Lower Pleistocene age.

The systematic structure of Order Proboscidea (Mammalia) from the territory of Republic of Moldova, during the Late Neogene – Early Quaternary: preliminary data

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Key words: Late Neogene, Early Quaternary, Systematics, Proboscidea, Mammalia, Republic of Moldova.

The geological time interval taken into account for the Late Neogene – Early Quaternary from the Republic of Moldova, in order to establish the systematic structure of Order Proboscidea, includes the age between 12 and 0.781 Ma.

A preliminary review of the specimens housed in scientific collections from Republic of Moldova, Romania, Russia and Ukraine and newly-collected specimens reveal the following systematic structure: **Middle Sarmatian** (Bessarabian) MN 9 Biozone: Petricanian Faunal Complex, MN 9a Biozone: *Zygodolophodon turicensis*, *Platybelodon* sp., cf. *Protanancus* (identified by Markov & Vergiev, 2010); Calfian Faunal Complex, MN 9b Biozone: *Z. turicensis*, *Gomphotherium* sp., *Tetralophodon longirostris* (archaic ssp.), *Prodeinotherium bavaricum*; Varnițian Faunal Complex, MN 9c Biozone: *Z. turicensis*, *Choerolophodon pentelici*; **Early Sarmatian** (Khersonian) MN 10 Biozone: *Z. turicensis*, *Ch. pentelici*, *Stegotetralodon* sp., *D. proavum*; **Maeotian:** Ciobruchian Faunal Complex, MN 11 Biozone: *Ch. pentelici*; MN 12 Biozone: *Z. turicensis*, *T. longirostris* (evolved ssp.), *D. giganteum*; Stolnichenian Faunal Complex, MN 13 biozone: *Z. turicensis*, *Ch. pentelici*; **Pliocene:** Kuchiurganian Faunal Complex, MN 14 Biozone: *Mammuth borsoni*, *Anancus arvernensis* (cf. *turoliensis*); Moldovian Faunal Complex, MN 15 Biozone: *M. borsoni*, *A. arvernensis brevirostris*; “Scorțelian” (Uryvian) Faunal Complex, MN 16 Biozone: *Loxodonta* sp. (I-II evolutionary degree); **Early Quaternary:** Khaprovian Faunal Complex, MN 17 Biozone: *Archidiskodon meridionalis taribanensis*, *Elephas* (II evolutionary degree), *Loxodonta* sp. (II evolutionary degree), *A. arvernensis*, *M. borsoni*; Psekupsian (=Odessian) Faunal Complex, MNQ 18 Biozone: *A. m. meridionalis*, *Elephas* (III evolutionary degree), *A. arvernensis*; *M. borsoni*, *Loxodonta* sp. (III evolutionary degree); Tamanian Faunal Complex, MNQ 19 Biozone: *A. m. tamanensis*, *A. arvernensis*.

Therefore, during the Late Neogene - Early Quaternary, in the evolution of Order Proboscidea on the territory of Republic of Moldova have been identified so far: 14 genera, 9 species, and 3 subspecies. The evolutionary degrees of the genera *Tetralophodon*, *Choerolophodon*, *Loxodonta* and *Elephas* need to be compared to the species and subspecies of these genera described from the present territory of Africa and Asia.

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Romanian contribution to the development of ecology

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Key words: ecology, zoology, protection of nature population, ecosystem, biosphere, bioeconomy.

Romania has proved to be one of the first countries in the world, where ecology has entered and strengthened its positions after its founding by Ernst Haeckel (1866). The credit belongs to his disciple and collaborator, Grigore Antipa (1892, 1910, 1933), zoologist, ichthyologist, hydrologist, European-class economist, and last but not least, a world-renowned ecologist. Over the decades, the ecological researches in Romania have been organically integrated with those in the field of the protection of nature, the rational use of natural resources in the context of the sustainable development concept. Today, in Romania, we have four scientific schools (centers) in the field of ecology and environmental protection: in Bucharest, Cluj, Iaşi and Constanţa, well-known and appreciated throughout the entire world.

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Diversity and vertical distribution of terrestrial invertebrates within the slope limestone deposit in Carpathian forest (Slovakia)

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Key words: Arthropods, snails, subterranean species, vertical distribution, Slovakia.

Interior spaces within the forested rocky debris represent a specific type of subterranean realm, a superficial subterranean habitat. It represents a transition zone between the epigeic and hypogeic environment and serves as a refuge for relict fauna. The study was conducted in the Čierna Hora Mts. karstic region (Slovakia, Western Carpathians). The site represents *Tilio-Acerion* forest on the talus deposits covered by soil in altitude 530 m. Invertebrates were collected using 3 replicates of subterranean traps (plastic cups filled with fixative solution inserted into the depths 5-95 cm through a plastic tube) from September 2008 to July 2010. Altogether 24 higher invertebrate taxa were collected. Arthropods highly dominated over earthworms and snails. Mesofauna, represented mainly by Collembola, dominated over the macrofauna. Overall, 181 invertebrates species were identified (12 Gastropoda, 5 Pseudoscorpiones, 10 Araneae, 4 Opiliones, 4 Oniscidea, 12 Chilopoda, 11 Diplopoda, 31 Collembola, 89 Coleoptera a 3 Formicoidea). One species of Isopoda (*Mesoniscus graniger*), 1 of Diplopoda (*Mecogonopodium carpathicum*), 5 of Collembola (*Arrhopalites pygmaeus*, *Ceratophysella granulata*, *Plutomurus carpathicus*, *Protaphorura armata*, *Neelus koseli*) and 5 species of Coleoptera (*Bryaxis frivaldszkyi slovenicus*, *B. nigripennis*, *Duvalius bokori valyianus*, *Omalium validum* and *Quedius mesomelinus*) represent the subterranean forms known also from the local caves. Most of epigeic and edaphic fauna was concentrated in superficial layers. Some of them were active along the entire in-depth gradient and reach up to 95 cm. By contrast several subterranean species were also present in the upper part of the debris, but more regularly from the level of 45 cm deeper. Generally, species richness and activity (number of specimens in traps) declined strongly within the zone 5-35 cm. Deeper both parameters had low values, sometimes with moderate increase.

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Effects of environment fluctuations and anthropogenic perturbation on the mollusc communities from Balta Mică a Brăilei Nature Park (Lower Danube River, Romania)

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Key words: gastropods, bivalves, human impact, cyclic dynamics, alien invasive species, management issues.

The Balta Mică a Brăilei Nature Park is placed in the flood area of the lower Danube River being both a site of community interest (ROSCI006) as well as of avifaunistic interest (ROSPA005), being also called the interior or inland Danube Delta. The Danube's arms form a network, delimiting and flooding seven isles of different dimensions, representing the ultimate area in natural hydrological regime, regularly flooded each year. Thus, the communities' structure and dynamics are shaped by the fluctuations of the Danube's waterlevel.

This area shelters remnant and characteristic species, but is also altered by environmental changes and human impact, and its management plan is about to be reestablished. As a part of this area's biodiversity, and considering their ecological and bioindicator value, the molluscs were studied during three field surveys in June, August, and September 2012. There are about 21 species of molluscs quoted in the literature, but the malacological surveys in this area were scarce and some are inconsistent. In fact, there are more than 40 species of molluscs, mostly aquatic or amphibious. The terrestrial snails, due to the hydrological characteristics, are represented only by few species. There are species of community interest, like *Anisus vorticulus* (especially abundant in lakes, during the flood periods), as well as strictly protected species on national level, like *Physella fontinalis*, *Pseudanodonta complanata*, etc. At least one quoted species was not found, namely *Theodoxus transversalis*, probably becoming extinct in the whole country, as it happened in most regions of its former range. The effects of waterlevel's periodic changes, human impact and other issues are discussed hereby. The authors suggest reasons for future active management measures, in order to establish a sound base for the long-time research, protection, and development of this highly valuable area.

Observations on the distribution and dynamics of the populations of *Hirudo verbana* in the Brăila Marshes complex (Romania)

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Key words: *Hirudo verbana*, protected species, distribution, Brăila Marshes complex.

Reestablishing the taxonomic position of the species *Hirudo verbana* Carena, 1820 and its protection, together with the species *Hirudo medicinalis* Linnaeus, 1758, through the CITES Convention requires the completion of information regarding the status, respectively the composition, structure and functions of the populations of these two species. In order to support the management and conservation actions, the paper presents the main characteristics of the populations of *Hirudo verbana* in the Brăila Marshes complex, a Long Term Socio-Ecological Research platform including the Small Island of Brăila (Ramsar Site and natural reserves, between km. 175 and 237 of the Danube river stretch). The sampling of leeches has been done once a month during the period May - September 2011 and in May 2012. The main parameters investigated were biomass and numerical abundance. These parameters showed a differential spatial distribution and fluctuations in a large domains (lake Chiriloaia: 8-200 ind./capture and 17-287 g. wet weight/capture) and in a restrained domains (lake Pietra Fetii: 1-19 ind./capture and 1-50 g. wet weight/capture). The main control factors which have modulated the distribution and dynamics of the population of medicinal leeches have been temperature, dissolved oxygen concentration, (over) exploitation and availability / accessibility of food sources.

Life table parameters of fig mite *Eotetranychus hirsti* Pritchard & Baker, 1955 (Acari: Tetranychidae) under laboratory conditions

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Key words: *Eotetranychus hirsti*, life table parameters, life expectancy, intrinsic rates of increase, reproductive rate.

Fig mite *Eotetranychus hirsti* Pritchard & Baker, 1955 is one of the major pests of fig trees in Estahban (Fars province). The *E. hirsti* with about 0.3 to 0.5 mm length is found on the densely hairy under surface of leaves (Kanta et al., 1998). The main aim of the present study was to evaluate the life table parameters of fig mite, by using Island method. The eggs were placed on upward surface of fig leaves and the leaves were surrounded with a thinned strip of cotton in order to inhibit mites escape in Petri dishes. After 24h, adult mites were collected from the leave surface and only the eggs were left. The developmental time and mortality rates were counted for each replication until the adults were emerged. Then a male mite was selected from the colony and placed in Petri dishes with adult female mite and their daily fertility and longevity were recorded. All the experiments were carried out at a temperature of $30\pm 2^{\circ}\text{C}$, RH 60+5% and 12:12 (dark: light) with thirty replications. Daily fertility, preimaginal developmental time and mortality were analyzed based on Jackknife method and with age- stage, two sex life table analysis software (Chi & Liu, 1985). The result indicated that the number of days spend by egg, larva, first rest, protonymph, second rest, deutonymph and third rest were, 4.4 ± 0.113 , 1.37 ± 0.089 , 1, 1.37 ± 0.089 , 1.03 ± 0.033 , 1.33 ± 0.088 and 1, respectively. Maximum adult longevity was 8 and 16 days for male and female, respectively. Pre-oviposition period of adult stage of females, total pre-oviposition period of female counted from birth, average and the highest number of laying eggs was 1.5 ± 0.1043 , 13.17 ± 0.1871 , 46.21 ± 0.593 and 51, respectively. The mean generation time (T_c), net reproduction (R_0), the intrinsic rate of natural increase (r_m) and finite rate of increase (λ) were, 18.48 ± 0.22 , 36.97 ± 3.46 , 0.1955 ± 0.0058 and 1.2159 ± 0.007 , respectively.

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Life history traits of the cotton bollworm, *Helicoverpa armigera* (Hübner) (Lepidoptera: Noctuidae) on various host plants

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Key words: Cotton bollworm, life table, host plants.

The effect of various host plants including chickpea (varieties Arman, Hashem, Azad and Binivich), common bean (variety Khomein), white kidney bean (variety Dehghan), red kidney bean (variety Goli), cowpea (variety Mashhad) and tomato (variety Meshkin) on the life table parameters of the cotton bollworm, *Helicoverpa armigera* (Hübner), was determined under laboratory conditions ($25 \pm 1^\circ\text{C}$, $65 \pm 5\%$ RH and a 16:8 h light: dark photoperiod). The larval period, pupal period and development time of *H. armigera* were longest on tomato Meshkin (24.9, 15.1 and 45.4 days, respectively) and shortest on chickpea Arman (17.5, 9.1 and 31.7 days, respectively). Among various host plants, fecundity (total number of eggs laid per female) of *H. armigera* was the highest (2665 eggs) on chickpea Arman and lowest (700 eggs) on tomato Meshkin. The highest net reproductive rate (R_0) was on chickpea Arman (1422 female/female/generation) and lowest value of this parameter was on tomato Meshkin (111.3). The intrinsic rate of natural increase (r_m) on various host plants ranged from 0.123 to 0.244 eggs/female/day, which was lowest on tomato Meshkin and highest on chickpea Arman.

A comparative study of early post-metamorphic growth in two species of spadefoot toads (*Pelobates fuscus* and *Pelobates syriacus*)

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Key words: growth rate, *Pelobates*, range limit, metamorphs, feeding.

The spadefoot toads (*Pelobates* spp.) are highly specialized burrowing and nocturnal species with a narrow ecological niche. Two related species occur in Southeastern Europe (*P. syriacus* and *P. fuscus*) their ranges overlapping in the Balkan Peninsula, along the lower course of the Danube and the western coast of the Black Sea. Both species reach the limits of their ranges here: southern limit for *P. fuscus* and northern limit for *P. syriacus*. The two species reach sexual metamorphosis at two years of age, but differ significantly in body size.

The goal of the present study was to determine the comparative growth rate of the juveniles from both species, in the first post-metamorphic months. We were interested if (i) growth rate in *P. syriacus* juveniles is higher than *P. fuscus* when reared under controlled laboratory conditions and if (ii) food availability influences significantly the growth rate of the two species. We used *P. syriacus* juveniles from a population from Vadu, Constanța county, and *P. fuscus* juveniles from a population from Sălicea, Cluj county. We conducted an experimental design with three feeding treatments: juveniles from treatment I being fed once every other day, juveniles from treatment II were fed twice a week and those from treatment III were fed only once a week.

At the end of the experiment the body weight and length of juveniles differed significantly between the two species and between treatments. The juveniles of both species from treatment I became significantly larger than those from the other two treatments. The partial growth rate fluctuated during the experiment in both species but the average growth rate of the *P. syriacus* juveniles was significantly higher than those of *P. fuscus*. Our results indicate that *P. syriacus* juveniles demonstrate a higher capability to grow in adverse conditions.

Fish gills as a biomarker of water pollution in Tamiš River

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Key words: gills, histopathology, Tamiš, water pollution, tissue alterations.

During the last few decades, an increased pollution of aquatic ecosystems was observed due to anthropogenic activity. Main sources of water pollution are untreated industrial, agricultural and sewage effluents which contain a vast spectrum of pollutants which can exert toxic effects and accumulate in aquatic organisms. Anthropogenic activity has had a significant effect on river Tamiš changing its water and sediment quality in terms of increasing electroconductivity, chloride anion and nitrate concentrations and decreasing oxygen levels. In order to evaluate anthropogenic effects on water and sediment quality and assess pollution of water, histopathological observations of fish gills were conducted.

Sample included the following species: *Carassius gibelio*, *Abramis brama*, *Esox lucius*, *Sander lucioperca*, *Silurus glanis*, *Rutilus rutilus*, *Squalius cephalus*. Pieces of the second gill arch were sampled and fixed into 4% formalin. They were dehydrated in graded ethanol series, embedded into paraffin and cut into 5 µm sections. After mounting, they were stained with standard haematoxylin and eosin (H&E) technique.

Light micrographs showed various alterations of the gill tissue. Most common alterations were epithelial lifting, hyperplasia of epithelium followed by partial or complete fusions of lamellae and hyperaemia. Other, not so frequent, observed alterations were hyperplasia of mucous and chloride cells, hydropic degenerations of epithelium rarely followed by necrosis, clubbing of distal parts of lamellae, rare branching of lamellae, telangiectasis and haemorrhage. On almost all individuals in this study, medium to intense histopathological alterations were observed. Noticed pathological lesions indicate a deterioration of water quality and presence of waterborne pollutants.

Cyanotoxin effects on fish from blooming fishponds

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Key words: histopathology, cyanotoxin bloom, fishponds, histological alterations.

During 2011, a substantial cyanobacterial blooming was noticed in fish ponds of Muzlja (Vojvodina, Serbia). Since the blooming occurred in commercial fish ponds, histological investigation was conducted in order to assess the impact of blooming on fish tissues and health status. Significant increase in the amount of cyanobacteria, especially *Microcystis* sp., *Anabena* sp. and *Aphanizomenon* sp., was recorded in phytoplankton.

Common carp was used for the analysis. In the sample, 11 fish were taken from the blooming ponds, and 10 fish from non-blooming ponds. Gill, liver, kidney, spleen, intestine, gonad, heart and muscle tissues were sampled and fixed in 10% formalin. Tissues were subsequently dehydrated in graded alcohol series, cleared in toluene, embedded into paraffin blocks and cut into 5µm thick slices which were later mounted on slides and stained by standard H&E method. Gills and kidney showed the largest number of pathological changes.

Gills sections showed proliferation of interlamellar cell mass, slight proliferation of chloride cells in the base of filaments, partial and complete lamellar fusions, hydropic degeneration of epithelial and mucous cells, slight progression from hydropic degeneration to necrosis, telangiectasia, blood congestion and hyperaemia. Glomerulus necrosis, dilatation of Bowman's capsule, hydropic degeneration of tubular cells and vacuolization of tubules were the most common kidney alterations. Liver showed a disorganization of hepatocytes with slight necrosis and pyknotic nuclei. Spleen showed signs of iridovirus infection. Heart, intestine, gonads and muscle tissues did not show any significant alterations.

Seasonal variations in activity patterns and microhabitat selection in the Sand lizard (*Lacerta agilis*) in two steppe environments of eastern Romania

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Key words: activity patterns, microhabitat selection, steppe environments, Sand lizard.

Patterns of activity and habitat selection in organisms may vary according to different biological and environmental variables. Ectothermic organisms, such as reptiles, are particularly influenced by various environmental variables, such as light, temperature or humidity.

The Sand lizard (*Lacerta agilis*) is a small sized (< 25cm total length) lizard species that has a very wide range, occupying all Central Europe (some isolated populations in northeastern Spain, the United Kingdom, central and southern Sweden, northern Greece) and approximately a third of Asia (as Far East as northwestern China and northwestern Mongolia). In Romania, the species occurs throughout the country, populating a wide range of habitat types, from sea level up to 2000 m a.s.l. Despite its wide range and high abundance, very few previous studies have been aimed at investigating activity patterns and microhabitat selection in this species and only one study has so far been conducted on Romanian populations. In some steppe environments from Iași county (N-E Romania) which are declared Natura 2000 sites (Valea lui David and Dealul lui Dumnezeu), *L. agilis* is the dominant reptile species and represents an important food resource for the adult specimens of the critically endangered Moldavian meadow viper (*Vipera ursinii moldavica*).

The current study, which aimed at investigating seasonal and intra-specific (ontogenetic and sexual) variations in the activity patterns and microhabitat selection of the Sand lizard from the previously mentioned steppe habitats, represents a contribution to the ecological knowledge regarding this highly successful reptile species and presents potential implications for the conservation of its highly threatened predator (*V. u. moldavica*) and the equally threatened steppes from eastern Romania.

Population characteristics and ecology of the nose-horned viper (*Vipera ammodytes montandoni*) at its northern range limit, in Romanian Dobruđja

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Key words: snakes, activity patterns, microhabitat selection, sexual dimorphism, conservation.

Snakes are among the most threatened groups of vertebrates due to proper biological characteristics as well as numerous anthropogenic factors. The nose-horned viper (*Vipera ammodytes*) is a conspicuous element of the south-eastern European herpetofauna. The species reaches its northern limit in southern Romania, where it is restricted to habitats with Mediterranean influences and where it is highly threatened by illegal collecting, deliberate killing and habitat destruction. Here we present preliminary results of an ongoing field study on population characteristics and ecology of the northernmost population of *Vipera ammodytes montandoni* (the north-eastern subspecies of the nose-horned viper), from the “Măcin Mountains” National Park, south-eastern Romania. The sex-ratio of the population was close to 1:1 and immature specimens of both sexes are well represented. Despite the fact that males presented the highest maximum length values, females were, on average, longer and heavier than males. Investigation of feeding habits indicated a high proportion of invertebrate prey, followed by mammals and lizards in the diet of the vipers. With regards to activity patterns, adult males and immature vipers appear to emerge from hibernation sooner than females. During mid-spring, males undergo a relatively synchronized shedding period, which probably triggers the beginning of mating activity. During spring, both sexes inhabit the same type of microhabitats (mostly rocky, sparsely vegetated, southern facing slopes). During the summer, gravid females remain in the previously mentioned habitats while adult males inhabit less rocky, more densely vegetated slopes with a south-western exposure.

Hen Harrier (*Circus cyaneus*) distribution and habitat selection in Eastern Moldova (Romania)

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Key words: Hen Harrier (*Circus cyaneus*), winter distribution, habitat selection, weather influence.

Winter season is a harsh period for birds because the food is difficult to find and the energy consumption is high. Many bird species chose to leave their breeding ground during winter time and occupy areas where the weather conditions are more favourable for them. The Hen Harrier (*Circus cyaneus*) is a migratory species which is also wintering in small number, in Eastern Moldova region. During two winter seasons, in the period 2010 – 2012, we have conducted a monitoring program for birds of prey distribution in Eastern Moldova region. For each individual we record the GPS location, age, sex, the habitat where it was observed and some aspects of its behaviour. Hen Harrier presence is poorly studied in Romania and there are no studies on this species in Moldova region. Regarding our data, collected during winter surveys, Hen Harrier selects pastures or herbaceous associations ($w_i > 1$) and avoids forest, vineyards and fruit tree plantation ($w_i = 0$) There are predominantly adults, but their presence varied during winter months (Friedman Test, $p < 0.001$). Using presence locations and habitat and climatic variables we modelled in MaxEnt, version 3.3.3 the distribution of Hen Harrier for the study area. The result of the final model shows a predominant distribution in large river valleys, mainly covered by pastures or small fields of agriculture land. Testing the weather influences (temperature, pressure, snow cover and snow depth) using General Linear Model, we found that Hen Harriers from Eastern Moldova are significantly influenced by snow cover ($p < 0.01$). Hen Harrier is listed in Annex I of the Bird Directive as subject of special habitat conservation measures in order to ensure survival and reproduction.

Relative importance of habitat area, isolation and quality for the occurrence of Mistle Thrush *Turdus viscivorus* (L.) in fragmented lowland Cork oak forest in Morocco

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Key words: Mistle Thrush, Cork oak forest, habitat area, habitat quality, conservation.

In landscape ecology, understanding the requirements in term of the size and quality of the available habitat for a number of forest-dependent bird species reveals to be crucial for a better forest management and biodiversity conservation.

We studied resident bird communities in the highly fragmented lowland Cork Oak forest in Northern Morocco. In this paper we focused on studying the Mistle Thrush, a species which is believed to have a very scattered distribution at low altitudes in Morocco. In a stepwise regression analysis, cork oak habitat area and habitat isolation were the most important parameters explaining numbers, density, regularity, and probability of presence in three successive years (2005-2007) of Mistle Thrush. Also, the estimation of habitat quality contributed significantly to the equations as the species occurs only in dense oak patches. A 99% regularity of occurrence during the study period was found in non mixed oak areas of 46 ha. It is suggested that, for a small population, habitat fragmentation that gives rise to partially isolated subpopulations will make the population more vulnerable. The large area required by Moroccan Mistle Thrush compared with European ones, is believed to be a result either of an 'extinction disequilibrium' or of poorer habitats in the periphery of the distribution area of the species.

GIS based analysis of the hibernation preferences for several bat species from the Gura Dobrogei Cave (Romania)

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Key words: bats, hibernation, GIS based distributions and climate data, Gura Dobrogei Cave.

Gura Dobrogei Cave is one of the most important underground roosts for bats in the central Dobrogea Region, Romania. Early studies have shown that the cave is a permanent roost and harbours a wide variety of species including *Rhinolophus mehelyi*, *R. ferrumequinum*, *Miniopterus schreibersii*, *Myotis myotis*, *M. blythii oxygnathus*, *M. daubentonii*, *M. mystacinus*, *Vespertillio murinus*, *Eptesicus serotinus*, *Plecotus auritus* and *P. austriacus* (Dumitrescu et al, 1958, 1965; Valenciuc & Ion, 1971; Pocora & Pocora, 2011). Though, the colonies have constantly decreased from about 5000 individuals of *R. mehelyi* in 1955 to scarce sightings in the present. This study proposed to identify the optimal environmental conditions for hibernation for the resident species of the Gura Dobrogei Cave using GIS techniques. Climatic variations of temperature and relative air humidity in the cave were measured for a period of three months during the winter of 2011–2012. Two permanent points of observation were established in the Guano Hall and the Liliecilor Passage, where most of the bats were concentrated. During four visits, temperature and humidity data from eleven vertical sections were collected in sectors with high potential of climatic variability (e.g. gallery intersections, significant changes in direction, slopes, difference in passage height). The results were spatially represented using deterministic interpolation (the natural neighbor method) in ArcGIS 10 and plotted against bat distribution for each visit. Results show the optimal environmental features for the most abundant species (*M. myotis*, *M. blythii oxygnathus*, *R. ferrumequinum*) that can help to better understand their hibernation dynamics inside the roost.

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Intestinal microflora of selected bat species as an indicator of population health and environment quality

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Key words: bat, bacteria, intestinal microflora, population condition.

Insectivorous bats occupy the higher trophic level in the food chain. For this reason they are relatively sensitive for environmental contamination in their habitat.

On the basis of studies on the intestinal microflora in bats it is possible to determine the condition of a bat population and the quality of its habitat.

Bats typically are host to microorganisms to which they have adapted, rarely experiencing disease whereas unadapted or in bad condition hosts may suffer illness after exposure to the same microorganisms.

If the intestinal flora of a given bat species is rich and free of pathogenic bacteria, one may expect the diversity of its food and the absence of significant amounts of contaminants and toxic element (originating e.g. from herbicides), which may reflect the health of an ecosystem to a certain degree.

If intestinal microflora is scarce or there are pathogenic bacteria the bat itself is in bad condition and its habitat is probably also contaminated. In this case, the animal has also more ectoparasites and its chance to survive hibernation period is very low.

This presentation concerns the intestinal microflora of the selected plant species occurring in the region of the Kraków–Częstochowa Jura and shows the results of qualitative and quantitative analysis of the composition of bacteria from the guano of bats.

Preliminary data on long-eared owl (*Asio otus otus* L.) diet during winter period in Chişinău city (Republic of Moldova)

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Key words: *Asio otus*, pellets, trophic spectrum, rodents, *Microtus*.

The trophic spectrum of an *Asio otus* colony from Kishinev city in winter period of 2010-2011 was studied. There were collected about 1000 pellets, of which almost 400 were analyzed. The pellet length varied from 1.55 cm to 8.34 cm, with mean length of 3.79 cm. The pellet weight varied between 0.9 g and 7.2 g, mean – 2.53 g. The number of individuals per pellet was from 1 to 7, mean – 2.34 individuals. After the quantitative and qualitative analysis of the pellets, 920 individuals were identified: mammals from 3 orders (Rodentia, Soricomorpha, Chiroptera) and birds. The main ratio of Long-eared owl diet consists of rodents – more than 95% of all identified animals, the birds constituted 2.39%, the shrews, represented by 3 species (*Sorex minutus*, *Crocidura suaveolens*, *C. Leucodon*) constituted 2.17% and the bats – less than 1%, only one individual of *Eptesicus serotinus* being found. The main prey of *Asio otus* individuals were the species of genus *Microtus* (*M. arvalis* and *M. rossiameridionalis*), which constituted almost 55%, followed by *Apodemus sylvaticus* (17.5%) and by the species of genus *Mus* (*M. spicilegus* and *M. musculus*) with 16.63%. Other rodent species (*A. flavicollis*, *A. uralensis*, *A. agrarius*, *Clethrionomys glareolus*) registered less than 5%. Thus, the trophic spectrum of Long-eared owl in winter period consists mostly of field vole, which is the most abundant in agricultural and other open land ecosystems and is considered pest species for agriculture.

Growth and development rhythm of the species *Mus spicilegus* Petenyi, 1882 (Rodentia: Muridae)

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Key words: *Mus spicilegus*, body weight, males, females, growth, season.

In *Mus spicilegus* species a seasonal polymorphism can be observed, which lead to morpho-physiologic differences between the generations, conditioned by reproductive activity and modification of population age structure. For *M. spicilegus* two growth phases are particular. The first phase is less pronounced and occurs at the end of summer and in autumn in juveniles, before starting the mound construction, with mean body weight of 8.6 ± 0.6 g. In the second half of autumn – first half of winter the individual growth is practically stopped. The second growth phase starts after middle winter and toward the beginning of spring their body weight reaches 12.4 ± 1.7 g ($t=2.11$). The males (14.3 ± 1.3 g) are heavier than the females (11.5 ± 1.2 g, $t=1.58$), because during winter the males grow and maturate faster, in order to be ready for breeding at the end of February. In first spring generations an intensive growth of body weight can be observed. Thus, in the first months, the individuals reach the weight of 7.5 ± 0.8 g, by the end of the second month – 11.9 ± 0.9 g ($t=3.67$) and at the end of the third month – 15.1 ± 1.0 g ($t=2.37$). The difference between the first and the third month is significant ($t=5.94$). After comparing the mean body weight of adult overwintered individuals with the weight adult yearlings, it can be seen than the mean body weight of yearlings is 1.4 times higher ($t=6.45$). The overwintered females start the reproduction at the age of 180 – 210 days, while yearling females start to breed at the age of 70 – 80 days, thus by the end of spring – beginning of summer the majority of the females are pregnant or lactating. The mean weight in summer months constitute 16.7 ± 1.7 g in males and 15.5 ± 1.9 g in females ($t=0.48$). By the end of summer all overwintered individuals disappear from population. In generations born at the end of summer and in autumn the complete ceasing of body growth was registered.

Small mammal assemblages in mountain forests of Romania

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Key words: rodents, insectivores, *Apodemus flavicollis*, *Clethrionomys glareolus*, community structure, habitat use.

There are a few studies published on small mammals' communities from mountain areas in Romania, but most of them were carried out in one or a few sites during one trapping session. This study aims to present a general view on the small mammals assemblages in mountain forests of Romania, their specific structure and dynamics in space (both along the altitude and among massifs) and time, based on original data and on information from the literature. A comparison with the situation from forests in other parts of Europe is done in order to assess the effect of different gradients on small mammal assemblages.

The original data were collected between 2000 and 2011 from 5 mountain areas (Retezat, Lotru, Apuseni, and Rodna mountains, and Râul Șes River Basin). Trapping was done mainly during the warm season, using Polish live traps. Research sites were chosen at different altitudes (between 690 and 1750 m a.s.l.) and in some stations several forest plots were researched, for a better assessment of habitat use.

In all, 1450 small mammals belonging to 15 species (5 insectivores and 10 rodents) were captured. The small mammal assemblages of Romanian Carpathian forests resemble those from the boreal forests in northern part of Central Europe, like those from Bialowieza Forest. *Apodemus flavicollis* prevails in most cases, followed by *Clethrionomys glareolus*. *A. sylvaticus*, dominant in lowland forests from Romania as well as in many habitats from western Europe, was found only in Rodna Mountains. Shrews (and especially *Sorex araneus*) are a constant presence in mountain forests, being more abundant in some areas and periods, usually when rodent populations decrease. There are important fluctuations in abundance and structure of small mammals communities from year to year, generally increasing with altitude. River banks represent important microhabitats for small mammals, especially during low density periods.

Seasonal dynamics of the small mammal communities (Ord. Insectivora and Rodentia) of Ozun locality (south-eastern Transylvania)

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Key words: seasonal dynamics, rodents, insectivores, Ozun locality, Romania.

Knowing the seasonal dynamics of small mammal populations is an important aspect of communities' ecology, small mammals represent, in many ecosystems, the main food resource for vertebrate carnivores. This knowledge can also lead to improvement of biological methods of pest control in agricultural ecosystems.

The study area is situated in south-eastern Transylvania at 420 m a.s.l., in Ozun locality. Three habitats – Râul Negru river bank, a graveyard, and a cultivated field - were investigated seasonally. The small mammal communities were studied by live-trapping, conducted between November 2005 and October 2012, and aimed to cover a range of aspects regarding the ecology of small mammals. Results were expressed in terms of capture index. In all, 205 small mammals, belonging to 8 species (1 insectivore and 7 rodents) were trapped. The highest capture indices were calculated for the autumn months. These peak values were followed by a gradual decrease until mid August. Among the three investigated habitats, the river bank was the most stable. In this habitat small mammals were captured during almost all the trapping sessions. Due to agricultural works, the cultivated field presented the highest instability and the lowest diversity. The river bank and the graveyard presented the same number of species, but not the same species. The most abundant species was *Apodemus agrarius* (151 specimens), followed by *Apodemus flavicollis* (34 specimens). Only one specimen of *Mus musculus* and *Clethrionomys glareolus* were captured during the entire study period.

The quagga mussel in Western Europe, particularly in The Netherlands

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Key words: dreissenid community, vectors, mechanisms.

Although a high number of invasive freshwater species have been reported in Europe, the arguably most important one was the zebra mussel (*Dreissena polymorpha*). Native to the fresh and brackish waters of the Caspian and Black Sea drainage basins, it quickly spread throughout Europe after construction of several inter river basin canals at the end of the 18th century. In the first half of the 19th century the species was reported from several West-European countries. It crossed the Alps and Pyrenean in the second part of the 20th century, and was found in the southern Balkans in 2010.

A second *Dreissena* species, the quagga mussel (*Dreissena rostriformis bugensis*), started its range expansion in the 1940ies in the eastern part of Europe from its native area, the lower stretch of the river Southern Bug. Its invasion into Central and Western Europe started after 2000. In 2004, it was reported from the Danube River in Romania, while in 2005, the first specimen was found in the river Main, a tributary of the river Rhine in Germany. Only one year later the species was found in the Rhine delta in the Netherlands. By the end of 2010, the invasion front of the quagga mussel had reached the upper Rhine River, France through the river Moselle (tributary of the river Rhine), the Danube River near Budapest and the eastern part of the Mittelland Canal (Germany). In 2011, specimens were also observed in the lower part of the Meuse River in The Netherlands and Belgium

In most of the West and Central European inland waters where zebra mussels were present, the quagga mussel nearly outcompeted them within only a few years, thus altering communities that existed more than 200 years. But more important, quagga mussels are able to build up denser populations than zebra mussels, taken over the zebra mussel's bad reputation. *Dreissena* species often have a dramatic impact on native organisms (e.g., other bivalves) reducing their abundances or even causing local extinctions. As filter-feeders they affect planktonic communities and, as the result, they alter local food webs. As biofouling organisms, *Dreissena* individuals form massive clusters, which can jam pipes and other water bound construction modules. They attach in large numbers to the hulls of vessels, aquatic structures and navigational buoys, and they affect fishing gear and aquaculture cages. Economic impact may be tremendous. In the U.S.A., for example, damage to industries, businesses and communities in the period from 1993 to 1999 was estimated at > US\$ 5 billion.

In our presentation we will focus on migration corridors and vectors for spread for quagga mussels in the western part of Europe. Developments in dreissenid communities will be shown based on research in The Netherlands.

Ecosystem-level impacts of a non-indigenous bivalve in a temperate estuary

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Key words: biological invasions, ecosystem functioning, estuary, bivalve, *Corbicula fluminea*.

Non-indigenous species (NIS) are often classified as bad, merely on basis of their origin and not on their impacts on ecosystems' biodiversity and functioning (Davis, 2009; Davis et al., 2011). However, it is no less true that very few NIS have no significant impact (Simberloff, 2011). In our opinion, this debate should focus on populations rather than on species, since the same species has different or meaningless impacts depending on the invaded ecosystem.

Many studies determined the population level impacts of NIS in terrestrial ecosystems (e.g. introduction of predators decimating many prey species, introduction of parasites, deceases). However considerable less attention was given to NIS impacts on ecosystems processes and functioning, and particularly in aquatic ecosystems.

In the Minho estuary (N-Portugal), *Corbicula fluminea*, a non-indigeneous bivalve listed as one of 100 worst invasive species, is profusely distributed along the brackish and freshwater sections of the estuary. This bivalve reach densities and production that surpass 4000 ind m⁻² and 460 g AFDW m⁻² year⁻¹, respectively (Sousa, 2008). This high production is subsidized by allochthonous organic matter, and the contribution of each source varies along the estuary (Dias et al., *submitted*). *C. fluminea* may also have a high functional importance, since it can influence the composition of macrozoobenthonic and epibenthic assemblages due to ecosystem engineering activities (Ilarri, 2012).

Our current research is focused in complementing the answer to the following question: "How does *C. fluminea* alter the ecosystem functioning of an invaded estuary?". Thus, we will continue to study *C. fluminea* population dynamics, estimate how bioturbation alters the nutrient fluxes between sediment and the water, their impact on primary productivity and even how adjacent terrestrial ecosystems are affected by the massive die-offs of this bivalve.

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Invasive mosquito species – potential risk for Romania

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Key words: invasive mosquito species, risk, outbreaks, surveillance.

Six mosquito species included in the former *Aedes* genus (*Aedes albopictus*, *Aedes aegypti*, *Aedes japonicus*, *Aedes atropalpus*, *Aedes koreicus*, *Aedes triseriatus*) have been introduced in Europe in the recent years mainly through the international trade with used tires and Lucky bamboo. Some of these species are already established and spread in different areas of Europe. The invasive mosquito species in Europe present a potential public health threat because, at least several of them, could be vectors for a number of pathogens. The public health risk is confirmed by the chikungunya fever outbreak in Italy in 2007 and autochthonous cases of dengue fever in France and Croatia in 2010. The prognosis shows the future extension of the distribution range of these species to the northern and eastern Europe, including the Romanian territory, mainly because of the climatic changes.

Anopheles sacharovi malaria vector had a status of invasive mosquito on the Black Sea coast in Romania. It was no more found after malaria eradication but now there is the risk of the re-extension of the distribution range of this species from Turkey to the North along the Black Sea shore because of the global warming.

The need to be elaborated and implemented the programmes of surveillance and control over all the Europe of these vectors is essential.

The first occurrence of *Sceliphron caementarium* (Drury, 1770) (Hymenoptera: Sphecidae) in Romania

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Key words: *Sceliphron caementarium*, mud dauber, invasive, first record, Romania.

Sceliphron (*Sceliphron*) *caementarium* (Drury, 1770) is one of the two Nearctic sphecids accidentally introduced into Europe: supposedly during the 19th century, in 1942 in the Czech Republic, then it established in France, Portugal and Madeira, and afterwards its European range expanded in the following countries: Luxembourg, Italy, Ukraine (Crimea, a possible separate colonization), Croatia, Italy, Belgium, Austria, Switzerland, Slovenia and Germany.

A female imago of *S. caementarium* was captured on July 16, 2012, during a hot summer, while trying to enter the building of the Țării Crișurilor Museum in Oradea, northwestern Romania. No nests or other individuals were found. It represents the first record of this species in the country, where *S. destillatorium* (Illiger, 1807) and *S. spirifex* (Linnaeus, 1758) are the only known *Sceliphron* species, the last one being doubtful. This first known occurrence of *S. caementarium* in Romania may be a vagrant individual and does not prove the establishment of the species. Its origin is unknown, as the species was not recorded in the neighbouring countries. The distribution data for *S. caementarium* in Europe, especially in the east, are incomplete, and its expansion in Hungary and Serbia from their respective neighbouring countries seems likely, suggesting an eastward way of colonization in Romania. Another hypothetical modality is an accidental, human introduction of nests or imagos.

Related to the impact of invasive mud-daubers, issues concerning competition and hybridization with local species have been noticed. The alien mud-daubers may also have an excessive impact on the local populations of Araneae. In France, *S. caementarium* established itself mainly in the Mediterranean bioregion and it supersedes the native *S. spirifex*. It is still unclear whether all the published occurrences represent established populations, though the possibility remains open and there is a trend towards range expansion, especially in southern Europe. The thermophilic character of *S. caementarium*, in connection with its expansion in Europe even at higher latitudes, as in Oradea, may possibly suggest a tendency towards climate warming in Europe.

Some epidemiological aspects in the trichinellosis development in Romania during the second half of the 20th century

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Key words: trichinellosis, infestation, human, animals.

Soon after the foundation of the Central Control Laboratory for Animal Origin Foods (1953), the nowadays Institute of Hygiene and Veterinary Public Health, a division for Meat Parasitology has been inaugurated within. It was a stringent need for it, as a case of pork carcass infestation with *Trichinella spiralis*, to be exported to Czechoslovakia was identified. Those days, there was a significant shortage of trained personnel and equipment for meat examination. Also, many trichinellosis cases were diagnosed to people in Romania.

In order to remediate this situation, a number of trichinelloscopes have been imported and, during the same period, portable trichinelloscopes have been manufactured in Romania. Trainings for operators with these instruments have been also organized.

Besides current examinations of pork meat in slaughterhouses and in farms, ample researches have been performed in carnivorous, herbivorous and rodent animals that have been infested. In collaboration with the “Victor Babeș” Institute from Bucharest, examinations on human corpses have been also performed. Results proved that trichinellosis is common in all researched animals and, primarily, in pigs, boars and bears, whose meat was a risk for human health.

More recently, in 1983, feeding pigs with animal protein resulting from meat confiscations and dead animals, without observing the laws in force, led to a trichinellosis spread out in many areas, to pig industrial and individual farms. Also, the number of persons with trichinellosis increased. These negative effects extended over present days.

Co-infection communities of tick-borne pathogens in some foci of Eastern Europe and North Western Russia

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Key words: *Ixodes ricinus*, *Ixodes persulcatus*, tick-borne pathogen communities, co-infections.

The present study is an attempt to characterize the tick-borne microorganism co-infection communities of *Ixodes ricinus* species complex in the various distinct geographic regions of Eastern Europe and European Russia.

Questing ticks were sampled by blanket dragging through the low vegetation during the spring of 2009 in Belorussia (Minsk velocity), Russia Federation (Boroc, Yaroslavl Oblast; Cherepovets, Vologodskaya Oblast; Dubna, Moscow Oblast; Voldzero National Park, Karelia Republic), and Moldova (Codrii forest reserve). Total tick DNA was extracted using the Ribo-sorb Nucleic Acid Extraction Kit (InterLabService, Moscow, Russia) according to the manufacturer's instructions. Tick-borne microorganism specific PCRs were carried out using tick DNA.

The total co-infection rate of the 481 analyzed tick samples was 3.7% (18/481) with a significant value of the Ginsberg's co-infection index (Ic): $Ic=+7.66, p<0.05$. Locally, *Ixodes persulcatus* specimens were more co-infected (4.3%, 8/184) than *Ixodes ricinus* (3.4%, 10/297). However, the Ic reveals significant positive values only for the Codrii, Minsk, and Voldzero sites.

The Kendall's tau coefficient ($R = 0.73, n = 481; p<0.05$) shows that the total number of ticks was positively correlated with the number of *Borrelia afzelii* (Pathogen I)/Pathogen II (*Rickettsia* sp., *Babesia microti* or *Ehrlichia muris*) co-infected ticks. Most co-infections were revealed at the Codrii site. The lowest (2.2%) co-infection rates were identified at the Minsk and the Dubna sites.

Future investigations are warranted to further characterize the peculiarities of the tick-borne microorganism co-infection communities.

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***Argas vespertilionis* (Ixodida: Argasidae): parasite of Common pipistrel bat in west of Iran**

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Key words: *Argas vespertilionis*, nidicolus tick, Ixodida, Iran, bat.

Blood feeding ticks of suborder Ixodida, ecologically divided into two groups, nidicolus and non nidicolous, that depend on whether groups differ those ecobiologic characteristics, economic and medical importance. More Argasid ticks placed in former group that mean mostly coordinated to the specific host (s) and live inside or adjacent their host nest. According to tick expert's concept more than 90% of all tick species in a region may be found on non domestic animals so that considered to survey wild animals tick fauna. Tick specimens collected on bat captured in a thatched rural home located in Kohdasht township suburb in Lorestan province, west of Iran. After rearing tick larvae in laboratory condition those molted and consequent nymphs were identified as *Argas vespertilionis* by descriptive morphologic keys. Species is one of the nidicolus ticks commonly feed on bats. We suggest studies that will be conducted on the wild animals ticks fauna especially bats closer to human constructions since such tick species may be capable attach human or domestic animals when their palatable host not exists.

Feather mites fauna (Acari: Astigmata) of the Danube Delta Biosphere Reserve. Preliminary data

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Key words: Analgoidea, feather mites, faunistic, new records, new bird hosts, Romania.

Feather mites are tiny chelicerates (300-700 μm), encountered on various orders of birds and with high host-specificity and specialized to a particular microhabitat (wing feathers, tail feathers, contour feathers, feather rachis). They cannot be considered real parasites on birds, but rather commensal, most of the species feeding on secretion produced by uropygial gland, which is spread on feathers (Mironov, 2003).

Number of species described so far is over 2400, it is estimated that the actual number of species would be five times higher.

Based on condylophore morphology (a structure that connecting ambulacral discs of pretarsus with tarsus) and presence or absence of ventral setae p and q on the tarsus of foot IV, Gaud and Atyeo divided feather mites in three superfamilies: Analgoidea, Freyanoidea and Pterolichoidea (Gaud & Atyeo, 1996). Subsequently, Ehrnsberger et al. (2001) provide strong arguments for placing the superfamily Freyanoidea in Pterolichoidea.

In Romania, feather mites were studied by Valeria Mack-Firă and Maria Cristea-Năstăsescu, who mentioned 28 species in our fauna, one being described by the authors: *Proctophyllodes mesocaulus* (Mack-Firă & Cristea-Năstăsescu, 1968).

This study aims to make an inventory of the feather mites' fauna in the Danube Delta Biosphere Reserve (Romania), for a long period of time; so the present results, obtained from research made in 2007, 2008 and spring of 2012 are preliminary.

The birds were caught in Letea village (C. A. Rosetti, Tulcea County) and its surroundings. In order to capture more diverse bird and mites fauna, different habitats were investigated: common reed on the limits of the channels, forest and salty area. A number of 183 birds were checked, belonging to 28 species and 14 families (Sylviidae, Paridae, Picidae, Aegithalidae, Muscicapidae, Sturnidae, Turdidae, Fringillidae, Certhiidae, Acrocephalidae, Scolopacidae, Emberizidae, Remizidae, Ploceidae). Fauna of mites counted 37 species, grouped into thirteen genera and six families (Analgidae, Avenzoariidae, Proctophyllodidae, Psoroptoididae, Trouessartiidae and Xolalgidae) belonging exclusively to Analgoidea superfamily.

Of the 37 species of feather mites, 27 are new reports in the Romanian mites' fauna, and thirteen species of birds have been identified to be for the first time as hosts for nine species of mites.

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Chewing lice (Phthiraptera: Amblycera, Ischnocera) from wild birds of Morocco [Scientific results of “DAKHLA” (2012) expedition]

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Key words: *Menacanthus*, *Phlopterus*, *Penenirmus*, *Brueelia*, new host-parasite association, new records, Morocco.

“Dakhla 2012” scientific expedition (getting this name after the southernmost point of the expedition route) was organized in the Moroccan territory, within the period 20th of March – 16th of April 2012, by “Grigore Antipa” National Museum of Natural History (Bucharest, Romania) in partnership with “OCEANIC - CLUB” Society of Oceanographic Exploration and Marine Environmental Protection (Constanța, Romania), SEO/BirdLife – Programme Morocco and the Research Group for Bird Protection of Morocco - GREPOM. The main purpose of this expedition was to bring significant new contributions to knowledge of biodiversity of Morocco by exploring some less approached areas from this point of view. We present the results of our studies on the chewing lice from wild birds in Morocco, developed in this expedition. The controlled birds were captured with mist nets and then released. The birds were caught in eight sites, as follows: Cap Sim - Sidi Kaouki, Fom Oued Draa (Ksar Tafnidilt), Dakhla, Tarfaya, Ait Herbil, Tissint, Fom Zguid, Ouarzazate. A total number of 208 birds (belonging to 43 species from 18 families and 4 orders) were examined. Most of examined birds were adults (203 individuals) and only five birds were juveniles. We found chewing lice on 40 birds (all adults) belonging to 18 species from 11 families and 3 orders. The total prevalence of the chewing lice was of 19.23 (n=208). The prevalence of infestation can be seen from the following data (between brackets it is specified the number of parasitized birds / the number of examined birds / the number of examined bird species): Burhinidae (0/1/1), Charadriidae (1/1/1), Scolopacidae (0/1/1) [Charadriiformes]; Columbidae (0/1/1) [Columbiformes]; Meropidae (1/2/2), Upupidae (1/1/1) [Coraciiformes]; Alaudidae (2/6/3), Hirundinidae (1/3/2), Motacillidae (0/4/1), Pycnonotidae (0/6/1), Turdidae (8/25/9), Muscicapidae (0/2/1), Sylviidae (13/78/11), Paridae (1/2/1), Malaconotidae (1/1/1), Laniidae (0/17/1), Passeridae (6/49/1), and Fringillidae (5/8/4) [Passeriformes]. Because the data concerning records of chewing lice from wild birds of Morocco are very scarce, practically all of the identified chewing louse species are new reports for the Moroccan parasitological fauna. The following founded chewing louse genera have the highest prevalence: *Brueelia* (prevalence 5.78), *Penenirmus* (4.81), *Menacanthus* (3.85), and *Phlopterus* (2.88). In this study we report, for the first time, the presence of the chewing lice on the bird species *Merops persicus*, *Galerida theklae*, *Oenanthe leucopyga*, and *Sylvia cantillans*. Also, some other new chewing louse – bird species associations are reported for the first time.

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Potential *Anopheles malaria* vectors in Romania

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Key words: malaria, vectors, risk, endemic.

Romania was an endemic malaria country with as many as 300,000 new cases yearly and the eradication was completed in 1962. The historical malaria vectors with extended distribution over all the endemic areas in Romania were *Anopheles maculipennis s.s.*, *A. messeae* and *A. atroparvus* species spread usually in mixed populations, the proportion of each species varying in accordance to the local environmental factors. *A. sacharovi* species was vector only on the Black Sea coast and lagoon area and has not been recorded anymore after 1962. Its presence was due to the extension to the North of its spreading area in accordance to the climate factors and the re-appearance of this species is possible because of the present warming. The “malaria stratification” in Romania established by Zotta as early as 1938 on ecological criteria (first example of application of this concept later launched by WHO in the ‘70s) included three main endemic areas (one with two subsidiary zones), each dominated by one of these vector species, and the “anophelism without malaria” in the Danube Delta.

The *Anopheles daciae* – sp. nova, identified by us and molecularly confirmed (Nicolescu et al., 2004) spread with *An. messeae* in mixed populations and morphologically indistinguishable from it (excepting the eggs), could be also a potential malaria vector. It is possible that this species was the real vector in areas where malaria transmission was currently attributed to *A. messeae*. This species has now higher abundance than *A. messeae* in the former malaria endemic areas. The potential anopheline vector populations are spread now over all former malaria endemic areas in Romania in high densities resembling the situation before the malaria eradication and maintaining the risk of malaria re-appearance.

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Palaeartic Longhorn beetles (Coleoptera: Cerambycidae) from the collections of “Grigore Antipa” Museum (Bucharest)

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Key words: palaeartic longhorn beetles, Cerambycidae, collections of “Grigore Antipa” Museum.

The Palaeartic longhorn beetles is one of the strongest components of “Grigore Antipa” Museum insect collection. The material comprises about 19,000 specimens of over 300 species.

In the early twentieth century collections were formed through acquisitions and donations (Deszö Kenderessy, Eduard Fleck, Arnold Lucien Montandon, Friedrich Deubel collections). After 1962 the collections were enriched through acquisitions (the valuable collections Dr. Nicolae Săvulescu), by donations made by various specialists and amateurs, by exchanging material with foreign specialists, by collecting material in the field in Romania or abroad (Museum Expeditions in the Mediterranean countries during 2005 – 2012).

Common species are well represented. Further on, we shall point out some of the rare species of the collections. We mention: *Xylosteus spinolae*, *Rhamnusium bicolor*, *Rhagium bifasciatum*, *Akimerus schaefferi*, *Cornumutilla lineata*, *Cortodera femorata*, *Macroleptura thoracica*, *Nivellia sanguinosa*, *Pedostrangalia pubescens*, *P. revestita*, *Stictoleptura cordigera*, *Vadonia hirsuta*, *V. steveni*, *Pronocera angusta*, *Ropalopus ungaricus*, *Semanotus ruscicus*, *S. undatus*, *Cerambyx miles*, *C. welensii*, *C. nodulosus*, *Lampropterus femoratus*, *Clytus tropicus*, *Cyrtoclytus capra*, *Xylotrechus pantherinus*, *Plagionotus bobelayei*, *Chlorophorus trifasciatus*, *Calchenesthes oblongomaculatus*, *Asias halodendri ephippium*, *Nathrius brevipennis*, *Oplosia cinerea*, *Agapanthia kirbyi*, *A. osmanlis*, *Theophilea subcylindricollis*, *Deroplia genei*, *Neodorcadion exornatum*, *Dorcadion litigiosum*, *D. holosericeum*, *D. pusillum*, *Herophila tristis*, *Cardoria scutellata*, *Pilemia tigrina*, *Coptosia albovittigera*, *Helladia praetextata*, *Menesia bipunctata*, *Stenostola ferrea*, *Tetrops starkii*, *Callimoxys gracilis*, *Callimus angulatus angulatus*, *Pseudogaurotina excellens* (Carpathian endemite).

List of endemic species preserved in our collections includes: *Vadonia hirsuta* (Romania), *Dorcadion equestre transsilvanicum* (Republic of Moldova and Romania), *Dorcadion axillare* (Romania and Bulgaria), *Dorcadion gashtarovi* (Dobrudja, including the Bulgarian side), *Brachyta balcanica*, *Oxyilia duponcheli* (Balkan Peninsula). We also mention species of *Iberodorcadion* (endemic to Spain), *Chlorophorus ruficornis*, *Albana m-griseum* (endemic species to France and Spain), *Paraclytus excultus*, *Oberea mixta* (endemic species to Japan).

A large part of the information given by the specimens from collections were materialized especially by scientific papers.

Ethnozoology in Romania: current status and perspectives

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Key words: ethnozoology, Romania, critical analysis.

Ethnozoology started promptly in Romania by the time it had only started to be considered as a separate research area thanks to the two monographs published by Simion Florea Marian “Ornitologia poporană română [Popular Romanian Ornithology]” (1883) and “Insectele în limba, credințele și obiceiurile românilor. Studiu folcloristic [The Insects in the language, beliefs and customs of the Romanians. A folkloric study]” (1903). It took half a century until another reference in the field was published: “Peștii, așa cum îi vede țăranul pescar român [The fishes, as seen by the Romanian peasant fisherman]” (1947) by Mihai Băcescu. The author then takes ethnozoology in “Păsările în nomenclatura și viața poporului român [The birds in the nomenclature and life of the Romanian people]” (1961), while the last book published by M. Băcescu is dedicated also to ethnozoology - “Contribuții la cunoașterea folclorului zoologic românesc [Contributions to the knowledge of the zoological Romanian folklore]” (1996). Since it was written in Romanian, these references remained unknown to the international scientific community. Unfortunately, apart from scattered information in various publications, there are few works dedicated to Romanian ethnozoology. It can be said that, at present, Romanian ethnozoology is absent outside the country.

As a trans-disciplinary domain, ethnozoology is integrating knowledge from fields as diverse as zoology, ecology, anthropology, folklore, linguistics and psychology. Ethnozoology in Romania was limited to connections with folklore (Marian) or zoology and lexicography (Băcescu), so that several important lines of research still remain unexplored.

Far from having a purely academic importance, ethnozoology, together with ethnobotany and ethnoecology - can and should play a significant role in the education and raising awareness of the importance of nature conservation.

The regional center for wildlife care and treatment (CZITAS) from Petrești, Vrancea County (Romania) - useful element in ex-situ wildlife conservation

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Key words: wildlife, treatment, rehabilitation, rescue, center.

CZITAS is an wildlife rescue center created and authorized based on the decree of the Environmental Ministry (MMDD decree nr 1798/2007). Our work with wildlife specimens in difficulty started in 2004 with a small project concerning wildlife rescue, as an annex to the Focsani Zoo Center. In 2007, we managed to create CZITAS which is today the only authorized wildlife rescue center in Romania (with involvement in the treatment of any wildlife species). Our goal is to rehabilitate injured, sick or orphaned native wildlife and release healthy animals to their natural habitat. Our actions give an educational outreach which provides wildlife awareness and increase the relationship with native wildlife.

The center is located in the former Focsani Zoo. Thanks to the infrastructure inherited from the zoo center along with our improvements, almost any wild animal can be treated and hosted here. This allowed us to treat and rehabilitate animals like lynx or brown bear among with common animals. The total area of the center is of 23140 m² and there are 7 cages for large mammals, built especially for carnivores, 2 smaller cages for birds, 1 pond for waterbirds, 1 enclosure of 1200 m² for deers, an aviary of 200 m² for birds of prey, and a 3800 m² electrified enclosure suitable for different species.

Besides natural causes, many patients arrive due to human impact : road accidents, collision with human constructions or cases of animal cruelty. Each patient brings his story, though some stories are somehow repeated. Creating and managing a database of treated animals has become a priority of our activity. The data collected helps to identify the main problems of wild animals that arrive at CZITAS, issues like the origin of the injury, the date and time of year, weather conditions or other problems that are associated with the patients (parasites, previous wounds, nutrition problems, etc.) will provide future support for animal treatment and rehabilitation procedures.

Histological changes induced by Hyamine 1622 acute intoxication in *Cyprinus carpio* (Actinopterygii: Cyprinidae)

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Key words: hyamine 1622, benzenonium chloride, acute intoxication, histopathology, *Cyprinus carpio*.

Histological changes of the gills, kidney, intestine and liver are the main markers of aquatic pollution. Therefore the study aims to evaluate the structural changes induced in *Cyprinus carpio* experimental lots by Hyamine 1622, 1mg/l, a cationic surfactant, used in obtaining cleaning and cosmetics products. After 24h, 48h and 96h of acute intoxication, tissue fragments were taken, processed and stained with Hematoxylin-Eosin. After 96 hours, a mortality of 10% was recorded. Exposure to the cationic surfactant induced a state of oxidative stress, which generated free radicals responsible for structural injuries. After 24h, rare cells with hypertrophied nuclei, macrophages, sometimes crowded in the form of aggregates, were noticed in the liver. These were evaluated as changes of grade I, considered not alter the function of the tissue. After 96h of exposure, often aggregated melanomacrophages, an increased Bowman space and the vacuolation of epithelial cells lining the collector ducts, were seen in the kidney, changes which also are considered not to affect the normal functioning of the tissue. On the other hand, changes in the appearance of branchial lamellae were noticed after 24h of Hyamine intoxication. The most common abnormalities identified showed a reduced degree of severity, compatible with the normal functioning of the gill: dilatation of marginal channel, the lifting of the lamellar epithelium, epithelial hyperplasia, rarely associated with fusion of the secondary lamellae. These are considered to be defense mechanisms which generate a distance increase between the external environment and blood and a barrier against penetration of the pollutants. From the more severe injuries that threaten gill functions, we reported the lamellar aneurysm and the haemorrhages along with the lamellar epithelium rupture due to the blood vessels and pillar cells injuries and increased blood flow inside the lamellae. The observed lesions are considered to be unspecific and can be induced by various contaminants of water. Hyamine increased vacuolation of intestinal epithelial cells, a structural change that occurs when the mucosa integrity is lost, with consequences on the growth rate and susceptibility to bacterial infections.

Modeling road mortality hotspots of Eastern Hermann's tortoise in Romania

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Key words: *Testudo hermanni boettgeri*, Romania, road mortality, movements, spatial statistics.

Road-associated mortality can lead to local declines of wildlife populations, and management plans are required to implement mitigation measures, especially focused on potential road mortality hotspots. In this study, we used a spatially-explicit simulation modeling approach to estimate road mortality hotspots for the Eastern Hermann's tortoise (*Testudo hermanni boettgeri*) within its restricted distribution range in SW Romania. Using a field experiment, we first evaluated tortoise velocities while crossing roads. Adult male tortoises moved significantly faster than females (3.98 m/min vs. 2.51 m/min), which suggests a higher individual probabilities for females being killed on high-traffic roads (0.61 for females vs. 0.44 for males at traffic levels of 7000 vehicles/day). For higher or lower levels of traffic both males and females had similar road mortality probabilities. Our spatially explicit model suggests that, within the entire Romanian distributional range, tortoises are at low overall risk of road mortality (predicted mean annual population mortality of 1.6%). Using Getis-Ord G_i^* statistic, we identified road mortality hotspots with mortality rates of 5 – 30%, in areas bisected by high-traffic national and European-level roads. Our research is timely in that many low-traffic roads are predicted to have increased traffic associated with tourism activities, thus increasing the overall risk of mortality. We suggest that mitigation measures such as signage and roadside fences associated with underpasses have the potential to limit road mortality of this threatened species within the predicted current mortality hotspots.

Investigations on bat colonies from Măgurici Cave (Sălaj County, Romania)

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Key words: *Myotis myotis*, *Myotis oxignathus*, skull measurements.

The studies on Măgurici Cave, (Ileanda village, Sălaj County, Romania) revealed that the selection of the roosts used by bat colonies depends on both geographic and biologic factors. Traditional agriculture is practiced within the area of Someș - Lăpuș interfluves on Mestecăniș hills. Here the natural and anthropic habitats have been combined in a unique landscape. Consequently, this area offers good conditions for maintaining a high biodiversity. Măgurici cave is the only representative natural underground site which is important for bats activities within this region. This demonstrates that this area possess an imbalance between the trophic offer and the shelters provided for bats. During the detailed 12 years of study we identified five bat species (*Myotis myotis*, *M. oxygnathus*, *Rhinolophus ferrumequinum*, *Rh. hipposideros*, *Miniopterus schreibersii*) adapted to this area. This cave houses some significant accumulations of guano which proves the presence of nursing colonies. Based on skull measurements found in guano, we concluded that even two species coexists here (*Myotis myotis/ oxygnathus*), *M. oxygnathus* being the most abundant species from the cave, prevailing with a rate of about 96.0%. This species preys here mainly in open, grassy habitats and Măgurici Cave is an important underground shelter for bat species from Someșan Plateau because provides the necessary conditions for colonization throughout the year.

Biodiversity of the cave environment of Tajikistan and its position in relation to the underground fauna of Palearctic

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Key words: Biospeleology, cave fauna, caves, Tajikistan, Chiroptera, bats.

Caves form a specific natural and cultural environment have peculiar microclimate, speleotherms (i.e. stalactite and stalagmite) which recorded paleoclimatic changes and they contain deposits which are rich source of information for research on Quaternary environments. Getting to know many different deposits which occur in caves in this area allows to recognize characteristics of depositional environments (both current and former). It has particularly great significance due to drastic transformation of the terrain during last 200 years (almost complete deforestation). Finally, caves are curious environments dwelt by species of unusual adaptation, endemic and relict ones. These empty spaces are then a perfect place to carry out research on evolutionary processes and adaptation mechanisms of organisms.

As a result of expeditions to the mountains of Central Asia (Tajikistan), which took place in 2005, 2006, 2007 and 2012, chosen mountain ranges were provisionally explored in terms of occurrence of caves. It appears that almost every mountain range has its own caves. Unfortunately, so far there is no inventory of caves of Tajikistan. Scarce information concerning occurrence of caves come from excavations (Ranov, 1965; Ranov & Amosova, 1977, 1978) and few speleological expeditions. Among the most known caves there is the fiery cave Kuhi-Malik, with diverse minerals and salt caves close to the town of Kulyab, as well as Jana Cave, in the vicinity of Iskanderkul lake. Data concerning fauna of the caves are limited to bats (Chiroptera) (Habilov, 1992, 2003) without precise location of their occurrence.

Research aims at getting to know contemporary fauna of chosen caves of Tajikistan as well as learning and analysis of fossil fauna on the basis of cave deposits. The research will be also conducted in a few other directions, above else making inventory of objects found and if possible extended to research on geology, microclimate of the interior and other.

Therefore, these cavernous spaces are perfect places to carry out research on evolutionary processes and adaptation mechanisms of organisms; they have particular significance to learn above else about geological and biological processes.

The caves are rich source of information for research on contemporary environments as well as those of Quaternary, Tertiary and even older periods.

This research will allow to expand current knowledge on present-day fauna (trogal and stygal) and fossil fauna of Central Asia. As a result of the research

a species of bat (Chiroptera) was found which is new for fauna of Tajikistan (*Pipistrellus pipistrellus* – *P. lepidus* ?). An analysis of troglobiont fauna of a cave from Juro massif (Zarafshan Range) is conducted.

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Biodiversity virtual vs. real. Case study: Bats of the Carpathians

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Key words: Carpathians Mts., bats, virtual diversity, real diversity, ABC Project.

The United Nations General Assembly declared 2011 – 2020 the “United Nations Decade on Biodiversity” (Resolutions 65/161). The UN Decade on Biodiversity serves to support and promote implementation of the objectives of the strategic plan for Biodiversity.

Biological diversity – or Biodiversity refers to the variety and variability among living organisms and the ecological complex in which they occur.

Biodiversity is extremely complex, dynamic and varied like no other features of the Earth. Most often Biodiversity is defined as the “Totality of genes, species, and ecosystems of the region”.

The most commonly considered facet of biodiversity is species richness - the number of species in a site. The ratio between number of species and number of individuals is called Diversity index.

According to the Millennium Ecosystem Assessment, the total number of species of the Earth ranges from five to 30 million and only about 2 million species have been formally identified. Thus the known number of species is highly biased in favour of the larger, more charismatic animals (and plants), notably vertebrate animals.

Proposal of the author is to do attention on the difference between biodiversity index calculated from actual state of knowledge of the taxon called Virtual Biodiversity, and the same index calculated when we know all or nearly all species belonging to the investigated taxon, called Real Biodiversity.

A good example of close relation between Virtual and Real Biodiversity are bats. Bats are a taxon relatively well recognized and distance between Virtual and Real Biodiversity is very small or it doesn't exist.

Generally, there is a decrease in biodiversity from the south to the north. We can also observe these phenomena in the Carpathians Mountains.

Of the 45 European bats species, 32 are reported from the Carpathians Mts. This means about 70% of whole European bat fauna.

But recent bat fauna in the area North of the Carpathians (Southern Poland) consists of 25 species, it means about 55% of whole European bat fauna and 78% of bat fauna of the South Carpathians Mountains.

Actually, we realize ABC Project (Atlas of Bats of the Carpathians) in close cooperation with National Museum of Natural History “Grigore Antipa” in Bucharest and also with chiropterologists from Central European Countries.

The main goals of the ABC Project are:

1. Obtaining the most accurate possible knowledge of species and their distribution, and biodiversity of bats fauna over the Carpathian Region

2. To fill gaps in our knowledge of the distribution, recognize ranges of different species of bats in the Region, study trends of populations and use this data to suggest new protected areas in the Carpathians
3. Recognize hot spots in distribution of bats in the Carpathians.

New data on the presence and distribution of the otter (*Lutra lutra*) in two Natura 2000 Special Areas of Conservation (SAC) from Iași County (Romania)

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Key words: *Lutra lutra*, distribution, presence, Natura 2000 Special Areas of Conservation.

The Eurasian otter (*Lutra lutra*), listed in Anex II of the Habitats Directive and in IUCN Red List as near threatened, used to be widespread till the 20th century through Europe. As a top predator of the freshwater ecosystem, it becomes an umbrella species, and thanks to its charismatic image, plays an important role as flagship species in protection of the freshwater species. Now its distribution is scarce as a result of pollution and habitat loss.

In Romania, the economical development of the socialist era, led to a decline of the otter populations, by the occurrence of many polluters, such as: large chemical plants, industrialized agriculture. The negative effect increased by the lack of real interest in the protection and conservation of biological diversity. This fact led to serious damages to the physical - chemical characteristics of inland waters. Many rivers and streams in Romania have become unsuitable for life. Therefore the otter distribution area was considerably limited in our country. Since the 1990s many sources of pollution have gone, due to the adoption of environmentally friendly technologies or by stopping production process, which contribute to the natural restoration of affected habitats and biocoenoses. Natural restocking of fish, crustaceans and amphibians determined the increasing number and the gradual expansion of the otter population in Romania.

As a result of this improvement of habitats and natural restocking, I identified signs of otter presence (spraints, tracks, anal jellies, dens) in two Natura 2000 Special Areas of Conservation (SAC) from Iași County: Dealul Mare – Hârlau and Bârnova Repedea Forest. Otter was not mentioned in the standard form of the sites.

From December 2011 to August 2012, using the standard method in otter surveys recommended by the IUCN/SSC Otter Specialist Group (Reuther et al., 2000), I determined the area of otter distribution in the two sites.

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***Lynx lynx* coat pattern analysis using extract Compare Image Recognition Software in Putna-Vrancea Natural Park (Romania)**

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Key words: *Lynx lynx*, coat pattern recognition, photo.

Putna-Vrancea Natural Park presents 12 habitat types of community interest in which representative populations of large carnivores are present.

Some carnivores present a big variety of pelage colors and a great diversity of markings on their coat such as spots, stripes, and patches.

The colour of Eurasian lynx coat varies from greyish in the north of Europe to reddish-brown in the south. Each individual has unique markings on his coat that belong to one of the categories: with spots, without spots and with rossets.

Estimating occupancy, abundance, and other population parameters of rare, elusive species plays a key role in resource management decisions. According to the official estimations, in the last century the lynx population has varied from 100 to 2700 individuals in Romania.

Scent station and camera traps are two noninvasive survey methods for carnivores used in population assement and monitoring in the frame of three LIFE Nature Projects in Putna-Vrancea Natural Park.

For lynx coat pattern analysis pictures from photo traps, captures, registred mortalities, video recordings were used that were obtained from 2002 till present.

Extract Compare Image Recognition Software was utilised to compile a lynx recordings database that can prove to be a usefull tool for biologists, game wardens, research centers or governmental agencies or natural resource managers for population assement and survey.

The polymorphisms of *Ovis aries* prion protein gene in Romanian breeds

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Key words: PRNP *Ovis aries* gene, scrapie genetic resistance, PRNP genotypes frequency.

The intensive animal rearing aimed to reach the highest productive performances level productions in each animal. That for farmers is applying selection programs, keeping only the performing subjects. Additionally, international organizations promote programs for genetic selection of animals resistant to diseases, as the sheep's genetic selection program for resistance to scrapie (a neurodegenerative disorder). These two selection strategies, for productive performances and genetic resistance to diseases, can impair the genetic diversity and variability, endangering old local ovine breeds or those well-adapted to a particular region. In respect with the European Regulation (EC) No 999/2001, we evaluated the consequences of the breeding programmes in a sheep farm from Braila County, Romania.

In this study, 845 animals were genotyped to evaluate the heterogeneity of PRNP gene into a traditional breeding farm, prior applying the selection program for genetic resistance to scrapie. We identified thirteen PRNP genotypes in nine sheep breeds. The frequency of genotypes was as follow: ARR/ARQ (42.84%, 362/845), ARQ/ARQ (23.20%, 196/845), ARR/ARR (16.69%, 141/845), ARQ/VRQ (4.97%, 42/845), ARR/VRQ (3.43%, 29/845), ARR/AHQ (2.72%, 23/845), AHQ/ARQ (2.49%, 21/845), ARR/ARH (1.89%, 16/845), ARH/ARQ (1.18%, 10/845), ARH/VRQ (0.24%, 2/845), VRQ/VRQ (0.24%, 2/845) and ARH/ARH (0/12, 1/845). The genotypes AHQ/AHQ, AHQ/ARH and AHQ/VRQ missed in the studied sheep population.

The highest scrapie resistant genotype (ARR/ARR) is frequent in the local breeds Tigae with Black Head Breed (36.88%, 52/141), Lacaune Breed (17.02%, 24/141), Merinos breed (16.31%, 23/141) but it missed in Half breed of Milk Line of Merinos Breed.

POSTER PRESENTATIONS

Archaeozoological consideration on wild fauna changes under human impact in south-eastern Romania since Prehistory until middle Ages

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Key words: archaeozoology, human impact, wild animals.

The present analysis summarizes previous and recent archaeozoological studies in the area. In total, 34 assemblages are discussed, 13 from Neolithic, one from Hallstat, 11 from first millennium AD and 8 from second millennium AD.

The archaeozoological quantification aimed at evaluating the relative frequencies of wild mammals species in the samples. The quantification method used in this work was based on estimating the number of identified specimens (NISP).

Archaeozoological researches indicate changes in fauna spectrum over time in the Dobruđa area. Farming and hunting, sometimes excessive, from prehistoric and historic periods, resulted in reduction and fragmentation of forest areas; this phenomenon was the consequence for reducing the spread areas of large mammal species (*Cervus elaphus*, *Ursus arctos*, *Castor fiber*) or disappearance of others (*Bos primigenius*). In the prehistoric and historic periods have been reported hybridization cases of pigs (*Sus scrofa domesticus*) with wild boar (*Sus scrofa ferus*).

Identified wild mammals species are: *Cervus elaphus*, *Capreolus capreolus*, *Sus scrofa ferus*, *Bos primigenius*, *Lepus europaeus*, *Canis lupus*, *Ursus arctos*, *Canis vulpes*, *Meles meles*, *Lutra lutra*, *Felis silvestris*, *Castor fiber*, *Mustela nivalis*, *Citellus citellus*, *Vormela peregusna*, *Alces alces*, *Martes* sp., *Delphinus* sp., *Erinaceus europaeus*, *Talpa europaea*, *Lynx lynx*, *Felis leo*, *Mustela putorius*, *Phocena phocena*, *Equus ferus*, *Equus hydruntinus*, *Dama dama*.

The black vulture (*Aegypius monachus*) is a perished species nowadays from our country's fauna. At Oltina, we have the first registration of this species in an archeological site in Romania. The white-tailed eagle (*Haliaeetus albicila*) is a threatened species in Romania nowadays. Other three identified species are now protected by the law: the whooper swan (*Cygnus olor*), the white pelican (*Pelecanus onocrotalus*) and the great cormorant (*Phalacrocorax carbo*).

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Suines (*Sus scrofa domesticus* and *Sus scrofa ferus*) importance in the subsistence economy of the Bronze Age settlements from Romania

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Key words: subsistence economy, pig, wild boar, Bronze Age.

The regions of Romania that have yielded suitable Bronze Age fauna for archaeozoological analyses are: Moldavia (12 samples), Transylvania (14 samples), Banat (3 samples), and Muntenia with Oltenia (5 samples). A number of 11 assemblages of transition period (Neolithic-Bronze Age) have been also considered in this study.

This study concerns the Bronze Age cultures (including also the transition Neolithic-Bronze Age), which occupied the Carpatho-Danubian basin, on the territory of present day Romania. The study is focused on subsistence (especially the importance of suines in the alimentary economy of the studied settlements) as reflected by archaeozoological analyses.

Among the animal resources, domestic mammals constitute the majority. Animal husbandry was an important subsistence activity during Bronze Age in Romania, but wild mammal remains are still present, even if only in smaller amounts.

The domestic mammals raised were cattle, sheep, goat, pig, horse and dog; their frequencies in the archaeozoological samples vary from one period to another, as well as from one region to another, due to cultural and to local environmental factors.

In Moldavia, Muntenia and Oltenia, the settlement were more oriented toward cattle husbandry (over 60% NISP); sheep-goat is on the second place, and pig on the third (12-14%). In Transylvania and Banat, cattle is also dominant but with a lower frequency (about 46% NISP); pig is on the second place (24%), and sheep-goat on the third.

Among the wild mammals, in all settlements, the most important species are the red deer and wild boar.

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Faunistic diversity of Bulgaria

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Key words: Invertebrates, vertebrates, endemic and relict species, endangered species, non-indigenous species.

A total number of 30359 animal species has been recorded in Bulgaria. They belong to 28 types and 75 classes. The invertebrates belong to 251 orders and 1741 families, while the vertebrates belong to 165 families. The following taxa are characterized with a high species richness (over 1000 species) - types Arthropoda (24888 species) and Nematoda (1007 species), the classes Insecta (20678 species), Arachnida (2685 species) and Crustacea (1056 species) and the orders Coleoptera (6000 species), Hymenoptera (4000 species), Diptera (3500 species), Lepidoptera (2900 species) and Hemiptera (2350 species). 7 types, 17 classes and 27 orders have medium species diversity (between 100 and 1000 species). They include from 14 to 21% of all Bulgarian fauna and are comparatively well studied. 19 types, 55 classes and 218 orders have low species diversity (less than 100 species). They include from 1 to 10% of the Bulgarian fauna.

The types Apicomplexa, Microspora, Ascetospora and Nematomorpha are not very well studied (below 30%). The orders Protura, Psocoptera and Strepsiptera are the most poorly studied (from 7 to 27%). The largest orders – Hymenoptera and Diptera are also insufficiently studied (33-35%). The number of the known Bulgarian taxa has been increased by about 1380 species over the last 10 years.

The Bulgarian fauna includes 3 zoogeographical complexes and about 20 faunistic elements. The number of endemic species is about 1300. Relicts that are not endemics are about 300 and rare species – about 2690. A total of 112 species has been included in international lists of threatened species. Recently an increasing number of non-indigenous species have been introduced to the Bulgarian fauna.

Gastropod fauna of Akdağ Mountain (Isparta, Turkey)

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Key words: Gastropoda, fauna, Akdağ, endemism.

In the study, recent findings concerning the gastropod fauna of Akdağ Mountain (Isparta, Turkey) are presented. Situated between towns of Isparta and Ađlasun, the mountain has not been studied malacologically up till now. Field study was conducted in May-June of 2011. Within the study terrestrial and aquatic gastropods were determined from 26 localities, which covered entire mountain and altitudes between 893 and 1905 m above sea level. Beside the geographical coordinates and altitude, habitat data like vegetation type, together with geological and topographical notes were recorded on site.

According to the results of the study, of the identified species and subspecies (n=35) approximately one third (n=10, 29%) are endemics. All but two pulmonate aquatic species were terrestrial. The commonest taxa were *Jaminia loewii loewii* and *Metafruticicola proclivis*, both being common endemics of the Mediterranean region of Turkey. Of the other endemics of interest, *Sprattia aksoylari* was identified from Burdur Province for the first time. The order of dominant families (found as Agriolimacidae, Enidae and Clausiliidae) is rather uncommon with respect to other studied heights in the region and is a reflection of higher species richness in the mesic habitats. The area of study was observed to be affected by anthropogenic habitat disturbance, mainly caused by nomadic herders and visitors.

Study on the freshwater Mollusca fauna from the Hârtibaciu River Basin (Middle Olt River Basin, Romania), with notes on its conservation status and human impact

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Key words: species richness, communities' structure, habitats' fragmentation, bioindication.

The research area, namely the Hârtibaciu River Basin, is placed in southern Transylvania, including partially the sites of community as well as avifaunistic interest: Oltul Mijlociu - Cibin - Hârtibaciu (ROSCI0132) and Podișul Hârtibaciuului (ROSPA0100). As it is revealed in its Standard Form, one of the reasons of its designation as SCI, is the highly abundance and extended range of the naiad species *Unio crassus*, a "flagship", rheophilic species, with certain bioindication values, listed by the Annexes II and IV of the EUHSD (92/43/EEC 1992) also known as the Habitats Directive. Its discontinuous distribution along the Hârtibaciu River, supporting the gradient-analysis of the environmental quality changes, was documented by a previous research of the authors.

Based on all available information from the references, dating back to the 19th Century, on the systematics revision made in the collections from the Natural History Museum from Sibiu, as well as on field-investigations made in the last years, and especially during 2011, a check-list of all freshwater molluscs species, known up to the present, is given hereby, with data on their GPS location, present-day status, environmental quality and issues, specific habitats and trends. Up to the present 20 species of freshwater molluscs have been found or quoted in the area of interest, among them 14 species of gastropods and six of bivalves. Although most aquatic habitats are small-sized and fragmented, because of human pressure imposed especially during the second half of the 20th Century, the present area shelter remnant communities, fragments of the ancient genuine fauna. The small, scattered metapopulations and metacommunities still survive in the mosaic landscape, being representative for the Transylvania and might serve in future as potential regeneration sources. The trend of environmental conditions improvement during the last decades is also proved by dynamics of some molluscs' populations.

Morphological characterization of *Cornu aspersum maximum* Taylor, 1883 (Gastropoda: Helicidae) from Bulgaria

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Key words: Mollusca, Gastropoda, Helicidae, *Cornu aspersum maximum*.

There is no confirmation about the presence of natural habitats of the land snail *Cornu aspersum maximum* Taylor, 1883 in Bulgaria. The industrial value of this species has been increasing recently as it is being grown in specialized farms and exported abroad.

For the purposes of this morphological study, 17 sexually mature specimens were prepared, which were preserved in a 95% solution of ethyl alcohol and dissected later.

The present study attempts to present information about the above mentioned subspecies by describing its shell morphology and the anatomy of its reproductive system.

According to the morphological characteristics of its shell, this subspecies differs from the other subspecies of the genus *Helix* which live on the territory of Bulgaria. The external anatomic characteristics of the reproductive system of *C. aspersum maximum* also differentiate it from the species of genus *Helix* which justifies its classification to a separate genus *Cornu* Born, 1778.

The typical external anatomic characteristics of its reproductive system make this subspecies close to the Mediterranean representatives of family Helicidae which are inhabiting Bulgaria – *Eobania vermiculata* (Müller, 1774) as well as *Cantareus apertus* (Born, 1778) which is artificially grown here.

Data on biogeography of gastropod species *Chondrula tridens* in Southern Dobrogea, Romania

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Key works: gastropod, biogeography, oak forests.

Chondrula genus is represented by 20 species, with a geographical spread from Europe and northern Africa to Iran. Of these, in Dobrogea, two species were identified: *Chondrula tridens* O.F. Müller, 1774 and *Ch. microtragus* Rossmässler, 1839 – Euthyneura-Pulmonata, Ord. Stylomatophora, Fam. Enidae.

Chondrula tridens (Tree Tooth Bulin Snail) is European (North Mediterranean) - Turanian species. It is a air-breathing land snail, pulmonate gastropod mollusk, terrestrial and xerophilous-mesophilous species, relatively common in oak forests foliage. It is a small, brown snail, with aperture provided with three characteristic teeth, with importance in its identification (Axini, 2012 b; Skolka & Paraschiv, 2005).

The paper examines biogeographic point of view on two populations of this snail identified in Cobadin Plateau, subunit of Negru-Vodă Plateau (South-East Dobrogea). Specimens were taken from two areas geographically close (10 km distance between them), but ecologically different.

The studied region has an old Proterozoic foundation, composed of crystalline and one sedimentary supra-structure that is characterized by the existence of two types of Palaeozoic-Mesozoic and Neozoic formations (Axini, 2012 a). Here develops a temperate-continental climate, with hot, dry summers and cold winters with strong blizzards because of the movement of cold continental air from north-eastern and eastern part Europe or the Arctic air.

In the past, Cobadin Zone had extensive forests of oak (Axini, 2012 a), part of famous Forests of Deliorman (Iana, 1965). Today, mainly due anthropogenic factors, but also of the natural (eg. catastrophic floods that led to geo-morphological and geographical changes) areas are completely deforested. The presence of this species confirms the existence of vast oak forests, now extinct in Cobadin Plateau.

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Remarks on the biogeography of *Gammarus komareki* Schäferna, 1922 (Crustacea: Amphipoda), a new species for the Romanian fauna

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Key words: *Gammarus komareki*, biogeography, Romania, first record.

Gammarus komareki is an amphipod species widespread throughout the freshwaters of the eastern Balkan Peninsula, northern half of Turkey and the north-western part of Iran. Its current distribution pattern overlaps with the extent of the southern shore of the Paratethys Sea during the Oligocene and Miocene Eras, approximately 34 to 15 million years ago. Furthermore, recent molecular phylogenetic studies suggest an Early Oligocene origin of this species complex. Taking these facts into account it appears that *Gammarus komareki* has originated in the marine waters of the Eastern Paratethys realm and colonized the freshwaters from the adjacent landmasses sometimes during the Oligocene or Miocene. The phylogeny of this species complex is reconstructed and emphasized using available mitochondrial COI and nuclear 28S sequences from GenBank. Bayesian inference implemented in BEAST software was used to estimate the phylogeny of *Gammarus komareki*.

This species is also reported for the first time for the Romanian fauna. Twenty-two individuals were collected during an inventory campaign in Romania from a stream near Negureni village in south-western Dobrogea, south eastern Romania (44°06.63'N 27°46.11'E). This finding increases the number of known freshwater *Gammarus* from Romania to a total of 9 species (*G. balcanicus*, *G. fossarum*, *G. roeseli*, *G. triachantus*, *G. kischineffensis*, *G. leopoliensis*, *G. pulex*, *G. arduus* and *G. komareki*). The morphology of the Romanian specimens fits within the morphological variability spectrum of this species and is presented herein.

New records on the distribution of decapod species (Crustacea: Anomura, Brachyura) from Eastern Atlantic (Morocco) [Scientific results of “ATLAS” (2007) and “DAKHLA” (2012) expeditions]

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Key words: Morocco, Brachyura, Anomura, Dakhla.

We present the new data from two expeditions in Morocco (Atlas expedition between 11th of April and 5th of May 2007) and Western Sahara (Dakhla expedition between 15th of March and 21th of April 2012), on the coast of Eastern Atlantic. The Moroccan coast represent a junction point for the different origin of waters (Boreales, Mediterranean, Atlantic). The main collecting sites are represented by six major points, wetlands (major RAMSAR site Merja Zerga Lagoon), lagoons and intertidal areas (the northeast Moulay Bouselham with Merja Zerga Biological Reserve, Cap Sim, Sidi Kaouki, and the southeast point in Dakhla, Plage Trouke). A total of 10 genera (74 specimens) and 11 species (*Uca tangeri*, *Carcinus maenas*, *Pachygrapsus marmoratus*, *P. transversus*, *Panopeus africanus*, *Petrolisthes armatus*, *Maja squinado*, *Pisa tetraodon*, *Necora puber* and *Potamon algeriense*), belonging to 8 brachyuran families and 1 anomuran family were captured on the Eastern Atlantic coast. Many of these species are rare or of biogeographical interest and represent new records for the area. This is the first material of Anomura and Brachyura species from the Western African coast in the collections of “Grigore Antipa” National Museum of Natural History of Bucharest, Romania.

Species composition of mites of the superfamily Eviphidoidea (Acari: Mesostigmata) in main climate zones of Tehran province, Iran

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Key words: Mite, species composition, Eviphidoidea, Tehran, climate zone.

Mites of the super family Eviphidoidea are mainly predators, living in humus, litter, and other microhabitats such as dung, carrion, and have phoretic relationships with some arthropods. Through surveys on species composition of this superfamily during years 2011-2012 in orchards, green areas and parks soil of six main climates of Tehran province, Iran, 10 mite species, belonging to 5 genera and 4 families, were collected and identified as follows:

Eviphididae

Alliphis halleri (G. & R. Canestrini, 1881)

Macrochelidae

Macrocheles (Macrocheles) glaber (J. Müller, 1860)

M. (M.) merdarius (Berlese, 1889)

M. (M.) penicilliger (Berlese, 1904)

M. (M.) robustulus (Berlese, 1904)

Pachylaelapidae

Onchodellus karawaiewi (Berlese, 1920)

Onchodellus strigifer (Berlese, 1892)

Onchodellus sp.

Olopachys sp.

Parholaspididae

Holaspina alstoni (Evans, 1956)

Among the collected mites, mites of the family Macrochelidae were the most abundant specimens. Species of the families Parholaspididae and Eviphididae were found in Arid-Cool winter-Warm summer (A-C-W) and Semi Arid-Cold winter-Warm summer (SA-K-W), and species of the family Pachylaelapidae were found in Semi Arid-Cool winter-Warm summer (SA-C-W) and SA-K-W climates, while members of the family Macrochelidae were found in A-C-W, SA-C-W, SA-K-W and Semi Humid-Cold winter-Warm summer (SH-K-W) climate zones. The climate zone SA-K-W contained the highest diversity and most abundance of mite species. The species *Macrocheles (Macrocheles) merdarius* was the most abundant species, and was distributed in three climate zones including, A-C-W, SA-C-W and SH-K-W.

Fauna of Tetranychoida (Acari: Prostigmata) and their predator mites (Acari: Mesostigmata, Phytoseiidae), and survey of infestation rate on trees and shrubs in parks of Tehran, Iran

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Key words: Phytoseiidae, mite, green space, fauna, Tetranychoida, predator.

Spider mites are considered one of the major pests of green spaces, in Iran and other parts of the world, which cause severe damage to ornamental plants in Tehran. Phytoseiid mites are also known as the most important natural enemies of spider mite in many habitats.

In order to study mite pests and their natural enemies in green spaces of Tehran, sampling was performed in eight parks with five replications. They were performed on 17 host plant species after observing mite presence or signs of pest damage. Then, slides were prepared and identified. List of identified species is as follows:

Superfamily Tetranychoida:

Family Tertranychidae [1- *Eutetranychus* sp.; 2- *Eutetranychus africanus* Meyer, 1987; 3- *Tetranychus* sp.; 4- *Tetranychus ludeni* Zacher, 1913; 5- *Tetranychus urticae* Koch, 1853.]

Family Tenuipalpidae [1- *Cenopalpus* sp.; 2- *Tenuipalpus* sp.]

Superfamily Phytoseioidea:

Family Phytoseiidae [*Typhlodromus* sp.]

The results showed that the highest infestation rates to tetranychid mite were found on *Morus* sp. (23.19%), *Ulmus* sp. (21.53%), *Robinia* sp. (20.18%), and the lowest one were found on *Populus* sp. (0.15%), *Damascena* sp. and *Juglans* sp. (0.3%). *Chesneya astragalina*, *Pinus* sp. and *Crataegus* sp. showed no infection of tetranychid mites. Maximum contamination by tenuipalpid mites was found on *Platanus* sp. (59.48%), while *Ailanthus* sp. and *Quercus* sp. (0.43%) showed minimum contamination. *Acer* sp., *Populus* sp., *Damascena* sp. and *Juglans* sp. did not show any contamination. Totally, 10 plants were considered hosts of *Cenopalpus* sp. and 5 plants were considered hosts of *Tenuipalpus* sp. The highest numbers of *Typhlodromus* sp. were counted on *Morus* sp. (30.13%) and *Platanus* sp. (29.42%), and the lowest numbers of this mite were observed on *Vitis* sp. and *Ailanthus* sp. (0.68%). There was not found any phytoseiid mite on *Acer* sp., *Populus* sp., *Damascena* sp., *Juglans* sp., *Chesneya astragalina* and *Pinus* sp.

Some phytoseiid mites from orchards in Hamedan, west of Iran

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Key words: biological agents, orchards, smider mites, Hamedan.

Phytoseiid mites are important biological agents in different ecosystems. They feed on eggs and different mobile stages of spider mites and also nymphal stages of scale insects. The mites were collected from the aerial parts of trees. The specimens were mounted on microscope slides in Hoyer's medium. All specimens were examined under an Olympus BX51 microscope (DIC).

In this study 6 species of the family Phytoseiidae were collected and identified, their scientific name and hosts are as follows: *Neoseiulus barkeri* Hughes, 1948 collected from *Lepidosaphes malicolla* [Habitat: apple trees]. *Neoseiulus agrestis* (Karg, 1960) collected from two spotted spider mite, *Tetranychus urticae* [Habitat: apple trees]. *Typhlodromus (Anthoseius) iraniensis* Daneshvar & Denmark, 1982 collected from *Tetranychus urticae* [Habitat: almond trees]. *Typhlodromus (Anthoseius) khosrovensis* Arutunjan, 1971 collected from *Bryobia rubrioculus* (Scheuten) [habitat: cherry plum]; *Typhlodromus (Anthoseius) bagdarsarjani* Wainstein & Arutunjan, 1967 collected from one female, two spotted spider mite, *Tetranychus urtica* and rose leafhopper, *Typhlocyba rosae* (L.) [Habitat: almond trees]. *Kuzinellus kuzini* (Wainstein, 1962), collected from walnut leaf gall mite, *Aceria tristriatus* (Nalepa) [Habitat: walnut trees]. This survey showed that *Kuzinellus kuzini* was the dominant phytoseiid mite in fruit orchards of Hamedan and has important role in controlling *Aceria tristriatus*, and currently no need to any pesticide application to this pest, due to present of this predatory mite. At present walnut leaf gall mite is one of the major pests on the walnut trees in Hamedan orchards.

Study of species diversity phytoseiid mites associated with some medicinal plants in some parts of West and North–West of Iran

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Key words: predatory, natural ecosystem, population, two spotted spider mite.

Phytoseiidae family mites are found in different natural ecosystems e.g. medicinal plants. They have beneficial role in reduction population of Two Spotted Spider Mites (TSSM). Up to species diversity they are not studied. In order to this survey mites associated with areal part of plants including: Betony, Strawberry, Chickory, Astragalus, Mint, Falcaria, Greater plantain, Yarrow, Raspberry, Common sage, Tamarikis, Salsify and Alfalfa, in some parts of Hamedan, Kurdistan and Ardabil provinces, in 2009–2011, were collected (shaking method and Berlese funnel). All specimens were directly mounted on permanent microscopic slides using Hoyer's medium. And also the specimens were identified and examined under an Olympus BX51 microscope. In this study, the 11 species belonging 6 genera in this family are the following: *Amblyseius obtusus* (Koch, 1839), *Proprioseiopsis messor* (Wainstein, 1960), *Neoseiulus barkeri* Hughes, 1948, *Neoseiulus bicaudus* (Wainstein, 1962), *Neoseiulus marginatus* (Wainstein, 1961), *Neoseiulus sugonjaevi* (Wainstein & Abbasova, 1974), *Neoseiulus tauricus* (Livshitz & Kuznetsov, 1972), *Neoseiulus zwoelferi* (Dosse, 1957), *Paragigagnathus insuetus* (Livshitz & Kuznetsov, 1972), *Phytoseius plumifer* (Canestrini & Fanzago, 1876), *Typhlodromus (Anthoseius) tamaricis* Kolodochka, 1982.

Phytophagous mites associated with some of medicinal plants family of Asteraceae in Hamedan region

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Key word: faunestic, first record, dominate species, host range.

Medicinal plants have numerous usages in human life. Some of them were used in cure of human diseases nowadays. Numerous phytophagous agents were found on them. Their damage is considerable some year currently our faunistic information are not sufficient. In this order mites associated with aerial parts of some medicinal plants (Asteraceae) including Yarrow, Chicory, Thistle, Acanthus, Russian Knapweed, Safflower, Chamomile, Echinops, Prickly Lettuce, Artemisia, Centaurea, and Sun flower, were collected from aerial plant parts (beating over a white surface) and the specimens were mounted on microscope slides in Hoyer's medium. All specimens were examined under an Olympus BX51 microscope (DIC). In this study six species (Tetranychoidae) were collected and identified. Among them two spotted spider mite (*Tetranychus urticae* Koch) was the dominant species and widely distributed, also false spider mite. The scientific names of phytophagous mites are below:

- Tetranychidae: *Tetranychus urticae* Koch, *Tetranychus turkestani* (Ugarov & Nikolski), *Eutetranychus orientalis* (Klein), *Bryobia mirmoeyedii* Khanjani, *Bryobia praetiosa* Koch.
- Tenuipalpidae: *Aegyptobia salicicola* Al-Gboory.

Fauna of mesostigmatic mites (Acari: Mesostigmata) associated with green spaces and parks of Tehran, Iran

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Key words: Mesostigmata, mite, green space, fauna.

The order Mesostigmata contains a large, cosmopolitan assemblage of mites, which most of them are predators, with diverse variety of habitats. During the year 2011, in a faunistic survey on mesostigmatic mites in urban green spaces and parks of Tehran, several specimens were collected from leaves, soil, plant debris and leaf litter. Then, mites were extracted by Berlese-Tullgren funnel and cleared in lactophenol fluid. Microscopic slides were prepared using Hoyer's medium, and finally identified by valid identification keys. Totally, 20 species belonging to 13 genera, 10 families and six superfamilies, were identified as follows:

1. **Ascoidea:** Ascidae [*Gamasellodes bicolor* (Berlese, 1918); *G. major* Athias-Henriot, 1961; *G. minor* Athias-Henriot, 1961; *G. vulgator* Athias-Henriot, 1961].
2. **Phytoseioidea:** Family Blattisociidae [*Lasioseius* sp.]; Family Phytoseiidae [*Typhlodromus* sp.].
3. **Eviphidoidea:** Family Macrochelidae [*Macrocheles (Macrocheles) merdarius* (Berlese, 1889); *M. (M.) robustulus* (Berlese, 1904); *M. (M.) scutatus* (Berlese, 1904); *M. (M.) vernalis* (Berlese, 1887)]; Family Pachylaelapidae [*Pachylaelaps (Pachylaelaps) pectinifer* (G. & R. Canestrini, 1882)]; Family Parholaspididae [*Holaspina alstoni* (Evans, 1956); *H. orientalis* (Petrova, 1976)].
4. **Rhodacaroidea:** Family Ologamasidae [*Gamasiphis* sp.]; Family Rhodacaridae [*Rhodacarus* sp.; *Rhodacarellus* sp.].
5. **Uropodoidea:** Family Urodinychidae [*Uroobovella* sp.].
6. **Parasitoidea:** Family Parasitidae [*Eugamasus* sp.; *Parasitus* sp.; *Porrhostaspi* sp.].

Distribution of the millipede tribe Brachyiulini (Diplopoda: Julida: Julidae) with preliminary biogeographical analysis

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Key words: millipedes, distribution, phylogeny, migratory routes.

The current study provides a contemporary review of the distribution data and biogeographical affinities of the millipede tribe Brachyiulini, one of the species-richest and most diverse groups within the family Julidae. The tribe comprises around 100 species belonging to 24 (sub)genera, some of which are overlapping, or their status is still in question. The current knowledge on the group's general distribution is summarized using literature scrutiny, supported with new records resulting from the examination of museum material during the last three years. The obtained data has been used for outlining the distributional ranges of the hitherto recognized (sub)genera and species groups inside Brachyiulini. Two important regions, in terms of species-diversification, seem to emerge from the general East-Euro-Mediterranean distribution area of the tribe – The Balkan Peninsula, notably the Greek islands, and Anatolia, each of them represented by 38 and 24% of all brachyuline species respectively.

Furthermore, preliminary hypotheses about the group's area of origin and possible migratory routes are made, based on the supposed phylogenetic relationships within the tribe, and on the relevant theories of the paleogeography of its distribution area. The possibilities for using the species of the study group, considering their low dispersal abilities and weak ecological specialization, as a model for better understanding the processes of colonization and vicariance in the East-Mediterranean, are further discussed.

This study is part of the author's PhD programme aiming at revealing the phylogeny among the species of Brachyiulini and their biogeographic applications.

The Orthoptera (Insecta) from Romanian Black Sea side

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Key words: Orthoptera, Romania, seaside, faunistics.

The Romanian seaside stretches for about 245 km in the Western part of Black Sea and consists of a varied landscape, with long patches of reed and sandy dunes in North (the Danube Delta Biosphere Reserve), golfs, capes, sandy beaches and steep cliff shores towards the border with Bulgaria, in South.

The paper presents the results of our faunistical researches during 2003-2012 in 50 areas from the Romanian littoral of the Black Sea. A total of 92 Orthoptera species were identified, belonging to 52 genera and 12 families (13 Phaneropteridae, 4 Conocephalidae, 17 Tettigoniidae, 2 Bradyporidae, 1 Myrmecophilidae, 1 Mogoplistidae, 2 Gryllotalpidae, 9 Gryllidae, 3 Trydactylidae, 4 Tetrigidae, 1 Pamphagidae and 36 Acrididae). The species represent about 48% of Romanian Orthoptera fauna. The majority are Central-Asian-European elements (30%), followed by Palearctic (20%), Mediterranean (18%), Pontic and Balcanic elements (each with 10%). Only 51 Orthoptera species were registered in sand dunes and littoral sands habitats and 58 were associated with rocky high shores biotopes, while most of them were related with marshes, steppic and halophilous meadows (88 species).

Some very interesting species are known to occur on the Black Sea side and are unknown from other parts of Romania: *Tylopsis lilifolia* (Fabricius), *Phaneroptera gracilis* Burmeister, *Isophya dobrogensis* Kis, *Isophya hospodar* (Saussure), *Saga gracilis* Kis, *Gampsocleis schelkownikovae* Adelung, *Bucephaloptera bucephala* (Brunner von Wattenwyl), *Gryllotalpa unispina* Saussure, *Bruntridactylus tartarus* (Saussure), *Asiotmethis limbatus* (Charpentier), *Epacromius tergestinus* (Charpentier).

Distribution of *Pholidoptera transsylvanica* in the Romanian Carpathians (Orthoptera: Tettigoniidae)

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Key words: *Pholidoptera transsylvanica*, distribution, fragmented habitats.

Pholidoptera transsylvanica is a subendemic Orthoptera species, present in the Carpathians and the Dinaric Mountains. Its distribution ranges from the Eastern Slovakia, Hungary, Ukraine and Romania to Serbia and Croatia. Its center of distribution is represented by the Romanian Carpathians and the Transsylvanian Plateau. It is a protected species, found on Annex II of the EU Habitats Directive.

It is also a predatory, brachypterous species, living in mesophytic grasslands with tall and dense vegetation, dry shrubs and forest fringes in the mountain areas. Adults can be found from July to October. Its specific habitat is fragmented throughout its range and this represents a serious problem for the conservation of this endangered species because it can lead to population isolation and disruption of gene flow. It is important for species conservation to know the present and past distribution of the species in order to observe possible tendencies and to identify the area in immediate need of protection measures.

We found the species in 103 new distribution sites and assembled a map with both literature and original data. At present time, there are 224 localities cited for *P. transsylvanica* in the Romanian Carpathians. We also compared the known distribution of *Pholidoptera transsylvanica* before and after 1990. The general conclusion is that the species is present in numerous sites in the Romanian Carpathians, but grouped in isolated metapopulations pertaining to different mountain ranges.

New data on the water bugs fauna (Heteroptera: Gerromorpha, Nepomorpha) of Romania

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Key words: true bugs, *Aphelocheirus aestivalis*, *Notonecta meridionalis*, *Anisops sardeus*, *Arctocoris carinata*, *Microvelia buenoi*, new records.

A recent check-list of aquatic and semiaquatic true bugs of the infraorders Nepomorpha and Gerromorpha is presented. The preliminary results are based on the analysis of 101 samples by a total of 174, collected through Romania in 2011 and 2012. Altogether, based on examination of the collected material, 12 families and 50 species were identified until now (Nepidae – 2, Micronectidae – 2, Corixidae – 17, Naucoridae – 1, Aphelocheiridae – 1, Notonectidae – 5, Pleidae – 1, Mesovelidae – 3, Hebridae – 1, Hydrometridae – 2, Veliidae – 5, Gerridae – 10). Two new species for Romania are provided – *Microvelia buenoi* Drake, 1920 and *Notonecta meridionalis* Poisson, 1926. Specimens of *M. buenoi* were found in Prahova and Teleorman counties; those findings represent the southernmost records of the species in Europe, which is widely distributed in central and northern parts of Europe. Specimens of *N. meridionalis* were collected from Mehedinți and Argeș counties; a high hemelytron variability was observed. The second record of *Anisops sardeus sardeus* Herrich-Schäffer, 1849 is given, as well as the second population of *Arctocoris carinata carinata* Sahlberg, 1819 and new findings of *Hesperocorixa paralella* Fieber, 1860 and *Aphelocheirus aestivalis* Fabricius, 1803. Occurrences of 22 species, previously recorded from Romania, which did not come out until now in the study, need further confirmations. However, at least some of those species might occur, since they are nearly common in the country.

***Gerris argentatus* adults from the Danube Delta are Europe's smallest Gerrids**

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Key words: *Gerris argentatus*, Heteroptera, apterous, Europe's smallest, Danube Delta.

An apterous *Gerris argentatus* male was captured on a field trip on Busurca Canal, near the city of Sulina, in the Danube Delta, measuring only 5.1 mm from the tip of head to the last abdominal segment and being the smallest adult gerrid ever recorded in Europe. The apterous form of *G. argentatus* is also mentioned for the first time, the species being known either macropterous or micropterous.

A large macropterous male, measuring 6.77 mm was also sampled in a different habitat from the Busurca Channel, its size exceeding the known measurement for the species. Five females of the species were sampled in the two investigated habitats, all measuring under the 7.5 mm documented for the species, the smallest having only 6.75 mm in length.

The results led to the conclusion that the Europe's smallest population of *G. argentatus* might be inhabiting this area. The species seems to have specific habitat preferences, occupying the only two stations out of the nine investigated where *Hydrocharis morsus ranae* was present.

***Agramma laetum* (Fallen, 1807) and *A. confusum* (Puton, 1879)
(Heteroptera: Tingidae) in Romania**

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Key words: lace bugs, new records, Palearctic, true bugs.

Tingidae is a rather large family in the suborder Heteroptera containing approximately two hundred species in Europe. In Romania the lace bugs are not too well studied and the new data on this group are very scarce.

The purpose of this study is to show some preliminary results regarding the status and distribution of two lace bugs in Romania.

The *Agramma* genera is represented in Romanian fauna only by two species (*A. minutum* and *A. atricapillum*) of ten cited in Europe in the last Palearctic monograph (Aukema & Rieger, 1996) although some old records of other species exist (Sienkiewicz, 1964).

In May 2012 four specimens (2 ♂♂ and 2 ♀♀) of *Agramma* (*Agramma*) *confusum* (Puton, 1879) were collected with the sweep net in Cefa Nature Park. The species is recorded after almost one hundred years in Romania, confirming the old records and its presence here.

Agramma (*Agramma*) *laetum* (Fallen, 1807) is very similar to the previous one, being considered for almost seven years synonyms (Golub, 1990). In Romania this species has three records although it's a northern species (Stănescu, 1997).

Our preliminary investigations showed that *A. confusum* is certainly present in Romania and that low altitude records of *A. laetum* may be misidentified as *A. confusum* although the presence of *A. laetum* in Romania is plausible at higher altitudes and other three species may be present as well (*A. fallax*, *A. tropidopterum* and *A. blandulum*) (Péricart, 1983).

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New data to the knowledge of ground beetles (Coleoptera: Carabidae) from the Dobrogea region and the Danube Delta Biosphere Reservation

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Key words: Carabidae, pitfall traps, Danube Delta, Dobrogea, new records.

Due to the geographic position, climatic influences and the unique habitats, Dobrogea region and the Danube Delta Biosphere Reservation are a biodiversity hot spot for Romania, especially for the entomofauna, with many new species described for Romania and to science (Nițu, 1998; Sama et al., 2010; Rákosy et al., 2012).

The aim of the study was to contribute to the knowledge of ground beetles community structure from the SE region of Romania. Individuals were captured, in July 2010, using three different methods: Barber pitfall traps, active for 10 days in two locations, Agigea and Macin National Park (Dobrogea), light traps and manual collecting, using a leaf aspirator, near Sf. Gheorghe locality (the Danube Delta Biosphere Reservation). From the data collected, we identified 37 species belonging to 25 genera, from which 24 in the Danube Delta Biosphere Reservation and 16 from Dobrogea region. Only three species were common for both regions: *Pseudophonus rufipes*, *Pseudophonus griseus* and *Harpalus tenebrosus*. The following species: *Mastax thermarum*, *Laemostenus punctatus*, *Calosoma denticole*, *Pterostichus leonisi*, *Amara saphyrea* and *Syntomus pallipes*, may be new for these regions because of the habitat preferences (halophilous) and the actual European distribution. We did not find available literature that may attest their presence in this region.

Our results are rather remarkable, and enforce the statement that these regions are a biodiversity hot spot. Moreover, we managed to sample a higher number of species in a short period of time, than other studies from Romania, which had longer sampling periods from a few months to years (Talmaciu & Talmaciu, 2005; Huidu, 2010).

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Population structure of pest beetles *Tatianaerhynchites aequatus* L. (Coleoptera: Rhynchitidae) in the Republic of Moldova

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Key words: population structure, *Tatianaerhynchites aequatus*, Republic of Moldova.

The leaf-rolling weevils *Tatianaerhynchites aequatus* L. is an important pest of fruit trees (plum, cherry, apricot, apple, rarely of pear) in Europe and Republic of Moldova inclusive. Determining the population structure of species has important management implications especially when these become significant pests and when candidate biocontrol agents are specialized on biotypes. To estimate gene flow and examine the genetic structure of *Tatianaerhynchites aequatus* L., we sequenced a 739-bp fragment of the mitochondrial DNA COI (cytochrome oxidase I) gene in 42 individuals from 11 localities from Moldova, Romania and Ukraine. Eleven haplotypes were found, with one haplotype present in every locality and represented by 30% of all individuals. Percent divergence among populations ranged from 0.001 % to 2.0 %. The mean nucleotide diversities value was $\pi = 0.013747$ and base frequencies were as follows: (A) 0.296, (T) 0.372, (C) 0.175, and (G) 0.157. This distribution of nucleotide frequencies is characteristic to other beetle species. The transition/transversion ratio was estimated as 6.981 (k_1) and 4.008 (k_2). Analysis of molecular variance showed significant genetic structuring and restricted gene among populations. The most abundant haplotype contained specimens from five localities belonging to the central part of Moldova; the second most common haplotype corresponds to insects sampled from four localities in south-eastern part of Moldova and Ukraine. The third most common haplotype was found in the central and northern region of Republic of Moldova and Romania. Local populations of the leaf rolling are disjunctive, due to the geographical position of the republic at the crossing point of three biogeographical zones (Central European, Euroasiatic and Mediterranean). These results indicate that genetic flow of material on the investigated territory is influenced by Balkan region and the elements of the Asian continental steppe and the European forest steppe zone.

***Remus sericeus* Holme and *R. filum* Kiesenwetter (Coleoptera: Staphylinidae) present on the Black Sea coast of Romania**

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Key words: Staphylinidae, Black Sea coast, collection.

Genus *Remus* Holme belongs to subfamily Staphylininae, tribe Staphylinini, subtribe Philonthina, being recognized by the isodiametric microsculpture of the head and pronotum. At worldwide it is represented by four species: *Remus corallicola* Fairmaire, *R. filum* Kiesenwetter, *R. pruinosis* Erichson and *R. sericeus* Holme.

Based on the material collected in September 2012 from the Black Sea coast, in Romania there are certainly present two species: *Remus sericeus* and *R. filum*. First and the single mentioned of *Remus sericeus* was in 1887 by A. L. Montandon from Mangalia and Constanța. *Remus sericeus* has a large distribution (coast area of Europe, North of Africa, Australia and South America), while *Remus filum* is known from the coast area of Bulgaria, Croatia, France, Italy, “Black Sea”, Egypt, Libya, Tunisia and Cyprus.

Remus filum is slender comparative with *Remus sericeus* and the morphology of the antennae, maxillary palpi, pronotum, male sexual characters differentiated them.

These two species were collected from sandy deposits with algae and marine organic matter in decomposition on the Black Sea coast.

The species are new for the Coleoptera Collection of the “Grigore Antipa” National Museum of Natural History.

New or little known Macrolepidoptera (Insecta) in the Romanian fauna

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Key words: Macrolepidoptera, new records, Romania.

The data presented include two species that are reported for the first time in Romania, as well as others that are considered national or regional faunistical rarities.

Protarchanara brevilinea (Fenn, 1864) (Lepidoptera: Noctuidae). First record for the Romanian fauna. Material: Tulcea County, Cetatea Enisala, 30 m, 44°53'N, 28°50'E, 15.VI.2012, 1 ♂, leg. L. Székely & P. Gyulai (det. P. Gyulai). The presence of this species in Romania is quite surprising. Until now it was known especially from northern Europe and Asia: British Isles, Denmark, Sweden, the Netherlands, Finland, Germany, Latvia, Lithuania, Estonia, and Russia (Volga and Don, the Caucasus, Southern Urals, South-Western Siberia, Transbaikalia and Amur Region). The moth flies in one generation from middle June to August. The larvae feed on *Phragmites*. Is a species usually confined to steppe and salt steppe marshes. More recently it was also found near Vadu (Constanța County) close to the Black Sea coast (S. Kovács pers. comm.). The populations currently known from Dobrogea are the southernmost in Europe.

Scopula immistraria beshkovi Gelbrecht & Hausmann, 1997 (Lepidoptera: Geometridae). First record for the Romanian fauna. Material: Mehedinți County, 0.5 km SE of Gura Văii, 44°66'N, 22°55'E, 160 m, 4.VI.2011, 1 specimen (foto C. R. Papé) (det. A. Hausmann). Prior to 1995 the species was known only from Asia: *Scopula immistraria* Herrich-Schaffer [1852] (locus typicus: Elisabethpol = Kirowabad, Azerbaidzhan) distributed in Transcaucasia, Iran, Asia Minor and Jordan. In 1995 it was recorded for the first time from the Balkan Peninsula, namely from NE Bulgaria near the Black Sea coast. The Bulgarian populations differ from the nominate species in external appearance and male genitalia (Gelbrecht & Hausmann, 1997). In Bulgaria it is known from only two areas: Pobitite kamani near Varna (type locality) and Russenski Lom Park, Ivanovo and Tabachka. In these areas the species is not rare, flying during the day and also coming to light. The adults appear in two generations in May-June and August-September (S. Beshkov pers.com.).

Pyrgus sidae (Schneider, 1792) (Lepidoptera: HesperIIDae). Material: Covasna County, Ariuşd, Ciocaş hill, 500 m, 45°47'N, 25°46'E, 22.VI.2012, 1 ♂, leg. S. M. Stanciu. It was known in Romania only from Dobrogea and the Transylvanian Plain. This is the first record for south-eastern Transylvania.

Eutelia adulatrix (Hübner, 1813): (Lepidoptera: Noctuidae). Material: Vrancea Mountains, Cheile Tişitei, 700 m, 45°93'N, 26°59'E, 21.VI.-12.VII. 2011-2012, 6 specimens. This species is known especially from the south of

Romania (Dobrogea and Banat). Its presence in the Vrancea Mountains is rather unexpected.

Noctua haywardi (Tams, 1926) (Lepidoptera: Noctuidae). Material: Mehedinți County, 0.5 km SE of Gura Văii, 44°66'N, 22°55'E, 160 m, 4.VI.2011, 1 ♂ (foto C. R. Papé). Reported in 2002 for the first time in Romania (Székely & Stanciu, 2002). It is a West-Asian element, distributed in the Balkan Peninsula (Greece, Bulgaria, Croatia, and Macedonia), the south of Hungary, Crimea, Cyprus and the western parts of Turkey. The record of Gura Văii represents the second locality known in Romania.

Gortyna cervago Eversmann, 1844 (Lepidoptera: Noctuidae). Material: Constanța County, Allah Bair hill-Băltăgești, 200 m, 44°29'N, 28°13'E, 7.X.2012, 1 ♀. In Romania, this species is especially found in areas near Black Sea coast. The current report represents the westernmost locality known in Romania.

Polymixis rufocincta Geyer, [1828] (Lepidoptera: Noctuidae). Material: Constanța County, Gura Dobrogei, 44°28'N, 28°31'E, 40 m, 5.X.2012, 1 ♀; Constanța County, Allah Bair hill-Băltăgești, 200 m, 44°29'N, 28°13'E, 7.X.2012, 1 ♂. These records represent the first data for Central Dobrogea.

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Contributions to the study of fish fauna diversity in the port of Constanța and Agigea (Romania)

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Key words: cartilaginous fish, bony fish, ichthyofauna diversity, Black Sea, threatened species.

Both cartilaginous and bony fish stocks are depleting worldwide and the Black Sea is no exception due to natural and anthropogenic factors.

The goal of the present study is to make a fish species inventory, to evaluate populations' size, conservation status, geographic distribution and to identify breeding areas.

The observations were made between 09.09.2011 and 29.09.2012 on shark and bony fish species caught in 13 sites both from shore and off-shore two main areas: the inner port of Constanța-Agigea and in the vicinity of Constanța, using fishing equipment such as rods, baited lines and nets. Afterwards fish were identified, measured and a distribution map of the species was plotted.

23 species included in 7 orders and 19 families of Chondrichthyes and Osteichthyes were identified.

The individuals were found in adult and juvenile stages.

The results revealed the importance of the port area for the development of juveniles belonging to a variety of species.

The highest diversity was noticed in the port area due to the specific characteristics of the habitat: food sources, shelters, temperature, depths, substrate types, currents and predators. In the port area improperly treated residual waters, oil products and garbage are discarded and invasive species, like *Rapana venosa*, have a destructive influence of the environment.

Gobius niger, *Neogobius melanostomus*, *Liza aurata*, *Alosa immaculata*, *Pomatomus saltatrix*, *Trachurus mediterraneus ponticus* and *Parablennius sanguinolentus* were the most frequent species and among them *Neogobius melanostomus* was the most abundant.

Dasyatis pastinaca, *Gaidropsarus mediterraneus*, *Gasterosteus aculeatus aculeatus*, *Sarda sarda*, *Psetta maxima maeotica*, *Platichthys flesus luscus*, *Symphodus cinereus* were the least frequent species. *Sarda sarda* was the rarest.

Alosa immaculata, *Liza aurata*, *Platichthys flesus luscus*, *Pomatomus saltatrix*, *Sarda sarda*, *Psetta maxima maeotica*, *Mesogobius batrachocephalus* are classified as nearly threatened by the Commission on the Protection of the Black Sea Against Pollution and are listed in OUG no. 57/20.06.2007 (Annexes, 3, 5 A and 5 B).

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New data concerning the bird migration over the Black Sea

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Key words: bird migration, Black Sea, Via Pontica, migration routes.

Bird migration signifies a regular return movement of birds each year between separate breeding and wintering areas (Newton, 2010). Bird migration over the Black Sea has not been studied properly, scarce data being available mainly by work of Drost (1930) thus referring only to the birds from Snakes Island, and some new data collected from offshore oil platforms (Cârnat, 2006) or research vessels. The study of migration over large water bodies is a very difficult task, due to the difficulty of reaching these areas.

Our data were collected from 6 to 14 April 2008 in the framework of international scientific Expedition SESAME (Southern European Seas: Assessing and Modelling Ecosystem Changes), on the *Mare Nigrum* research vessel, of the National Research and Development Institute for Marine Geology and Geoecology GEOECOMAR from Bucharest, at distances ranging from 5 to 290 kilometers from the western shore of the Black Sea, in April 5th, 2011 on offshore oil platforms in Romanian territorial waters, and from 12 to 14 April 2012 at about 100 kilometers south of the Crimea Peninsula.

Our data together with previously published information provides a new insight into bird migration routes over the Black Sea. Pontic Route, Via Pontica, European-Asian-African Route are established migration routes, but with little information regarding species present, species abundance and specific routes. Our work aims to bring to light new data on species and bird migration routes.

Two main routes could be distinguished: a route parallel to the West coast of the Black Sea, up to about 50 kilometers from shore, and a route that connects the Strait of Bosphorus of Crimea Peninsula, over 200 kilometers away from the western shores of the Black Sea. Eight species of birds have been observed and photographed, among them the common crane, white stork, long-eared owl and the common kestrel.

The aim of the work is to have a clear image of this phenomenon in this context, such data are important for management and conservation of migratory birds, some of them entering under the incidence of the Convention AEW/ Haga/1995 (The Agreement on the Conservation of African-Eurasian Migratory Waterbirds) or The Birds Directive (Directive 2009/147/EC on the conservation of wild birds).

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New data regarding Black Stork (*Ciconia nigra* L., 1758) nesting in the south-west of the country (Dolj County Romania)

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Key words: Black Stork, nesting, Dolj County, Romania.

Although it is counted among the most important species for the biodiversity, the Black Stork (*Ciconia nigra* Linnaeus, 1758) has an insufficiently well-known areal in our country, and the data about its nesting are few and wide-spread. This is the reason we consider that coming up with new observation concerning the nesting and residence areal of this species has a significant contribution to better knowing its biology, dynamics and distribution in our territory.

In South-West Romania the presence of the Black Stork was mostly recorded in the Danube alluvial plain, especially in the wetlands between Calafat and Jiu, where the Black Stork is frequently seen, but not so numerous. The most significant numbers were recorded during the autumn migration (Ridiche, 2012). Direct observations about the nesting of this species were made by Găină (1981), in Braniște/Stejaru forest located 3 km North from Bistreț village (Dolj County). Other recordings regarding its nesting in the South-West region of the country belong to Papp & Fântână (2008), and Munteanu (2009), but the data are few and without details of the exact location of the nests.

Starting April 16th, 2012 we have made observations regarding a pair of Black Stork which has made its nest at approximately 2 km South of Murgăși village (Dolj County). The nest was located in a tall oak tree at the edge of a broadleaf forest. From June 1st to the middle of July we observed tree juveniles and just one adult. At the beginning of August the nest was empty, and in September 19th we recorded the last observation of one juvenile.

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Monitoring of bat's fauna from the Ponorici-Cioclovina Karstic System in Şureanu Mountains (Romania)

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Key words: caves, bat species, hibernation, ossuary.

The present paper is the result of one great study regarding the bat populations sheltered in four caves (Ponorici, Cioclovina with Water, Dry Cioclovina and Cioclovina 2) from the Ponorici-Cioclovina Karstic System, about more than 10km length (Breban et al., 2003). We present our observations done during ten years 2002 – 2012, including one complete revision of other researchers' studies (Gheorghiu et al., 2009). Our efforts followed especially the wintering bats colonies and the microclimate's conditions inside the investigated caves. We present analyses regarding the breeding and matting colonies, but also information on three new important ossuaries discovered there.

We brought information regarding the dynamic of sheltered bat colonies, including the species' ecology for bats like *Rhinolophus ferrumequinum*, *Rhinolophus hipposideros*, *Myotis myotis/oxignathus*, *Plecotus austriacus*, *Myotis nattereri*, *Myotis daubentonii* and *Nyctalus noctula*.

Through the ossuary's discovering, we proved out the existence of one true "cemetery" for the species *Nyctalus noctula* in the cave Cioclovina with Water (Dumitrescu et al., 1962-1963). This bat species is present in the cave only during the nursery time and the cause of the very high mortality rate recorded every year remains unknown.

Our ten years study demonstrates the constant presence of these bat populations (*Rhinolophus ferrumequinum*, *Rhinolophus hipposideros*, *Myotis myotis/oxignathus*) in the investigated cave system and permitted us to assess the evolution of the bat populations under specific conservation measure inside the Dry Ciclovina Cave starting from the 2004.

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Preliminary data on bats' population (Chiroptera) after one year monitoring program in two sites of the Constanța County (Romania)

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Keywords: bats, monitoring, wind farms, impact.

Since August 2009 till July 2010 we have done a monitoring program on the bats' populations present in two sites from Constanța County: ROSPA0001 Aliman-Adamclisi and ROSCI0071 Deleni-Șipote. We follow the bats' presence during the mating season (August-September), in the autumn migration to their hibernating roosts (September-November), in the spring migration to the summer shelters and breeding colonies (March-June) using specific methodology based on ultrasounds' analysis (Rodrigues et al., 2003; Russo & Jones, 2002).

The fieldwork studies followed to evaluate the bats' diversity and to estimate the bats' population present inside and in the neighbourhoods of the investigated sites. We have done researches in five different habitats: woodlands, grasslands, agricultural fields, natural and artificial shelters, inside villages (Pietreni, Abrud, Hațeg, Peștera, Adamclisi, Șipote, Deleni, Urluia, Dumbrăveni, Rasova, Floriile, Băneasa – Canaraua Fetei).

We identified an important spring migration route used by bats (*Nyctalus noctula*) inside the future wind farm Aliman – Adamclisi, in the area of the road Adamclisi-Abrud. The bats' diversity (20 species) and their population in the area are relevant. For this reason, we assess a very high impact of the wind farms on the bats during turbines' working. The collision risk is higher on bats because these mammals don't develop the avoidance behaviour that we know for birds (especially for the species with very high flying during spring and autumn migration times) (Hötker et al., 2006).

We consider that it will be absolutely necessary a permanent monitoring of bats' population and propose some measurements to reduce the wind farms' impact: take off 99 turbines from the actual project location, to stop some turbines' working during the migration time and to create some tampon areas inside the hunting suitable habitats for bats.

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Study regarding the bat communities (Mammalia: Chiroptera) from Făgăraș Mountains (Romania)

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Key Words: bat detector, habitats, altitudes, Făgăraș Mountains, bat species.

The aim of this study was to identify the bat species from Făgăraș Mountains, their potential shelters and preferences for different types of habitats. Using a bat detector authors performed a total of numbers of 536 recordings from 88 stationary points, which resulted in 391 determinations and a total number of 8 transects. The sonograms were computer analyzed using Batsound software. In the area were registered 5 crossingcorridors, 14 feeding areas and 2 shelters.

The 22 identified species are: *Nyctalus noctula*, *Pipistrellus pipistrellus*, *Eptesicus nilsonii*, *Myotis daubentonii*, *Barbastella barbastellus*, *Eptesicus serotinus*, *Myotis bechsteinii*, *Nyctalus leisleri*, *Pipistrellus pygmaeus*, *Vespertilio murinus*, *Myotis brandtii*, *M. mystacinus*, *M. nattereri*, *Nyctalus lasiopterus*, *Pipistrellus kuhlii*, *Miniopterus shreibersii*, *Rhinolophus hipposideros*, *Myotis myotis / oxignathus*, *M. emarginatus*, *Pipistrellus nathusii*, *Plecotus auritus*, and *P. austriacus*. Given all the examined transects, it is noted that the species *Nyctalus noctula* and *Pipistrellus pipistrellus* are common throughout the study area. These species are present in all habitat types and at varied altitudes. The genus *Myotis* is mainly associated with habitats with deciduous and mixed forests habitats found in the vicinity of rivers, with the exception of *Myotis bechsteinii* encountered at altitudes greater than 1500 m, in coniferous forests. *Barbastella barbastellus* was recorded mainly in deciduous forests being identified even at an altitude of 2043 m. *Eptesicus nilsonii* had a significant activity in 4 of the 8 transects. Preferred habitats are mixed and coniferous forests at 2043 m altitude, been seen hunting near lakes and light poles.

Morphometric separation of pig (*Sus scrofa domesticus*) and wild boar (*Sus scrofa ferus*) remains identified in sites of the second millennia AD from Dobrudja (Romania)

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Key words: pig, wild boar, metrical data, variability.

The study represents a comparative morphometric analysis of pig (*Sus scrofa domesticus*) and wild boar (*Sus scrofa ferus*) remains discovered in archaeological sites from Dobrudja (Oltina, Piatra Frecatei, Dumbraveni, Harsova, Isaccea and Capidava), dating from the second millennia AD. The purpose of this study is to reveal differences between wild boar and pig, in terms of metric variation patterns.

Measurements were made mainly on following anatomical elements: radius, humerus, tibia, metacarpus, metatarsus, pelvis and lower third molar (M_3). The descriptive analysis was carried out separately for each analyzed variables. We described the variability using coefficient of variation (CV%). Differences among pig and wild boar size from different populations were determined by Principal Components Analysis. Our results reveal that the lower third molar (M_3) and the pelvis are the best anatomical elements for discrimination between pig and wild boar. The length of the M_3 ranges as followed: 29.3-32.2 mm (pig) and 40-49 mm (wild boar). The width of M_3 : 12-15 mm (pig) and 17-22 mm (wild boar). For the pelvis a great discrimination between the domestic and wild forms is the length of the acetabulum: 28-30 mm (pig) and 40-51 mm (wild boar).

This study was supported by the Romanian research programs CNCS – UEFISCDI PN-II-RU-TE-2011-3-0146 and POSDRU/89/1.5/S/49944.

Distribution of the Romanian hamster, *Mesocricetus newtoni* (Rodentia: Cricetidae): case study using MaxEnt and GIS techniques

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Key words: Dobrodja, mammals, MaxEnt, ecological modeling, *Mesocricetus newtoni*.

The Romanian hamster (*Mesocricetus newtoni*) is one of the least studied mammals of Europe. Its distribution range is restricted to the right side of the Danube River in south-east Romania and north Bulgaria (Wilson & Reeder, 2005). However, its distribution in this area is poorly known.

The aim of the study is to get a better understanding on the distribution of this elusive species using ecological modeling techniques.

Our analysis is based on 37 known distribution points (20 from Romania and 17 from Bulgaria) collected from literature, museum collections and personal data of the authors.

We used MaxEnt 3.3.3k (Phillips et al., 2006) and the standard package of bioclimatic variables available at www.worldclim.org to model the potential distribution of *Mesocricetus newtonii*. The data was split in 2 sets, 75% of points used for training and 25% for testing the model. Variables that lowered the fit of the model or had less than 1% contribution were eliminated. The model was run using auto features, 10% percentile threshold and was evaluated based on AUC and omission rates. The logistic model output was converted to floating raster in ArcGIS 9.3 and reclassified for ease of interpretation.

Distance analysis was conducted in ArcGIS 9.3 using the known distribution points and a reclassified cost raster which accounted for the following features: elevation (digital elevation model), slope, eco-regions, large rivers and lakes, human footprint and suitability classes from the potential distribution model.

The resulting map provides new data on potential habitat for the species and movement range constrained by landscape and anthropogenic factors.

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A cytogenetic study in four species of Dorcadionini from Spain and Greece (Coleoptera: Cerambycidae)

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Key words: chromosomes, Cerambycidae, cytotaxonomy.

Cytogenetic data on four species of Dorcadionini from Spain and Greece are presented. There are no previous cytogenetic studies on the genus *Iberodorcadion* Breuning or on any of the four mentioned species. In *Iberodorcadion* (*Hispanodorcadion*) *hispanicum* (Mulsant) and *Iberodorcadion* (*Hispanodorcadion*) *ghilianii* (Chevrolat) from Spain, Sierra de Guadarrama mountain range, a karyotype with $2n = 24$ (male meioformula $11 + Xyp$) was found similar to the karyotype of *Dorcadion* (*Pedestredorcadion*) *tuleskovi* Heyrovsky and *Dorcadion* (*Carinatodorcadion*) *aethiops* ssp. *majoripenne* Pic from Mountains Olympus and Vermio, Greece. The studied species have a very similar chromosomal complement, interspecific differences consisting only in centromere position on some chromosomes. Based on centromere position and size, the chromosomes were divided into three groups: the first group (I) is represented by three pairs of large chromosomes, the second (II) is formed by two pairs of metacentric chromosomes, those in the second pair evidently smaller, while the third group (III) has six pairs of small submetacentric and acrocentric chromosomes. The X chromosome also belongs to this group and heterosomes are the smallest elements in the entire chromosomal set. The new data together with our previous research highlight the utility of cytogenetic studies in the systematics of the tribe Dorcadionini.

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An argument for the adoption of Opitz's Cleridae classification system and its influences on the Romanian taxa systematics

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Key words: Cleridae, subfamilies, Anthicoclerinae, Neorthopleurinae, *Allonyx*, *Dermestoides*.

Until now, the systematics of Cleridae varied across the views of different authors. The continuous growth of the number of newly described taxa imposed their division into subfamilies, based on different interpretations of their external morphology. Excepting the creation of Dieropsinae (actually synonymised) and the raise of Thaneroclerinae to the family-rank, the composition of the subfamilies remained mostly the same. It was proposed a classification system (Opitz, 2010), based on more than 40 years of experience on this group, who splits the family into 12 subfamilies, which is more phylogenetically accurate.

The changes involving the nomenclature principally does not affect the Western Palaearctic, nor the Romanian taxa, in the last case with two exceptions: the moving of *Allonyx* to the Anthicoclerinae and of *Dermestoides* to the Neorthopleurinae subfamilies.

As this is a review article, only the opinions of the author concerning the discussed hypothesis will be presented. After a short historical background concerning the nomenclature, morphology and the distribution, it will be argued the acception of this new classification system and its application to the Romanian fauna, also explaining the bases of the changes concerning the Romanian genera.

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Collections and jurassic fossils from Canaralele Hârșovei (Dobrogea, Romania)

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Key words: Hârșova, fossils, Collections, Jurassic.

“Canaralele Hârșovei” (Cliffs of Hârșova) which represent the rocky banks of the Danube situated in the West of Central Dobrogea, open carbonatic platform deposits of Middle and Upper Jurassic, which are sources for rich fossil collections containing: ammonites, corals, sponges, bivalves, gastropods, belemnites, echinides, crinoides and brachiopodes.

Collections have a history that began in the 19th century, when Victor Anastasiu made the first geological studies and systematically collected fossils from this region, some of them being preserved today in the Collection of the National Museum of Geology (NMG – 29 species / 35 pieces). They were presented in his PhD thesis (1898). V. Cotovu, a passionate professor of Hârșova collected a large number of fossils displaying them in a small museum in Hârșova. Later on, Ion Simionescu elaborated stratigraphic and paleontological studies referring to this region, analyzing the fauna collected by Professor Cotovu, partly taken to the Laboratory of Geology of the University of Iași. Ion Simionescu had the most important collection (totaling 221 species / ~ 600 pieces) which was divided into three parts, for three museums: UAIC - Iași, NMG – Bucharest and Carsium Museum – Hârșova. Fossils in this collection have been carefully analyzed and published (Simionescu, 1907, 1909). Later another detailed study conducted in the region by Aurelia Bărbulescu (1974), initiated a new collection (88 species / > 500 pieces) hosted by the Museum of Paleontology Laboratory of the University of Bucharest.

In the last 30 years another passionate teacher of the region, Victorița Nicolae collect a large number of fossils (>400 specimens), currently studied by the authors within the project ERCIP. The collection, which is called by the name of the collector, will remain in Carsium Museum of Hârșova.

Among the important fossils described in the region there are: *Arisphinctes cotovui* (Simionescu, 1907); *Perisphinctes topalensis* Simionescu, 1907; *Perisphinctes dobrogensis* Simionescu, 1907; *Perisphinctes romanicus* Simionescu, 1907; *Perisphinctes carsiensis* Simionescu, 1907; *Terebratula dobrogiaca* Simionescu, 1909; *Terebratula topalensis* Simionescu, 1909, as representative species of this region with stratigraphic significance, to which other species of invertebrate groups have to be added. We need to mention the fact that, within this collection, some ammonites and some sponge specimens are presented either in a large format or in a special state of preservation.

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Labridae (Osteichthyes) from “The Turnu Roşu (Romania) Eocene Limestone” Reserve

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Key words: teeth, Labroidae, Upper Eocene, Limestone, Turnu Roşu Romania.

The present study is focused on fossil teeth of the family Labroidae. The teeth studied belong to the paleontological collections (Richard Breckner's Collections) of the Natural History Museum of Sibiu, from the Turnu Roşu (Sibiu) limestone.

The Eocene fossil fauna from Turnu Roşu (Sibiu) drew the researchers' attention since the late 18th century. The members of the Transylvanian Society of Natural Sciences, founded in 1849 in Sibiu, were the most active in studying the fossil area Turnu Roşu (Porceşti). They pointed out the importance of this habitat not only through the variety of the palaeofauna but also for palaeogeographical reconstructions of the Eocene stratigraphy of the southern Transylvanian Basin.

The identification of the family Labroidae species even at the genus level posed difficulties since the studied teeth are isolated, rather than part of dental apparatus. The main criteria for diagnosis were the morphology of the teeth and the stratigraphical age of rock horizons where the teeth were found.

The first observations on the presence of fish remains (teeth) belonging to the Labridae family, in the limestone in Turnu Roşu (the teeth studied in this paper belong to the same outcrop) were made by Dica (2003) and assigned to the *Lachnolaimus multidentis*. The Eocene pharyngeal teeth were illustrated and described by Şuraru et al. (1980), as within the Limestone from Cluj, as belonging to *Nummopalatus cf. multidentis* (Munster). In this study we illustrate and describe *Lachnolaimus* pharyngeal teeth from Turnu Rosu for the first time. Six pharyngeal dental apparatus studied in this paper are referable to *Lachnolaimus multidentis* (Munster, 1883) and ?*Lachnolaimus* sp.

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Animal fossil collection of Dr. Fawaz Azki Geological Museum

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Key words: fossils, collection, museum.

Dr. Fawaz Azki Geological Museum is located to 20 km from the Lattakia Town, Syria, in Kismin Village. It is the only private museum of geology in Syria, arranged in grandparents' house of Syrian geologist.

Museum houses a beautiful collection of invertebrate and vertebrate fossils, collected and classified, on the whole territory of Syria from 2002 to present. Species are based on numerous researches on palaeo-biodiversity and palaeo-ecology of Syria.

Here, especially a dinosaur collection stands that includes eggs and adult specimens of herbivorous dinosaurs of 7 m high and of 23 m long, carnivorous dinosaurs of 3 m high and of 5 m long, and bird dinosaurs 4 m long.

Museum also contains collections of minerals and rocks (sedimentary, magmatic and metamorphic), a collection of stone tools used by prehistoric Syrian people, a library including more than 1000 scientific papers and numerous geological maps, and a research laboratory.

Museum, opened to the public, is a scientific and cultural institution and touristic place with international fame, included in the UNESCO list.

Considerations regarding shallow waters benthic biocoenoses composition from mobile substratum in the southern Romanian Black sea coast

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Keywords: Black Sea, benthos, invertebrates, ecological analyze.

The Black Sea suffered a wide range of transformations in recent decades. They have left their mark on both flora and fauna composition of the Black Sea. The coastal ecosystems from the Romanian shore were one of the most influenced zone and the benthic communities have had to adapt to the new conditions.

The aim of this paper is to offer a view of the endopsammic benthic communities from Constanta, Agigea, Eforie Nord and Eforie Sud during 6 months, between the autumn, winter (2011) and early spring (2012), after a winter with hard conditions, and very low temperature when the shallow waters froze to bottom.

Quantitative samples were collect from middlittoral and infralittoral zone from south sector on mobile substratum using a Van Veen bodengreiffer, with an evaluate surface of 256 cm² from a depth between 80 – 100 cm.

The paper presents a qualitative (percent composition) and quantitative analyze (α Diversity, Average Density D_{avg}, Constancy - F%, Dominance - D%) of invertebrate populations for all 21 taxa (belonging to Nematoda, Gasteropoda, Bivalvia, Polychaeta, Amphipoda and Isopoda) found in the researched zones, in connection with variation of local ecological conditions.

Among other macro invertebrates, living specimens of *Donax trunculus* and *Donacilla cornea* were found in Eforie Nord samples, which can be regarded as signs of revival populations of these species, questioned in previous decades.

Comparative researches on the structure of epigeal fauna in two types of natural ecosystem at Poiana Sărată (Bacău County, Romania)

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Key words: epigeal, invertebrates communities, deciduous forest, meadow hay.

Researches regarding epigeal invertebrates' communities were carried out in the year 2011 in two types of natural ecosystem from Poiana Sărată (Bacău County, Romania): deciduous forest, and meadow hay. The first one is located on the left bank of the river Halos and the second one is on the right bank of it.

This paper aims to assess the taxonomic structure of both habitats in ecological context.

The biological material was sampled regularly during 2011, by using Barber traps, from the different types of sampling sites: from the middle part of the slope and from the base of the slope in deciduous forest, and from different distance from the river in the meadow hay.

An amount of 8484 invertebrate individuals belonging to 8 classes and 17 orders was sampled in both ecosystems, with an unequal numerical distribution: 5702 individuals in deciduous forest and 2782 individuals in the meadow hay. Insect class is dominant in all of the sampling sites.

Analyzing the biological material we found that in the deciduous forest, in the middle part of the slope, the dominant insect order is Coleoptera (54.48%), while at the base of the slope, the dominant insect order is Hymenoptera (48.48%), followed by Coleoptera (43.69%).

In the two types of sampling sites in the meadow hay we found that Hymenoptera and Coleoptera are dominants and the Carabidae family is by far the best represented. We also found that the number of individuals increases with the distance from the river.

Although a decade ago the anthropogenic influences were much stronger in the study area, the large number of taxa identified in 2011 together with the quantitative data indicates a balanced structure of the epigeal fauna.

Comparative studies on the epigean invertebrate communities in different types of forest and agrosystem (Romania)

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Key words: epigean, invertebrates communities, forest, agrosystem.

Researches regarding epigean invertebrates communities were carried out in two stages (July 2010 and July 2011) in three types of forest from Valea Uzului, Bacău County (beech and hornbeam, oak and beech, pine plantation) and a maize crop placed nearby Perchiu hill reserve, Bacău County.

The aim of the present study is the assessment of the quantitative as well as the qualitative structure of the invertebrate communities in the epigean fauna, and also to highlight the representative taxa and the trophic categories characteristic for each type of ecosystems.

The biological material was sampled regularly, in the same period of each of the two years (2010, 2011) by using Barber traps.

An amount of 411 invertebrate individuals belonging to 9 classes and 14 orders was sampled in all of the three types of forest, with an unequal numerical distribution: 327 individuals in the first type of forest (beech and hornbeam), 53 individuals in the second type of forest (oak and hornbeam) and 61 individuals in pine plantation. Insect class is dominant in all of the sampling sites.

In all of the three types of forest we found that the most of insects belong to coleopterans (79.83%). Ten families of coleopterans were identified, with the dominance of Carabidae (63.33%), followed by Silphidae (13.89%). Other coleopterans families have recorded lower values of dominance.

In the maize crop agrosystem the insect class is also dominant and it is represented by six insect orders. Obviously, the beetles families are dominants. Within coleopterans, Carabidae family is by far the dominant (83.96%).

From the point of view of the food regime we found that in all of the three types of forest, as well as in the maize crop agrosystem, the predators are dominant and they are followed by the phytaphagous species.

Comparative analysis of ground-dwelling arthropod communities of deciduous forests in Transylvania (Romania)

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Key words: epigeic arthropods, community structure, Transylvania, deciduous forests.

Forests represent one of the most important terrestrial ecosystems. Ground-dwelling arthropod communities are an important component of these systems. Among the most significant arthropod communities of deciduous forests, ants, beetles, springtails and spiders are usually emphasized. Knowledge regarding the structure of the arthropod community can contribute as useful information when using different arthropod groups as bioindicators.

Arthropod communities were investigated in 2011, in two locations: two forests in Dumbrăveni (Sibiu County) and one forest near Cluj-Napoca (Cluj County). One of the forest sites in Dumbrăveni is a Natura 2000 site with *Quercus pubescens*. Pitfall traps were used to sample three mature deciduous forests during three periods (May, July and August).

In all three forests, the main sampled taxa were: Carabidae, Formicidae, Isopoda and Arachnida. However, significant differences were shown ($p < 0.005$, $F = 9.25$) in terms of community structure using a permANOVA (5000 permutations).

Regarding dynamics, both ants and dung beetles reach a maximum of abundance in summer. Woodlice and springtails show similar trends. By contrast, ground and rove beetles reach an abundance peak in spring.

Using Margalef index, the highest value was recorded for the Natura 2000 site, while the other two sites had similar values.

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Comparative study concerning soil mites diversity (Acari: Mesostigmata) from some anthropized marshlands from Insula Mare a Brăilei, Romania

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Key words: vegetal associations, diversity, habitat, similarity.

Insula Mare a Brăilei is a famous agricultural area from Romania. This is the results of 45 years of communist agricultural policy, when the soil drainage transformed natural marshlands in agroecosystems. This involved modifications on ecosystem's structures and functions, especially on species diversity, even on soil fauna (Bardgett & Cook, 1996; Bedano et al., 2006; Bedano & Ruf, 2007, 2010). In Insula Mare a Brăilei, researches concerning soil invertebrates diversity are few (Fiera, 2006; Vasiliu-Oromulu et al., 2009). The aim of this paper is to present for the first time in Romania a comparative analysis of the predatory soil mite diversity from different types of anthropical ecosystems: grasslands, arable fields and planted forest. Study was made in 2005-2006. 280 samples were collected, with 23 species and 350 individuals. 71.42% from the total number of identified species were identified in grasslands, 57.14% in agroecosystems and 26.08 in planted forest. *Hypoaspis aculeifer* (Canestrini, 1883) and *Rhodacarellus kreuzi* Karg, 1965 are the most frequent species. Taxonomical classification and applied statistical methods used in our research (Jaccard index), showed the similarities, as well as the differences between predators mite's communities, taking account of the specific environment conditions.

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Feeding ecology of *Mesoniscus graniger* - experimental and anatomical evidences

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Key words: *Mesoniscus graniger*, mouthparts, SEM, feeding ecology.

Although the systematics, spreading and historical biogeography of *Mesoniscus graniger* are relatively well-known, apparently no detailed investigation on the feeding ecology of this cavernicolous species of Oniscidea had been undertaken.

Mesoniscus graniger is attracted by organic deposits in caves. Field and laboratory observations indicated the grazing of cave sediment and coprophagy. Laboratory multi-choice tests indicated that *M. graniger* prefer grazing on cave sediment substrates, but, it is able to recognize and select preferentially laboratory cultures of several algae species. Subsequent microscopic analysis of the digestive tract and excrements indicated that some algae cells were not completely digested.

In order to elucidate this aspect, we studied the mouthparts of *Mesoniscus graniger*, and particularly the morphology of mandibles, using the scanning electron microscopy (JEOL JMS-7401F).

Diversity of the thrips fauna (Insecta: Thysanoptera) in meadow ecosystems in Turceni area (Gorj County, Romania)

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Key words: specific diversity, ecological indicators, *Frankliniella intonsa*, antennal anomalies.

The diversity of Thysanoptera fauna from Turceni was studied in 2011 within the project POLMEDJIU, PN-2, no 32.150/2008. The research was carried out on two sites, one located near the Turceni power plant, and the second one at about 1 km north of it, both represented by ruderalised meadows. Sampling performed by the sweeps method revealed a rich specific diversity, with a total of 26 species, distributed in two trophic modules, only the species *Aeolothrips intermedius*, *A. fasciatus* and *Thrips flavus* being zoophagous. Eleven (11) species were common to the two sites, the species *Chirothrips manicatus*, *Frankliniella intonsa* and *Thrips tabaci* standing out as dominant within the respective cenoses. Apart from typical praticolous species, we can mention the arboricolous polyphagous *Dendrothrips degeeri* and the xerophile polyfagous *Hercinothrips femoralis* coming from greenhouses located in the vicinity.

On Turceni sites, the species *Frankliniella intonsa* clearly stands out with the value of its structural indicators. Constantly present in the collected samples, it has the highest role in the use of trophic resources, with relative abundance values ranging between 27.7% and 38.8%.

Shannon-Wiener diversity index and equitability have high values on both Turceni sites, comparable to the values obtained on unpolluted meadows. In terms of geographical distribution, West-Palaeartic elements are dominant. The presence of numerous larvae denotes the renewal capacity of thrip populations on these sites. We consider as bioindicator species for the anthropogenic effect, at Turceni, the thrips *Frankliniella intonsa*, that presents high numerical densities and antennal anomalies similar to those of individuals in central Bucharest parks subject to the air pollution impact due to the road traffic.

Although the presence of radionuclides and heavy metals in the Turceni area makes living conditions far from optimal, thrip cenoses have high diversity and are stable which proves that these minuscule and delicate insects are redoubtable partners within trophic networks.

Reproductive behavior and male territoriality in the water strider *Aquarius paludum* (Heteroptera: Gerridae)

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Key words: *Aquarius paludum*, aggression, mating behavior, territoriality, spatial dispersal.

Mating behavior of a large *Aquarius paludum paludum* population was investigated on several field surveys inside the mating season. Ten large groups of *A. paludum paludum* were present on the main observation site, groups splitting as temperature rises following a clear, constant pattern, and cluster back in the evening.

Some males are establishing individual territories at the lake shores which they defend for around an hour, while most males remaining non-territorial. Radial 1-1.5 meters territories were aggressively defended from other males, conflicts being always won by the male already occupying the territory. Conflicts were anticipated by wave signaling between the males, initiated by the territorial male; a response from the invader immediately starting the attack.

Both types of mating behavior known for semi aquatic true bugs were observed at the studied population: aggressive type I mating for non-territorial males and unaggressive type II mating for the territorial males. Contact guarding of the type I males was much longer than documented before for *A. paludum paludum*, lasting for at least 12-13 hours in some cases; territorial males did not guard their females after mating, but the territories where the female placed the eggs.

Territorial displays and dispersion patterns gradually faded towards the end of the mating season.

The change of zoocoenotic characteristics of ground beetle communities under the influence of grazing horse on floodplain meadows in Belarus

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Key words: ground beetles, dominance, meadows, abundance, dominant species.

The investigations on the change of the degree of ground beetle environmental similarity, of the degree of the relative habitat timing and species dominance were carried out in the Minsk district in 2011. During the study period 5198 traps/days were processed, 6024 specimens of ground-beetles were determined. In addition, it is established that during the growing season the number of species in grazed plots compared with initial ones did not change - 34 - 51 species. Only the composition of species changed.

As a result of studying species composition and zoocoenotic indicators of ground beetle communities 83 species living on floodplain meadows were revealed. From ecological point of view, humidity attracted a high number of mesophilous species in the floodplain meadows, and after the grazing I and rainfalls, the hygrophilous ones were prevalent. On the basis of biotopic distribution we took these species to 8 ecological groups. Field species were characterized mostly by a high number, sometimes their abundance reached 54 %. The majority of ground-beetle species (82.3 %) bred in the spring and in the beginning of summer. Species of multiseasonal phenological group weren't numerous (5.9 % - 26.5 %), and summer and summer-and-autumn groups were random (2.6 % - 11.8 %). It was explained by migration of "nearwater" mesophile species, which made a considerable part in fauna, from a spring high water to adjacent biotopes.

Determining the appropriate spray time for *Cydia pomonella* (Lepidoptera: Tortricidae) in apple orchards using sex pheromone and degree day in Khanezenyan, Fars (Iran)

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Key words: *Cydia pomonella*, degree-days (DD), sex pheromone, spraying time.

Codling moth is the most serious insect pest of apple and pears (Fadamiro, 2004). *Cydia pomonella* (Linnaeus, 1758) is the key pest in apple orchard in Khanezenyan, Shiraz, Fars. The development of codling moth, like all insects, can be predicted based on accumulated heat over time, called degree days (Ahmad, 1988). In order to determine the spray time during 1388-1390 we used pheromone trap in apple orchard in Khanezenyan. In order to determine the appropriate time for spraying *Cydia pomonella* via counting number of trapped moth and recording the effective daily temperature, traps were used at the height of 1.5 m from the ground level and distance between traps was of 85-100 m. The data was analyzed using Excel software. According to the results, the number of pest generations and spraying time were determined. The results indicated that *C. pomonella* had two complete generations with a partial or incomplete generation at Khanezenyan, Shiraz, Fars. Based on the results, the best time for chemical control of *C. pomonella* was coincident with the time of appearance of the first age larva and accumulation of 175 degree-days. The sum of required temperature for completion of one generation of *C. pomonella* was 775 degree-days.

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Research regarding the ichthyofauna in the lower basin of River Târnava Mare (Romania)

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Key words: ichthyofauna, fish communities, fish zones, River Târnava Mare.

The study was carried out in the lower basin of the River Târnava Mare, on the main course of the river and on some of its tributaries during the year 2009. The aim of the study was to assess the actual state of fish communities in the lower basin of Târnava Mare, and to highlight significant changes in fish communities. The biological material was sampled by electrofishing from 18 sampling sites. Over the year 2009, 22 fish species were found, with an amount of 2587 individuals and 16052.2 g. Two of the 22 fish species are non-native and 20 are native species. It was noticed the lack of a number of 5 species of the 20 found by Bănărescu in the area where the study was carried out in 2009 (Bănărescu, 1964). On the other hand, over the year 2009, seven other fish species were found in addition to the situation recorded by Bănărescu in 1964, respectively *Phoxinus phoxinus*, *Aspius aspius*, *Carassius gibelio*, *Pseudorasbora parva*, *Barbatula barbatula*, *Sander lucioperca* and *Lepomis gibbosus* (Bănărescu, 1964).

Unlike the situation in the past, the fish zones are changed. Instead of four fish zones found by Bănărescu, only two fish zones were recorded in the year 2009. Thus, the chub zone has extended over the barbel zone and the common nase zone which were replaced by the first.

Changes recorded in composition of the fish communities are due to the extension of the spreading area of some of the most resistant species. At 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 anthropogenic influences.

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Favorite and accessories trophic resources for predatory fishes from the inferior course of the Danube

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Key words: trophic resources, predatory fish, favorite/available food, quality/quantity of food resources.

The analysis of the trophic regime of predatory fish, regardless of their level in the trophic pyramid (consumers C1, C2, or C3), represents a necessary stage for the evaluation of various ecosystems; thus, the quantity and quality of food resources for the predatory fish species can be a very useful indicator for the state characterization of the analyzed aquatic ecosystem. The objective of this study was to analysis of the trophic basis (favorites and accesories) for certain predatory fish species in the inferior course of the Danube, the observation of seasonal variations that may occur in what regards the available food sources and the comparative analysis of the food regime for the same species in Lake Golovita.

A constant analysis of the stomach content was observed in the case of the following species: *Esox lucius* (L., 1758; **Esocidae**, Common-pike), *Aspius aspius* (L., 1758; **Cyprinidae**, Asp), *Silurus glanis* (L., 1758; **Siluridae**, Wels-catfish), *Perca fluviatilis* (L., 1758; **Percidae**, Perch), *Stizostedion lucioperca* (L., 1758; **Percidae**, Pike-perch); in addition to these species, the stomach content was analyzed in the case of omnivorous-carnivorous species that occurred occasionally in captures and in the case of two small individuals (30-38 cm, captured accidentally) of *Acipenser ruthenus* (L., 1758, **Acipenseridae**, Sterlet).

Invertebrates (especially Amphipoda crustaceans and insect larvae) form the trophic basis for most omnivorous-carnivorous fish species, while small fish species such as *Gobio* (Gudgeon) and *Alburnus* (Bleak) genera, as well as Decapoda crustaceans form the trophic basis for predatory fish.

Length-weight relationship of 9 fish species from Koviljsko-Petrovaradinski rit (Serbia)

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Key words: Koviljsko-Petrovaradinski rit, length-weight relationship, growth.

Koviljsko-Petrovaradinski Rit is one of the last remaining flood areas of the Danube River on its flow through Serbia. During thorough researches conducted in the last few decades, certain changes in physical, chemical and especially in biological characteristics have been noticed. Taking into account the claim that, in earlier period, certain changes have occurred, aim of this paper was to analyse length-weight relationship as a marker of fish condition, welfare and thus predict food availability and natural condition of this locality.

Ichthyological material was collected between August 2006 and October 2008 with standard electrofishing device at the following sites: Arkanj, Dunavac and Patrijaršijska Tonja. Analyses were conducted on following species: *Carassius gibelio*, *Esox lucius*, *Rutilus rutilus*, *Lepomis gibbosus*, *Perca fluviatilis*, *Abramis brama*, *Scardinius erythrophthalmus*, *Ictalurus nebulosus*, *Blicca bjoerkna*. Total and standard lengths were measured to the nearest mm while body weight was measured to the nearest g. Sex of individuals was determined by macroscopic observation. Length-weight relationship was determined by using linear regression.

Only *A. brama* and *I. nebulosus* showed the value of parameter b below 3 while most fish species showed values above 3. T-test was used in order to test the null hypothesis of isometric growth ($b=3$). *C. gibelio*, *R. rutilus*, *L. gibbosus*, *P. fluviatilis*, *S. erythrophthalmus* showed significant difference ($p<0.05$) and thus showed positive allometric growth. Considering the fact that most species showed significant positive allometric growth, it can be concluded that fish are in good condition and that good natural conditions prevail in this locality.

The toxicity impact of amphoteric surfactant cocamidopropyl betaine over induction of oxidative stress in *Cyprinus carpio*

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Key words: cocamidopropyl betaine, *Cyprinus carpio*, antioxidative enzymes, protein oxidation, heat shock proteins.

Urban wastewaters present high loads of amphoteric surfactants like cocamidopropyl betaine (CAPB), used in production of cosmetics and detergents industry. Thus, our study involves evaluating the direct negative effects induced by amphoteric detergent concentration of 1 mg / L, on the antioxidant defense mechanism in the liver and gills of *Cyprinus carpio*, after 24, 48 and 96 hours. The impact is visible on antioxidant system by low levels of superoxide dismutase (SOD) during the 96 hours after treatment for gills, but this values are compensated by significant amplification of catalase (CAT) activity. Significant changes are recorded in the case of enzymes involved in metabolism of reduced glutathione, consisting of glutathione peroxidase (GPX), glutathione-S-transferase (GST) and glutathione reductase (GR), or those generators of reducing equivalents like glucose-6-phosphate dehydrogenase (G6PDH) after 96 hours of exposure in tissues studied. Exposure to CAPB has also caused a reduction in glutathione concentration (GSH) during the 96 hours in the two organs studied, and the lipid peroxidation assessed indirectly by determination of malondialdehyde (MDA), was significantly increased. The advanced oxidation protein products (AOPP) and protein reactive carbonyl groups were raised after the first day of exposure and did not return to the control level later on. Expression of heat shock proteins (HSP), increases proportionally with the length of exposure after 48 hours, although as an exception of the rule, HSP 27 is decreased in liver and gills. The results obtained indicate that toxic action of CAPB is organ specific; liver and gills are noticeably affected. Based on biochemical analysis that revealed the installation of oxidative stress and lipid peroxidation in the organs studied, by CAPB, we conclude that this amphoteric detergent induces sub-lethal toxic effects with tendency of acute toxicity in carp.

A comparative study of the mating call of the marsh frog *Pelophylax ridibundus* (Pallas, 1771) in Bulgaria

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Key words: call, characteristics, environment, *Pelophylax*.

We studied 627 mating calls of the marsh frog from 12 geographically distinct populations from across Bulgaria. Recordings were made during the mating season (April-June) as well as winter months (in two localities with hot springs) within the period 2011-2012. The vocal activity was recorded using an Olympus LS-5 linear PCM recorder and an Olympus ME-31 shotgun microphone, in a WAV-PCM mode with sampling frequency 44.1 kHz, 20 - 21.000 Hz and 24 bit resolution. We tested the hypothesis whether the mating call was affected by environmental factors like climate zone, water body type, altitude, water and air temperature (near ground level) as well as coexistence with closely related species *Pelophylax lessonae*, *P. esculentus*, *P. bedriagae* and *P. kurtmuelleri*. For the comparative analysis we used uni- and multivariate statistical methods and the following characteristics: pulse group number, minimum, maximum, fundamental and dominant frequency, call energy and relative amplitude of the harmonics. According to the Principal component analyses the variables with the highest factor scores were related to frequency, while those related to energy came second. From the environmental factors altitude, climate zone and water body type were assigned as being important but with lower factor scores. Coexistence was in third and the values for water and air temperatures were inconclusive. Environmental factors seemed to be weakly related to some of the call characteristics (e.g. water body with frequency) but the exact reasons for this remained uncertain. Although some populations were grouped well together, most were scattered, suggesting a low level of differences between them. Data also can be viewed from the perspective of early stages development of dialects among populations. These results are discussed in relation with habitat characteristics.

Salinity tolerance in *Pelobates fuscus* tadpoles

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Key words: common spadefoot toad, tadpoles, survival, metamorphosis, threshold.

Water salinity is an important factor that may explain and predict population declines and distribution patterns in amphibians. We investigated the effect of salinity on larval development and survival rate to metamorphosis in the common spadefoot toad *Pelobates fuscus* (Laurenti, 1768). Our working hypothesis was that higher salinity will decrease tadpole survival rate and body size at metamorphosis, and increase the time needed for metamorphosis. We tested if there were differences in (i) time to metamorphosis, (ii) the body mass and SVL at metamorphosis, and (iii) survivorship. The response of the tadpoles was evaluated through an experimental design with three salinity treatments of 2, 4, and 8 ‰ compared to a control (deionized water). The experiment lasted until the metamorphosis or death of all individuals (99 days). Salinity levels had no significant influence on the mean time to metamorphosis, body mass and SVL at metamorphosis. The mean survival rate of *P. fuscus* tadpoles was different across the treatments. The lowest values were recorded in the 8 ‰ salinity treatment which induced 100 % tadpole mortality within 43 days of experiment. None of the tadpoles in this treatment achieved Gosner stage 42. Mean survivorship values across treatments 2 and 4 ‰ and the control did not differ significantly. Our results suggest that *P. fuscus* tadpoles have a good tolerance threshold for brackish water up to 4 ‰, above which survival is impaired.

Colonial piscivorous birds pressure on fish resources from Inner Danube Delta

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Key words: piscivorous birds, colonial waterbirds, Great Cormorant, *Phalacrocorax carbo*, Pygmy Cormorant, *Phalacrocorax pygmeus*, Inner Danube Delta, fish consumption.

Colonial piscivorous birds are top predators in freshwater ecosystems and some of them, in particular the cormorants, are considered pests by humans due to their competition for fish resources. The study conducted in the protected area of Small Island of Braila Nature Park, part of Inner Danube Delta, aimed to estimate the fish consumption of cormorants and other fish-eating birds during the breeding season. Thus, out of the 94 tons of fish eaten by the piscivorous birds' populations, 85% are consumed by the populations of the two species of cormorants nesting in the research area (Great Cormorant *Phalacrocorax carbo*, Pygmy Cormorant *Phalacrocorax pygmeus*). The Great Cormorant eats about 67 tons of fish of medium and low commercial value (*Alburnus alburnus*, *Scardinius erythrophthalmus*, *Abramis brama*, *Carassius gibelio*, *Perca fluviatilis*); the bulk of its diet (76%) consisting mainly from Prussian carp (*Carassius gibelio*). The results suggest a low competition with humans for high commercial value fish species.

Shelter and habitat preference of bats in Mârşa area (Sibiu County, Romania)

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Key words: maternity colonies, roosts, Făgăraș Mountains, *Rhinolophus hipposideros*.

The former Mârşa (Avrig district, Sibiu County) military base is an important area in assessing the region's bat species, in studying their lifecycle and behavior during the active season. The entire military base covers 146 hectares (buildings, open land). The nine military abandoned buildings, forming the base, are temporary or permanent shelters for bats as follows: two are shelters for maternity colonies, two are temporary shelters throughout the active season and the other five are temporary shelters for solitary specimens belonging to *Rhinolophus hipposideros* (Bechstein, 1800). There are no other known bat shelters in the area making these buildings as the local bat species hot spot. The Mârşa region is preferred by several bat species not just as shelter but also as a feeding area due to the local natural landscape. Also a migration route directed SE – NW has been recorded at the edge of the common beech (*Fagus sylvatica* L.) forest, along the permanent lakes situated here. In this migration point the bat detector has signaled the presence of *Myotis alcathoe*, *Myotis bechsteinii*, *Myotis daubentonii*, *Miniopterus schreibersii*, *Eptesicus nilssonii*, *Eptesicus serotinus*, *Pipistrellus pipistrellus*, *Pipistrellus pygmaeus*, *Barbastella barbastellus*, *Nyctalus noctula*, *Rhinolophus hipposideros*. Some of these species were observed feeding in the vicinity of the military base and a few kilometers from it. Today, the Mârşa military base belongs to the Avrig (Sibiu County) Local Council and is administrated by the Local Public Forest Administration "Izvorul Florii". The base has been included into the Avrig city development strategy in order to rehabilitate the buildings. Since 2008, meetings have been held to establish the use and future of the abandoned military base. Currently, the area, including the base, is promoted in terms of tourism and as a potential place in hosting sporting events. The aim of this paper is to raise awareness regarding the bat species that use these abandoned military buildings as shelters and to propose various alternative management measures of the area that include conservation aspects for the bat species.

Trophic basis of winter activity in *Rhinolophus euryale* (Chiroptera)

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Key words: hibernation, guano samples, Lepidoptera, non-prey items.

Rhinolophus euryale is originally cave dwelling bat species reaches the northern border of its area in Central Europe (Slovakia and Hungary). Species shows the high vagility within and/or between its winter roosts during the hibernation period and species is often rousing from torpor. We hypothesized that the species should forage during the flights between the hibernacula and thus compensate energetic losses. We studied winter prey composition collecting the fresh guano samples under the winter aggregations of *Rhinolophus euryale* at four sites (Slovakia: Drienovská jaskyňa cave, Ardovská jaskyňa cave, Dmica cave; Hungary: Baradla cave) during November 2011 – April 2012. We found out that the analyzed pellets had two forms: (1) contains only Lepidoptera and (2) contains non-prey items. Male genitals (valve) were used to identify lepidopteran taxa in the foraged prey. Second pellet type includes unidentified organic material resembles tissue or gel, where hairs were often presented and in few samples were found mites. We suppose that gel-like guano is the result of intensive grooming, continuous digesting processes, changing of intestinal tissues and/or endobacteria activity. Data shows that Lepidoptera plays the crucial role in compensating energy losses during the winter activity of *Rhinolophus euryale*.

Reproduction of species *Microtus arvalis* (Rodentia, Cricetidae) in the Republic of Moldova

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Key words: common vole, reproduction, wheat crop, alfalfa crop, generations.

The studies were performed during several years in various types of agrocenoses. In autumn *M. arvalis* individuals were at the peak phase on fields of perennial herbs. The first large colonies were recorded at the distance of 10-20 m from the edge of winter wheat field, on which the individuals from adjacent alfalfa fields migrated, where the vole density reached 400 colonies/ha. In the presence of favorable conditions the voles during January entirely inhabited the winter crops and reached the density of 240 colonies with 2-3 entrances/ha.

In February of the next year among the migrating individuals of *M. arvalis* on the winter crop the females dominated (64.7%), while on Lucerne field the males were dominant (58.3%). On the field of winter wheat the population included three generations. Over 30% of individuals belong to the summer generation with body weight up to 30 g, about 65.0% belong to the summer generation with the body weight up to 20 g and 5.5% of animals with the body weight up to 10 g belong to the winter generation. On winter crops the females reproduced also in winter period, moreover their reproductive activity constituted 87.1%. In alfalfa crop in winter the number of females is 2-3 times higher than that of males and the reproductive activity was suppressed.

The process of further colony forming passes through the stage of solitary distribution of the individuals. It was emphasized that the females fertility from colony groups is significantly lower than that of solitary females ($t=3.12$) and the generation alternation of the last ones occurs faster.

In summer time, when the wheat ripens, not depending on the density, a part of individuals migrate on abandoned fields and on arable crops fields, while the other part dies in borrows. In this case the most of the voles ceased to reproduce and the individual number in population decreases.

Current state of invasive zooplankton species along the Romanian coast

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Key words: invasive species, *Mnemiopsis leidyi*, *Oithona brevicornis*, *Laboea strobila*.

Each ecosystem has a certain dynamic interaction over time due to various factors: natural and anthropogenic. One of the natural factors meant to produce striking changes in the marine ecosystem has proven to be invasive species. These organisms have the ability to adapt to new environmental conditions that are often introduced accidentally.

A dramatic example of this for the Black Sea Basin was the outbreak in *Mnemiopsis leidyi* in the 80's (Vinogradov et al., 1989). Following a massive development by the end of the 90's, *Mnemiopsis leidyi* recorded an overall trend of decreasing density and biomass values, but maintained some outbursts, situation registered also in recent years.

In past years, the analysis of samples has led to the identification along the Romanian coast of two new invasive species in the zooplankton component: the cyclopoid copepod *Oithona brevicornis* and the naked ciliate *Laboea strobila* respectively. Both species were reported for the first time in the north of the Black Sea basin in the past decade (Gubanova & Altukhov, 2007; Selifonova, 2001).

Oithona brevicornis Giesbrecht, 1892 was identified for the first time on the Romanian coast in 2010, the year in which the mean density and biomass of copepods were higher in areas with potential for the introduction of invasive species - ports.

Laboea strobila Lohmann, 1908 was first identified at the Romanian coast in 2011. The mean density and biomass of the ciliate were higher in the wide Romanian continental shelf, an area characterized by an intense naval traffic.

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New data on the invasive molluscs in Dniester and Prut River ecosystems

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Key words: invasive molluscs, *Dreissena bugensis*, *Sinanodonta woodiana*, *Corbicula fluminea*, Dniester, Prut Rivers.

Molluscs are one of the key groups in the process of aquatic biological invasions. Allochthonous species have a negative influence on autochthonous species. For the first time *Dreissena bugensis* was registered in aquatic ecosystems of the Republic of Moldova in 2006, but already in 2009-2012 its density reached 40-800 indiv./m², biomass-0.04-476 g/m² in Dniester River and correspondingly-40-240 ind./m² and 39-57.45 g/m² in Prut River.

In 2003, in Belevu Lake, shells of *Sinanodonta woodiana* were registered in premiere, but only in 2008 were found alive individuals, with a density of 0.4 ind./m² and biomass of 54.7 g/m². The next year, in 2009 their density increased up to 1.4 ind./m² and biomass- up to 262 g/m². One year later, in 2010 *S. woodiana* appeared in Prut River, at Cișlița-Prut and in 2011- at Cahul. The biggest individual (472 g) was registered in Belevu Lake. Recently in the lake individuals of two years old, with a length of 5.5 cm were collected, who have had glochidium, this fact revealing a rapid maturation of this species.

Corbicula fluminea was registered for the first time in Prut River, Cișlița-Prut station in 2010, and a density of 200 ind./m² and biomass of 1.12 g/m² was established.

Native and non-native freshwater mussels in the Bulgarian stretch of the Danube River: Danube field trip 2012

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Key words: Unionidae, Dreissenidae, Corbiculidae, native range, invasive species.

A boat field trip was carried out along the Bulgarian stretch of the Danube River – from Vidin (r. km 796) to Ruse (r. km 502) in the period 2nd-10th September 2012. The field trip was organized within the framework of the project “Potential threats to environmental and economic sustainability in the Danube and Black Sea region: Danube River as invasive alien species corridor” and funded by the International Association for Danube Research (IAD) and East and South European Network for Invasive Alien Species (ESENIAS).

Qualitative and quantitative samples of mussels were collected by dredging from the shore or from the boat and by hands at 14 sites. Live specimens of 9 species were recorded. They belonged to families Unionidae (*Unio crassus*, *U. pictorum*, *U. tumidus*, *Anodonta anatina*, *A. woodiana*, *Pseudanodonta complanata*), Dreissenidae (*Dreissena polymorpha*, *D. bugensis*) and Corbiculidae (*Corbicula fluminea*). Three species are considered as invasive alien species for the Danube River basin – *A. woodiana*, *D. bugensis* and *C. fluminea*.

C. fluminea was the most frequently found and most abundant species. It was found at all sites, but most abundant at substrates dominated by coarse sand. *A. woodiana* preferably occurred at substrates dominated by mud. The unionids *U. crassus*, *U. pictorum*, *U. tumidus* and *P. complanata* were found as most abundant at sites of soft clay mixed with sand substrates. Dreissenids were found attached to stones or to the shells of other mussels.

The results were compared with previous studies and analyzed in terms of changes in mussel community and ecological conditions, impact of invasive alien species, as well as the protection of species of conservation concern, such as *U. crassus* and *P. complanata*.

Genetic differentiation at microsatellite loci among populations of *Mya arenaria* (Mollusca: Bivalvia) from Europe

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Key words: *Mya arenaria*, alien invasive species, microsatellite markers, genotyping, genetic differentiation.

The softshell clam, *Mya arenaria*, is an invasive mollusk species with an almost worldwide distribution, presumably human-induced. It is widespread in the Black Sea too, where its arrival has been suspected as vehiculated by ballast water discharges and through aquaculture. Once the softshell clam has established populations on the Romanian shores, it has significantly modified the infralittoral ecosystems by changing the sediment composition and by fragmenting of existing biotic communities.

We hereby tried to trace the invasion routes and the colonization histories of *Mya arenaria* within Europe using microsatellite markers. For this purpose, five populations have been sampled: two from the Romanian littoral of the Black Sea (Mangalia and Constanța), two from the Portuguese Atlantic coasts (Tagus Estuary and Ria de Aveiro) and one from the Italian Adriatic Sea (Sacca di Goro). We present here preliminary results regarding their genetic diversity, which was assessed in 157 samples at seven nuclear microsatellite loci. All loci were polymorphic in the studied populations. The AMOVA analysis showed a differentiation of 13% among populations ($p < 0.01$). Based on F statistics, we found a low differentiation between populations from the Atlantic and the Black Sea, while a moderate genetic differentiation was found between the Adriatic and the other populations (with F_{st} values between 0.089 and 0.105). This result, combined with the relatively new finding of the species in the Adriatic Sea, might suggest for this population a more recent introduction event from a different source.

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Genetic variability of *Dreissena polymorpha* (Mollusca: Bivalvia) in The Netherlands

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Key words: microsatellite, population genetics, zebra mussel, quagga mussel.

In 2006 the quagga mussel (*Dreissena rostriformis bugensis*) was found for the first time in Western Europe in the Hollandsch Diep, The Netherlands. The introduction of the quagga mussel, most probably introduced through ballast water, raised the question whether this vector had caused multiple introductions of the zebra mussel (*Dreissena polymorpha*) after its introduction about 200 years earlier. The aim of the study was to check whether the zebra mussel population in The Netherlands had changed genetically after the introduction of the quagga mussel, which might suggest multiple colonization events for zebra mussel as a source of the new genetic variation observed. To answer this question we analyzed 162 individuals from 10 population of zebra mussel, with 7 microsatellite DNA polymorphic markers. Four of the populations were sampled in the pre-quagga mussel time, while the remaining six in the post-quagga era. The observed and expected heterozygosities did not differ significantly and fell within the values found in other European *D. polymorpha* populations. The Fst analysis did not detect any significant differentiation among the analyzed populations. The seemingly conclusion is that no multiple colonization events could be detected with the present data for *D. polymorpha* in Netherlands. However, this should be taken with caution, as a different scenario is consistent with the data: multiple colonization did occur, but either the newly arrived individuals came from the same old source, or the newly introduced genotypes could not be detected in the present data, due to the relatively small size of the analyzed samples.

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Morphometric and genetic comparison between different European populations of *Corbicula fluminea* (Mollusca: Bivalvia, Veneroidea)

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Key words: Asian clam, morphometric analysis, androgenesis, COI.

Geographically separated populations are often morphologically distinct, most often due to environmental and/or genetic factors. In this context, we examined the morphological and genetical variation of 18 populations of the invasive clam *Corbicula fluminea* (Bivalvia) in Europe. The species, native from South-East Asia, was found for the first time in Europe, in France and Portugal in 1980. The rapid expansion of this species throughout Europe can be explained by increased naval traffic and opening of new channels connecting different water bodies. Species from the *Corbicula* genus exhibit different reproductive strategies, with sexual dioecious as well as hermaphrodites species. The hermaphrodite lineages of *Corbicula* spp. are reproducing through a rare form of asexual reproduction, known as androgenesis, in which offspring are clones of their father.

For this study samples were collected in the Minho estuary (N-Portugal), the rivers Mero (NW-Spain), Hollandsch Diep and Waal (The Netherlands), Loire and Dreé rivers (France), Meusse River (Belgium), Iskar River, Negovan Lake and Danube River (Bulgaria) and Danube and Timis rivers (Romania). Three morphometric variables were measured in 558 specimens from 18 populations. A non-parametric multivariate analysis of variance revealed clear morphological differences in 115 out of 153 populations pair comparisons ($p < 0.0001$). Differences among populations might be due to adaptations to local ecological setups and to the population's origin and be related to distinct selection processes.

We also sequenced a DNA fragment of 620bp from the mitochondrial COI gene in 63 specimens of *Corbicula* spp. from 14 populations. We combined our dataset with 21 DNA sequences available in GenBank from previous studies (Pigneur, 2011; Bodis et al., 2011; Schmidlin, 2012), in order to have a broader image of the genetic diversity of the species in Europe, at this locus. All the analyzed specimens exhibited the same mitochondrial haplotype FW5.

These results confirm the previous studies which found a low genetic diversity within *Corbicula* invasive populations, which could be related to their clonal reproductive mode.

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Enzootic circulation of West Nile virus (WNV) in Romania

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Key words: enzootic circulation, West Nile virus, hosts, seroprevalence, risk maps.

Investigation of enzootic circulation of WNV in natural and anthropogenic ecosystems imposed the integrated use of several methods in studying its transmission, preservation and amplification of transmission in different climatic conditions. The research team used current immunological, virological, molecular, entomological and ecological methods.

The research was conducted in Bucharest Metropolitan Area -BMA (which includes Bucharest + Ilfov and Giurgiu Counties) and Dobrudja (Tulcea County) between 2008-2011. The team studied the seroprevalence of antibodies to the virus in its main hosts (wild and domestic birds) and tangential hosts (mammals - horses).

The results of these studies proved that wild and domestic birds are very important elements in WNV circulation in Romania. Domestic birds represent the “essential amplifying hosts” in the micro-centres of infection transmitted to humans and indicate the level of risk in human-controlled ecosystems. Data referring to seroprevalence of antibodies to WNV in wild and domestic birds show that the virus enzootic circulation in the main hosts takes place both in natural and anthropogenic ecosystems in constantly changing environmental conditions.

Researches on horses led to the conclusion that, living around humans and being subject to the bites of mosquito vectors, horses can become a real threat to human health.

Seroprevalence studies were necessary, along with climate data, elevation information and data on land cover/land use in order to achieve the risk maps.

All these combined data showed that the enzootic circulation of WNV in Romania covers very large areas in certain zones and lasts for some time, even if the vector population (mosquitoes) is less abundant.

The results of the authors’ investigations revealed the characteristics of WNV transmission cycles, allowing the development of strategies for prevention, early warning, surveillance and control of human infections.

Contributions to knowing the parasite infestation degree of fish in the Natura 2000 Site ROSCI0066 Danube Delta - Marine Zone

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Key words: infestation, parasites, fish, ROSCI0066.

The paper is an outline of the investigations carried out by NIMRD "Grigore Antipa" during 2011-2012 on fish species in the site ROSCI0066 Danube Delta - Marine Zone (overlapping the marine area of the DDBR). In order to identify the parasite fauna, 10 fish species were analyzed, as follows: *Sprattus sprattus* - sprat, *Alosa caspia nordmanni* - Caspian shad, *Alosa pontica pontica* - Danube shad, *Engraulis encrasicolus* - anchovy, *Merlangus merlangus euxini* - whiting, *Trachurus mediteraneus ponticus* - horse mackerel, *Mullus barbatus ponticus* - red mullet, *Mesogobius batrachocephalus* - goby, *Platichthys flesus luscus* - plaice, *Solea nasuta* - sea sole.

In the analyzed fish, 14 parasite species were reported, as follows:

- one protozoan - *Trichodina domerguei*;
- five flat worms - *Mazocraes alose*, *Stephanostomum* sp., *Lecithaster tauricus*, *Bucephalus* sp., *Tentaculalaria* sp.;
- six nematode worms - *Contracaecum aduncum*, *Contracaecum* sp., *Anisakis* sp., *Porrocaecum* sp., *Philometra* sp., *Cystoopsis acipenseris*;
- two spiny-headed worms (acanthocephalans) - *Teleosentis exiguus*, *Pomphorhynchus laevis*.

The analysis of the effects on the fish conservation state by the nematode worms - the main parasites identified in sprat, Caspian shad, anchovy, horse mackerel - revealed that these species had a high parasitization degree with species from the *Contracaecum* and *Porrocaecum* genera, however not endangering the state of natural populations by causing fatalities. The low danger degree was due to the fact that parasites were reported mainly as larvae, infesting the abdominal cavity, while the number of individuals in which the infestation intensity reached the maximum of 40 nematodes/host (it was generally below 20 parasites/host) was reduced. In addition, the tendency of parasite accumulation increasing with fish size invalidates the theory, unanimously accepted by experts, of the convex curves of parasites abundances in relation to fish aging, by the decrease of the dispersion degree in older age classes of the hosts, which would be proof of parasites causing the death of the host.

Copepod parasite *Lernaea cyprinacea* L., 1758 in the cyprinid host *Pseudorasbora parva* Schlegel, 1842 from Moara Domnească lentic ecosystem (Ilfov County, Romania)

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Key words: *Lernaea cyprinacea*, *Pseudorasbora parva*, Moara Domnească lake, Romania.

In July 2008, we captured by electrofishing with a Samus 720 MP device 228 specimens of topmouth gudgeon (*Pseudorasbora parva*), from Moara Domnească lake. The study site is located in the North-East of Bucharest, on the right side of national highway Bucharest – Constanța (Stavrescu-Bedivan et al., 2011).

Fish host specimens exhibited a mean total body length of 44.80 mm (min. 24 – max. 76) and a mean standard body length of 36.71 mm (min. 20 – max. 61). The infestation parameters of this cyprinid species with adult copepod females of *L. cyprinacea*, calculated according to Bush et al. (1997) were: prevalence (6.58%), mean intensity 1.00 (min. 1 – max. 1) and mean abundance (0.066). We also applied the Bravais-Pearson correlation coefficient, in order to find a possible link between the host size and the number of parasite species per fish. Infestation intensity with the copepod parasite *Lernaea cyprinacea* was negatively correlated with both total body length ($r = -0.144$), and the standard body length ($r = -0.153$) of the topmouth gudgeon. The distribution of the parasite on the surface of their host *Pseudorasbora parva* showed that the 15 specimens of *Lernaea cyprinacea* were attached as follows: skin (73.33%), fins (20%), nasal cavity (6.67%). Similar finding about the attachment-site preference were reported in the literature (Barzegar & Jalali, 2009). In some analysed fish specimens, we noticed that the copepod left a few ulcerations and necroses.

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New records and new species of the genus *Menacanthus* Neumann, 1912 (Phthiraptera: Amblycera: Menoponidae) from birds of Pakistan

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Key words: *Menacanthus*, Amblycera, Menoponidae, new records, new species, Pakistan.

The genus *Menacanthus* Neumann, 1912 has been reviewed from Pakistan. 11 species of the genus have been reported, in which two new species: *M. longiscleritis* sp. n. and *M. khawajai* sp. n. and two new records of the genus, *M. cornutus* (Schommer, 1913) and *M. pallidulus* (Neumann, 1912) have been mentioned from the region. The two new species of *Menacanthus* reported from *Gallus gallus* (L.), are being described in details with reference to the chaetotaxy and male genitalia. The taxonomic status of new species has also been discussed and compared within the species group of *Menacanthus* found on gallinaceous birds. In the study, species that have been collected from different areas of Pakistan are *M. abdominalis* (Piaget, 1880) ex: *Coturnix coturnix* (L.), *M. camelinus* (Nitzsch, 1874) ex: *Lanius excubitor* (Sykes) and *Molpastes cafer* (Jerdon); *M. eurysternus* (Burmeister, 1838) ex: *Passer domesticus* (L.), *Corvus splendens* Vieillot, *Pastor roseus* (L.), *Sturnus vulgaris* Brooks and *Acridothores tristis tristis* (L.); *M. gonophaeus* (Burmeister, 1838) ex: *Corvus splendens* Vieillot and *Corvus corax* L.; *M. kalatitar* (Ansari, 1951) ex: *Francolinus francolinus asiae* Bonaparte; *M. mamola* Ansari, 1955 ex: *Enicurus maculatus maculatus* Vigors; *M. stramineus* (Nitzsch, 1818) ex: *Gallus gallus* (L.).

Bat flies (Diptera: Nycteribiidae) and wing mites (Mesostigmata: Spinturnicidae) infestation of five bat species (Chiroptera: Vespertilionidae)

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Key words: bats, parasite load, body condition, Spinturnicidae, Nycteribiidae.

The effect of parasitism on the condition of hosts has been the focus of many studies. We compared prevalence and parasite intensities in a host–parasite system comprising ectoparasitic mites (Spinturnicidae) and flies (Nycteribiidae) and their hosts, for five European bat species (*Myotis myotis*, *Myotis oxygnathus*, *Myotis daubentonii*, *Nyctalus noctula* and *Miniopterus schreibersii*). We collected 1121 mites and 190 flies from over 200 bats. From mentioned bat species, we collected four species of spinturnicid mites: *Spinturnix myoti*, *Spinturnix andegavinus*, *Spinturnix psi* and *Spinturnix acuminatus* and seven flies' species: *Nycteribia kolenatii*, *Nycteribia latreillii*, *Nycteribia pedicularia*, *Nycteribia vexata*, *Nycteribia schmidllii*, *Penicilidia conspicua* and *Penicilidia dufourii*.

There were found more mites than flies on investigated bats. The prevalence and density of wing mites and of bat flies was positively correlated with colony size, at *Myotis myotis*/*Myotis oxygnathus* and *Myotis daubentonii*. Nursery colonies, where female bats aggregate, probably favour parasites because of the high density of hosts. In both seasons (maternity and swarming) male bats had the fewest parasites, while juvenile bats were the most infested group of all. No difference in prevalence of mite and flies numbers was found between male and female juveniles in colonial roosts, like in other studies.

There was no strong trend of increasing parasite load in bats with decreasing body condition.

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Results of monitoring the circulation of tularemia causal agent in the population of micromammals

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Key words: micromammals (MM), pellets, epizootic surveillance, natural focus, tularemia, *Francisella tularensis*.

Monitoring research in the circulation of causative agent of tularemia in micromammal population (MM) was conducted in 2005-2010. In different types of ecosystems in Republic of Moldova 33,457 traps/nights were worked out and captured 7092 small mammals. Microbiological study was performed on 4628 MM and 6475 animals. Pellets of prey birds were collected in the same ecosystems, to identify the agent *Francisella tularensis*.

Small mammals occupy a leading position in the spreading of tularemia agent in the environment and also actively participate in the formation, maintenance, development and activation of natural epizootic outbreaks. Laboratory investigations revealed the presence of the *F. tularensis* in 13 species of MM, including dominant species: *Clethrionomys glareolus*, *Apodemus uralensis*, *A. sylvaticus*. These species maintain the circulation of potential causative agent of tularemia in natural outbreaks with recording of cyclic infection.

In 1983-1997 37 strains of *F. tularensis* were isolated in mammals captured in the southern (districts of Cahul - years 1983, 1986, 1990, 1991; Ștefan Vodă – 1984; Căușeni - 1996), northern (Glodeni - 1985, 1986; Fălești - 1985) and central (Călărași – 1991; Ungheni, Telenești - 1996 and Hîncești -1997) (Mihailenco, 1993; Mihailenco et al., 1997) of R. Moldova. Serological laboratory studies of prey bird pellets (6475) proved the presence of *F. tularensis* antigen in 2.3% of investigated samples.

In 1996, four cases of tularemia in humans were recorded (Orhei - 2, Rezina - 2), related to the use of water and food contaminated by rodents, and respectively, to processing and consumption of rabbit meat (Magdei et al., 1998). After 13 years from the last case of tularemia, in autumn of 2009 in Orhei district was recorded a new case of the disease in humans, conditioned by the use of contaminated food products.

The monitoring tularemia causative agent circulation in mammals allows forecasting the epizootological state and the spread of infection within human population.

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Human pathogenic tick-borne microorganisms in indigenous and exotic tick species collected from migratory birds at Curonian Spit, Russia

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Key words: ticks, *Ixodes ricinus*, *Ixodes frontalis*, *Hyalomma marginatum*, tick-borne pathogens, migratory birds.

Ticks were collected from migratory birds captured during the spring 2009 at Curonian Spit.

A total, 3 species of ticks were found and identified: 201 (94.8%) *Ixodes ricinus*, 6 (2.8%) *Ixodes frontalis* and 5 (2.4%) *Hyalomma marginatum*. Indigenous *I. ricinus* was the most common tick. Exotic *H. marginatum* and *I. frontalis* were removed from *Anthus trivialis*, *Phoenicurus phoenicurus* and *Turdus merula*, respectively.

Tick-borne encephalitis virus was found in 0.7% collected from 1 specimens of *T. merula*.

Borrelia spirochetes were found in 5.6%. BLAST analysis assigned sequences to *Borrelia garinii*, *Borrelia afzelii* and *Borrelia valaisiana*. *B. afzelii* was found in 3 (2.2%) nymphs feeding on 2 specimens of *T. merula* and 1 *Ph. phoenicurus*. *B. garinii* was detected in 3 (2.2%) nymphs from 1 *Fringilla montifringilla*, 1 *T. merula*, and 1 *E. rubecula*. *B. valaisiana* was detected in 2 (1.5%) nymphs: 1 from *Troglodytes troglodytes* and 1 from *T. merula*.

Rickettsia were identified in 11.8% analysed *I. ricinus* collected from *Parus montanus* (0.7%), *Ph. phoenicurus* (0.7%), *Coccothraustes coccothraustes* (1.5%), *T. philomelos* (2.9%), *T. merula* (2.9%), *E. rubecula* (2.9%). BLAST analysis confirmed that all were *Rickettsia helvetica*. *Rickettsia aeschlimannii* was detected in 1 nymph of *H. marginatum* collected on *A. trivialis*.

Anaplasmataceae were detected in 2.2% and 25.0% of analysed *I. ricinus* and *I. frontalis* nymphs, respectively. BLAST analysis assigned sequences to *Anaplasma phagocytophilum* and 'Candidatus *Neoehrlichia mikurensis*'. *A. phagocytophilum* was detected in 1.5% detached from the 2 species of birds *Ph. phoenicurus* and *E. rubecula*, while 'Candidatus *N. mikurensis*' was identified in *I. ricinus* (0.7%) and *I. frontalis* (25.0%) ticks collected from *T. merula*, respectively.

Babesia venatorum protozoa have been revealed in 0.7% collected from 1 specimens of *T. merula*.

In conclusion, migratory birds may play a major role as the transporting hosts of tick and reservoirs of tick-borne pathogens in the Baltic region of Russia.

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Human biting mosquitoes (Diptera: Culicidae) as potential vectors of mosquito-borne diseases in the recreational areas of the city Chişinău, Republic of Moldova

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Key words: Culicidae, human biting mosquitoes, species composition, potential vectors, recreational areas of the city Chişinău.

West Nile and *Batai* viruses, as well as *Plasmodium vivax*, *P. falciparum* and *P. malariae* which are transmitted by mosquitoes have been reported in the Republic of Moldova (Ciumacov et al., 1974; Sergeyeva, 1953). Serological investigations recorded females *Anopheles maculipennis* s.l. Meigen positive on *Batai* virus and females *Culex modestus* Ficalbi positive on arbovirus from the genus *Orbivirus* in Moldova. *West Nile* virus was first isolated from *Ixodes ricinus* and *Dermacentor marginatus* in Moldova (Ciumacov et al., 1974). Human case of *Dirofilaria repens*, which is transmitted by mosquitoes from animal to man, has been reported in our country as well (Gudumac et al., 2011).

The species composition of human biting mosquitoes of the city Kishinev is poorly known. Only few papers have been dedicated to *An. maculipennis* s.l. and its control due to the malaria outbreaks in Kishinev at the beginning of the 20th century (Sergeyeva, 1953). To conduct risk analyses and develop emergency management strategies for arthropod-borne diseases, current information on potential vectors in this area is required (Rogers & Randolph, 2006).

The aim of the present study was to determine the species composition of adult anthropophilic mosquitoes inhabiting recreational areas of the city Kishinev as potential vectors of mosquito-borne diseases. The surveys were carried out in eight recreational areas and small forest plots within and near the city Kishinev as follows: Botanical Garden, Valea Trandafirilor Park, Dendrariu Park, La Izvor Park, Riscani Park, forest plots in Bacioii Noi, Telecentru and Ghidighici water storage basin. These sites have favorable ecological conditions for the interaction between resident bird reservoirs, migratory bird reservoirs from arbovirus endemic areas in Europe and Africa, competent ornithophilic and anthropophilic mosquito vectors implemented in enzootic circulation of arboviruses and humans (Reusken et al., 2011). The study was conducted weekly from 2010 to 2012 between May and September of each year. All mosquitoes landing on human baits were caught using 60X15 mm glass tubes. On each occasion, mosquito collections occurred during the 5-30 minutes (Silver, 2008). A total of 3,255 adult mosquitoes belonging to 9 genera and 22 species were caught on human baits and by net-catching the resting mosquitoes among vegetation in the city Kishinev. Seventeen anthropophilic species with different seasonal biting activity patterns have been found in human landing collections. The most frequently captured species was *Aedes (Aedimorphus) vexans* (N = 1,514; 46.5%) followed by *Ochlerotatus annulipes* (N = 403; 12.4%), *Dahlia geniculata* (N

= 330; 10.1%), *Culex modestus* (N = 312; 9.6%), *Coquillettidia richiardii* (N = 144; 4.4%) and *Oc. riparius* (N = 117; 3.6%). The species *Oc. excrucians* (2.6%), *Oc. cantans* (2.5%), *Cx. pipiens s.l* (1.7%), *Oc. cataphylla* (1.2%), *Anopheles plumbeus* (0.6%), *Oc. caspius* (0.4%), *Oc. sticticus* (0.4%), *Oc. behningi* (0.3%), *Oc. communis* (0.3%), *Oc. dorsalis* (0.2%) and *Oc. pulcritarsis* (0.2%) were less abundant. Studies on species composition of mosquitoes in the recreational areas have mentioned for Valea Trandafirilor Park 16 species, Botanical Garden – 6 species, Dendrariu Park – 7 species, La Izvor Park – 7 species, Riscani Park – 7 species, Bacioii Noi – 18 species, Telecentru – 8 species and Ghidighici – 5 species.

Eight of detected species are the known vectors of the *West Nile Virus* in Europe; four of them are the natural vectors of dirofilariasis (Becker et al., 2010).

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Silicone QDs: a promising tool for biomedicine or danger for the environment? A biochemical perspective.

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Key words: fish, quantum dots, oxidative stress.

Manufactured nanoparticles are a new class of materials with at least one dimension smaller than 100 nm. These new materials are designed to have unique physical or chemical properties which arise from their small size or surface chemistry and have found numerous applications in textiles, electronics, engineering and medicine. Recent concerns regarding the risks and benefits of the unusual physical-chemical properties of nanoparticles include the assessment of risks for the environment. Our research was focused on revealing the effects induced by manufactured Si/SiO₂ QDs in freshwater fish *Carassius auratus gibelio*.

Fish were divided in two groups injected with 0.7% NaCl, respectively 2 mg QDs suspension/ kg body weight. After 1, 3, and 7 days, six fish from each group were sacrificed and the white muscle and liver tissues were removed. We analyzed the oxidative stress markers: malondialdehyde (MDA), advanced oxidation protein products (AOPP), reduced glutathione, protein thiol groups and the activities of antioxidant enzymes: superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPX), glutathione reductase, glutathione-S-transferase (GST) and glucose 6-phosphate dehydrogenase.

While SOD, CAT and GPX increased in both tissues in different ratios, other biochemical parameters showed distinct alterations. In fish, GST levels are used as water quality indicators, the liver being primarily responsible for xenobiotic metabolism. Compared to the muscle, where GST activity was lightly elevated (maximum increase of 36% in the third day), the liver GST activity was dramatically inhibited, and reached a minimum in the seventh day with a decrease of 74%. This might explain the accumulation of both AOPPs and MDA in the hepatic tissue.

Our data described two different situations in the tissues of gibel carp, and advanced the idea that QDs accumulation in aquatic organisms presented a potential risk due to their interaction with the cellular antioxidant defense system.

Preliminary data on the genetic variability of *Platynereis dumerilii* (Annelida: Polychaeta) in the Black Sea

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Key words: microsatellite, population genetics, Black Sea.

Platynereis dumerilii (Annelida, Polychaeta) is one of the key species in the macrophyte communities of the Black Sea. The importance of this species resides in its wide use in the assessment of the environmental quality as pollution indicator species, as bioassay test organism and as monitor of bioaccumulation of hazardous chemicals. Next generation DNA sequencing was used to develop a set of microsatellite markers that can be used for ecological and population genetics studies of *P. dumerilii*. A total of 6 polymorphic loci were identified and characterized using 24 individuals from one population from Agigea. The number of alleles ranged from 8 to 15 and expected heterozygosity levels ranged from 0.676 to 0.926. An excess of heterozygous genotypes was observed in three of the loci. Marker independence was confirmed with tests for linkage disequilibrium. The microsatellite markers developed for *P. dumerilii* provide a valuable tool for future ecological and population genetic assessments of this species.

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Preliminary faunistical considerations regarding Lepidoptera (Insecta: Lepidoptera) from protected area: “Sărăturile din Valea Ilenei” (Iași, Romania)

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Key words: lepidoptera, protected species, *Paracossulus thrips*, Romania.

Protected area, ROSCI 0221 “Sărăturile din Valea Ilenei”, are located near Iași (15 km West), between Lețcani and Avântu.

The aim of this study was, particularly the identifying and monitoring of *Arytrura musculus* (Ménétriés, 1859) listed in standard form ROSCI 0221 site. Although the presence of *A. musculus* could not be confirmed, another 133 species of Lepidoptera have been identified in this site. Among these, three species are listed in Annex 2 of the EU Habitats Directive (92/43 EEC): *Paracossulus thrips* (Hübner, 1818), *Lycaena dispar rutila* (Werneburg, 1864) and *Euplagia quadripunctaria* (Poda, 1761).

Paracossulus thrips was reported in Iași and Podu Iloaiei more than 50 years ago (Nemeș & Dănilă, 1970) and till now, nobody re-confirm the existence of this species in Iași. So, we confirm the presence of this species in Iași and through this, a protection regime for this area can be justified.

Another important occurrence is *Saragossa porosa porosa* (Eversmann, 1854), species reported in our fauna in the Gârboavele forest and recently in Dobrogea (Székely & Dincă, 2009).

The following species, rare for Moldavia region, were collected in this area: *Parahypopta caestrum* (Hübner, 1808), *Hyles galii* (Rottemburg, 1775), *Zerynthia (Zerynthia) polyxena* (Denis & Schiffermüller, 1775), *Lycaena thersamon* (Esper, 1784), *Simyra nervosa* (Denis & Schiffermüller, 1775), *Simyra albovenosa* (Goeze, 1781), *Aedia leucomelas* (Linnaeus, 1758), *Eucarta virgo* (Treitschke, 1835), *Hadula (Caloestra) stigmosa* (Christoph, 1887), *Mythimna (Mythimna) pudorina* (Denis & Schiffermüller, 1775), *Senta flammea* (Curtis, 1828), *Agrotis crassa* (Hübner, 1803).

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Microsatellite DNA variation in the Russian Sturgeon, *Acipenser gueldenstaedtii* from the Lower Danube

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Key words: Russian sturgeon, microsatellite, polyploidy, genetic diversity, allelic variation.

In order to have efficient conservation programs of Russian sturgeon in the Lower Danube it is necessary to assess its genetic diversity and population structure knowing that this species is near extinct in the river. Microsatellites represent short sequences that are tandemly repeated, being widely dispersed in the genome and possessing a high degree of polymorphism. These features recommend them as valuable markers in population genetics and evolutionary studies.

The sturgeon species with ~250 chromosomes like *Acipenser gueldenstaedtii* are considered by most of the authors, to be tetraploid with an octaploid ancestor from whom some microsatellite loci with octasomic profile are still maintained.

The aim of our study was to analyze the cross-amplification and the polymorphism of seven microsatellite loci, originally identified in North-American species, in Russian sturgeon. Two multiplex PCR reactions were performed based on the selected optimal annealing temperatures: a 4-plex reaction for LS-19, LS-34, LS-57 and LS-68, and a 3-plex reaction for Aox23, LS-54 and Aox45. The fragment analysis was performed using the ABI Prism 310 Genetic Analyzer and the results were analyzed with GeneScan3.1.2 and Genotyper2.5.2 Softwares (Applied Biosystems). Our results have shown that the loci LS-19, LS-54, LS-68, Aox23 and Aox45 are tetrasomic, for the locus LS-57 we amplified until eight alleles per locus and for LS-34 a fixed allele was observed. Therefore, we obtained 11 different alleles in range of 118-157bp for LS-19, 8 alleles of 188-220bp for LS-54, 6 alleles of 122-34bp for Aox45, 5 alleles of 120-236bp for LS-68, 3 alleles of 118-124bp for Aox23 and 1 allele of 142bp for LS34.

The analysis of microsatellite has great potential for investigating the genetic diversity of the Russian sturgeon population from the Lower Danube and, also, might be extended to aquaculture studies dedicated to the monitoring of genetic variation and the inbreeding level.

Analysis of the microsatellite variation in the Beluga sturgeon, *Huso huso* from the Lower Danube

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Key words: Beluga sturgeon, microsatellite, genetic characterization, allelic variation.

Sturgeon populations from all over the world have declined because of anthropogenic influences by over harvest and habitat alteration. In the same time, the economical interest regarding these species was constantly increasing, especially because the incredible value of the roe. In these conditions, the necessity to develop conservation programs for these species requires knowledge of its genetic diversity and of the evolutionary relationships among populations.

The current approaches permit the use of microsatellites loci for characterization of genetic variation in sturgeon populations. These markers are widely used to assess the effective population size, stock identification, levels of inbreeding, population structure and gene flow, parentage and quantitative traits.

The aim of our study was to optimized a protocol for microsatellite multiplexing in *Huso huso*. Genomic DNA was isolated from small pieces of fins and the quality and concentration was assessed spectrophotometrically. Seven pairs of primers were designed to amplify microsatellite loci: LS-19, LS-34, LS-54, LS-57, LS-68, Aox23 and Aox45. Amplification of the microsatellite loci was done in two multiplex PCR reactions based on the selected optimal annealing temperatures common for all the seven primers: 2-Plex reaction for Aox23 and LS-57, and 5-Plex reaction for LS-19, LS-34, LS-54, LS-68 and Aox45. The fragment analysis was done using the ABIPrism 310 Genetic Analyzer and the results were analyzed with specialized software (GeneScan 3.1.2 and Genotyper 2.5.2). The obtained fragments were in range of 136-156 bp for LS-19, 140-150 bp for LS-34, 233-253 bp for LS-54, 194-212 bp for LS-57, 149-152 bp for LS-68, 106-136.

Our results represent preliminary data of DNA microsatellite assay in Beluga sturgeon. The analysis can be extended to a higher number of individuals in order to assess the genetic diversity and structure of the *Huso huso* population from the Lower Danube.

Potential breeding sites for the protected Stone-curlew (*Burhinus oedicnemus* Linnaeus, 1758) in Natura 2000 site SPA Măcin-Niculitel (Romania)

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Key words: SPA Măcin-Niculitel, Stone curlew, Geographic Information System, breeding site.

The Stone curlew (*Burhinus oedicnemus*) is a robust nocturnal bird which nests and forages on short semi-natural grassland and arable farmland in areas with sandy soils with stones or rubble (Green et al., 2000). It is a protected species at national and European level (annex 1 from Birds Directive) with an estimated population of 200-400 nesting pairs in Romania (Munteanu, 2002). It is considered that its population and geographical range decline have begun in Romania with the conversion of large areas of steppe for agriculture and overgrazing.

ROSPA0073 Măcin-Niculitel is a large Natura 2000 site, over 67.000 ha, including the National Park Măcin Mountains and ROSCI Măcin Mountains. Although the National Park has been under protection since 1998, most of the suitable breeding habitats for the Stone-curlew are outside the park limits. Those were included later under a protective status together with the establishment of the SPA area in 2007.

Using a Geographic Information System we identified potential breeding areas in the SPA landscape. Knowing the birds' nesting requirements we model optimal location for potential breeding sites and we verified the selection process overlapping historical distribution in the area and checking in the field.

GIS modeling approach in the process of applying conservation measures is a valuable tool and the model can be used together with other species of high-conservation concern.

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Ornithological observations from Comana lacustrine and forest complex (Southern Romania)

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Key words: birds, fauna, biodiversity, Comana, IBA.

The main objective of the research is the inventory of birds found in the Comana lacustrine and forest complex and the development of several maps representing the points where the species were observed. It is important to carry out this research because this lacustrine and forest complex is included in the Comana Natural Park, also it is very important to be specified that Comana is one of the Important Bird Areas (IBA), Comana - RO102 (Papp & Fântână, 2008).

Over the past 100 years Comana represented a very important site for bird observations and bird ringing (Hodor et al., 1998; Petrescu et al., 2009). The studies were made in 2012 during spring and autumn. The methods used to make the observations were the fixed points method and routes method. There have been made observations from nine fixed points, covering wetlands areas and forest areas. Regular trips were made on eight main routes, which relate to the forest and pond edge of Comana. During spring the observations were made more often, in March two trips were made, in April were five trips and in May only three trips were made. In autumn only three trips were made in September.

The results present a total of 86 bird species which belong to 14 orders. From the total of 86 species observed during the regular trips there are 51 species present in the Council Directive 79/409 EEC, 29 in Annex I, 7 in Annex II / 1 and 15 in Annex II / 2. In the OUG 57/2007 are present 53 species of birds, 23 in Annex 3, 14 in Annex 4 B, 11 in Annex 5 C, 2 present both in Annex 5 C and 5 D and 3 in Annex 5 C and 5 E.

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Ornithofauna of Protection Zone of the Scientific Reserve “Plaiul Fagului” in Moldova

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Key words: birds, protection zone, diversity, rare species, breeding.

This paper shows the diversity and the structure of birds' communities in protection zone of the scientific reserve “Plaiul Fagului” emphasizing its role in maintaining bird diversity. Protection zone includes several types of habitats (biotopes): in the south-western and western part - old plum orchard, a hilly area with patches of shrubs and acacia plantations in strips, grassland and agricultural lands, in the north-eastern part there are mainly agricultural lands and settlements. Observations were carried out in 2008-2011, using the method of fixed points and routes. In this area, 38 species of birds, belonging to 7 orders and 17 families were identified. Some rare species, nesting in Moldova, were observed among those: *Aquila pomarina*, *Aquila chrysaetus*, *Pernis apivorus*, *Hieraetus pennatus*, *Crex crex*. In a hilly area with patches of shrubs some species demonstrated high densities being prevalent in those bird communities: *Lanius collurio* (34.1%), *Miliaria calandra* (13.6%), *Emberiza citrinella* (12.4%), *Streptopelia turtur* (10.9%). *Sylvia nisoria*, *Sylvia communis* also prefer this habitat. This area plays an important role in maintaining the population of diurnal raptor birds nesting in forests of the reserve and adjacent territory being a feeding ground for them. In the meadows surrounding the reserve there are several colonies of Spotted Sousek (*Citellus suslicus*), which is the basic food for Lesser Spotted Eagle (*Aquila pomarina*), Booted Eagle (*Hieraetus pennatus*) and Goshawk (*Accipiter gentilis*).

The Avifauna of Tineretului Park, Bucharest (Romania)

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Key words: synanthropic birds, migratory birds, vegetation, fauna, flora, biocenosis, new records, Tineretului Park.

Our paper presents the avifauna of Tineretului Park observed during the last decade (2002 - 2012).

Tineretului Park is one of the largest parks in Bucharest and it was built over the former “Cocioc” marsh and has a diverse, complex and balanced biocenosis for at least 30 years.

Although the park has over 80 hectares, including a lake of about 13 hectares, there are very few specific studies conducted here.

Due to its size and vegetation, the park has a major importance both for synanthropic and migratory bird species.

This determined us to enlarge the knowledge regarding the Tineretului Park’s biocenosis, especially it’s hydrographic basin, where each year, over 80 bird species (sedentary and passage) classified into 14 orders, respectively, 31 families find shelter and food. Amongst the migratory birds, at least 12 species nest in the park.

Avifaunistic rarities in Moldavia (Romania)

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Key words: wetlands, birds, migration, Moldavia.

The wetlands are quite numerous in the region of Moldavia (Eastern Romania) and represented by reservoirs, natural lakes and a series of arrangements created for pisciculture or for absorbing excessing water from riverbeds during the floods. The research conducted in this study confirms that the valleys of Prut and Siret rivers, with a multitude of wetlands, constitutes a very important migration corridor for aquatic, semi-aquatic and other bird species from Eastern Romania. The investigations were carried out in the period 2003-2012, and we targeted the spring and autumn migrations. Thus, a fairly significant number of rare species for the Moldavian region (Romania) were observed: *Mergus serrator* on the reservoir Cuibul Vulturilor (Vaslui County - VS); *Aquila heliaca* at lakes Belcești - Tansa (Iași County - IS) and Mânjești (VS), ponds Cârja Mața Rădeanu and Elan valley (VS); *Aquila clanga* at Răcăciuni (Bacău County - BC), Negreni (Botoșani County - BT), Probota (IS) and Hălțeni (IS); *Grus grus* was observed at Șomuz (Suceava County - SV) and Cuibul Vulturilor (VS) ponds and Vlădeni and Larga Jijia (IS) stock ponds; *Arenaria interpres* at Solești lake (VS); *Charadrius morinellus* was observed at Cârja Mața Rădeanu ponds (VS); *Lymnocyptes minimus* at Hălțeni (IS), Șomuz (SV) and Cuibul Vulturilor (VS) lakes, but also in the perimeter of Larga Jijia (IS) and Cârja Mața Rădeanu (VS) ponds; *Larus ichthyaetus* was noticed at Vlădeni (IS) and Larga Jijia (IS) fishing ponds; *Larus fuscus* at Hălțeni (IS), Cuibul Vulturilor (VS), Solești (VS) and Mânjești (VS) reservoirs and Larga Jijia (IS) stock pond; *Larus genei* at Hălțeni (IS) and Solești (VS) lakes; *Larus minutus* at Pușcași (VS) pond and Cârja Mața Rădeanu (VS) and Larga Jijia (IS) fishing ponds; *Sterna caspia* was observed at Hălțeni (IS) reservoir and Larga Jijia (IS) stock pond; *Haematopus ostralegus* at Hălțeni (IS) and Cuibul Vulturilor (VS) lakes, but also at Cârja Mața Rădeanu; *Numenius phaeopus* was noticed at Hălțeni (IS) and Cârja Mața Rădeanu (VS).

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Habitat occupancy of large mammals in Buila Vânturarița National Park (Romania)

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Key words: Buila Vânturarița, mammals, spatial distribution, occupancy.

One of the major issues in biodiversity conservation is the insufficient data concerning the demographic and distribution of a species in a certain area, in order to plan efficient conservation and management measures.

Situated in the Southern Carpathian Mountains, Buila Vânturarița National Park covers an area of 4186 ha characterized mostly by forest and grassland habitats. The objectives of our study were to use an integrated methodology in order to a). evaluate the number of individuals for six species: *Ursus arctos*, *Canis lupus*, *Lynx lynx*, *Cervus elaphus*, *Capreolus capreolus* and *Rupicapra rupicapra* and b). to determine their spatial distribution in this protected area. We used presence data gathered from field observations made by Multidimension and the national park administration, during 2007-2012. The data were analysed using Presence software where two models were run. Single Season Occupancy Estimation Model used presence-absence data to determine the probability of detection and the probability of occupancy. Royle Nichols Heterogeneity Model used the same presence-absence data and 2 new parameters: r (probability of detection) and λ (density/site) to obtain the abundance of those six species. We obtained the following population size: *Ursus arctos* – 3 individuals, *Lynx lynx* – 3 individuals, *Canis lupus* - 4 individuals, *Cervus elaphus* - 15 individuals, *Capreolus capreolus* – 16 individuals and *Rupicapra rupicapra* – 22 individuals. The distribution of each species (Area of Occurrence and Extent of Occurrence) in Buila Vânturarița National Park was done using RAMAS Red List Professional software.

The results of this study may be used further in proposing conservation measures for these species and their habitats overlapping the Buila Vânturarița National Park area.

Buffalos, a valuable economical and genetic resource for a sustainable Romania

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Key words: buffalo cow, milk, meat, preservation, genetic resource.

At present, we are confronted with an emphasized demographic growth all over the world considering power crisis and raw materials as well as food crisis. The approach of the new concepts on agriculture represents the most important goal which requires urgent solutions as well as changes of mentality.

Buffalos breeding is an important branch which contributes very much in producing and ensuring utilization in furnishing the most important goods for daily highest biologic value, raw materials for food, light, pharmaceutical and domestic industry determining an efficient and profitable agriculture.

At the same time buffalos breeding is a branch of the intensive agricultural production, a market for means of production and industrial products, a source of income for economy and also a means of superior capitalization of some material sources.

The world milk production has doubled during the last decades and what should be mentioned is that 12% of the world milk production is ensured by buffalo cows. The present study was carried out considering buffalos populations in Romania from the three representative breeding areas in the North-West, Central and South regions of the country.

Milk production is determined by genetic factors (individuals), physiological factors (lactation, body development and build), breeding conditions (feeding, watering, milking, sheltering) and environment (climate, relief, soil, vegetation). On the average, the lactation period was 272 days with 1333.21 kg milk, 7.75% fat and 4.73% proteins, in the populations we studied.

Buffalo meat has a larger quantity of dry matter than beef (26 g/100g compared to 24.57 g/100 g), contains a lower quantity of cholesterol than beef (31 mg/100 g compared to 70 mg/100 g) and also a larger quantity of calcium (0.104/100g compared to 0.027 g/100 g).

Population dynamics and distribution of European Beavers (*Castor fiber* L.) in Râul Negru basin after 12 years of reintroduction

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Key words: beaver, castor fiber, distribution, population, reintroduction.

Romania is part of historical distribution territory of the European beaver. In Romania, as in other countries of Europe, European beaver *Castor fiber* was exterminated in the 19th century.

After more than hundred years this specie was reintroduced in Romania. Individuals from the Bavarian population were released along three important rivers: Olt, Mureș and Ialomița. Each river has different habitat conditions. After habitat diagnosis a total a number of 198 beavers were reintroduced, as follows: Olt River – 91 individuals, Mureș River – 71 beavers and Ialomița River – 36 animals.

Râul Negru is the second important Olt River tributary (S=2243km², L=106.3km). In 2000, 2 beaver families, totally 7 individuals were released in two different locations.

The hydrographic basin is very special thanks to its characteristic: high declivity upstream (35m/km) and very small downstream (0.71m/km) which determine many sinuous streams, with vegetation composed by willow shrubs.

After 12 years of reintroduction 185 beaver individuals were estimated based on dam inventory, 47 populated lodges were found which represent 43% from total counted dams. The researches are showing an exponential numerical and spatial expanding process. In this period the population increased numerically by 26 times and by territory up to 29 times, even if the number of surviving cubs is less then 2 (1.7 cubs average) per family.

The potential of this basin has not reached the maximum if we talk about beaver distribution, 40% of propitious habitats are not populated, yet. In our estimation the beaver population will cover entire area in less than 5 years if the habitat condition and the anthropic impact will remain the same.

Aspects of the behavior and acoustic vocalization of the Romanian hamster, *Mesocricetus newtoni*

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Key words: *Mesocricetus newtoni*, activity, behavioral patterns, acoustic vocalization, spectral characteristics.

Today, the populations of many mammal species are rapidly declining due to habitat loss and degradation, pesticide use etc. Knowledge of their behavior often is important step in efforts to conserve wildlife populations and preserve biological diversity.

The Romanian hamster, *Mesocricetus newtoni* is a Balkan endemic included in the Red Lists of Romania and Bulgaria, but little is known about its behavior. In this regard, studies on activity, defensive behavior and acoustic vocalization of several specimens captured in July 2012 in an agroecosystem in Central Northern Bulgaria were conducted. The observations were carried out both directly in the field and in semi-natural conditions, in captivity, for a period of 7 days.

The results showed that the animals were active mainly at night, but signs of activity were also registered during the day. We distinguished the following events of individual behavior: eating, resting, selfgrooming, locomotion, digging and cleaning. Depending on the situation, Romanian hamster uses a set of different means of communication. Emphasis in the present work was defensive behavior and the accompanying vocalization. Vocal sounds of *M. newtoni* were recorded with an Olympus LS-5 linear PCM recorder. Minimum, maximum and dominant frequency, as well as duration of each sound were measured. The sounds emitted by hamsters were classified into three main groups: 1. Squalls – harsh calls with strong noise component and without harmonic structure; 2. Creaks – harsh calls with noise component, but with harmonic structure, resembling cackle; 3. Squeaks – weak calls with clear harmonic structure. Spectral characteristics of the emitted signals and their function are discussed. After completion of the behavioral observations, animals were released into their natural habitat.

NIMRD's Ichthyologic Collection - Tool of the Non-Formal Education

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Key words: collection, ichthyology, education, non-formal.

The paper is an outline of NIMRD's fish collection, established during 1970-1989 (by the effort of researchers on board the fishing vessels roaming the World Ocean). During the past years, the collection was introduced in the circuit of visits performed by students from Constanta within the Institute, in order to acquire knowledge on the marine fish fauna, as a tool of the non-formal education carried out in an institutionalized framework, in an organized manner, as well as outside the school system, being a bridge between the knowledge acquired during classes and the data acquired in an informational manner. Along with the other extra-curricular/extra-didactic activities - subject workshops, school competitions, contests etc. - the establishment and operation of ichthyologic collections is part of the same category of non-formal education. The collection comprises approximately 600 exhibits, represented by fish species collected from 6 FAO areas (of the total 19 FAO Fishing Areas), namely Area 21 (Atlantic, Northwest), Area 34 (Atlantic, Eastern Central), Area 37 (Mediterranean and Black Sea), Area 41 (Atlantic, Southwest), Area 47 (Atlantic, Southeast) and Area 51 (Indian Ocean, Western). Some exhibit specimens are presented with reference to geography, taxonomy and depositories, using the information available in the Barcode of Life Database.

Romanian zoologist –where are you going?

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Key words: Romanian zoologist, researcher, education, evaluation.

Recently the criteria used for the evaluation of the activity of Romanian zoologists became more incisive with highly standards, especially for the people from universities. However, the Romanian zoologist can be compared with the zoologist from other countries? At least for those working in higher educations are major differences. In the top universities the assistant, associate or full professor usually teaches about two hours per week, sometimes not even and does not enter to the laboratory hours, in fact being a researcher with a little part of time dedicated to a full contact with students, the laboratory hours being in the duty of PhD students. In Romania the teaching load go from 14 hours per week for an assistant professor to 6-8 hours for a full professor, in reality the values being usually at least double because of the effort to earn some extra money. Besides the teaching duties he must doing other obligations such as distance learning, conducting dissertations, elaborating didactical manuals for classrooms and laboratory, collecting teaching materials, execution of didactic materials etc. Trying to be a good researcher will affected negative the education part and being a good professor in the condition of Romania, usually teaching various disciplines, will make almost impossible to be a competitive researcher at the same level with the researchers from others countries. Zoologists from Romanian museums have no better fate because they are on posts of museologist with not so clearly responsibility, being a mix of activities with the public, working with museum collections and research. In the great museums of the world are clear responsibilities for researchers, curators and those working in the education area and public relations. There are also zoologists in some researches institutes, NGO-s, as biologists on staff of some natural parks etc, but in the last years becomes very difficult to obtain a grant for sustain a zoological research. Remuneration of the Romanian zoologists is generally very poor, generally about around 200 euros for the young people that enter in the system, contributing to the lack of attractiveness that conducts to a stagnation of the dynamic and even the quality of human resources. Achieving the scientific performance becomes very difficult under these conditions, sometimes the only path being sacrificing the personal life.

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PHOTO EXHIBITION

Caving in the Abode of the Clouds – Meghalaya, India. Photo collective exhibition

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Key words: India, caves, bats, biospeleology, natural reserve.

The “**Caving in the Abode of the Clouds – Meghalaya, India**” collective exhibition presents images from the speleological exploration expedition with the same name, organized in 2011 and 2012 by the Meghalaya Adventures Association, together with Caving in the Abode of Clouds Project, with an international participation: Switzerland, Great Britain, Germany, Austria, India and Romania. Although the expedition was mainly concentrated on research/mapping of new developed caves, other scientific topics were also encouraged as part of the local biodiversity conservation.

In 2011, Manuel Ruedi - curator at the Natural History Museum in Geneva, developed a project to estimate the bat diversity of the Jaintia Hills area. This inventory revealed the presence of 16 species, one of which proved to be new to science: this new species was named *Murina jaintiana*.

The present exhibition brings together images of the fauna and flora of NE India. These pictures were made by Manuel Ruedi, Oana Chachula and Carmen Gache in Assam and Meghalaya, including reserve of Pabitora and the Kaziranga National Park that are well known for their *Rhinoceros unicornis* population.

As members of the speleological expedition were focusing on the karstic caves from Pala Range, Kachar and Jaintia Hills regions, this exhibition also presented a short introspection in the local culture and civilization.

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