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*Melanogaster* sp., photo: Hélène VIDALLET

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Welcome to our 2<sup>nd</sup> issue of *Biospeologica Bibliographia - Publications*.

Any suggestions are welcome and should be submitted to the editors at: [bernard.lebreton.bl@gmail.com](mailto:bernard.lebreton.bl@gmail.com).

We strongly encourage everybody to submit new titles and abstracts.

Sincerely yours.

Bienvenue sur notre 2<sup>e</sup> numéro de *Biospeologica Bibliographia - Publications*.

Toute suggestion est la bienvenue à l'adresse mel: [bernard.lebreton.bl@gmail.com](mailto:bernard.lebreton.bl@gmail.com).

Nous vous encourageons à nous soumettre les nouveaux titres ainsi que vos résumés.

Sincèrement vôtres.

### Acknowledgments-Remerciements

AKKARI Nesrine, CAMACHO Ana Isabel, COOPER John E., FRESNEDA Javier, GEORGIEV Dilian Georgiev, LATELLA Leonardo, LOHAJ Roman, MANCONI Renata, MOCK Andrej, NARANJO Manuel, PÁLSSON Snæbjörn, PÉREZ Toni, PRICE Liz, RACOVIȚĂ Gheorghe, SEMIKOLENNYKH Andrey A., ŠUBA Jurgis, ŠEVČÍK Martin, TRAJANO Eleonora, VIVES Eduard, WHITTEN Tony, WITTMANN Karl J., ZARAGOZA Juan Antonio.

### Publications 2010

**AA. VV., 2010.** *Fauna acquatica ipogea, Ortoteri e Chiroterri del Parco Nazionale Dolomiti Bellunesi*. Parco Nazionale Dolomiti Bellunesi. Voir: SAMBUGAR (B.), FERRARESE (U.), MARTÍNEZ-ANSEMIL (E.) (E.), STOCH (F.), TOMASIN (G.) & ZULLINI (A.), La fauna acquatica delle grotte del Complesso dei Piani Eterni e Isabella nel Parco Nazionale Dolomiti Bellunesi:7-32.

**ABADIE (P.-M.), 2010.** Le memento de l'initiateur fédéral de spéléologie. Incitation à la découverte et la connaissance du milieu. Quelques pistes et éléments pour une initiation. Mémoire d'Instructeur 2010, 41 p.

**ABD RAHMAN (M. R.) & ABDULLAH (M. T.), 2010.** Morphological Variation in the Dusky Fruit Bat, *Penthetor lucasi*, in Sarawak, Malaysia. *Tropical Natural History* 10(2, October):141-158. <http://www.biology.sc.chula.ac.th/TNH/vol10%20no2.html>

**ABOLAFIA (J.), 2010.** Nematodos de la Cueva del Jabalí, Santiago-Pontones (Jaén). *Monografías Bioespeológicas* 5:9-16. RES: En este trabajo se hace un estudio de la nematofauna de una cueva de la provincia de Jaén, la Cueva del Jabalí (Santiago-Pontones), ubicada en la Sierra de Segura.

**ABRAMS (K.), GUZIK (M. T.), COOPER (S. J. B.), KING (R. A.) & AUSTIN (A. D.), 2010.** Systematics and phylogeography of Australian Parabathynellidae

(Crustacea: Bathynellacea):54. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The order Bathynellacea is an ancient group of subterranean aquatic (stygobitic) crustaceans which inhabit various groundwater habitats. Previous molecular and morphological research has revealed a striking diversity of species and remarkably high levels of short-range endemism within the bathynellacean family Parabathynellidae of arid Western Australia. This study is the first to utilize DNA sequence data to explore the higher level phylogenetic relationships amongst Australian parabathynellid taxa and examine their distribution throughout the continent. Sequence data was generated from a region of the mitochondrial DNA cytochrome oxidase 1 gene and nuclear 18S gene. The results suggest that genera are largely monophyletic and revealed numerous undescribed taxa. They also provide evidence for high levels of endemism in other regions of Australia, in addition to uncovering ancient connections amongst clearly disparate geographic locations. The tendency towards short-range endemism has rendered parabathynellids vulnerable to perturbations of groundwater, which has significant implications for their conservation management. The conservation value of these parabathynellids is a high priority not only because of their uniqueness, but also because of their role in biofiltration and as bioindicators of groundwater quality. These results also emphasize the conservation importance of groundwater habitats. <http://www.icsb2010.net/>

**ACHURRA (A.), CREUZÉ DES CHÂTELLIERS (M.) & RODRIGUEZ (P.), 2010.** Molecular and morphological analyses reveal the presence of two species in the

stygobiont oligochaete *Troglodrilus galarzai*:72. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: *Troglodrilus galarzai* (Giani & Rodriguez, 1988) is a stygobiont oligochaete species (Tubificinae, Clitellata, Annelida) in a monospecific genus. Its geographical distribution appears restricted to the south western Europe, and the populations known up to date occupy two well separated regions, namely northern Iberian Peninsula (Ereñozar and Gorbeia karstic units) and south eastern France (gallery of Montgelas and Crotot cave). A previous morphological study revealed some morphological differences between Iberian and French populations but concluded that they were not substantial to separate two species. More recently, we conducted a molecular analysis of two populations of the species (Gorbeia and Montgelas) using 16S rDNA and COI gene sequences and we have combined these results with a new detailed morphological analysis of all known populations. The obtained genetic distances between Gorbeia and Montgelas populations were 17.8-18.1% for COI sequences and 9.2-10% for 16S sequences, which together with mutual exclusivity of the haplotypes, supported the hypothesis of the presence of two cryptic species in *T. galarzai*. The new morphological study is mainly based on the reproductive system and grouped together Ereñozar + Gorbeia populations and Montgelas + Crotot populations. We found no overlap between Iberian and French populations for some measurements related with the penial sac and the spermathecal bulb, as well as key differences on the shape of the penial sheath between French and Spanish populations. Considering both the molecular results and the differences on the morphological characters between Iberian and French populations, we suggest the presence of two species in *T. galarzai*.  
<http://www.icsb2010.net/>

ÁDÁM (L.), 2010. Remarks on some European Aleocharinae, with description of a new *Rhopaletes* species from Croatia (Coleoptera: Staphylinidae). *Travaux du Muséum national d'Histoire naturelle "Grigore Antipa"* 53(Décembre):191-215. DOI: <http://dx.doi.org/10.2478/v10191-010-0015-6>.

ADAMS (D. C.) & NISTRÍ (A.), 2010. Ontogenetic convergence and evolution of foot morphology in European cave salamanders (Family: Plethodontidae). *BMC Evolutionary Biology* 10(July 16):216 DOI: <http://dx.doi.org/10.1186/1471-2148-10-216>.

ABS: Background: A major goal in evolutionary biology is to understand the evolution of phenotypic diversity. Both natural and sexual selection play a large role in generating phenotypic adaptations, with biomechanical requirements and developmental mechanisms mediating patterns of phenotypic evolution. For many traits, the relative importance of selective and developmental components remains understudied. Results: We investigated ontogenetic trajectories of foot morphology in the eight species of European plethodontid cave salamander to test the hypothesis that adult foot morphology was adapted for climbing. Using geometric morphometrics and other approaches, we found that developmental patterns in five species displayed little morphological change during growth (isometry), where the extensive interdigital webbing in adults was best explained as the retention of the juvenile morphological state. By contrast, three species exhibited significant allometry, with an increase in interdigital webbing during growth. Phylogenetic analyses revealed that multiple evolutionary transitions between isometry and allometry of foot webbing have occurred in this lineage. Allometric parameters of foot growth were most similar to those of a tropical species previously shown to be adapted for climbing. Finally, interspecific variation in adult foot morphology was significantly reduced as compared to variation among juveniles, indicating that ontogenetic convergence had resulted in a common adult foot morphology across species. Conclusions: The results presented here provide evidence of a complex history of phenotypic evolution in this clade. The common adult phenotype exhibited among species reveals that selection plays an important part in generating patterns of foot diversity in the group. However, developmental trajectories arriving at this common morphology are distinct; with some species displaying developmental stasis (isometry), while others show an increase in foot webbing during growth. Thus, multiple developmental solutions exist to the same evolutionary challenge. Our findings underscore the importance of examining morphological adaptations from multiple perspectives, and emphasize that both selective hypotheses and

developmental processes must be considered for a more comprehensive understanding of phenotypic evolution.

ADEN (E.), 2010. Eye development in the cave fish *Garra barreimiae*:113, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Eye degeneration is a general evolutionary tendency shown in many animal groups that are adapted to dark environments. Inside the Hoti Cave located in the Jabal Akhdar mountains in Oman lies a subterranean lake, which is home to the blind fish *Garra barreimiae*. Outside the cave, *Garra barreimiae* is a common species of eyed epigeal surface fish. The eyes of the blind cave fish and of its epigeal ancestor have been studied comparatively. The eye structure of the surface fish is a typical teleost eye. Parts of the eye of the cave fish show hypertrophy. Individuals compensate the lack of a lens in various ways with extreme growth of different parts of the eye. For instance, the anterior eye chamber is often filled out with a derivative of the annular ligament, and as a result the pupil no longer transmits light. The eye rudiment of the *Garra barreimiae* is not sunken in the orbit as is the case with other cave fish species. From these examples we can conclude that the adult cave fish population is very heterogeneous with regard to the size and structure of the eye rudiment. To understand how this diversity evolves, the ontogenetic eye development was investigated. During early ontogeny the differentiation of the eye of hypogean *Garra barreimiae* is similar to the epigeal one. All major structures are present. However, the lens remains in the embryonic stage, and no lens differentiation occurs. It disappears altogether at the age of three months. Initially there is a complete laminated retina with typical opsin expression in the photoreceptor cells. But opsin expression remains at a low level and ceases at the age of four months. On the other hand, other retinal strata like the amacrine cell layer are well differentiated in juvenile cave *Garra* and remain functional for longer than the photoreceptor cells. In adult animals, on the other hand, no evidence of functional retina cells could be detected. <http://www.icsb2010.net/>

AGNARSSON (L.), 2010. The utility of ITS2 in spider phylogenetics: notes on prior work and an example from *Anelosimus*. *Journal of Arachnology* 38(2, August):377-382. DOI: <http://dx.doi.org/10.1636/B10-01.1>.

AGUIAR (L. M. S.) & MACHADO (R. B.), 2010. Bat conservation in Brazil: the *Lonchophylla dekeyseri* Action Plan:83. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Brazilian bats, though not much known, are already threatened due to habitat destruction. *Lonchophylla dekeyseri* is an endemic nectarivorous bat that occurs in low density in caverns and holes in forested and more open vegetation physiognomies of the Cerrado biome. This characteristic makes the species extremely sensitive to the loss and degradation of its habitat. Deforestation for agricultural and cattle expansion, coal-pit, construction of dams, mining and forest fires represents the most critical threats. At present, the ecological tourism, especially the speleological, can represent a significant threat. *L. dekeyseri* population is estimated at circa of 2070 bats, all in the wild and none in captivity. There are confirmed records for *L. dekeyseri* in 23 Brazilian localities. Like other nectarivorous bats, the reproductive system is polygenic, with many females and few adult males. An action plan for the conservation of *L. dekeyseri* was concluded, composed of 10 basic actions including from activities of immediate implementation, such as the environmental monitoring of the species' occurrence areas, to the implementation of mid-term activities (e. g. the creation of supplementary protected areas), and to long term activities, such as the realization of environmental education and the development of new studies on population dynamics. Suggested actions also includes the recuperation of degraded areas, control of hematofagous bats, control of cave visitation, the environmental management of vegetation remnants, and the increase of both the number of environmentally protected units and of new inventories in the data gap regions. In the existing protected areas, there is a need for research on the species' ecology, using telemetry and population genetics, as well as the management of the already altered environments in such areas. Environmental education activities are

urgent, with bats being used as flag species of ecological processes, such as pollination and seed dispersal.

**AHYONG (S. T.), BABA (Ke.), MACPHERSON (E.) & POORE (G. C. B.), 2010.** A new classification of the Galatheoidea (Crustacea: Decapoda: Anomura). *Zootaxa* 2676(November 15):57-68, 2 pl., 82 réf. BL: Cf p. 64. "The Munidopsidae include the deepest dwelling galatheoids, usually occupying slope to abyssal depths, although one species, *M. polymorpha*, lives as shallow as 2 m in submarine caves (Baba & al., 2008). <http://www.mapress.com/zootaxa/list/2010/2676.html>

**AKMALI (V.), ESMAEILI RINEH (S.) & ALI (F.), 2010.**

Diversity and distribution of subterranean species in karst areas of Iran:129, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Species diversity includes the entire range of species found on earth. In recent years a rapidly increasing amount of information is available about the fauna of caves and other subterranean habitats. The basis of available information on abundance of cave-dwelling species in Iran together with data obtained from recent studies, including observations on more than 30 karst areas, allowed for an assessment of the distribution and diversity of cave-dwelling species. The diversity of subterranean animals in Iran is not known well and for now only few species were accidentally reported. Cave localities including Ghor-Ghale, Alisadr, Mozafar, Shirabad and Tadovan Caves are most important. In this study we found several species of cave-dwelling animals. The Iranian Cave-fish *Iranocypris typhlops* and *Paracobits smithi* are found in a well-like pool, the natural outlet of a subterranean limestone system of the Zagros Mountains in the Abe-Sirum Valley near Tange-Haft railway station in Lorestan Province, south-west Iran. The Gorganian salamander *Paradactylodon gorganensis* (Urodela, Hynobiidae) was found in the eastern part of the Elburz Mountains in Shirabad Cave of Golestan Province. Moreover, we encountered one large spider (Araneae: Sparacidae), one Pseudoscorpion, three species of lizard belong to family Gekkonidae (*Asacus elisae*, *Hemidactylus persicus* and *Asacus kermanshahensis*), two genera of crustacean (*Gammarus* and *Niphargus*), some species of insects and 14 species of Chiroptera including five species of *Rhinolophus* (*R. ferrumequinum*, *R. hipposideros*, *R. euryale*, *R. mehelyi* and *R. blasii*), three *Rhinopoma* (*R. microphyllum*, *R. hardwickei* and *R. muscatellum*), one *Taphozous* (*T. perforatus*), three *Myotis* (*M. emarginatus*, *M. blythi* and *M. capaccinii*), one *Miniopterus* (*M. schreibersii*), one *Rousettus* (*Rousettus aegyptiacus*), one *Asellia* (*A. tridens*), *Plecotus* (*P. austriacus*) and one *Triaenops* (*T. persicus*). According to the criteria listed in the IUCN Red List Categories 2010, *Iranocypris typhlops* and *Paradactylodon gorganensis* are ranked as Vulnerable and critically endangered. One of the largest challenges regarding these species is disturbance of cave or karst habitat, especially by human activities. Almost all caves have been excavated extensively and vandalism is a major threat to species in caves. <http://www.icsb2010.net/>

**AKMALI (V.), SHARIFI (M.), DARVISH (J.) & ESMAEILI RINEH (S.), 2010.** Distribution and abundance of cave-dwelling bats in Fars province, Iran: implication to bat conservation. Poster 44:69. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p.

**AKMALI (V.), SHARIFI (M.), DARVISH (J.) & ESMAEILI RINEH (S.), 2010.** Distribution and abundance of cave-dwelling bats in the Fars province, Iran: Implications for bat conservation:84-85. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: The distribution and abundance of cave-dwelling bats were investigated in the Fars Province in Iran. Data were collected in February, March, April and May 2007 until 2010, from 16 caves, 14 of which had not been previously known as bat roosts. In this study 15 species were recorded;

viz. *Rhinolophus ferrumequinum*, *R. hipposideros*, *R. euryale*, *R. mehelyi*, *R. blasii*, *Rhinopoma microphyllum*, *R. muscatellum*, *Taphozous perforatus*, *Myotis emarginatus*, *M. blythi*, *M. capaccinii*, *Miniopterus schreibersii*, *Rousettus aegyptiacus*, *Asellia tridens*, and *Triaenops persicus*. Estimates of bat abundance have been made on the basis of emerge count or direct measurements. The most abundant species were *Miniopterus schreibersii*, *Asellia tridens*, *Myotis blythii*, *Rhinopoma muscatellum*, *R. microphyllum* and *Rousettus aegyptiacus*. The roosts were evaluated for their conservation importance based on human disturbance, remains of vandalism and recent organized change in cave usage. The most important sites in the Fars Province were the Tadovan and Sang-Eshkan caves. The Tadovan and Manian caves serve as hibernacula to approximately five bat species. The Bushigan cave is a nursery roost to approximately 2000 individuals of *Rousettus aegyptiacus*. Presently, none of the caves in the province has adequate protection and some bat populations are under serious threat. Almost all caves have been excavated extensively and vandalism is a major threat to bat in caves. Moreover, in recent years important caves have lost their entire bat populations when the cave converted for tourism activities or used as water abstraction centre for human settlements. Comparing population estimates made in 4-5 decades ago with recent estimate in some caves indicate shocking loss in population of these animals.

**ALAOUI SOSSÉ (B.), ALAOUI SOSSÉ (L.), BORDERIE (F.), RAOUF (N.), BOUSTA (F.), 2010.** Évaluation de l'utilisation du rayonnement UV-C pour limiter la prolifération ou détruire les micro-organismes (algues et champignons) contaminants des milieux obscurs. Chrono environnement - Université de Franche Comté - UMR 6249 - LRMH. Champs-sur-Marne: LRMH; [Besançon]: Chrono-environnement, UMR 6249, 2010. 30 p.: ill. en noir et blanc; 30 cm. Rapport correspondant à la subvention conclue en 2008 entre le Ministère de la culture et de la communication, LRMH et l'Université de France-Comté, Chrono-environnement, UMR 6249. Diffusion restreinte. Communication soumise à autorisation. Photocopies interdites. Cote LRMH: G391. MC: Grotte, Peinture, Photosynthèse, Algues, Microorganisme, Pigment, Lumière, UV, UVC, Traitement, Essai, Mesure, Chlorophylle, Microbiologie, Chlorophycée, Dinophycée, Contrôle, Art pariétal, Grotte ornée, Algues vertes, *Klebsormidium flaccidum*.

**ALEGRE BARROSO (A.) & BARBA DÍAZ (R.), 2010.** *Jimenezella decui* Avram, 1970: un opilión cubano amenazado (Arachnida: Opiliones)". *Boletín de la Sociedad Entomológica Aragonesa* 47(2° semestre):455-456. RES: Se aportan datos de la distribución geográfica de *Jimenezella decui* Avram, 1970, su biología, el estado de conservación de las cuevas donde habita y sus posibles amenazas. Se propone la inclusión de este arácnido en la Lista Roja de los Invertebrados de Cuba.

**ALJANČIČ (G.), 2010.** Fifty years of Tular Cave laboratory:113-114. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Tular is a natural cave, which was formed by a local stream in the Sava river Pleistocene conglomerates in Kranj, Slovenia. It was first mentioned already in 1689 by the famous naturalist J. V. Valvasor. Later, a subspecies of a cave beetle, *Anophthalmus miklitzii* ssp. *staudacheri* has been described from this cave. In 1944 it was partly walled into an air-raid shelter for the nearby factory. In 1960, with the support of the Biological Institute at the Medical Faculty in Ljubljana, and through the help of the town of Kranj, the cave was turned into a laboratory by speleobiologist Marko Aljančič (1933-2007), who populated it with the European cave salamander, *Proteus anguinus* (Amphibia: Urodela). It is the only cave laboratory in Slovenia and - apart from the cave laboratory in Moulis, France - the only place with successful breeding of this endangered cave amphibian in captivity. Since 2002, a colony of the dark pigmented subspecies, *Proteus anguinus parkelj* is also studied in this laboratory. In the laboratory, the ecology and behaviour of *Proteus*, mainly its breeding, are studied. Considerable effort was put in the fieldwork - observing *Proteus*' behaviour, surveying environmental parameters of the habitat, verifying the old data on its

presence and documenting new localities. Another important subject is the study of the history of research of *Proteus*. Owing to this interest, the laboratory has put together an extensive library on this species. The laboratory also raises the public awareness of *Proteus* as the symbol of the Slovene natural history, with special emphasis on nature conservation. Since the beginning, one of the missions of Tular was to establish a breeding colony, which could reintroduce *Proteus* back to a destroyed habitat. This idea became most urgent after the discovery of an extremely vulnerable and rare *P. a. parkelj* in SE Slovenia, where even a local pollution could destroy the entire population. Occasionally, the laboratory serves as a sanctuary for injured specimens that were washed out of their subterranean habitat. <http://www.icsb2010.net/>

**ALJANCI   (G.) & PRELOV  EK (M.), 2010.** Does *Proteus* detect and react to a sudden rise of water conductivity which indicates incoming flood?:114-115, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The European cave salamander, *Proteus anguinus* (Amphibia: Urodela) is restricted to its aquatic cave habitat. However, during seasonal flooding, some individuals are washed out of their subterranean environment. In fact, this was the only way to obtain *Proteus* through the early decades of its research. Also, many new localities were discovered on the account of this, obviously not rare, phenomena. Though this may be considered as a highly hazardous way of *Proteus* to disperse into new habitats, it is clear that all these individuals present a constant loss for their population. There are several suggestions how *Proteus* could directly detect the coming flood and search for shelter (sensing sudden rise of water level/increase of water current, detecting changes of sound owing to the higher water level/percolating water, sensing the changes of temperature/chemistry of water, etc.), though none of them were observed or tested. Recently, another possibility was proposed by M. Prelov  sek. Precise measurements of several physical and chemical parameters of cave water have revealed a significant rise in electrical conductivity shortly after first rain, up to several hours before a substantial rise of the water level. Namely, the rain above the cave squeezes the old, saturated water from the aquifer. A fast response of local infiltration of precipitation is followed by higher but later flow of water from a distant but larger catchment area, which actually brings the flood, and a rapid decrease of electrical conductivity. On the basis of a short preliminary behavioural test, performed in the Tular Cave Laboratory, it was not possible to conclude with certainty whether *Proteus* is sensitive to the changes of electrical conductivity in the range that appears in a cave water prior the flood. Further laboratory investigation, supported by observation in nature is needed. <http://www.icsb2010.net/>

**ALLEGRUCCI (G.), TREWICK (S. A.), FORTUNATO (A.), CARCHINI (G.) & SBORDONI (V.), 2010.** Cave Crickets and Cave Weta (Orthoptera, Rhaphidophoridae) from the Southern End of the World: A Molecular Phylogeny Test of Biogeographical Hypotheses. *Journal of Orthoptera Research* 19(1):121-130. DOI: <http://dx.doi.org/10.1665/034.019.0118>. ABS: In this study we reconstructed the molecular phylogeny and attempted to infer historical biogeography of a sample of cricket species, most of them cave-dwelling, belonging to the subfamily Macropathinae (Orthoptera, Rhaphidophoridae) which shows a clear Gondwanan distribution. We sequenced fragments of 4 genes (12S rRNA, 16S rRNA, 18S rRNA and 28S rRNA), for a total of 1993 bp. We present here preliminary data based on a total of 17 species, 11 belonging to Macropathinae and representative of the main regions of Gondwanaland, 7 to Aemodogryllinae and Rhaphidophorinae from India, Bhutan, China, Philippines and the Sulawesi Islands. The use of relaxed molecular clocks by means of Bayesian analysis allowed us to estimate the timing of the main cladogenetic events, using calibration of a molecular clock; the clock is based on the plate disjunction of Africa from South America, Australia from Zealandia (New Zealand), or Australia from Antarctica. The latter was considered at two different datings on the basis of two alternative palaeogeographic hypotheses. Node dating using separation of Africa or a model of earlier separation of Australia from Antarctica, suggests that the main cladogenetic events in the Macropathinae phylogeny could be explained by vicariance hypotheses, related to the Gondwana fragmentation. However, two other equally valid calibrations

suggest that lineage formation is not consistent with vicariant processes and requires either some long-distance dispersal, or an inconceivable age of origin of this family of insects, enabling the prior existence of all lineages in Gondwanaland with subsequent regional extinction. KW: Gondwanaland, molecular rates, biogeography, cave crickets, Macropathinae, Rhaphidophoridae.

**ALLEGRUCCI (G.), TRUCCHI (E.) & SBORDONI (V.), 2010.** Patterns of speciation in *Dolichopoda* cave crickets (Orthoptera, Rhaphidophoridae):54-55. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: This study focuses on the phylogenetic relationships among ninety percent of known *Dolichopoda* species (44 out of 49); primarily a Mediterranean genus, distributed from eastern Pyrenees to Caucasus. A total of 2490 base pairs were sequenced corresponding to partial sequences of one nuclear (28S rRNA) and three mitochondrial genes (12S, 16S and COI). A relaxed molecular clock, inferred from Bayesian analysis was applied to estimate the divergence times between the lineages using well dated palaeoevents of the study areas. Molecular substitution rates per lineage per million years were also obtained for each analysed gene. Based on the nearly complete species phylogeny, temporal patterns of diversification were analysed using Lineage-Through-Time plots and diversification statistics. Alternative hypotheses about the colonization of western Mediterranean by *Dolichopoda* species were tested by means of Approximate Bayesian Computation analysis and by comparing the degree of discordance between species trees and gene trees under four plausible biogeographic scenarios. Both phylogenetic reconstruction and results from the biogeographical hypotheses test suggested that the current distribution of *Dolichopoda* species has been essentially shaped from the palaeogeographic and climatic events occurred in the Mediterranean region, starting from Late Miocene up to the Plio-Pleistocene. Our results suggest that the current distribution of *Dolichopoda* can be explained by a combination of both vicariance and dispersal events, with many processes occurring in ancestral epigeal populations before the invasion of the subterranean environment. <http://www.icsb2010.net/>

**ALLEN (L. C.), TURMELLE (A. S.), WIDMAIER (E. P.), HRISTOV (N. I.), McCracken (G. F.) & KUNZ (T. H.), 2010.** Variation in Physiological Stress between Bridge- and Cave-Roosting Brazilian Free-Tailed Bats. *Conservation Biology Early View* (Articles online in advance of print). DOI: <http://dx.doi.org/10.1111/j.1523-1739.2010.01624.x>. ABS: Since the late 1980s, Brazilian free-tailed bats (*Tadarida brasiliensis*) have increasingly used bridges as roosts in the southern United States. We examined differences in blood cortisol levels, body condition, and parasite load, as measures of physiological stress in bats roosting in bridges and bats roosting in caves. We collected data during three periods, coinciding with female phases of reproduction. For all measures, bats were captured during the nightly emergence from the roost and immediately sampled. Cortisol levels were significantly higher during pregnancy and lactation and in individuals with lower body-condition scores (length of forearm to mass ratio) and significantly higher in bats roosting in caves than in those roosting in bridges. Thus, we concluded that individuals of this species that roost in bridges are not chronically stressed and seem to be unaffected by human activities present at bridges. This is a rare documented instance where a human-dominated environment does not appear to be adversely affecting the physiological health of a free-ranging animal. RES: Desde fines de la d  cada de 1980, murci  lagos (*Tadarida brasiliensis*) han incrementado el uso de puentes como perchas en el sur de los Estados Unidos. Examinamos las diferencias en los niveles de cortisol en la sangre, condici  n del cuerpo y carga de par  sitos, como medidas del estr  s fisiol  gico en murci  lagos que perchan en puentes y murci  lagos que perchan en cuevas. Recolectamos datos durante 3 per  odos, coincidentes con las fases reproductivas de hembras. Para todas las medidas, los murci  lagos fueron capturados al salir de sus perchas y procesados inmediatamente. Los niveles de cortisol fueron significativamente mayores durante el embarazo y la lactancia y en individuos con valores bajos en la condici  n del cuerpo (relaci  n longitud del antebrazo - masa) y significativamente mayores en murci  lagos que perchan en cuevas que en los que perchan en puentes. Por lo tanto, concluimos que los individuos de esta especie que perchan en puentes no est  n estresados cr  nicamente y parece que las actividades humanas en el puente no les

- afectan. Esta es una rara instancia en la que un ambiente dominado por humanos parece no afectar negativamente la salud fisiológica de una especie de libre movimiento. KW: Artificial roosts, bats, conservation physiology, cortisol, disturbance, stresscortisol, estrés, fisiología de la conservación, perchas artificiales, perturbación.
- American Museum of Natural History, 2010.** Phylogenetic analysis of Mexican cave scorpions suggests adaptation to caves is reversible. *ScienceDaily* March 18. <http://www.sciencedaily.com/releases/2010/03/100312133722.htm>.
- ANDERSON (G.), 2010.** Cumacea Classification. January 20. <http://peracarida.usm.edu/CumaceaTaxa.pdf>. BL: 1593 espèces.
- ANDERSON (G.), 2010.** Lophogastrida Classification. January 20. <http://peracarida.usm.edu/LophogastridaTaxa.pdf>. BL: 58 espèces.
- ANDERSON (G.), 2010.** Mysida Classification. January 20. <http://peracarida.usm.edu/MysidaTaxa.pdf>. BL: 1106 espèces.
- ANDERSON (G.), 2010.** Stygiomysida Classification. January 20. <http://peracarida.usm.edu/StygiomysidaTaxa.pdf>. BL: 16 espèces.
- ANDERSON (T.), 2010.** New Species from Ancient Caves. *National Wildlife Federation* 01-15-2010:2 p., <http://www.nwf.org/News-and-Magazines/National-Wildlife/Animals/Archives/2010/>. ABS: Biologists exploring the underworld of California's southern Sierra Nevada are discovering a host of new species as well as threats to cave habitat. <http://www.nwf.org/News-and-Magazines/National-Wildlife/Animals/Archives/2010/>
- ANDREEV (A. I.), STAROVA (O. S.), SHUSTOV (V. M.) & al., 2010.** Respiration rate and thermal preferences of stygobiont amphipods from Babinogorskaya cave. 4<sup>th</sup> *International Scientific Conference to commemorate Prof. G. G. WINDERG, "Modern Problems of Aquatic Ecology"* St. Petersburg, Russia, 11-15 October 2010, Zoological Institute of Russian Academy of Sciences, Russian Hydrobiological Society, St. Petersburg Scientific Centre of Russian Academy of Sciences, Scientific Council of Hydrobiology and Ichthyology of Russian Academy of Sciences, Russian Foundation for Basic Research, book of abstracts, edited by Andrey PRZHIBORO, St. Petersburg. <http://www.zin.ru/conferences/winberg2010/>
- ANKER (A.), 2010.** *Metabetaeus* Borradaile, 1899 revisited, with description of a new marine species from French Polynesia (Crustacea: Decapoda: Alpheidae). *Zootaxa* 2552(July 29):37-54, 16 pl., 16 réf. ABS: The alpheid shrimp genus *Metabetaeus* was previously known from two species associated with anchialine pools and caves, *M. minutus* (Whitelegge, 1897) and *M. lohena* Banner & Banner, 1960. In the present study, a somewhat unusual, coral reef inhabiting species of *Metabetaeus*, *M. mcphersonae* n. sp., is described based on one male and three female specimens collected off Moorea, Society Islands, French Polynesia. A detailed diagnosis of *Metabetaeus* is provided for the first time, accommodating characters of all three species. Distribution ranges are updated for *M. minutus*, recorded for the first time from Sulawesi and Christmas Island in the Indian Ocean, and for *M. lohena*, recorded for the first time from Rapa Nui (Easter Island). A key to the species of *Metabetaeus* is also provided. KW: Caridea, Alpheidae, shrimp, *Metabetaeus*, new species, Pacific Ocean, French Polynesia, Indian Ocean, new records. <http://www.mapress.com/zootaxa/list/2010/2552.html>
- ANONYME, 2010.** Carnet noir: Reno BERNASCONI nous a quittés. Vendredi, 23 Avril 2010 11:18.
- ANONYME, 2010.** Convention on International Trade in Endangered Species of Wild Fauna and Flora. Fifteenth meeting of the Conference of Parties Doha (Qatar), 16-28 January 2010. Consideration of Proposals for Amendment of Appendices I. 13 p.
- ANONYME, 2010.** Convention on International Trade in Endangered Species of Wild Fauna and Flora. Fifteenth meeting of the Conference of the Parties Doha (Qatar), 13-25 March 2010. Consideration of Proposals for Amendment of Appendices I and II. 10 p.
- ANONYME, 2010.** Journey to the interior. *Wings of Oman* (November):20-26 (5 p.).
- ANONYME, 2010.** Lascaux cave paintings are safe for moment. *The Advertiser, Dordogne* 17(July):3.
- ANONYME, 2010.** Les Chiroptères et la législation minière. *Chiroptères Infos* 5(Novembre):1-2.
- ANONYME, 2010.** News and notes: See the bats of bracken cave. *Bats* 28(1, Spring):16. <http://www.batcon.org/index.php/media-and-info/bats-archives.html>
- ANONYME, 2010.** News and notes: The bat cave is back. *Bats* 28(1, Spring):17. <http://www.batcon.org/index.php/media-and-info/bats-archives.html>
- ANONYME, 2010.** Reno BERNASCONI. Membre d'honneur de la SSS 1933-2010. *ANAR Bull'* 28:8.
- ANTOLINC (E.), JANŽEKOVIČ (F.), PERC (M.) & NOVAK (T.), 2010.** Cold-hardiness in central European troglaphiles and troglonexes:115. In: 20<sup>th</sup> *International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Cold-hardiness is the ability of organisms to survive shorter or longer exposure to temperatures lower than those causing their body fluids to freeze. Troglonexes, characterized as not adapted, and troglaphiles not completely adapted to hypogean, thermostable environments, have not lost their ability to withstand freezing, while troglaphiles presumably did. We hypothesized that troglaphiles are less cold-hardy than troglonexes, which are better adapted to unstable epigeal environments, including freezing. We assumed that cold-hardiness can serve as one of relevant measures to discuss the degrees of adaptation to hypogean environments. In our investigation, 25 troglonexes and troglaphile species temporary or permanently inhabiting central European caves, and three troglaphile reference species were tested for their cold resistance. The specimens for the analysis were collected in winter and summer, if present in caves, otherwise once a year in either of these seasons. We measured their supercooling points (SCPs) within a precise thermostatic cooling chamber, starting at -2.0°C, and stopped at -12.0°C, which no individual sustained. The specimens were exposed to the experimental temperature for 24 hrs and afterwards they were hold for 48 hrs in a refrigerator at 2.0°C. The procedure was carried out consequently at 1.0°C lower temperatures until reaching the SCP. As expected, troglaphiles are generally less cold-hardy than troglonexes. The SCP values differed much with respect to the species and developmental stages, while the differences between winter and summer individuals were negligible. The resistance to cold is not sex-dependant. <http://www.icsb2010.net/>
- AR GALL (E.) & LE DUFF (M.), 2010.** Intercalibration de l'indicateur "macroalgues intertidales" dans le cadre de l'application de la Directive Cadre sur l'eau. Rapport de contrat. <http://archimer.ifremer.fr/doc/00026/13728/>
- ARBEA (J. I.) & PÉREZ (T.), 2010.** Contribución al conocimiento de los Colémbolos Cavernícolas de la Provincia de Jaén (II): Cuevas del Municipio de Siles. *Bioespeleología*:126-129. En *Historia de las Exploraciones y Catálogo de Cavidades del Término Municipal de Siles*. Grupo de Espeleología de Villacarrillo (G. E. V.) (ed.). RES: Lista de especies de colémbolos encontrados por el G. E. V. en cavidades del término municipal de Siles (Jaén).
- ARIANI (A. P.) & WITTMANN (K. J.), 2010.** Feeding, Reproduction, and Development of the Subterranean

- Peracarid Shrimp *Spelaemysis bottazzii* (Lepidomysidae) from a Brackish Well in Apulia (Southeastern Italy). *Journal of Crustacean Biology* 30(3, August):384-392. DOI: <http://dx.doi.org/10.1651/09-3150.1>. ABS: A population of the "eyeless" hypogean shrimp *Spelaemysis bottazzii* was studied over a three-year period in a shallow brackish-water well about 1 km from the Mediterranean coast. Mature males and immature females were numerous year round, whereas breeding females and juveniles were rare. The main stages of young in the brood pouch were embryos, nauplioids, and postnauplioids; all were unpigmented, unlike the postnauplioids in a congeneric species. In this well, the free-living stages fed mainly on autotrophic micro-organisms. The accumulation of fat reserves was judged from the amount of subcuticular fat bodies and from body colour. Fat status improved with increasing body size in both sexes; seasonal variations were not significant. Only "fat" specimens produced eggs. Females incubating eggs were fatter than those with larvae. Field and laboratory findings suggest that fat accumulation near the photic zone is necessary for egg formation, whereas larval incubation is very long and mostly occurs elsewhere, probably in deep groundwater under unfavourable nutritional conditions. The observed post-reproductive reduction of oöstegites may indicate a peculiar strategy to avoid a new breeding cycle before reconstitution of fat reserves. The findings on feeding and reproduction, particularly regarding fecundity and natality, are interpreted as a combination of typically hypogean features along with epigean environmental adaptations. KW: Brackish water, fat status, fecundity, ground water, hypogean habitats, marsupial incubation, secondary sexual characteristics, *Spelaemysis bottazzii*.
- ASSING (V.), 2010.** Four new species and additional records of Staphylinidae from Spain, primarily from the south (Insecta: Coleoptera). *Linzer Biologische Beiträge* 42/2(19.XII):1105-1124. <http://www.landesmuseum.at/biophp/lbb.php>
- Association TM 71, 2010.** Réserve Naturelle. Grotte du T. M. 71. Évaluation Plan gestion 2004-2008 version 1.2. Novembre 2009-Décembre 2010, 95 p.
- AUDIBERT (C.), 2010.** Liste commentée des Mollusques terrestres et dulcicoles de la région Rhône-Alpes. *Folia conchyliologica* 2(Juillet):5-29, avec les photos d'Alain BERTRAND. <http://cernuelle.com/download.php?lng=fr>
- AUDIBERT (C.), ERŐSS (Z. P.), PÁLL-GERGELY (B.), HUNYADI (A.) & FEHÉR (Z.), 2010.** Nouvelles données sur la répartition des Gastéropodes (Mollusca, Gastropoda) continentaux de Turquie. *Biocosme mésogéen* 27(2):43-69. BL: Cf p. 57, *Mesolimax* sp. (cf. *brauni* ?) - MERSİN, Erdemli, 27 km au sud-ouest, grotte de Cennet Çöküğü ; 28-III-2002 (EZP, FZ & HA).
- AVGUŠTIN (G.), GRAMC (S.), BIZJAK MALI (L.), BULOG (B.) & AMBROŽIČ AVGUŠTIN (J.), 2010.** The structure and diversity of the microbial community inhabiting the hind gut of the olm (*Proteus anguinus*):163. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The amphibian salamanders known as "olms" inhabit the Karst underground systems along the Mediterranean Sea. Adapted exclusively to underground environment, which is denoted by complete darkness and lack of nutrients, they have developed an ability to survive for long periods without or with very little food. Since they are predators living mainly on avertebral pray, containing chitin, their microbial gut symbionts are most likely crucially involved in their nutrition. However, such possibilities have not yet been investigated intensely. Here we describe the first attempts to reveal the structure of the microbial community inhabiting of the olm's gut by traditional culturing and molecular biology approach. The gut contents of the animals from the "Planinska jama" underground Karst cave located in the South West of Slovenia were used for total microbial DNA isolation and subsequently the 16S ribosomal RNA genes were amplified using conserved bacterial and archaeal oligonucleotide primers. The randomly selected clones containing inserted amplicons were sequenced at Marogen Inc. Our efforts to amplify the acraeal 16S rRNA genes were not successful. The comparative sequence analysis of the bacterial part of the community displayed a rather unusual structure, however, with more than 80% of the retrieved sequences belonging to representatives of the bacterial phylum *Firmicutes* and within them to the genus *Peptostreptococcus* Incertae Sedis of the clostridial class. The rest of the sequences were assigned to *Firmicutes* too, mainly to the genus *Clostridium* and to unclassified *Clostridiales*. The closest hits in RDP databank were sequences from uncultured bacteria from the gut contents of various animals. Several pure cultures were already retrieved which possess chitinolytic activity. The specificity of the olm's gut microbiota structure coincides well with the uniqueness of its host, of the host's environment and nutritional particularity. <http://www.icsb2010.net/>
- ÁVILA-FLORES (R.), 2010.** Resource selection by slow- and fast-flying insectivorous bats in a heavily urbanized landscape:91-92. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: An acoustic bat monitoring conducted in Mexico City in 2002 suggested that fast- and slow-flying insectivorous species exhibited different patterns of habitat use while foraging in the urban landscape. Based on a limited number of species detected, it was apparent that molossids were the most successful species in the city, presumably because the high flight altitude associated with fast flight would allow them to have access to virtually any place in the city. Small vespertilionids, on the other hand, seemed to be restricted to large vegetated areas within the urban landscape (large parks) or off the city. In this study, I use historical records of bats collected in the Mexico City area (<10 km from the edge of the city) to test the hypothesis that fast- and slow-flying species select urban habitats differently. I found a similar number of individual records for slow and fast flyers, but most records from heavily urbanized locations belonged to only 3 species: molossids *Tadarida brasiliensis* and *Nyctinomops macrotis*, and vespertilionid *Lasiurus cinereus*. Interestingly, the 3 species have a high wing aspect ratio (indicative of fast flight) and have been found flying at high altitudes. In contrast, most slow-flying vespertilionids were collected either before 1985 (when the city was less urbanized) or in the more rural suburbia. The few slow flyers that reached centric locations were collected within large vegetated areas or very close to them. The limited information on roost selection by bats indicates that roosts are not a limiting factor for molossids in the city, but they could be limiting for tree- and cave-dwelling vespertilionid species. This analysis suggests that a combination of flight performance and roost requirements explain the success of some insectivorous species in heavily urbanized landscapes.
- AZÚA-BUSTOS (A.), GONZÁLEZ-SILVA (C.), SALAS (L.), PALMA (R. E.) & VICUÑA (R.), 2010.** A novel subaerial *Dunaliella* species growing on cave spiderwebs in the Atacama Desert. *Extremophiles* 14(5):443-452. DOI: <http://dx.doi.org/10.1007/s00792-010-0322-7>. ABS: Strategies for life adaptation to extreme environments often lead to novel solutions. As an example of this assertion, here we describe the first species of the well-known genus of green unicellular alga *Dunaliella* able to thrive in a subaerial habitat. All previously reported members of this microalga are found in extremely saline aquatic environments. Strikingly, the new species was found on the walls of a cave located in the Atacama Desert (Chile). Moreover, on further inspection we noticed that it grows upon spiderwebs attached to the walls of the entrance-twilight transition zone of the cave. This peculiar growth habitat suggests that this *Dunaliella* species uses air moisture condensing on the spiderweb silk threads as a source of water for doing photosynthesis in the driest desert of the world. This process of adaptation recapitulates the transition that allowed land colonization by primitive plants and shows an unexpected way of expansion of the life habitability range by a microbial species. KW: *Dunaliella*, Atacama Desert, Evolution, Cave, Adaptations, Water.
- AZÚA-BUSTOS (A.), GONZÁLEZ-SILVA (C.), SALAS (L.), WYNNE (J. J.), McKAY (C. P.), PALMA (R. E.) & VICUÑA (R.), 2010.** Atacama Desert Caves as Analog Models of Habitability for Microbial Life on the Surface of Mars. Astrobiology Science Conference 2010.
- AZÚA-BUSTOS (A.) & VICUÑA (R.), 2010.** Chilean Cave *Cyanidium*. Cellular Origin, Life in Extreme Habitats and

- Astrobiology, 1, Volume 13, Red Algae in the Genomic Age, Part 4, Pages 427-439. DOI: [http://dx.doi.org/10.1007/978-90-481-3795-4\\_23](http://dx.doi.org/10.1007/978-90-481-3795-4_23). ABS: Caves represent an interesting habitat for searching life in extreme environments, since they offer a stable protected environment from harsh and changing outside prevailing conditions. Here we report that in a coastal cave of the hyperarid Atacama Desert, a member of the ancient eukaryote red algae *Cyanidium* group was found forming a seemingly monospecific biofilm growing under extremely low photon flux levels. Our work suggests that this species, *Cyanidium* sp. Atacama, is a new member of a recently proposed novel monophyletic lineage of mesophilic "cave" *Cyanidium* sp., distinct from the remaining three other lineages which are all thermo-acidophilic. The cave described here may be acting as an evolutionary island for life in the midst of the Atacama. KW: Cave *Cyanidium*, Atacama Desert, red algae, Mars analogs.
- BAČKOR (P.), 2010.** Abandoned old mines in the Central Slovakia: Important bat hibernation sites. Poster 65:71. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p.
- BAČKOR (P.), 2010.** Abandoned old mines in the Central Slovakia: Important bat hibernation sites:95. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: The mountains of the Banská Bystrica region (48°43'N, 19°08'E) represented very important copper deposit (Špania dolina, Ľubietová and Osrblie) for the entire medieval Europe of the 14-16<sup>th</sup> centuries. Mining was abandoned at these sites approximately 200 years ago and some of the mines serve as bat hibernacula. Altitudinal distribution of these hibernation sites range from 440 to 850 m a. s. l. The analysed data were obtained in January and February (usually winter census) and cover a seven-year period (2003-2010). Altogether 714 inds. of 11 bat species (*Rhinolophus ferrumequinum*, *R. hipposideros*, *Myotis bechsteinii*, *M. blythii*, *M. myotis*, *M. mystacinus*, *M. brandtii*, *M. daubentonii*, *M. emarginatus*, *Barbastella barbastellus*, *Plecotus auritus*, and *P. austriacus*) were recorded hibernating in seven old mines (mine length 50-1500 m). This number represents 39.3% of the bat fauna of Slovakia (n=28). The predominant species were *R. hipposideros* (d=69.6%; F=26.1%) and *M. myotis* (d=22.7%; F=13.0%). *Barbastella barbastellus* also ranked among abundant bats (d=3.8%; F=4.3%). With respect to the population trend of predominant species a moderate increase ( $r^2=0.664$ ;  $p=0.073$ ) was recorded. The main threat to the hibernating bats represent mineral collectors as the mines are type sites for three minerals.
- BAČKOR (P.), UHRIN (M.), VIŠŇOVSKÁ (Z.), URBAN (P.) & GRESCH (A.), 2010.** Preh'ad nálezov netopierov (Chiroptera) a chiropterologická bibliografia Národného parku Nízke Tatry (stredné Slovensko) [Review of bat records (Chiroptera) and chiropterological bibliography of the Nízke Tatry National Park (Central Slovakia)]. *Vespertilio* 13/14:3-34. ABS: Altogether 20 bat species were recorded in the Nízke Tatry National Park (Nízke Tatry Mts., Lower Tatra Mts.), including the buffer zone and adjacent areas in 1996-2010. The results include 621 bat records from the winter period and 129 records from the summer period. In total, 399 localities with bat occurrence were recorded: 123 new or unpublished, 218 published and 58 osteological sites. The main method of research (85% of the records) was winter census in hibernacula (caves, old mines, house basement, etc.). Additional methods included bat detecting, census in summer roosts and netting. The following species were found: *Rhinolophus ferrumequinum*, *R. hipposideros*, *Myotis bechsteinii*, *M. blythii*, *M. myotis*, *M. brandtii*, *M. mystacinus*, *M. daubentonii*, *M. dasycneme*, *M. emarginatus*, *M. nattereri*, *Pipistrellus pipistrellus*, *Nyctalus noctula*, *Eptesicus nilssonii*, *E. serotinus*, *Vespertilio murinus*, *Barbastella barbastellus*, *Plecotus auritus*, and *P. austriacus*. They make up 71.1% of the bat fauna of Slovakia. Altitudinal distribution of the sites was between 375 and 1510 m a. s. l. (range 1135 m). The dominant species were *Myotis myotis* (65.7%), *Rhinolophus hipposideros* (15.1%) and bats of the *Myotis mystacinus* complex (7.8%). *Myotis myotis* showed also the highest frequency of observations (22.7%), followed by *Rhinolophus hipposideros* with 22.3%, and *Eptesicus nilssonii* with 10.0%. In the study area, we confirmed nursery colonies (mostly in the loft spaces) of the following species: *Rhinolophus hipposideros*, *Myotis myotis*, *M. blythii*, *M. emarginatus*, and *Vespertilio murinus*. The northern part of the Nízke Tatry Mts. (mainly the Demänovské jaskyne Cave System) is an important hibernation area of *Eptesicus nilssonii* and bats of the *Myotis mystacinus* complex in Slovakia. A complete bibliography of the literature on bats of the Nízke Tatry Mts. is added: altogether 101 published and 20 unpublished papers were gathered. KW: Bats, faunistics, hibernacula, summer roosts, literary sources, Western Carpathians. <http://www.ceson.org/publikace.php?p=13>
- BAEZA (J. A.), 2010.** Observations on the sexual system and the natural history of the semi-terrestrial shrimp *Merguia rhizophorae* (Rathbun, 1900). *Invertebrate Biology* 129(3, Summer):266-276. DOI: <http://dx.doi.org/10.1111/j.1744-7410.2010.00200.x>. ABS: The sexual system of the semi-terrestrial shrimp *Merguia rhizophorae* is described, along with natural history observations on this unusual caridean. Individuals of *M. rhizophorae* in the Bocas del Toro Archipelago, Panama, were found occupying fossilized coral terraces in the upper and mid-intertidal zones, inhabiting caves and crevices, in and out of water. These fossilized coral terraces represent a new habitat for this species, which was previously reported only from mangrove swamps. Males, which made up 65% of the studied population, were smaller than females on average. No small juvenile females were observed, but transitional individuals having the characteristics of both males (gonopores) and females (ovaries) were observed in the population. These data suggest that individuals of *M. rhizophorae* are protandric hermaphrodites. Logistic regression indicated that the carapace length at which 50% of the individuals change sex is 4.89 mm. The abundance of shrimps at the study site was low. Shrimps were usually solitary, but occasionally observed in groups of  $\leq 5$  individuals. Shrimps were commonly observed walking while out of water, and in some cases, emerged shrimps jumped vigorously, presumably to avoid capture by the researcher or by predatory crabs. Additional studies on the reproductive biology and the behavioral ecology of members of this genus and of members of the closely related families Barbouridae and Lysmatidae will aid in understanding the evolutionary origin and the adaptive value of gender expression patterns in shrimps. KW: Sex allocation, sex ratio, protandry, Caridea.
- BALVÍN (O.) & VILÍMOVÁ (J.), 2010.** Bat bugs of the family Cimicidae (Heteroptera):96-97. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: The family Cimicidae (Insecta: Heteroptera) represents one of the principal groups of bat ectoparasites. The relation of a part of the species to birds or man is believed to be secondary. The cimicids are obligatorily haematophagous and exhibit a specific host exploitation behavior: both adults and larvae of Cimicidae stay on the body of their host only when feeding, the rest of the time they hide nearby. Using molecular and morphometric methods we study the phylogeography, taxonomy, population structure and ecology of the *Cimex* and *Oeciacus* species originally distributed mostly in the Holarctic region. In case of material available the phylogenetic study is planned to comprise the whole family. Based on sequences of two mitochondrial genes, we found a close relation between the species of the genus *Oeciacus* parasitizing birds from the family Hirundinidae and the species of the *Cimex pipistrelli* group that contains parasites of bats. The relations between particular taxa suggest that their evolution comprised multiple host switches from bats to swallows or the other way and that the morphological similarity of the taxa is associated rather with the host than their phylogeny. Based on the analysis of the same genes we found 21 mitochondrial haplotypes in the population of the common bed bug, *Cimex lectularius*, represented by 30 samples from man and 36 from bats collected in several European countries. Only one haplotype was shared between populations from man and from bats. The phylogenetic analyses revealed one supported clade comprising exclusively samples from bats. This suggests a large degree of isolation of the two subpopulations of the bed bug that may have persisted since the man left caves as his shelter shared with bats. The two subpopulations were found conspicuously distinct also morphologically.
- BANKS (E. D.), TAYLOR (N. M.), GULLEY (J.), LUBBERS (B. R.), GIARRIZO (J. G.), BULLEN (H. A.), HOEHLER (T. M.) & BARTON (H. A.), 2010.**

Bacterial Calcium Carbonate Precipitation in Cave Environments: A Function of Calcium Homeostasis. *Geomicrobiology Journal* 27(5, July):444-445. DOI:

<http://dx.doi.org/10.1080/01490450903485136>. ABS: To determine if microbial species play an active role in the development of calcium carbonate (CaCO<sub>3</sub>) deposits (speleothems) in cave environments, we isolated 51 culturable bacteria from a coralloid speleothem and tested their ability to dissolve and precipitate CaCO<sub>3</sub>. The majority of these isolates could precipitate CaCO<sub>3</sub> minerals; scanning electron microscopy and X-ray diffractometry demonstrated that aragonite, calcite and vaterite were produced in this process. Due to the inability of dead cells to precipitate these minerals, this suggested that calcification requires metabolic activity. Given growth of these species on calcium acetate, but the toxicity of Ca<sup>2+</sup> ions to bacteria, we created a loss-of-function gene knock-out in the Ca<sup>2+</sup> ion efflux protein ChaA. The loss of this protein inhibited growth on media containing calcium, suggesting that the need to remove Ca<sup>2+</sup> ions from the cell may drive calcification. With no carbonate in the media used in the calcification studies, we used stable isotope probing with C13O<sub>2</sub> to determine whether atmospheric CO<sub>2</sub> could be the source of these ions. The resultant crystals were significantly enriched in this heavy isotope, suggesting that extracellular CO<sub>2</sub> does indeed contribute to the mineral structure. The physiological adaptation of removing toxic Ca<sup>2+</sup> ions by calcification, while useful in numerous environments, would be particularly beneficial to bacteria in Ca<sup>2+</sup>-rich cave environments. Such activity may also create the initial crystal nucleation sites that contribute to the formation of secondary CaCO<sub>3</sub> deposits within caves. KW: Calcite, calcium caves, coralloids, homeostasis, speleothems.

**BARATTI (M.), FILIPPELLI (M.), NARDI (F.) & MESSANA (G.), 2010.** Molecular phylogenetic relationships among some stygobitic cirolanid species (Crustacea, Isopoda). *Contributions to Zoology* 79(2):57-67. ABS: Within the Cirolanidae, a widespread family of marine isopods, about 23 genera are stygobitic and inhabit phreatic and anchialine ecosystems, with many endemic species. The Mediterranean area has a high biodiversity of subterranean cirolanids, which are considered thalassoid limnostygobionts. A molecular analysis was conducted using mtDNA genes to infer the phylogeny of species belonging to six of the seven stygobitic genera of Cirolanidae inhabiting the Mediterranean basin and to two American taxa: *Faucheria faucheri*, *Marocolana delamarei*, *Saharolana seurati*, *Sphaeromides virei virei*, *Turcolana* sp., 13 taxa of the genus *Typhlocirolana* and two American species, *Antrolana lira* and *Speocirolana bolivari*. The *Typhlocirolana* species are widespread in the western Mediterranean basin, with a concentration of taxa in the Maghreb region. *Turcolana* sp. is localised in the eastern Mediterranean, while *F. faucheri* and *S. v. virei* are north Mediterranean taxa. *S. seurati*, the taxon least morphologically adapted to subterranean life, belongs to a monospecific genus present in a Tunisian spring. The molecular phylogeny showed a high affinity among the American taxa and the Mediterranean *Sphaeromides*, clustering in the *Sphaeromides* group identified by previous morphological studies. *Typhlocirolana* species and *M. delamarei* constitute their sister clade within the *Sphaeromides* group. *F. faucheri* appears to be a sister clade of the *Sphaeromides* group. *S. seurati*, showing reduced troglolobitic adaptations, assumes disparate and unsolved positions in the phylogenetic reconstructions. The molecular data suggest that a combination of vicariance and dispersal events, occurring from 180 to a few million years ago, combined to bring about the present distribution pattern of Mediterranean cirolanid isopods. KW: 12S, 16S, Cirolanidae, cytochrome oxidase I, mitochondrial DNA, stygofauna. <http://dpc.uba.uva.nl/cgi/t/text/text-idx?c=ctz;sid=11723560e12646d77667770712bc2003;rgn=main;idno=m7902a01;view=text>

**BARATTI (M.), MESSANA (G.), FILIPPELLI (M.) & SKET (B.), 2010.** New biogeographical and phylogenetic data about the genus *Sphaeromides* and its relatives (Crustacea: Isopoda: Cirolanidae):55-56. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: *Sphaeromides* spp. are among the most remarkable aquatic troglolobionts. The putative genus exhibits a trans dinaric distribution, with a pronounced diversity in

the Dinaric karst, but occurring also outside it, in France and Bulgaria. We succeeded to sample the genus from ca 17 localities throughout its range (except in Bosanska Krajina). A molecular analysis was conducted using mtDNA genes (16S rRNA and COXI) at two levels: 1) to infer the phylogenetic relationships of the *Sphaeromides* species with the other subterranean cirolanid taxa, and 2) to investigate the phylogeography of the *S. virei* populations in the Dinarides and its relationships with the other *Sphaeromides* species (*S. raymondi* and *S. bureschi*). The 16S tree, including available GenBank cirolanid sequences, show that *Sphaeromides*, as conceived now, is a polyphyletic assemblage. *S. raymondi* from France is a sister taxon to the eastern *Sphaeromides* spp. plus some American genera (*Cirolanides* and *Antrolana* from USA and *Speocirolana* and *Sphaerolana* from Mexico). The populations of the *S. virei* comprise until now the two subspecies *S. v. virei* and *S. v. mediodalmatina*. *S. virei* occurs only along the eastern Adriatic coast, but always in pure fresh water, while *S. mediodalmatina* is limited to the central inland parts of Dalmacija. In the phylogenetic reconstruction, *S. virei* is again a monophylum, probably representing separate genus, inhabiting the Dinaric and western Balkan (or Stara planina) karst. The COI and the 16S trees show that *S. virei* may be regarded as at least two distinct species, since the supposed subspecies *S. virei mediodalmatina* is a very distinct phyletic line and beside that it occurs in one cave syntopically with *S. v. virei*. These molecular investigations sustain new evidences about the genus *Sphaeromides*, which should be supported by a complete morphological analysis of the genus. <http://www.icsb2010.net/>

**BARBIER (C.), 2010.** Massif de la Sainte-Victoire (Bouches-du-Rh  ne). *Spelunca* 117(Mars, 1<sup>er</sup> trimestre):23-31. BL: Cf p. 24-25: Aven RCPR (Refuge Chiropt  res Petits Rhinolophes), 2004, Massif de la Sainte-Victoire (Vauvenargues). Comme elle abrite   galement quelques chiropt  res, nous avons d  cid   de ne pas publier ses coordonn  es pour donner encore cinquante ans de tranquillit      ces charmants animaux.

**BARCIOV  (T.), KOV C (LU.) & MIKLISOV  (D.), 2010.** Impact of tourism upon structure and diversity of Collembola assemblages (Hexapoda) - a case study of the Gombaseck  Cave, Slovak Karst (Slovakia). *Slovensk  Kras Acta Carsologica Slovaca* 48(2):271-283. ABS: In 1998-2000 and 2006-2007 investigations were carried out in the Gombaseck  Cave (Slovak Karst, Slovakia) to assess potential impact of tourism upon the communities of terrestrial Arthropoda with special reference to Collembola. Pitfall trapping with different fixation liquids and extraction of baits and organic debris (rotten wood) were used as basic collecting methods. Five sites were selected for detail study in different distance from the tourist path. In total, 52 Collembola were registered during the study in the Gombaseck  Cave, rather low species number (27) was detected in its internal parts that is likely linked with oligotrophic conditions and low impact of tourism. Four species were troglolobitic, *Arrhopalites aggtelekiensis*, *Deuteraphorura schoenviszkyi*, *Deuteraphorura cf. kratochvili* and *Pseudosinella aggtelekiensis*, all representing Western Carpathian endemics. They populated preferably the deeper cave parts with exception of *P. aggtelekiensis* that occurred also at both entrance sites. Eutroglophiles *Arrhopalites pygmaeus*, *Arrhopalites caecus* and *Folsomia candida* dominated in the cave. Collembolan assemblages of the entrance sites differed from those situated in greater distances from the cave entrance. Within adjacent reference localities not open to public, Star  Brzot nska and Nov  Brzot nska caves, 22 and 21 collembolan species were recorded, respectively. Three obligate cave species were registered in both caves, *A. aggtelekiensis*, *D. schoenviszkyi* and *D. cf. kratochvili*. eutroglophiles *Plutomurus carpaticus*, *Folsomia candida* and *Arrhopalites pygmaeus* were the most abundant. The study revealed a great level of similarity of Collembola between tourist and reference caves investigated. However, *Plutomurus carpaticus*, abundant and frequent in the Brzot nska Cave system, was absent in the Gombaseck  Cave. In contrary, troglolobitic *Pseudosinella aggtelekiensis*, rather frequent in the Gombaseck  Cave was totally absent in the Brzot nska Cave system. In the studied show cave we observed no clear negative effect of tourism upon Collembola communities close to the tourist path. KW: Collembola, tourist cave, Slovak Karst, Gombaseck  Cave, troglolobitic species, cave fauna.

**BARRANCO (P.), 2010.** Una nueva especie de *Petaloptila* de la provincia de M laga (Espa  a) (Orthoptera, Gryllidae). *Bolet n de la Asociaci n espa  ola de Entomolog a* 34(1/2):207-217. RES: Se describe una nueva especie de ort ptero en cuevas de Andaluc a (Espa  a). <http://liberagnostio.org/webs/AeE/index.php?d=publicaciones&num=47>



- BARTON (L. L.), MANDL (M.) & LOY (A.), 2010.** *Geomicrobiology: Molecular and Environmental Perspective*. Springer Dordrecht, Heidelberg, London, New York. Library of Congress Control Number: 2010931683. i-xiv + 435 p. ISBN 978-90-481-9203-8, e-ISBN 978-90-481-9204-5, BARTON (L. L.), MANDL (M.) & LOY (A.), editors. **DOI:** [http://dx.doi.org/10.1007/978-90-481-9204-5\\_10](http://dx.doi.org/10.1007/978-90-481-9204-5_10). Voir: ENGEL (A. S.), Chapter 10. Microbial Diversity of Cave Ecosystems:219-238.
- BAUER (A. M.), KUNYA (K.), SUMONTHA (M.), NIYOMWAN (P.), PAUWELS (O. S. G.), CHANHOME (L.) & KUNYA (T.), 2010.** *Cyrtodactylus dumnuui* (Squamata: Gekkonidae), a new cave-dwelling gecko from Chiang Mai Province, Thailand. *Zootaxa* 2570(August 18):41-50, 6 pl., 29 réf. ABS: A new cave-dwelling species of *Cyrtodactylus* is described from Chiang Mai Province in northern Thailand. *Cyrtodactylus dumnuui* sp. nov. may be distinguished from all other congeners by the possession of a series of enlarged femoral scales, disjunct preloacal and femoral pores in males (minute preloacal pores variably present in females), a relatively high number (18-22) of closely spaced, regularly arranged dorsal tubercle rows, well-defined non-denticulate ventrolateral folds, transversely enlarged subcaudal plates, and a color pattern of approximately six pairs of alternating light and dark transverse bands on the trunk. It is the nineteenth member of the genus recorded from Thailand and the eighth Thai *Cyrtodactylus* known to be a facultative troglophile. KW: Thailand, Chiang Mai, Reptilia, Gekkonidae, *Cyrtodactylus dumnuui*, new species, taxonomy, cave-dwelling. <http://www.mapress.com/zootaxa/list/2010/2570.html>
- BAY-NOUAILHAT (A.) & BAY-NOUAILHAT (W.), 2010.** Ile de Groix, découverte d'une éponge carnivore. *Mer et Littoral*(Décembre):?-? [En ligne] <http://www.mer-littoral.org/eponge-carnivore.php>.
- BAYER (S.) & JÄGER (P.), 2010.** Expected species richness in the genus *Psechrus* in Laos (Araneae: Psechridae). *Revue suisse de Zoologie* 117(1, Mars):57-75. ABS: Three new *Psechrus* species are described from Laos, *P. steineri* sp. n., *P. antraeus* sp. n. and *P. ancoralis* sp. n. New records for *P. luangprabang* Jäger, 2007 are listed. Relationships of the three new species to other *Psechrus* species are discussed. Species with similar copulatory organs (*P. singaporensis* Thorell, 1894, *P. rani* Wang & Yin, 2001) are illustrated for comparison. *P. rani* is recorded for the first time from Vietnam. KW: New species, taxonomy, new record, limestone caves, Vietnam. [http://www.ville-ge.ch/mhng/publication03\\_01.php](http://www.ville-ge.ch/mhng/publication03_01.php)
- BAYRAM (A.), ÇORAK (İ.), DANIŞMAN (T.), SANCAK (Z.) & YİĞİT (N.), 2010.** Checklist of the harvestmen of Turkey (Arachnida: Opiliones). *Munis Entomology & Zoology* 5(2, June):563-585. ABS: Till recent, 50 species plus three subspecies of Opiliones inhabiting Turkey are recorded. These species take place in 25 genera in 6 families in 3 suborders. In this study, the authors present a short historical faunistic review of the harvestmen, and give records and geographical distributions of the species in Turkey. KW: Harvestmen, Opiliones, Turkey, new record, checklist, zoogeography.
- BECHEV (D.), 2010.** On the family Mycetophilidae (Insecta: Diptera) in Bulgaria. *ZooNotes*, Supplement 1:72 p.
- BECHEV (D.) & GRUEV (B.), 2010.** Зоогеография на България. Библиография. Свितък 2 - Zoogeography of Bulgaria. Bibliography. Scroll 2. *ZooNotes*, Supplement 2:15 p.
- BECQUART (P.), WAUQUIER (N.), MAHLAKÖIV (T.), NKOGE (D.), PADILLA (C.), SOURIS (M.), OLLOMO (B.), GONZALEZ (J.-P.), DE LAMBALLERIE (X.), KAZANJI (M.) & LEROY (É. M.), 2010.** High Prevalence of Both Humoral and Cellular Immunity to Zaire ebolavirus among Rural Populations in Gabon. *PLoS ONE* 5(2):e9126. **DOI:** <http://dx.doi.org/10.1371/journal.pone.0009126>. BL: Cf p. 1: More recently, MARV was isolated for the first time in cave-dwelling *Rousettus aegyptiacus* in Uganda.
- BEDAXAGAR (M.), 2010.** Voyage au cœur de la pierre. © [www.sudouest.fr](http://www.sudouest.fr), 26 Avril, 06 h 00.
- BEDEK (J.), 2010.** Data analysis of spatial distribution of cave terrestrial isopods (Isopoda: Oniscidea) in Croatia:36. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: This paper presents data analysis of spatial distribution of cave terrestrial isopods in Croatia. Data were analyzed through UTM grid map of Croatia (10 x 10 km) and macroregions according to Roglič, 1974, taking into account endemics and adaptation to cave habitats. In Croatia 129 species and 32 subspecies of terrestrial isopods have been recorded to date, 58 species and 18 subspecies being endemic to Croatia. More than 9000 caves have been registered in Croatia, but only for 211 caves (~2.3%), and 14 different habitat types literature data were gathered. Altogether, with data from collections, this paper presents records from 502 (~5.6%) caves, 5 mines and 19 different habitat types. Among cave taxa, 34 species and 7 subspecies have been registered, belonging to five families and six subfamilies. The family Trichoniscidae and subfamily Trichoniscinae are the most abundant. Out of 22 Croatian endemic taxa 13 (59%) belong to the subfamily Trichoniscinae. Out of 20 troglobitic species, 15 (75%) belong to the subfamily Trichoniscinae. The most represented seemed to be the genus *Alpioniscus* with 10 species, followed by the genus *Androniscus* with 9 taxa. Out of 814 Croatian 10 x 10 km UTM squares only 149 (~16%) have one or more cave species of terrestrial isopods and most of them are scattered all over the Dinaric region in Croatia. The UTM plot VL41 presents extreme with 6 species, belonging to the Northern Croatian Littoral macroregion. The UTM plots BN71, YH03 and YH13 have 5 species, belonging to the Southern Croatian Littoral macroregion. Out of 41 cave taxa in Croatia the Southern Croatian Littoral macroregion has 27 (~66%) and the Northern Croatian Littoral macroregion has 14 (~34%). Out of 22 endemic cave taxa in Croatia, the Southern Croatian Littoral mesoregion has 15 (~68%), and among them, 2 are widespread and 14 are endemic to that region. Out of 79 Croatian islands and 523 small islands there are records of terrestrial isopods for 9 islands. Seven islands have their own endemic species (10 species). The island of Mljet presents the extreme with 3 endemic species. Out of 41 cave taxa in Croatia, all are distributed in the Dinaric karst area, with just 3 trogliphilic species distributed outside the Dinaric karst area. There are no Croatian endemic taxa outside the Dinaric karst area. <http://www.icsb2010.net/>
- Bedfordshire and Luton Local Sites Partnership, 2010.** *Bedfordshire and Luton. County Wildlife Sites. Selection Guidelines*. Version 3, June 2010. 93 p. BL: Cf p. 83, Crangonyctidae, *Niphargus*...
- BEIKE (A. K.) & RENSING (S. A.), 2010.** The *Physcomitrella patens* genome - a first stepping stone towards understanding bryophyte and land plant evolution. *Tropical Bryology* 31:43-50. BL: Cf p. 45, "One such example is the cave-inhabiting *Schistostega pennata*, which developed a mechanism of surviving under low light conditions. The phenotype of this "glow" or "cave" moss exhibits adaptations to darkness as the protonema generates roundish cells with a lens-like swelling on their distal side, allowing light bunching for photosynthesis (Frahm, 2001)".
- BELTRAM (G.) & SKET (B.), 2010.** Subterranean habitats as wetlands of international importance:79. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The Ramsar Convention on wetlands (Iran, 1971) is amongst the oldest environmental conventions. It deals with globally threatened ecosystem types that are present also in karst. In 1990's, the Convention included karst and other subterranean hydrological systems as a wetland type and developed criteria for their inclusion in the List of Wetlands of International Importance. The main goal of including subterranean wetlands in the Ramsar List is to assist the conservation and wise use of subterranean wetland functions and values and thus implementation of Ramsar

principles and strategic guidelines. In general terms, many "living" karst areas are wetlands, surface or subterranean. Both, direct or indirect development pressures are increasing and threatening ground waters and subterranean biota. Appropriate management, including conservation and sustainable use, is crucial to maintain the functions and values of the interacting karst surface and subterranean hydrological systems in the whole catchment area and to prevent or mitigate threats to karst wetlands. The Ramsar Convention can help on the one hand by fostering conservation and wise use of subterranean wetland systems in general, and on the other, by ensuring that examples of the most characteristic karst wetlands are considered and added to the List to conserve their values and characteristics, including unique and endemic biodiversity and specific hydrology. Guidelines based on cave fauna could be elaborated. Two examples from the Dinaric karst in Slovenia are examined for the purpose. Škocjanske jame are a karst underground water cave system developed in the area of Kras (i. e. the "classical" Karst). The main hydrological characteristics are the extremely high fluctuations of ground water level, moving water currents fed by rainwater, and pools of stagnant water. A typical example of a complex surface and subterranean karst wetland is the karst catchment area of the Ljubljana River, including a series of intermittent lakes on karst poljes and water caves with underground rivers (Križna jama, Postojnsko-planinski jamski sistem) well representing the interaction and interdependency between the surface and subterranean wetlands belonging to the common hydrographical systems. <http://www.icsb2010.net/>

**BENDA (P.), 2010.** On a small collection of bats (Chiroptera) from western Sabah (North Borneo, East Malaysia). *Vespertilio* 13/14:45-76. ABS: New records of bats from three sites situated in the western part of the Malaysian state of Sabah (North Borneo) are presented. Besides some common species (*Cynopterus brachyotis*, *C. horsfieldii*, *Megaerops ecaudatus*, *Balionycteris maculata*, *Aethalops aequalis*, *Macroglossus minimus*, *Rhinolophus borneensis*, *R. trifoliatius*, *Hipposideros dyacorum*, *H. cervinus*, *H. diademata*, *Myotis muricola*), several rather rare forms were also recorded. *Cynopterus minutus* and *Hipposideros doriae* are reported from the territory of Sabah for the first time, *Cynopterus sphinx* for the second time. *Arielulus cuprosus* was found for the first time after its description from another site in Sabah and remains a Sabahan endemic. Some notes on ecology, morphology and taxonomy of several collected taxa are added. KW: Oriental Region, Chiroptera, fauna. <http://www.ceson.org/publikace.php?p=13>

**BENNETT (A. J.) & CAMPBELL (J. W.), 2010.** Shorter College. Terrestrial Invertebrates from Pettyjohns Cave: Does Soil Organic Matter Play a Role? Poster P2.49.

**BERAN (B.), 2010.** *Epidemiology of leishmaniosis in southern Germany with emphasis on the family of Psychodidae, primarily Phlebotominae.* Inaugural-dissertation for the attainment of the title of Doctor in Veterinary Biology (Dr. rer. biol. vet.) from the Faculty of Veterinary Medicine of the Ludwig-Maximilians-University Munich, 116 p.

**BERAN (L.), 2010.** Izolované populace praménky *Bythinella austriaca* (Frauenfeld, 1857) (Gastropoda: Hydrobiidae) v okolí Prahy [Isolated populations of *Bythinella austriaca* (Frauenfeld, 1857) (Gastropoda: Hydrobiidae) in Prague surroundings (Czech Republic)]. *Malacologica Bohemoslovaca* 9(March 11):5-10. Online serial at <<http://mollusca.sav.sk>> 11-March-2010. ABS: This paper completes the knowledge of an occurrence of *Bythinella austriaca* (Frauenfeld, 1857) (Gastropoda: Hydrobiidae) in surroundings of Prague - capital of the Czech Republic. However, this species is not rare in the eastern part of the Czech Republic, sites on north-western outskirts of Prague are isolated far from the main distribution area. Altogether, 63 sites potentially suitable for *B. austriaca* were investigated in this area, and occurrence of this species was confirmed in 11 of them. *B. austriaca* was found in springs, rivulets and small brooks, more numerous populations were found in springs. Historical occurrence data in this area were compared with results of research done in 2003, 2006 and 2010. Actual situation of this species in Prague surroundings is problematic and survival of some populations is not guaranteed. KW: *Bythinella austriaca*, Gastropoda, Hydrobiidae, Prague surroundings, distribution.

**BERKHOFF (S. E.), MATZKE (D.), FUCHS (A.), BORK (J.) & HAHN (H. J.), 2010.** Recording the stygofauna of the federal state of Sachsen-Anhalt, Germany:37. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: In 2008 and 2009 stygofauna of the federal state Saxony-Anhalt was sampled from a total of 78 representative monitoring wells. The goal of this study was an initial survey of the groundwater fauna. Additionally, distribution patterns of fauna and their relations to biogeographic, geological and hydrochemical particularities were analysed. Faunal distribution patterns were evaluated at three different spatial scale levels (biogeographic level, landscape level, site specific level). The large scale distribution patterns of fauna were clearly influenced by biogeography. At landscape level, the major natural geographic units and the "Georegs" (combination of major natural geographic units and aquifer types) were well reflected by the groundwater fauna. On the local scale, the hydrologic exchange, in particular the influence of surface water to groundwater was identified as a crucial factor for the composition of groundwater communities. <http://www.icsb2010.net/>

**BERNABÒ (P.), JOUSSON (O.), LENCIONI (V.) & LATELLA (L.), 2010.** Heat Shock Response in the leptodirins *Neobathyscia mancinii* and *Neobathyscia pasai*:116, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The response to increasing temperature in two cold stenothermal leptodirins, *Neobathyscia mancinii* Jeannel and *Neobathyscia pasai* Ruffo (Coleoptera, Cholevidae, Leptodirinae) was evaluated as lethal temperature (LT<sub>100</sub> and LT<sub>50</sub>) and as expression of a family of heat shock proteins (the constitutive form HSC70 and the inducible form HSP70). Adults of the two species were collected in the Damati Cave and Tana delle Sponde Cave (Veneto Province, NE-Italy) and stressed by direct short-term heat shocks (1h, from 25°C to 31°C). The expression of the HSP70 family was performed by qPCR on organisms stressed at 25°C (= maximum temperature at which all the tested organisms were alive), 28°C (= LT<sub>50</sub>) and 29°C (= sub-lethal temperature). In both species, HSC70 level was constant with increasing temperature, whereas a significant increase of HSP70 (= Heat Shock Response) was observed, significantly higher in *N. pasai*. This could be due to their different in-cave distribution: *N. pasai* colonizes the cave entrance, where the temperature is more variable (= 5-18°C), whereas *N. mancinii* is confined to the internal part of the cave where the temperature remains constant (= 9.8°C). These results highlighted for the first time the occurrence of a Heat Shock Response in cave insects and suggest that the intensity of this response might be correlated to the adaptation to the environment. <http://www.icsb2010.net/>

**BERNARDI (L. F. de O.), DANTAS-TORRES (F.), LABRUNA (M. B.) & LOPES FERREIRA (R.), 2010.** Spider preying on ticks in a Brazilian cave. *Speleobiology Notes* 2:15-18. KW: Argasidae, *Ornithodoros (Alectorobius)* spp., Pholcidae, *Smeringopus pallidus*. [http://www.nsm.buffalo.edu/Research/SPELEOBIOLOGY\\_NOTES/index.php/Speleo/article/view/25](http://www.nsm.buffalo.edu/Research/SPELEOBIOLOGY_NOTES/index.php/Speleo/article/view/25)

**BERTHET-BEAUFILS (A.), 2010.** *Manifestations dermatologiques associées aux Diptères chez le Chien et le Chat.* Thèse pour le doctorat vétérinaire présentée et soutenue publiquement devant la Faculté de Médecine de Créteil. 182 p. BL: Cf p. 29, "*Culex pipiens* est retrouvé en zone rurale et passe l'hiver dans les habitations: les femelles se réfugient ainsi parfois dans des lieux abrités comme des caves ou des étables pendant la saison froide (jusqu'à -30°C)"; p. 37, "Au stade adulte, les phlébotomes se rencontrent dans des habitats caractérisés par trois conditions: calme et tranquillité des gîtes de repos, proximité d'hôtes nécessaires aux repas sanguins, existence de gîtes de ponte propice à la vie des larves. Ceci sera par exemple, réalisé au niveau d'un terrier de rongeur ou d'une caverne (Rodhain & Perez, 1985)".

**BERTI (R.) & MESSANA (G.), 2010.** Chapter 10. Subterranean Fishes of Africa:357-396. DOI:

<http://dx.doi.org/10.1201/EBK1578086702-c10>. In: TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.), *Biology of Subterranean Fishes*. Edited by TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.). ISBN: 978-1-57808-670-2. eBook ISBN: 978-1-4398-4048-1. Science Publishers 2010. 460 p. <http://www.crcnetbase.com/doi/abs/10.1201/EBK1578086702-c10>

**BHATTACHARYA (S.), 2010.** Murder at the bat cave. *The New Scientist* 205(2753, March 24):42-45. DOI: [http://dx.doi.org/10.1016/S0262-4079\(10\)60732-4](http://dx.doi.org/10.1016/S0262-4079(10)60732-4). ABS: As a mystery disease rips through North America's bat populations, scientists look for vital clues to stop the killer in its tracks.

**Biblioteca Județeană "Ovid Densusianu" Hunedoara - Deva, 2010.** Calendarul Personalităților Hunedorene 2010. 22 p.

**BICHUETTE (M. E.) & TRAJANO (E.), 2010.** Chapter 3. Conservation of Subterranean Fishes:65-80. DOI: <http://dx.doi.org/10.1201/EBK1578086702-c3>. In: TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.), *Biology of Subterranean Fishes*. Edited by TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.). ISBN: 978-1-57808-670-2. eBook ISBN: 978-1-4398-4048-1. Science Publishers 2010. 460 p.

**BILANDŽIJA (H.), ČETKOVIĆ (H.) & JALŽIĆ (B.), 2010.** Strogo zaštićena vrsta pred izumiranjem? Dinarski špiljski školjkaš (*Congerina kusceri*) (Strictly protected species facing extinction? Dinaric cave clam (*Congerina kusceri*)). Zbornik sažetaka Stručnog seminara o zaštiti špilja i podzemne faune / Buzjak, Nenad; Paar, Dalibor (ed). Zagreb, Samobor, Ogulin: Stručni seminar o zaštiti špilja i podzemne faune. Ogulin, Hrvatska, 30-31.01.2010. ABS: *Congerina kusceri* Bole, 1962 jedini je stigobiontni školjkaš na svijetu, tercijarni relik i endem Dinarida. Prema Zakonu o zaštiti prirode Republike Hrvatske strogo je zaštićen (NN 70/05, 139/08), a nalazi se i na dodacima II i IV Direktive o staništima što znači da je zbog zaštite ove vrste nužno određivanje Posebnih područja zaštite kao dijela ekološke mreže NATURA 2000. Na Europski popis zaštićenih vrsta stavljen je na zahtjev Republike Slovenije u kojoj su na svega jednom lokalitetu pronađene samo ljušture, dakle niti jedna živa životinja. Vrsta je u Hrvatskoj zabilježena na ukupno petnaest lokaliteta, ali na većini nalazišta su pronađene samo ljušture. Žive su populacije dosad zabilježene na 5 lokaliteta. Tijekom 2008. i 2009. godine suradnjom Hrvatskog biospeleološkog društva i Državnog zavoda za zaštitu prirode provedena su sustavna istraživanja ove vrste u sklopu projekta "Natura 2000 - Znanstvena analiza podzemnih vrsta (*Congerina kusceri*) s Dodatka II Direktive o zaštiti prirodnih staništa i divlje faune i flore". Utvrđeno je da su dvije od prije poznate populacije nestale pa su tako u Hrvatskoj danas preostale svega tri populacije, kojima također prijete opasnost od nestanka. Ugrožavaju ih hidrotehnički zahvati, onečišćenje podzemnih voda kao i direktna devastacija podzemnih staništa. Zbog toga je Dinarski špiljski školjkaš uvršten u Crvenu knjigu podzemne faune Hrvatske u IUCN kategoriju CR (kritično ugrožen) kao vrsta kojoj prijete izuzetno visok rizik od nestajanja na prirodnim staništima. KW: *Congerina*, kritično ugrožen (*Congerina*, critically endangered) [hbilandz@irb.hr](mailto:hbilandz@irb.hr) ([hbilandz@irb.hr](http://hbilandz@irb.hr)), 6. Apr. 2010. u 12:57

sati. <http://bib.irb.hr/prikazi-rad?&lang=EN> Croatian Scientific Bibliography CROSBIB&rad=462057

**BILANDŽIJA (H.), PODNAR (M.), JALŽIĆ (B.), PATARČIĆ (I.), TVRTKOVIĆ (N.) & ČETKOVIĆ (H.), 2010.** Phylogeny and phylogeography of the cave bivalve *Congerina kusceri*, with an outline for its endangerment in Croatia:56-57, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: *Congerina kusceri* Bole, 1962 is the only stygobitic bivalve in the world. It is also the only surviving species of the genus *Congerina* which was widespread in the tertiary. Its current distribution is quite disjunct. Mitochondrial 16S rRNA and COI and nuclear ITS and 18S rRNA markers were employed to examine the position of the genus within the family Dreissenidae as well as to infer the relations between different populations. Our results support *Congerina* being the third extant genus of the family Dreissenidae as previous studies suggested. Within *Congerina*, two main phylogeographical groups were found: one encompassing Markov ponor (Lika region) and Suvaja (northern Bosnia) populations, and another comprising all southern Dalmatian and Hercegovinian populations. Uncorrected genetic distances (P) between them were up to 1.7%, and 8.8%, for the 16S rRNA and the COI gene, respectively. In contrast to the relatively low level of genetic divergence between populations within second group (maximal P values being 0.5% for 16S rRNA and 1.4% for COI), genetic distances between Markov Ponor and Suvaja amounted to 1.0% and 4.3% for 16S rRNA and COI, respectively. These results are in congruence with biogeographical data since Markov ponor and Suvaja are several hundred kilometres away and hydrologically isolated from the rest of the localities. The species is recorded in a total of fifteen localities in Croatia, but at most sites only shells were found. Live populations were documented in only five sites, but the surveys in 2008 revealed that the two populations disappeared. In addition to being strictly protected by the Croatian law, the species is listed in the Annexes II and IV of the Habitats Directive. Nevertheless, two out of three remaining populations could be facing serious destruction if not extinction in the near future. All this led to the enlistment of *Congerina kusceri* in the Red list of Croatian cave fauna in the IUCN category CR. <http://www.icsb2010.net/>

**BIZJAK MALI (L.) & BULOG (B.), 2010.** Ultrastructure of previtellogene oocytes in the neotenic cave salamander *Proteus anguinus anguinus* (Amphibia, Urodela, Proteidae). *Protoplasma* 246(1/4, October):33-39, from the issue entitled "Special Issue: Microscopy Conference in Graz 2009, Guest Editor: U. Lütz-Meindl". DOI: <http://dx.doi.org/10.1007/s00709-010-0117-9>. ABS: Oogenesis in the neotenic, cave dwelling salamander *Proteus anguinus anguinus* has not been studied yet, and this study provides a detailed description of the early growth of the oocytes. Early previtellogene oocytes ranging from 100 to 600 μm in diameter were examined by light and transmission electron microscopy. The oocytes were divided into two stages based on size, color, and histology. Stage I oocytes can be identified by their transparent cytoplasm and a homogenous juxtannuclear mass, composed of numerous lipid droplets and mitochondria. Stage II oocytes are no longer transparent and have increased in diameter to 300-600 μm, and many cortical alveoli differing in size have appeared. The common and most predominant ultrastructural characteristics of both stages of previtellogene oocytes are extensive quantities of smooth membrane, numerous mitochondria, and lipid droplets, as well as abundant free ribosomes. Myeline-like structures and remarkable annulate lamellae of closely packed membrane stacks are also frequently observed. Previtellogenic oocytes are the most predominant oocytes in the ovaries of *Proteus*, and while they possess certain structural characteristics typical for other amphibians, some features are unique and could result from adaptation to the subterranean environment. KW: *Proteus anguinus*, Ovary, Oogenesis, Previtellogenesis, Oocyte, Ultrastructure.

**BIZJAK MALI (L.), TALABER (I.), ŽIBERT (U.) & BULOG (B.), 2010.** Oogenesis in *Proteus*: Stages of oocyte development:116-117, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB*

2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: In comparison with the other amphibians *Proteus* has very extended reproductive period, continuing 30 years or more and it has an extremely long reproductive cycles, that is to say *Proteus'* female lays eggs at intervals of 6 years. Sexual maturity is also acquired very late, with males maturing earlier than females, appears in 11 year-old males and 15 year-old females at 11-12°C. Opposite to the knowledge of reproduction, little is known about *Proteus* oogenesis; a process of differentiation and maturing of the oocyte, resulting in the mature ovum capable of ovulation. To gain a better understanding and elucidation of the *Proteus* reproductive cycles, we have begun with studies of its ovary and oogenesis. Ovaries of 30 females of *Proteus anguinus anguinus*, with snout-vent lengths of 225 - 270 mm were examined by light and transmission electron microscopy. The gonad samples used in this research were taken from animals that had been collected in previous years (from 1972 to 2009) for other research purposes. Animals had been collected during different seasons and from different locations of the subterranean karstic system of Slovenia. The morphology of the *Proteus* ovary, the stages of oocytes and characteristics of developmental oocytes were determined. The oocytes were divided into five stages based on size, colour and histology. The most predominant oocytes in the ovaries of *Proteus* beside the oogonium are previtellogenic oocytes (stage I and II). Oogonium and previtellogenic oocytes are a constant stock of oocytes for growth. In a few cases, early vitellogenic oocytes (stage III and IV) and only in two cases late vitellogenic oocytes (stage V) were encountered. Stage V oocytes are the most mature oocytes found in the ovary of *Proteus*. No mature (postvitellogenic) oocytes or ova were found in the materials that were available. In majority of ovaries examined a degenerating vitellogenic oocytes or atretic bodies occurred too. Furthermore, we found that larger and heavier females have more mature oocyte stages and also that vitellogenic oocytes occur in ovaries independently of seasons, therefore *Proteus* females could lay eggs at any period of the year. <http://www.icsb2010.net/>

**BLEHERT (D. S.), METEYER (C. U.), BALLMANN (A. E.), LORCH (J. M.), BERLOWSKI-ZIER (B. M.), MULLER (L.) & CRYAN (P. M.), 2010.** White Nose Syndrome in North America:103-104. In: 15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: White Nose Syndrome (WNS) is a disease associated with unprecedented bat mortality in the eastern United States and Canada. Since the winter of 2006-2007, bat population declines approaching 100% have been documented at some long-surveyed hibernacula. At least six species of hibernating bats are susceptible to WNS. Total estimated losses have exceeded one million bats over the past three years. This presentation summarizes disease investigation efforts underway at the USGS National Wildlife Health Center since January 2008. Affected hibernating bats often present with visually striking white fungal growth on their muzzles, ears, and/or wing membranes. However, severe microscopic wing damage associated with the disease is not always obvious to the naked eye. Histopathological and microbiological analyses demonstrated that WNS is characterized by a hallmark fungal skin lesion caused by a recently discovered species of psychrophilic (cold-loving) fungus, *Geomyces destructans*. The fungus invades and erodes living tissue and grows optimally between 5°C and 14°C, temperatures consistent with the body temperatures of hibernating bats. Laboratory infection trials indicated that *Geomyces destructans* is transmissible from bat to bat. A genetic signature of the fungus has been identified in environmental samples collected from several bat hibernation caves within WNS-infested states. There is a growing body of evidence supporting an association between WNS and life-threatening cutaneous fungal infection by *G. destructans*, and this disease represents an unprecedented threat to bats of temperate regions of North America and beyond. The decline of North American bat populations may have far-reaching ecological consequences.

**BOGNOLO (M.), 2010.** The genus *Aphaobius* Abeille de Perrin, 1878 (Coleoptera, Cholevidae, Leptodirinae):151, poster presentation. In: 20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by:

Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The genus *Aphaobius* was established in 1878 by Abeille de Perrin to segregate the species *Adelops milleri* (Schmidt, 1855). A few years later, the species *A. heydeni* was described by Reitter. After the first decade of the 20<sup>th</sup> century eleven new taxa were described by J. Muller. Further three subspecies of *A. milleri* were described in the ensuing decades by Mandl and then a new, remarkably distinct species was found and described by Pretner in 1963 as *A. muellerianus*. Only recently, new investigations led to the discovery of the new species *A. grottoloi* (Vailati, 2004). Following the latest revision (Bognolo & Vailati, 2010), the genus is composed of four species groups: *muellerianus*, *heydeni*, *kraussi* and *milleri*. The northern *kraussi* group is a cluster of species distributed on the left-hand side of the river Sava, which includes *A. mixanigi*, *A. angusticollis*, *A. knirschi*, *A. brevicornis* and *A. kraussi*. The southern *milleri* group is a cluster of species distributed on the right-hand side of the river Sava, which includes *A. forojulensis*, *A. grottoloi*, *A. lebenbaueri*, *A. miricae*, *A. kaplai*, *A. fortesculptus*, *A. robustus*, *A. kahleni*, *A. milleri*, *A. ljubnicensis*, *A. kofleri* and *A. alphonsi*. The *muellerianus* group and the *heydeni* group include one species each: *A. muellerianus* and *A. heydeni*. The overall distribution of the genus *Aphaobius* shows a combination of species with large distribution areas and other species known from a single site or a very restricted geographic area. The correlation of paleogeographic features and allopatric speciation is evident when considering the *kraussi* and the *milleri* species groups. In particular, the northern *kraussi* group is geographically located within the Southern Alps, whilst the southern *milleri* group is mainly located on the Outer Dinarides. In particular, in central Slovenia such groups have long been isolated due to the movement of respective plates which, according to plate tectonics, slid along the contact boundary represented by the Sava fault. To sum up, the speciation patterns of the genus *Aphaobius* show past isolation in the region between Ljubljana and Železniki, characterised by the complex paleogeographic evolution, as opposed to a high dispersal activity of the southern area, along the typical north-west to south-east orientation of limestones in the northern Balkan area. <http://www.icsb2010.net/>

**BORA (P.), RANDRIANANTOANDRO (J. C.), RANDRIANAVELONA (R.), HANTALALAINA (E. F.), ANDRIANTSIMANARILAFY (R. R.), RAKOTONDRAVONY (D.), RAMILJAONA (O. R.), VENCES (M.), JENKINS (R. K. B.), GLAW (F.) & KÖHLER (J.), 2010.** Amphibians and Reptiles of the Tsingy de Bemaraha Plateau, Western Madagascar: Checklist, Biogeography and Conservation. *Herpetological Conservation and Biology* 5(1):111-125. ABS: We surveyed the Tsingy de Bemaraha plateau in central-western Madagascar for amphibians and reptiles. We recorded 19 species of amphibians and 60 species of reptiles by opportunistic searching, bioacoustic identification (frogs), and pitfall trapping. Among the species recorded, 13% were previously unknown to science and a further 15% are of uncertain taxonomic status and possibly represent undescribed species. Of all the species recorded, 28% are endemic to the Bemaraha plateau and 48% appear to be dependent on forest habitat. Phylogenetic relationships of Bemaraha amphibians suggest a biogeographic link to eastern rainforests; whereas, those of reptiles demonstrate a link to the forests of northern Madagascar. We comment on former species records from the area and discuss conservation issues for amphibians and reptiles related to the habitat alteration observed in several parts of the protected area complex. KW: Amphibia, biogeography, checklist, conservation, endemism, Madagascar, Tsingy de Bemaraha, Reptilia. RÉ: Nous avons surveillé les amphibiens et les reptiles dans le plateau du Tsingy de Bemaraha dans le central-ouest de Madagascar. Nous avons recensé 19 espèces d'amphibiens et 60 espèces de reptiles par des recherches opportunistes, identification bioacoustique (amphibiens) et des piégeages par trous pièges. Parmi les espèces recensées, 13% sont auparavant inconnues par la science et plus de 15% ont des statuts taxonomiques incertains et sont possibles des espèces non-décrites. 28% de toutes les espèces recensées sont considérées pour représenter les endémicités à Bemaraha et 48% des espèces pourraient être dépendantes de l'habitat forestier. Les relations phylogénétiques des amphibiens de Bemaraha indiquent une continuité biogéographique aux forêts humides de l'Est et celles de reptiles une continuité aux forêts au nord de Madagascar. Nous avons fait des commentaires sur les espèces recensées auparavant dans la région et avons discuté à propos des actions de conservation des amphibiens et des reptiles reliés à l'altération des habitats observée dans certaines parties du complexe aire protégée. MC: Amphibiens,

- biogéographie, conservation, endémisme, liste, Madagascar, Tsing de Bemaraha, Reptiles.
- BORDA (D.), MULEC (J.) & NASTASE-BUCUR (R.), 2010.** Bat guano - a potential biohazard agent of caves in the temperate zone?:97, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: In temperate climatic zone in Europe insectivorous bats often roost in natural underground cavities. Big summer colonies composed of several thousands individuals are not very frequent. Still, in some caves bats produce relatively large quantities of guano. Guano represents a suitable milieu for growth and propagation of different organisms. The first literature documentation in Europe with reliable identification of a human pathogen, fungus *Histoplasma capsulatum* from bat guano from a cave is dated in 1966 (Topolnița Cave, Mehedinti County, Romania). In this cave the average temperature is 11.5°C, and 13.7°C in Guano Chambers. The colonial bat species in Topolnița Cave are *Rhinolophus ferrumequinum*, *R. euryale*, *Minopterus schreibersii*, *Myotis myotis/oxynathus*). In agreement with some indications, *H. capsulatum* might be present also in other caves in Romania, for example in Adam Cave, placed near by Topolnița Cave, which is a thermal influenced cave with an average air temperature of 27°C and colonized with the same bat species. Compared to endemic areas in the Americas, in Europe the incidence of histoplasmosis originating from cave was never studied in details. This can be attributed to several reasons: (i) absence of huge bat colonies in Europe, (ii) low cases of identified histoplasmosis as its symptoms can be easily misinterpreted and are ranging from simple mild flu-like till fatal, (iii) low awareness among physicians of cave-associated histoplasmosis and lack of epidemiological studies linked to histoplasmosis emerging from underground environments in Europe, and (iv) insufficient awareness among cavers and other cave visitors. In this study the relevant literature on histoplasmosis incidence in Europe and the potential use of molecular biology to identify *H. capsulatum* without its cultivation were reviewed, and guidelines to avoid contacts with airborne pathogens in the underground were prepared. Furthermore, results on microbial quantification and potential biohazard of airborne microorganisms in the "suspicious caves" are presented. <http://www.icsb2010.net/>
- BORK (J.), FUCHS (A.), BARUFKE (K. P.) & HAHN (H. J.), 2010.** Nine years of long-term stygofauna monitoring in Southwest Germany:37-38. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Since 2001, groundwater fauna as well as microbiological and hydro chemical data are being sampled annually from 43 groundwater bores in Baden-Württemberg, Southwest Germany. Faunal and abiotic data provide long-term information on the ecological conditions of the bores investigated. It seems that changes in faunal communities are related to changes in quite different abiotic environmental parameters, indicating that changes in faunal communities allow for inferences on environmental changes or stability. The use of stygofauna thus offers interesting perspectives as an additional tool for long-term groundwater monitoring. With this background, we will present some general results, together with several examples both for stable and unstable wells. <http://www.icsb2010.net/>
- BORNAND (C.), HOFFER-MASSARD (F.) & MORET (J.-L.), 2010.** Les trésors floristiques du "Guide du botaniste" de Daniel PAYOT paru en 1878. *Bulletin du Cercle vaudois de Botanique* 39:109-114.
- BOROS (G.) & SHERLOCK (E.), 2010.** Catalogue of the enchytraeid worm collection (Oligochaeta: Enchytraeidae) of the Natural History Museum in London. 1. Spirit collection. *Opuscula Zoologica* 41(1):19-27. BL: Cf p. 23, Siju cave. [http://opuscula.elte.hu/opuscula41\\_1.htm](http://opuscula.elte.hu/opuscula41_1.htm)
- BOROWSKY (R. L.), 2010.** Chapter 5. The Evolutionary Genetics of Cave Fishes: Convergence, Adaptation and Pleiotropy:115-140. DOI: <http://dx.doi.org/10.1201/EBK1578086702-c5>. In:
- TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.), *Biology of Subterranean Fishes*. Edited by TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.). ISBN: 978-1-57808-670-2. eBook ISBN: 978-1-4398-4048-1. Science Publishers 2010. 460 p. <http://www.crcnetbase.com/doi/abs/10.1201/EBK1578086702-c5>
- BOROWSKY (R. L.), 2010.** New Biological Books. Ecology. Cave Biology: Life in Darkness. Ecology, Biodiversity and Conservation. By Aldemaro Romero; main photography by Danté Fenolio. Cambridge and New York: Cambridge University Press. \$120.00 (hardcover); \$60.00 (paper). xiv + 291 p. + 21 pl.; ill.; index. 978 - 0 - 521 - 82846 - 8 (hc); 978 - 0 - 521 - 53553 - 3 (pb). 2009. The Quarterly Review of Biology, September 2010, vol. 85, no. 3:356. DOI: <http://dx.doi.org/10.1086/655100>.
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- BOTTIN (G.), GATHOYE (J.-L.), SMITS (Q.) & MICHAUX (P.), 2010.** Un agenda d'hiver bien rempli. *L'Écho des Rhinos* 58(Décembre 2009-Janvier 2010):11-12.
- BOUFFANAIS (R.), WEYMOUTH (G. D.) & YUE (D. K. P.), 2010.** Hydrodynamic object recognition using pressure sensing. *Proceedings of the Royal Society A* (June 2):? rspa.2010.0095v1. DOI: <http://dx.doi.org/10.1098/rspa.2010.0095>. BL: Cf p. 2: Montgomery & al., 2001 reported the central role played by the LLS in the global sensory system of hypogean fishes, such as the Mexican blind cave fish (BCF).
- BOURNE (Steve), 2010.** Bat Research at Naracoorte. *AKMA Journal* 78(March):?
- BOYER (C.), 2010.** Plantes, champignons, invertébrés, le Mercantour dévoile ses richesses. Publié le 20.05.2010 sur le site [www.la-croix.com](http://www.la-croix.com). <http://www.la-croix.com/Plantes-champignons-invertebres-le-Mercantour-devoile-ses-ri/article/2426555/4076>
- BRANCELJ (A.), WATIOYRAM (S.) & SANOAMUANG (L.-O.), 2010.** The First Record of Cave-Dwelling Copepoda from Thailand and Description of a New Species: *Elaphoidella namnaoensis* n. sp. (Copepoda, Harpacticoida). *Crustaceana* 83(7):779-793. DOI: <http://dx.doi.org/10.1163/001121610X502894>. ABS: During a brief collecting expedition in Nam Nao National Park, Phetchabun province (northern Thailand) in November 2007, various water bodies connected with subterranean water were sampled. In five caves, eight samples were collected from pools and six species of Copepoda were collected. For the first time, a stygobiotic (=cave-dwelling) species of Copepoda was discovered in Thailand. It belongs to the order Harpacticoida and was recognized as a new species, *Elaphoidella namnaoensis* n. sp. Specimens were only collected from pools filled by percolating water. This indicates a specific ecology of the new species, linked to the unsaturated zone of karstic aquifers, where the hydrology is determined exclusively by rainfall. A detailed description of the new species is presented here, supplemented with some information on its ecology and morphological adaptations. These adaptations are compared to those found in other *Elaphoidella* species from the unsaturated zone of karstic aquifers in Europe. RÉS: Au cours d'une brève mission de récolte au Parc National de Nam Nao, province de Phetchabun (nord de la Thaïlande) en novembre 2007, des collections d'eau variées en relation avec les eaux souterraines ont été échantillonnées. Dans cinq grottes, huit échantillons ont été récoltés dans des bassins et six espèces de copépodes ont été obtenues. Pour la

première fois, une espèce stygobie (vivant dans les grottes) de copépodes a été découverte en Thaïlande. Elle appartient à l'ordre des Harpacticoida et a été reconnue comme une espèce nouvelle: *Elaphoidella namnaensis* n. sp. Les spécimens ont été recueillis seulement dans les bassins remplis d'eau de percolation. Ceci indique une écologie particulière pour cette nouvelle espèce, liée à la zone insaturée de l'aquifère karstique, où l'hydrologie est déterminée exclusivement par les précipitations. Une description détaillée de la nouvelle espèce est présentée ici, complétée par des informations sur son écologie et ses adaptations morphologiques. Ces adaptations sont comparées à celles rencontrées chez d'autres *Elaphoidella* de la zone insaturée des aquifères karstiques d'Europe.

**BRANNEN (K. M.), BIRDWELL (J. E.) & ENGEL (A. S.), 2010.** Creating humic matter indices for the interpretation of ecosystem energetics:98. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Cave and karst ecosystem energetics are an important factor in understanding the microbial processes in aquifers. Determining the flux of dissolved organic matter (DOM), a source of organic carbon for heterotrophic microorganisms within an aquifer, from the surface into the subsurface is one method of tracking ecosystem energetics. The relative contributions of different sources of DOM can be evaluated using excitation-emission matrix (EEM) fluorescence spectroscopy since no photodegradation of OM occurs in cave and karst waters. This method can characterize DOM at natural, low abundance levels, and can differentiate recalcitrant DOM (e. g., humic substances) from more biologically labile material (e. g., proteins, peptides, and amino acids). Consequently, in karst environments, the influence of surface derived (allochthonous) DOM can be distinguished from autochthonous DOM produced by microbial chemolithoautotrophy. Karst environments are heavily influenced by surface water recharge and allochthonous DOM. Autochthonous OM in karst is poorly understood because it is unclear how microbes contribute to DOM types and abundances, as either primary DOM sources or during degradation processes of allochthonous material. It is important to differentiate allochthonous from autochthonous humic matter for the interpretation of cave and karst ecosystem energetics. Autochthonous humic matter is often overshadowed by allochthonous matter; meaning allochthonous humic matter fluoresces brighter than autochthonous matter. In this study, our aim was to create an index of humic/fulvic acids and protein (tryptone) mixtures to help differentiate the overshadowing effects of the brighter humic substances by using difference mg/L concentrations of tryptone, Suwannee River Fulvic Acid (SRFA), and Pony Lake Fulvic Acid (PLFA), and different mixtures of these standards. Although the SRFA and PLFA standards mixed in different ratios with the protein tryptone will be less complex than natural cave waters, we will be able to see if there is any substantial fluorescence overshadowing of tryptone by SRFA and PLFA. This index, coupled with a detailed analysis of microbial communities in specific subsurface environments could allow for a greater understanding of microbial processes and metabolisms within the subsurface.  
<http://www.icsb2010.net/>

**BRINKLØV (S.), KALKO (E. K. V.) & SURLYKKE (A.), 2010.** Adaptation of echolocation call intensity to ecological constraints in phyllostomid bats:106-107. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: In two previous papers we have shown, first, that two phyllostomids, the trawling bat, *Macrophyllum macrophyllum* and the fruit-eating bat, *Artibeus jamaicensis* can emit echolocation calls of considerable intensity and, second, that *M. macrophyllum* dynamically adapts call intensity to habitat complexity. Here, we investigate on a broader scale the ecological correlates of echolocation call intensity in phyllostomids. We recorded bats with multi-microphone arrays at several sites in Panamá and Cuba. For example, at cave openings as the bats left their day roost, at fruiting fig trees along a shoreline and at ca. 40 m height from a canopy crane immersed into a fruiting fig tree. Assuming that habitat does indeed act as a unifying constraint on call intensity, we expected to record relatively similar source levels at each individual site. The sites were chosen to represent different perceptual tasks (leaving the roost; approaching a foraging site) and thus different sonar challenges. We discuss flexibility

in sonar call intensity of phyllostomid bats, which often forage in highly cluttered space, but also use echolocation range to orient in situations where intense calls might be advantageous, for example when commuting in open space to a feeding site.

**British Cave Research Association, 2010.** Abstracts from the BCRA Summer Cave Biology Field Meeting, 8 September 2010, Arncliffe Village Hall and Scoska Cave, Littondale, Yorkshire, UK. *Cave and Karst Science* 37(2), this issue has a cover date of August 2010 and was published in December 2010):67.

<http://bcra.org.uk/pub/candks/index.html?j=110>

**BRITZKE (E. R.), SEWELL (P.), HOHMANN (M. G.), SMITH (R.) & DARLING (S. R.), 2010.** Use of Temperature-Sensitive Transmitters to Monitor the Temperature Profiles of Hibernating Bats Affected with White-Nose Syndrome. *Northeastern Naturalist* 17(2, June):239-246. **DOI:**

<http://dx.doi.org/10.1656/045.017.0207>. ABS: In temperate ecosystems, hibernation allows bats to survive long periods of limited prey and water availability during colder months. Despite the extended amount of time some bats spend in hibernation, researchers have only recently been able to study the hibernation ecology of bats under natural conditions. With the emergence of white-nose syndrome (WNS), a mysterious disease presently killing large numbers of bats during the hibernation period in the northeastern United States, expanding our knowledge of hibernation ecology and natural history has become more crucial. To collect such data, we used temperature-sensitive radio transmitters and data loggers to monitor the skin temperatures ( $T_{sk}$ ) of 6 bats (5 *Myotis lucifugus* [Little Brown Bat], and 1 *Myotis septentrionalis* [Northern Long-eared Bat]) hibernating in Mount Aeolus Cave, VT in late winter 2008. We recorded  $T_{sk}$  every 14 minutes for the life of the transmitters. We were able to monitor  $T_{sk}$  from near ambient temperatures to above 30°C Arousals occurred immediately before the signals were lost and at a time of increased numbers of bats observed on the landscape, thereby suggesting the emergence (and subsequent death) of bats. Our observations provide first data on the hibernation ecology of WNS-affected bats under natural conditions.

**BROWN (B. V.) & KUNG (G.-A.), 2010.** Revision of the New World *Dohrniphora* Dahl species lacking large hind tibial setae (Diptera: Phoridae). *Zootaxa* 2699(December 3):1-142, 43 pl., 41 réf.  
<http://www.mapress.com/zootaxa/list/2010/2699.html>

**BROWN (P. E.), 2010.** Bats and mine closure: a double-edged sword:107. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Much of the Western United States was settled as a result of mining. When the mines were abandoned, bats colonized these new "caves". Cities grew up around some mining districts. Even in remote areas, mines are visited by people exploring on off-highway vehicles. Abandoned mines can be hazardous, and accidents result. The recent influx of funds in the United States for mine closure has stimulated a rush to remediate mine hazards on federal lands. To attain the goal of the Economic Stimulus Package of putting more people to work, some people are involved who do not have experience in bat biology or bat-compatible closures. If done properly, bats in mines could be protected through the installation of bat gates and cupolas. However if bat habitat is not identified, mines could be closed through foam and backfill that would deprive bats of roosting habitat and potentially kill them, especially if exclusions are not done properly at the appropriate time of year. Most bat species use a variety of roosts throughout the annual cycle as dictated by physiological and behavioral needs. The timing of surveys will influence the ability to detect bat use of a mine feature, which can affect the treatment that a mine may receive (hard or bat-compatible closure). There is no substitute for site-specific bat surveys using established protocols to detect bat use, nor is there a universal style of mine closure. Some bat colonies do not accept culverts or even gates. To understand the importance of a single mine feature, most of the mines in a geographic unit may need to be evaluated in order to determine those with the most significant bat use at different times of the year. The scope of the "landscape" will depend on the species of bat

and their dispersal ability. The goal is to identify and protect the most important bat mines, and to avoid killing bats if a non-wildlife compatible method is selected.

- BUFFONI ROQUE DA SILVA (L.), DA COSTA MAIA (N.), TAYLOR (E. L. S.), ROBERTO BATISTA (L.), LOPES FERREIRA (R.) & GOMES CARDOSO (P.), 2010.** Evaluation and morphological identification of tannase-producing cave fungi:107-108, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Caves have peculiar environmental characteristics which provide favorable conditions for the development of some organisms, such as fungi. There are almost no studies on cave microbiota in Brazil. Much information on cave microbiology is being lost with the continuous suppression of caves in the country. The lack of knowledge and studies in this area highlights the potential of finding new fungi species or even isolates of biotechnological interest. Such findings could strengthen conservational actions for this environment. One of the areas that has been growing in the country is the study of fungi capable of producing enzymes of biotechnological potential. One of these enzymes is the Tannase (tannin acyl) hydrolase. This enzyme catalyses the hydrolysis reaction of the ester bonds present in the hydrolysable tannins and gallic acid esters. It is produced by plants and microorganisms. It is largely used in the production of instantaneous tea, acorn liquor and of gallic acid. This acid is an important compound for the synthesis of antibacterial drugs used in the pharmaceutical and food industries. Tannase is also used as clarifying agent in some drinks (wines, juices and coffee flavored drinks). The *Aspergillus* genus has been widely used for tannase production. The objective of this study was to isolate tannase-producing filamentous fungi from Brazilian caves in the *Caatinga* biome. The isolation of fungi was done in PDA (Potato Dextrose Agar) media with 0.2% of tannic acid for 5 days at 28°C. Screening was performed in media containing tannic acid (only carbon source). The growth was analyzed in 3, 5 and 7 days. The tannase-producing isolates were identified to genera level. These isolates belonged to 5 different genera: *Aspergillus*, *Penicillium*, *Fusarium*, *Rhizopus* and *Cladosporium*. A total of 386 from the 544 fungi isolated produced tannase, representing 70.96% of the samples. The fungi presenting significant growth will be submitted to specific enzymatic activity and species identification. The results obtained in this study highlight the biotechnological potential of cave microorganisms and the need of more studies concerning cave microbiology and its applicability. <http://www.icsb2010.net/>
- BULLEN (R. D.), MCKENZIE (N. L.), BULLEN (K. E.) & WILLIAMS (M. R.), 2010.** Bat heart mass: correlation with foraging niche and roost preference. *Australian Journal of Zoology* 57(6, 2009, Published: 22 January 2010):399-408. DOI: <http://dx.doi.org/10.1071/ZO09053>. ABS: We found that the spirit-preserved hearts of 34 species of Australian bat, representing 6 families, weighed from 0.3 to 0.65% of bat mass (mbat), a variation factor of two. The average mass of the heart specimens of the 34 species was 0.501% of bat mass and this did not vary with bat mass. This value was much lower than the average of the available published data, 0.991%. Insectivorous bats that forage or fly in and near three-dimensional clutter have heart mass fractions ~0.04% larger than average, whereas insectivorous bats that forage around and above the canopy in clear air have fractions ~0.16% smaller than average. Insectivorous bats that are obligate deep-cave roosters have significantly smaller fractions, 0.18% smaller than average, whereas those that hover have fractions ~0.08% larger than average. Available published data, although based on freshly sacrificed animals, show the same trends in relation to heart mass fraction and the same scatter and body-mass relationships. However, the magnitude of the fractions differs by a factor of two and may relate to our removal of all tissue except the musculature and walls of the four cardiac chambers. KW: Bat, foraging, heart, morphology, niche, roosting.
- BUŞMACHIU (G.), 2010.** Checklist of springtails (Collembola) from the Republic of Moldova. *Travaux du Muséum national d'Histoire naturelle "Grigore Antipa"* 53(Décembre):149-160. DOI: <http://dx.doi.org/10.2478/v10191-010-0011-x>.

- BUZJAK (S.), KLETEČKI (N.), MITIĆ (B.) & VUJNOVIĆ (T.), 2010.** Flora at some pit and cave entrances of Žumberak, Croatia. *Natura Croatica* 19(1, June 30):165-177. ABS: This study presents results of floristic research into the entrances of seven speleological features of Žumberak, i. e. of three pits and four caves. One of them lies in Upper Triassic dolostones, three in Upper Cretaceous flysch and carbonate sediments, two in Badenian limestone and one in Quaternary travertine sediments. The flora was inventoried at the entrance areas and at different distances from the entrances into the speleological features. The recorded plants were analyzed both taxonomically and regarding the abundance in the type habitats (pit, cave). Furthermore, similarity between habitats (Sørensen index of similarity), ecological indicator values and life forms were analyzed as well. KW: Žumberak, pit and cave entrances, flora. [http://hrcak.srce.hr/index.php?show=clanak&id\\_clanak\\_jezik=82729&lang=en](http://hrcak.srce.hr/index.php?show=clanak&id_clanak_jezik=82729&lang=en)
- BUZZACOTT (P. L.), 2010.** 20<sup>th</sup> International Conference on Subterranean Biology. *AKMA Journal* 81(December):?
- BUZZACOTT (P. L.), BUCKLEY (D.) & WATERWORTH (P.), 2010.** Chemoautotrophic microbial mantle prevalence in Murra El Elevation: catastrophic decline or seasonal fluctuation?:99, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The Nullarbor Plain of Western Australia is a plateau of horizontal Eocene and Miocene karst, home to numerous extensive caves flooded with brackish water. In 1999 chemoautotrophic microbial mantles were recorded in Murra El Elevation, and samples collected in Weebubbie and Warbla caves. The temperature in Murra El Elevation was 23.7 degrees Celsius, and in nearby Tommy Graham's cave it was 23.1 degrees. One year later return visits were made to Weebubbie and Warbla caves, and divers reported limited re-growth of 1-2 cm where samples had previously been collected. In September 2009 microbial mantles were again recorded in abundance in Murra El Elevation cave, hanging 20-30 cm long underneath ledges and covering the rubble below. The temperature was recorded to have fallen to 18.9°C. On a return visit six months later, after the dry Australian summer, divers found substantially fewer mantles, the largest of which was a mere 2 cm long. Water temperature was 19.3°C in Murra El Elevation and 23.4°C in Tommy Graham's cave. Meanwhile, the mantles at Weebubbie and nearby Olgolwin caves remained abundant. Given the rapid decline over six months in the prevalence of microbial mantles in Murra El Elevation alone, we postulate two potential scenarios. Firstly, that localised falling average water temperature has transformed Murra El Elevation into an inhospitable environment (e. g. altered water chemistry), causing the catastrophic demise of microbial mantles in that cave. Alternately, with notably different rain-driven dissolved nutrient ingress to Weebubbie and Warbla caves, the otherwise morphologically similar mantles in Murra El Elevation have evolved an annual, seasonally regulated lifecycle and are, thus, relatively faster growing than has been observed in other Nullarbor caves. Further research is underway to monitor this previously unreported phenomena and to establish which, if either of these possibilities, is likelier the cause. <http://www.icsb2010.net/>
- CABANELLAS-REBOREDO (M.), DEUDERO (S.), ALÓS (J.) & HENDRIKS (I.), 2010.** Initial data on settlement and recruitment of macrobenthic organisms on artificial substrates located over *Posidonia oceanica* meadows. *Marine Biology Research* 6(6):591-599. DOI: <http://dx.doi.org/10.1080/17451000903524690>. BL: Cf p. 592, "In other Mediterranean studies, artificial settlement panels have been used to investigate fouling associated with an offshore buoy (Relini & al., 2000), and to analyse the recruitment of Serpuloideans in a marine cave (Denitto & Licciani, 2006)".
- CAIRE (W.) & LOUCKS (L. S.), 2010.** Loss in Mass by Hibernating Cave Myotis, *Myotis velifer* (Chiroptera: Vespertilionidae) in Western Oklahoma. *The Southwestern Naturalist* 55(3, September):323-330. DOI: <http://dx.doi.org/10.1894/JKF-06.1>. ABS: This study characterized loss in body mass by the cave Myotis, *Myotis velifer*, in 7

- hibernation seasons (October-March 1979-1986) in western Oklahoma. Average mass entering hibernation was 14.4 g for males and 15.4 g for females. At the end of hibernation, average mass of males and females was 11.5 and 12.0 g, respectively. Males lost an average of 2.9 g (20.1%) and females lost 3.4 g (22.1%). During hibernation, males and females lost 0.021 and 0.024 g/day, respectively. We detected no difference in rate of loss of mass between the first and second halves of hibernation for either sex. Males and females lost 3.8 and 4.1 g, respectively, during 2005-2006, when only two visits were made to the cave (October and March). These values for loss in mass were slightly more than losses recorded for males and females when bats were sampled each month during hibernation. RES: Este estudio caracteriza la p  rdida del peso corporal de los murci  lagos, *Myotis velifer*, en 7 estaciones de la hibernaci  n (octubre-marzo 1979-1986) en Oklahoma occidental. El peso mediano al inicio de la hibernaci  n para los machos fue 14.4 g y para las hembras 15.4 g. El peso mediano de machos y de hembras al final de la hibernaci  n fue 11.5 y 12.0 g, respectivamente. Los machos perdieron un promedio de 2.9 g (20.1%) y las hembras perdieron 3.4 g (22.1%). Durante la hibernaci  n, los machos y las hembras perdieron 0.021 y 0.024 g/d  a, respectivamente. No detectamos ninguna diferencia en la tasa de la p  rdida del peso entre la primera y segunda mitad de la hibernaci  n para ambos sexos. Machos y hembras perdieron 3.8 g y 4.1 g, respectivamente, durante 2005-2006 cuando solamente se hicieron dos visitas a la cueva (octubre y marzo). Estos valores de la p  rdida de peso fueron levemente m  s que la p  rdida del peso registrada para machos y hembras cuando los murci  lagos fueron muestreados cada mes durante la hibernaci  n.
- CALAFORRA (J. M.) & DE WAELE (J.), 2010.** Zenithal ceiling tubes, a peculiar karst corrosion form in Carlsbad Caverns (New Mexico, USA). *Geophysical Research Abstracts* 12, EGU2010-3126, 2010, EGU General Assembly 2010, 1 p.
- CALDER (D. R.), 2010.** Some anthoathecate hydroids and limnopolyps (Cnidaria, Hydrozoa) from the Hawaiian archipelago. *Zootaxa* 2590(August 31):1-91, 49 pl., 437 r  f. <http://www.mapress.com/zootaxa/list/2010/2590.html>
- CAMACHO (A. I.) & HANCOCK (P.), 2010.** A new genus of Parabathynellidae (Crustacea, Bathynellacea) in New South Wales, Australia. *Journal of Natural History* 44(17/18, May):1081-1094. **DOI:** <http://dx.doi.org/10.1080/00222931003624796>. ABS: A new genus and species of the family Parabathynellidae, *Octobathynella peelensis* gen. nov. sp. nov., is described from New South Wales, Australia. The new genus displays several exclusive characters: a very large and distinctive male thoracopod VIII with one crest-like projection containing two lobules on the basipod; and four aesthetascs on segments six and seven of the antennule. It also has several combinations of characters that make it unique in the Parabathynellidae, specifically that: the antennule is eight-segmented (a new character in the Australian species); there are seven segments in the antenna; the labrum has 18-20 teeth; the exopod of thoracopod I has three to four segments and the exopod of thoracopod II has four segments; the endopod has one dorsal seta on the first and second segments and the epipod is absent on thoracopod I; pleopods are absent; the endopod of the male thoracopod VIII has two setae and the exopod has setules; there are 10-12 spines on the sympod, three or four spines on the endopod and five setae on the exopod of the uropod. The new genus and species is placed into context with all known Bathynellacea in Australia, and the biogeographic patterns are discussed for this ancient group of subterranean crustaceans. KW: Syncarida, Bathynellacea, Parabathynellidae, New South Wales, Australia, stygofauna.
- CARDOSO (P.) & MORANO HERN  NDEZ (E.), 2010.** The Iberian spider checklist (Araneae). *Zootaxa* 2495(June 4):1-52, 4 pl., 50 r  f. ABS: We compiled all the available information regarding spider species distribution in the Iberian Peninsula (including the Balearic Islands). At present, 1335 species are known from the region, of which 236 are Iberian endemics, in 373 genera and 55 families. Portugal presents 768 species and Spain (including Andorra and Gibraltar), 1213 species. Although the work developed during recent decades has allowed a major increase in our knowledge of this group, there are certainly many species yet to be found and, for those already listed, the distribution is largely unknown. Although linyphiids present the highest number of known species (267), dysderids present the highest endemic richness (46 species). Information regarding the provinces from where each species was referenced is also presented and reveals large differences in the knowledge about each province, with most presenting very few known records and species. This checklist is accompanied by an online catalogue where all the information here presented is exhaustively listed and regularly updated. KW: Arthropoda, Balearic Islands, catalogue, distribution, endemic species, Portugal, Spain, species list. <http://www.mapress.com/zootaxa/list/2010/2495.html>
- CAREY (V.) & CAMPBELL (J. W.), 2010.** Macroinvertebrate Survey of Byers Cave, Georgia. Poster P2.50.
- CARMICHAEL (M. J.), CARMICHAEL (S.), ROBLE (L. A.) & BR  UER (S.), 2010.** Geomicrobiology of Mn Oxide Deposits in Eastern Tennessee Caves. Poster P1.83.
- CARPENTER (T. L.) & ROBBINS (R. G.), 2010.** Patronyms honoring Harry HOOGSTRAAL (1917-1986). *Systematic & Applied Acarology* 15:187-194. ABS: Documentation is presented for 76 patronyms in 11 taxonomic classes honoring the preeminent medical entomologist Dr. Harry HOOGSTRAAL. KW: Harry HOOGSTRAAL, patronyms.
- CARTER (J.), FOWLES (A.) & ANGELE (C.), 2010.** Monitoring the population of the linyphid spider *Porrhomma rosenhaueri* (L. Koch, 1872) (Araneae: Linyphiidae) in Lesser Garth Cave, Cardiff, UK. *Cave and Karst Science* 37(1):3-8. ABS: The cave dwelling spider *Porrhomma rosenhaueri* (L. Koch) is unique to the British fauna as it is considered to be the only species of troglobiont spider present. This spider has a very limited distribution in the UK and is known only from two cave sites, both of which are in South Wales: Ogof y Ci near Merthyr Tydfil and Lesser Garth Cave near Cardiff. Monitoring populations of cavernicolous species is very difficult to achieve and the aim of this survey was to set up a Common Standards Monitoring (CSM) protocol that would allow meaningful data to be compiled as to the size and viability of the spider population in the Lesser Garth Cave complex. A defined transect of the main passage in the cave was surveyed, carefully searching the accessible parts of the passage for both live spiders and webs in good condition but with no obvious spider present. The first visit was made in September 2009 and 17 live spiders were recorded, removing one to confirm identification. During a follow up survey in December 2009 only 6 live spiders were recorded. Possible reasons for this are discussed in this paper. The overall impression is that, despite living next to an active quarry, the spider *Porrhomma rosenhaueri* is still well-established in the Lesser Garth Cave. The cave itself has a rich diversity of cave associated species and is thus an important site for speleobiology in the UK. <http://www.bcra.org.uk/pub/candks/index.html>
- CASALE (A.), 2010.** From *Anophthalmus schmidti* to molecular phylogenies: past and present in the knowledge of subterranean carabid beetles (Coleoptera: Carabidae):152. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The author presents an updated, tentative synthesis of the available knowledge of the main groups of carabid beetles (Geadephaga, or Caraboidea) represented in subterranean environments in different areas of the world. Caraboidea, with some families of Staphylinioidea, represent the almost totality of the subterranean Coleoptera. As generalized ground and mostly predaceous beetles, they became a successful group in all kind of soil and subterranean environments, and some of them show the most impressive examples of adaptation to hypogean life. In particular, three taxonomic groups will be stressed: 1. Scaritinae of the subtribe Reicheiina, with emphasis on the main questions concerning their global distributions, and their possible "adaptive radiation" in Sardinia; 2. Trechinae of the tribe Trechini, stressing the opportunity of a new taxonomic treatment of "phyletic lineages" supported by bio-molecular data; 3. Pterostichinae of the subtribes Molopina and Sphodrina, with emphasis on the Euro-Mediterranean genera, highly interesting from the biogeographic point of view. Some questions concerning other groups of subterranean carabids (Pausinae Ozaenini, Promecognathinae, Dryptinae Zuphiini) will be also recalled and debated. Funds were provided by PRIN-MIUR (Ministry of the University and Scientific Research, Italy) and the EU project Interreg



- III Sardinia-Corsica-Tuscany. <http://www.icsb2010.net/>
- CASTRO (P.), 2010.** A new species and new records of palicoid crabs (Crustacea, Decapoda, Brachyura, Palicoidea, Palicidae, Crossotonotidae) from the Indo-West Pacific region. *Zoosystema* 32(1):73-86.
- CASTRO (P.), DAVIE (P. J. F.), NG (P. K. L.) & RICHER DE FORGES (B.), 2010.** Le professeur Danièle GUINOT. In: CASTRO (P.), DAVIE (P. J. F.), NG (P. K. L.) & RICHER DE FORGES (B.), Studies on Brachyura: a Homage to Danièle GUINOT. Crustaceana Monographs. Fransen, C. H. J. M. and J. C. von Vaupel Klein, series eds, 11, Leiden, Brill. CASTRO (P.), DAVIE (P. J. F.), NG (P. K. L.) & RICHER DE FORGES (B.), eds, 1-33 p.
- CECCOLINI (F.), PAGLIANTI (A.), STREITENBERGER (C.) & BERTI (R.), 2010.** Can chemical cues act as landmarks in the orientation of the cave fish *Phreatichthys andruzzii*? *Canadian Journal of Zoology* 88(9, September 1):884-888. DOI: <http://dx.doi.org/10.1139/Z10-058>. ABS: In the constant darkness of cave environments fish locomotion has to be directed by nonvisual spatial information. Four series of tests were done to determine the ability of the hypogean cyprinid *Phreatichthys andruzzii* Vinciguerra, 1924 to memorize a synthetic chemical cue (morpholine, C<sub>4</sub>H<sub>9</sub>NO), to associate it with an area, to utilize such information for direct locomotory activity, and to determine how long that association is retained in fish memory. Although morpholine acts as neutral stimulus for *P. andruzzii*, after acclimation in morpholine-scented areas devoid of food resources specimens showed a clear tendency to avoid waters characterized by the odour of that chemical. We hypothesize that an association between odours and trophic characteristics of an area allows the fish to optimize their exploratory activity, as it allows them to recognize areas already experienced to be devoid of trophic resources and to avoid these as unprofitable places. The above association seems to be memorized for a short time; the behavioural response vanishing between 6 and 18 h after the end of the acclimation period. After a certain time has elapsed, it could be profitable to visit the same areas again to verify the incidental availability of new food sources. RÉS: Dans l'obscurité permanente des milieux troglodytes, la locomotion des poissons doit être dirigée par de l'information spatiale non visuelle. Quatre séries de tests nous ont servi à déterminer la capacité du cyprinidé hypogée *Phreatichthys andruzzii* Vinciguerra, 1924 à mémoriser un signal chimique synthétique (morpholine, C<sub>4</sub>H<sub>9</sub>NO), à l'associer à un site et à utiliser cette information pour diriger son activité locomotrice; nous avons aussi mesuré la durée de l'association dans la mémoire du poisson. Bien que la morpholine agisse comme stimulus neutre chez *P. andruzzii*, les individus acclimatés dans des zones marquées d'odeur de morpholine, mais sans ressources alimentaires, ont une nette tendance à éviter les eaux porteuses de l'odeur de ce produit. Nous émettons l'hypothèse selon laquelle une association entre les odeurs et les caractéristiques trophiques d'une zone permet aux poissons d'optimiser leur activité exploratrice, puisqu'elle leur sert à reconnaître les régions déjà connues par expérience pour être privées de ressources trophiques et à les éviter comme sites sans bénéfices. L'association décrite ci-haut semble être mémorisée pour une période courte, car la réponse comportementale disparaît entre 6 et 18 h après la fin de la période d'acclimatation. Sans doute, après un certain temps, il pourrait être bénéfique d'explorer à nouveau les mêmes zones pour vérifier la disponibilité fortuite de nouvelles sources de nourriture.
- C. G., 2010.** Macornay/Nature/27 Août. Quand vient la nuit à la grotte de Gravelle.
- CHAKRABARTY (P.), 2010.** Status and phylogeny of Milyeringidae (Teleostei: Gobiiformes), with the description of a new blind cave-fish from Australia, *Milyeringa brooksi*, new sp. *Zootaxa* 2557(August 3):19-28, 5 pl., 13 réf. ABS: A phylogeny of Milyeringidae is reported and a new species, *Milyeringa brooksi*, is described from Cape Range National Park in the North West Cape (Cape Range Peninsula) of Australia. This species is distinguished on the basis of morphological and molecular characters from its only congener *Milyeringa veritas*. These diagnostic characters are related to a unique pattern of sensory papillae on the body and synapomorphies in three genes (cytochrome c oxidase I, cytochrome b, and NADH dehydrogenase 2). The new species is known only from the southern portion of the North West Cape spanning roughly 50 kilometers of subterranean habitat. This habitat is exceedingly rare and measures to preserve it and its fauna should be taken. KW: Blind, cave, stygobites, taxonomy, troglodytic. <http://www.mapress.com/zootaxa/list/2010/2557.html>
- CHAKRABARTY (P.), 2010.** Genotypes: a concept to help integrate molecular phylogenetics and taxonomy. *Zootaxa* 2632(October, 1):67-68, 10 réf. <http://www.mapress.com/zootaxa/list/2010/2632.html>
- CHANG (S. J.), BLAKE (R. E.), STOUT (L. M.) & KIM (S. J.), 2010.** Oxygen isotope, micro-textural and molecular evidence for the role of microorganisms in formation of hydroxylapatite in limestone caves, South Korea. *Chemical Geology* 276(3/4, September):209-224. DOI: <http://dx.doi.org/10.1016/j.chemgeo.2010.06.007>. ABS: We present oxygen isotope, micro-textural, and molecular evidence of microbial activity in the formation of hydroxylapatite (HAP) in three limestone caves (Gosu, Sungryu, and Ssang caves) in South Korea. HAP typically forms as crusts (0.1 to 0.5 mm thick) coating carbonates of speleothems and host rock surfaces, on and near bat habitats. Micro-textures within HAP crusts indicate that a metastable apatite precursor (AP) is initially precipitated on and near the surfaces of sulfur-bearing microbial filaments and then transforms to HAP. Analysis of DNA extracted from the HAP crusts confirms that sulfur oxidizing bacteria are present in some of the HAP samples. The  $\delta^{18}\text{O}$  values of phosphate ( $\delta^{18}\text{O}_\text{P}$ ) in HAP precipitated in the caves range from 14.6 to 15.6‰ and are close to isotopic equilibrium with the weighted mean annual  $\delta^{18}\text{O}$  value of rain water (= cave water) at the mean annual air temperature (= measured cave temperature). The difference in oxygen isotopic composition between speleothem carbonate ( $\delta^{18}\text{O}_\text{C}$ ) and phosphate ( $\delta^{18}\text{O}_\text{P}$ ) in adjacent apatitic crusts is similar to that of co-existing carbonate and phosphate in modern biogenic apatite. These results suggest that phosphate, likely derived from bat excretions, was metabolized by microorganisms and has undergone extensive oxygen isotope exchange with cave drip water by intense biological turnover of phosphate, and then precipitated as HAP in near-equilibrium with water and carbonate in the cave ecosystem. Results from these studies of  $\delta^{18}\text{O}_\text{P}$  values of HAP crusts in limestone caves demonstrate the utility of  $\delta^{18}\text{O}_\text{P}$  as an environmental temperature proxy and signature of microbiological processes. KW: Bat guano, Hydroxylapatite, Limestone cave, Phosphate oxygen isotope, Speleothem, Sulfur oxidizing bacteria.
- CHARLES (L.) & GRÉAUME (C.), 2010.** Les mollusques récents de la Réserve Naturelle Géologique de Saucats-La Brède (Gironde, France) [The Recent molluscs from the "Réserve Naturelle Géologique de Saucats-La Brède" (Gironde, France)]. *Bulletin de la Société linnéenne de Bordeaux* 145, nouvelle série, 38(4):437-448. RÉS: Nous avons réalisé un premier inventaire de la malacofaune terrestre et dulçaquicole présente sur l'emprise de la Réserve Naturelle Géologique de Saucats-La Brède (Gironde). Un ensemble de 50 espèces, dont 6 aquatiques, a pu être observé dans les différents sites classés. Nous mentionnons également 5 espèces complémentaires observées sur la commune de Saucats à proximité immédiate de l'espace de la Réserve. Parmi les espèces rencontrées au cours de cet inventaire, trois font l'objet de discussions: *Balea heydeni* Von Maltzan, 1881 notée pour la première fois en Aquitaine, *Semilimax pyrenaicus* (Férussac, 1821) nouvellement rencontrée en Gironde, et *Bythinella* sp., morphologiquement bien distincte de *Bythinella ferussina* (Des Moulins, 1827), unique espèce de bythinelle citée récemment en Gironde, suggérant une plus grande diversité du genre pour le département. MC: Mollusques continentaux récents, inventaire, Aquitaine, Gironde, Saucats, *Balea heydeni*, *Bythinella* sp., *Semilimax pyrenaicus*. ABS: We have drawn up the first inventory of the land and freshwater malacofauna of the Réserve Naturelle Géologique de Saucats-La Brède. A total of 50 species, 6 of which are aquatic, were observed in the various sites. To this list, we saw 5 more species observed in Saucats, very close to the Reserve area. Among the species encountered during this inventory, three of them are discussed: *Balea heydeni* Von Maltzan, 1881 noted for the first time in Aquitaine, *Semilimax pyrenaicus* (Férussac, 1821) newly encountered in Gironde and *Bythinella* sp., morphologically distinct from *Bythinella ferussina* (Des Moulins, 1827), the only species of this genus recently recorded in the Gironde, suggesting a wider local diversity for the genus. KW: Recent continental molluscs, inventory, Aquitaine, the Gironde, Saucats, *Balea heydeni*, *Bythinella* sp., *Semilimax pyrenaicus*.

**CHATTERJEE (T.), PAVIĆEVIĆ (A.) & PEŠIĆ (V. M.), 2010.** New records of the Halacarid Mites (Acari: Halacaridae) from Croatia. *Acta Biologica* 17:85-89.

**CHATURVEDI (V.), SPRINGER (D. J.), BEHR (M. J.), RAMANI (R.), LI (Xiaojiang), PECK (M. K.), REN (P.), BOPP (D. J.), WOOD (B.), SAMSONOFF (W. A.), BUTCHKOSKI (C. M.), HICKS (A. C.), STONE (W. B.), RUDD (R. J.) & CHATURVEDI (S.), 2010.** Morphological and Molecular Characterizations of Psychrophilic Fungus *Geomyces destructans* from New York Bats with White Nose Syndrome (WNS). *PLoS ONE* 5(5, May):e10783, 12 p. **DOI:** <http://dx.doi.org/10.1371/journal.pone.0010783>.

**ABS:** Background: Massive die-offs of little brown bats (*Myotis lucifugus*) have been occurring since 2006 in hibernation sites around Albany, New York, and this problem has spread to other States in the Northeastern United States. White cottony fungal growth is seen on the snouts of affected animals, a prominent sign of White Nose Syndrome (WNS). A previous report described the involvement of the fungus *Geomyces destructans* in WNS, but an identical fungus was recently isolated in France from a bat that was evidently healthy. The fungus has been recovered sparsely despite plentiful availability of afflicted animals. Methodology/Principal Findings: We have investigated 100 bat and environmental samples from eight affected sites in 2008. Our findings provide strong evidence for an etiologic role of *G. destructans* in bat WNS. (i) Direct smears from bat snouts, Periodic Acid Schiff-stained tissue sections from infected tissues, and scanning electron micrographs of bat tissues all showed fungal structures similar to those of *G. destructans*. (ii) *G. destructans* DNA was directly amplified from infected bat tissues, (iii) Isolations of *G. destructans* in cultures from infected bat tissues showed 100% DNA match with the fungus present in positive tissue samples. (iv) RAPD patterns for all *G. destructans* cultures isolated from two sites were indistinguishable. (v) The fungal isolates showed psychrophilic growth. (vi) We identified in vitro proteolytic activities suggestive of known fungal pathogenic traits in *G. destructans*. Conclusions/Significance: Further studies are needed to understand whether *G. destructans* WNS is a symptom or a trigger for bat mass mortality. The availability of well-characterized *G. destructans* strains should promote an understanding of bat-fungus relationships, and should aid in the screening of biological and chemical control agents.

**CHERTOPRUD (E. S.), GHEERARDYN (H.) & GÓMEZ (S.), 2010.** Harpacticoida (Crustacea: Copepoda) of the South China Sea: faunistic and biogeographical analysis. *Hydrobiologia*, Online First™, 21 March 2010. **DOI:** <http://dx.doi.org/10.1007/s10750-010-0228-5>. **ABS:** Based on original and on published databases, a compendium of the Harpacticoida of the South China Sea is presented, and the distributional range of species is discussed. Up to now, a total of 77 harpacticoid species belonging to 57 genera and 19 families have been recorded in this region. Twenty of these species, collected in Nha-Trang Bay (Vietnam), have not hitherto been described. The most speciose families are the Miraciidae (20 species) and the Laophontidae (9 species). Thirteen families were represented by one to three species only and six families by four to seven species. A brief comparison is presented between the harpacticoid fauna of the South China Sea, the Philippine Islands, the inner Malayan Archipelago (Java, Flores, Banda, and Celebes Seas), New Guinea, the Yellow Sea, and the Andaman and Nicobar Islands. The overall similarity between the species lists of these areas was observed to be extremely low (average value of Simpson index is  $0.15 \pm 0.08$ ). The lists of planktonic species from the different areas showed the highest similarity. The lowest similarity (highest endemism) was observed between the lists of interstitial species. It is likely that one of the factors determining the differences between the faunas is the poor knowledge about the composition and distribution of benthic harpacticoids in tropical latitudes.

**CHISTYAKOV (D. V.), 2010.** Новые данные о зимовках рукокрылых в искусственных подземных сооружениях Ленинградской области [New data about bats hibernation sites in cellars of Leningrad region]. ? Новые данные о зимовках рукокрылых в искусственных подземных сооружениях Ленинградской области -заброшенных военных укреплений и гидротехнических подземных ходах. Были обнаружены места спячки трех видов: *Plecotus auritus*, *Myotis daubentonii*, *Eptesicus*

*nilssonii*. В большинстве случаев в таких убежищах зимует незначительное число зверьков. Только в одном случае было обнаружено около 20 рукокрылых, в том числе и *M. daubentonii*; последний вид в подобных укрытиях в пределах нашей области ранее не отмечался. Ключевые слова: рукокрылые, зимовка, Ленинградская область. **SUM:** At the last years (2003-2009), some cellars situated in Leningrad region were examined. We investigated about 40 undergrounds, but only in 6 of them bats winterings was obtained. In small cellars only several specimens of (*Eptesicus nilssonii*) were found. In underground tunnel (Taitskiy vododvod) we obtained only *Plecotus auritus* (about 10 specimens). Only in one place (fort "Nikolaevskij") we record a more than 20 animals, belong to for three bats species (*P. auritus*, *Myotis daubentonii*, *E. nilssonii*). **KW:** Bats, Leningrad region, hibernation, cellars.

**CHISTYAKOV (D. V.) & Богдарина (С. В.), 2010.** Важнейшим условием существования летучих мышей на севере является наличие зимних убежищ, пригодных для их зимней спячки. На Северо-Западе России наиболее известными из подобных убежищ должны считаться рукотворные подземелья старые подземные выработки полезных ископаемых. В пределах рассматриваемого региона большинство их было описано и изучено к середине XX в. [4, 5]. В ходе дальнейшего изучения рукокрылых Северо-Запада России нами обнаружены и обследованы новые, неизвестные в литературе зимовки летучих мышей в подземных убежищах. Результаты этих исследований изложены ниже.

**CHISTYAKOV (D. V.) & BOGDARINA (S. V.), 2010.** New data on hibernation sites of bats (Vespertilionidae) in the north-west of Russia:115. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. **ABS:** During 2000-2008, some new caves and artificial undergrounds in the Leningrad Region and the Republic of Karelia were surveyed for bats. In all these shelters hibernation of bats was revealed. We found seven bat species there (*Plecotus auritus*, *Myotis nattereri*, *M. daubentonii*, *M. brandtii*, *M. dasycneme*, *Eptesicus nilssonii*, *Vespertilio murinus*). All records are of particular interest in respect of the fact, that the hibernacula lie near the northern margins of the distribution ranges of these species. Among the most important records range the findings of wintering individuals of *Vespertilio murinus*, a species formerly unknown to hibernate in the region. We obtained also a new record of *Myotis brandtii*, although numbers of this species decreased in the last years in the region.

**CHISTYAKOV (D. V.) & NICKULIN (A. D.), 2010.** [The influence of anthropogenic pressure on the bats at winter habitats]. ? **SUM:** The most of artificial caves in Leningrad region are used by bats as habitats for hibernation. Earlier, caves in Sablino were one of the biggest winter shelters. By the research in 1996-1997 there were 514 bats, belonging to 6 species, investigated. Also this caves appeared to be the place of unique winter community of a "red-book" specie - *Myotis nattereri* (IUCN "3 VU"). Although, the situation had been badly changing in the following years. The community of bats happened to be modified, because of the organization of excursion service in one cave and frequent visits of cluttered tourist groups in another. In 1990-2000 there were only 22 bats found. Apart from this, the reconstruction of the cave for the needs of commercial activity demolished the rickety micro-climatic conditions of the underground shelter. The unique community of Natterer's bats (*Myotis nattereri*) was practically ruined. Another winter habitats of bats meanwhile are better condition (caves in Staraya Ladoga), because of their lesser notoriety. The concerning increasing of the number of bats was marked there is some previous years. But they are extraordinary vulnerable and must be adopted the status of the unique geological object with the great zoological value.

**CHO (J.-L.) & HUMPHREYS (W. F.), 2010.** Ten new species of the genus *Brevisomabathynella* Cho, Park & Ranga Reddy, 2006 (Malacostraca, Bathynellacea,

- Parabathynellidae) from Western Australia. *Journal of Natural History* 44(17/18, May):993-1079. **DOI:** <http://dx.doi.org/10.1080/00222930903537066>. ABS: Ten new species of *Brevisomabathynella* Cho, Park & Ranga Reddy, 2006 are described and illustrated from the arid region of Western Australia. Comparison of the external morphology revealed the presence of three common characters distributed among the 10 species: the five-segmented antenna, the absence of the basipodal seta on the male thoracopod VIII and the absence of a basiventral seta on the uropodal exopod. This character combination is not found in *Notobathynella* and *Billibathynella*, but only in *Brevisomabathynella*, a genus known from two described species both with unusual characters. Despite the three common attributes, the 10 new species differ remarkably from these two described species, but could not be defined by their own synapomorphy. Consequently, and cognizant of a previously performed molecular analysis, we assign the 10 new species to *Brevisomabathynella* and amend the generic diagnosis. The species inhabit shallow aquifers in groundwater calcretes and each appears to be endemic to a given calcrete formation. The two species previously known and the 10 species now described include four sympatric species pairs, with similar-sized sympatric species differing markedly in body form. *Brevisomabathynella* inhabit groundwater up to at least marine salinity. KW: *Brevisomabathynella*, Parabathynellidae, new species, Yilgarn, Western Australia, Australia.
- CHRISTIAN (E.), 2010.** H  hlenfauna am Ostrand der Alpen. *Naturschutz bunt - Zeitschrift des Naturschutzbund N  * 2010(1):8-9.
- C  MPEAN (M.-D.), 2010.** *Taxonomical and ecological study of water mite communities (Acari, Hydrachnidia) from the river Somesul Mic catchment area and their role as indicators of water quality.* "Babes-Bolyai" University, Cluj-Napoca Biology and Geology Faculty, Taxonomy and Ecology Department. Summary of the thesis, 31 p.
-   INBILGEL (I.) & G  K  EOGLU (M.), 2010.** Flora of Altınbe  ik Cavern National Park (  bradı-Akseki, Antalya/Turkey). *Biological Diversity and Conservation* 3(3):85-110. [http://www.biodicon.com/index\\_dosyalar/Page407.htm](http://www.biodicon.com/index_dosyalar/Page407.htm)
- CLABORN (D. M.), 2010.** The biology and control of leishmaniasis vectors. *Journal of Global Infectious Diseases* 2(2, May/August):127-134. **DOI:** <http://dx.doi.org/10.4103/0974-777X.62866>.
- COKENDOLPHER (J. C.) & KREJCA (J. K.), 2010.** A New Cavernicolous *Parobisium* Chamberlin, 1930 (Pseudoscorpiones: Neobisiidae) from Yosemite National Park, U. S. A. *Occasional Papers*, Museum of Texas Tech University, 297(September 30):26 p. ABS: A new species of troglobitic *Parobisium* pseudoscorpion is described from two caves developed in granite talus slopes in the Yosemite Valley, U. S. A. The 16 species of the genus are all from the northern hemisphere (western U. S. A., China, Japan, South Korea). A taxonomic key to the genus in the U. S. A. is provided. The new species has only an anterior pair of pale colored eyespots without tapetum and is blind. Extensive searching at other shallow nearby caves and on the surface has not revealed any other specimens of this species, although it is common within certain areas of the two known caves. This may be only the second troglobite described from granite talus caves in North America, and suggests the potential for fruitful exploration in regions not traditionally sampled for subterranean fauna. KW: Cavernicolous, boulders, granite cave, *Parobisium*, pseudoscorpions, talus, troglobite, Yosemite National Park. <http://www.nsrl.ttu.edu/publications/opapers.htm>
- COKENDOLPHER (J. C.), SISSOM (W. D.) & REDDELL (J. R.), 2010.** A New Species of *Apozomus* (Arachnida: Schizomida: Hubbardiidae) from Peninsular Malaysia. *Occasional Papers*, Museum of Texas Tech University, 298(October 27):8 p. ABS: A new species of the genus *Apozomus* Harvey, 1992 is described from Malaysia. It was collected in a termite nest and is therefore likely a termitophile. The new species is the 14<sup>th</sup> described species of the order from Southeast Asia, and the 19<sup>th</sup> member of the genus *Apozomus*. The described taxa of the Schizomida from Southeast Asia are reviewed. Many species remain to be studied and described. KW: *Apozomus*, *Longipeditermes*, new species, Peninsular Malaysia, schizomid, taxonomy, termite. <http://www.nsrl.ttu.edu/publications/opapers.htm>
- Commonwealth of Australia, 2010.** *Focusing on the Landscape. Biodiversity in Australia's National Reserve System.* 148 p.
- Commonwealth of Australia, 2010.** *Focusing on the Landscape. Biodiversity in Australia's National Reserve System. Part A: Fauna.* 197 p.
- Commonwealth of Australia, 2010.** *Focusing on the Landscape. Biodiversity in Australia's National Reserve System. Part B: Vascular Flora.* 514 p.
- COOK (L. D.), TREWICK (S. A.), MORGAN-RICHARDS (M.) & JOHNS (P. M.), 2010.** Status of the New Zealand cave weta (Rhopidophoridae) genera *Pachyrhamma*, *Gymnoplectron* and *Turbottoplectron*. *Invertebrate Systematics* 24(2):131-138. **DOI:** <http://dx.doi.org/10.1071/IS09047>. ABS: The New Zealand Rhopidophoridae Walker, 1869 comprise 18 endemic genera (including 8 that are monotypic). Although there are many new species to be described, rationalisation at the genus level is also required due to inconsistencies in their current systematics. Even the largest and best known taxa, including those that occupy cave systems and are the most frequently encountered by people, require taxonomic revision. These cave weta include species assigned to three poorly differentiated genera, *Pachyrhamma* Brunner v. Wattenwyl, 1888, *Gymnoplectron* Hutton, 1897 and *Turbottoplectron* Salmon, 1948, that are best known from North Island New Zealand. We used mitochondrial DNA sequence data to examine their relationships using representatives of each genus. The results indicate that a single genus *Pachyrhamma* would be appropriate for all, as *Gymnoplectron* and *Turbottoplectron* nest phylogenetically within it. There are insufficient morphological, spatial or ecological reasons to justify retention of all three. However, we also note that species level diversity does not correlate with genetic or spatial diversity; some species are genetically well partitioned and widespread while others have narrow ranges in single cave systems and are closely related to one another. KW: Phylogeography, species radiation.
- COOMBS (S.), 2010.** S 9.2. Active flow-sensing for spatial exploration and navigation:55. In: *9<sup>th</sup> International Congress of Neuroethology*, Salamanca (Spain), 2-7 August 2010. Sponsored by the International Society for Neuroethology ([neuroethology.org](http://neuroethology.org)). Abstracts. ABS: Blind cavefish (*Astyanax mexicanus*) are unable to scan their surroundings from a single vantage point by visual or other long-range sensory systems to determine the spatial configuration of their distant surroundings. Rather, they must rely on short-range senses and swim within sensory range of each landmark feature. Thus, any knowledge of the spatial relationship between two or more features must be obtained from sequential encounters. In order to sense nearby features without touching them, fish use active-flow sensing to detect the spatiotemporal perturbations caused by nearby stationary objects in their own self-generated flow fields. Given that flow signal generation and reception is coupled to the coast phase of their burst-coast swimming gait, sensory updates about their position in space with respect to their surroundings are intermittent and constrained by locomotor demands. As a consequence, spatial exploration and navigation pose special challenges for blind cavefish. Comparative studies on the swimming trajectories and fine-scale swimming kinematics of blind cavefish and their nearest sighted relative, a morph of the same species, reveal interesting similarities and differences in the sensorimotor strategies used by these two morphs when exploring novel environments. Comparisons suggest that both morphs share common strategies for regulating the temporal characteristics of burst-coast swimming kinematics, but that blind morphs differ significantly from sighted morphs in their swimming trajectories and in lateral line-enabled abilities to link swim cycles into sequences that form straight trajectories. These differences can best be understood in terms of the intermittent and short-range challenges of active flow-sensing by blind cavefish and suggest that these fish have evolved behavioral strategies for coping with these challenges.
- COOPER (J. E.) & COOPER (M. R.), 2010.** Long-term mark-recapture studies of population sizes in the stygobiotic crayfishes (Decapoda: Cambaridae) of Shelta

Cave, Alabama, USA. *Subterranean Biology* 7(2009, December):35-40. ABS: Mark-recapture studies of *Orconectes* (*O. australis*, *O. (O.) sheltae*, and *Cambarus* (*A. jonesi*), conducted in Shelta Cave, Huntsville, Alabama, USA, between 1968 and 1973, provided baseline data on population sizes of all three species. Individuals were given a painted carapace mark to identify intermolts, and all were injected between the cuticle and the muscles of the abdomen with a permanent mark of Bates inks. A grand total of 1314 individual crayfish was processed during that period, and there were 1213 recaptures (92.3%) of previously marked individuals. The number of *O. (O.) australis* marked was 959, the number of *C. (A.) jonesi* was 266, and the number of *O. (O.) sheltae* was 89. KW: Cave crayfishes, *Cambarus*, *Orconectes*, population sizes, Shelta Cave.

**  ORAMAN (E.) & FURMAN (A.), 2010.** The community structure of cave-dwelling bat populations in Yildiz Mountains, Turkish Thrace. Poster 67:71. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR   EK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p.

**  ORAMAN (E.) & FURMAN (A.), 2010.** The community structure of cave-dwelling bat populations in the Yildiz Mountains, Turkish Thrace:117. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR   EK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: In this study, the community composition, species richness, and abundance of cave-dwelling bat fauna of Yildiz Mountains is presented and our census data (2009) is compared with the results of the 2001 census to examine possible changes in populations' abundance and structure over the last few years. Approximately 42000 bats, representing nine species, were recorded in 22 caves and *Miniopterus schreibersii* was the most abundant species, followed by *Rhinolophus ferrumequinum* and large *Myotis*. For the comparison, we focused on 19 caves and analyzed abundance of nine taxa: *Miniopterus schreibersii*, *Myotis capaccinii*, *M. emarginatus*, *M. blythii*, *M. myotis*, *Rhinolophus euryale*, *R. blasii*, *R. ferrumequinum*, and *R. hipposideros*. *Myotis blythii* and *M. myotis*, and *Rhinolophus euryale* and *R. blasii* were pooled together as large *Myotis* and medium-size *Rhinolophus* species, respectively. In winter and in summer 2001 the total number of recorded bats was ca. 36000 and 14000, respectively. The total abundance in 2001 was somewhat larger than in 2009 (ca. 30000 and 12000). In both time periods, and in both seasons, all analyzed species showed similar clamped distribution (as estimated by high values of Green's index). Similarly, the Hill's diversity indices and evenness indices did not show any drastic differences. The observed discrepancy in the total abundance of bats, we link to almost twofold decrease in abundance *Miniopterus schreibersii* and medium-size *Rhinolophus* species during summer months from 2001 to 2009. In winter months, a similar trend was observed in large *Myotis* and again in medium-size *Rhinolophus* species. Whereas *Miniopterus schreibersii* and in large *Myotis* appear to show only seasonal changes, decrease in abundance of medium-size *Rhinolophus* species seem to be consistent and might indicate a population decline of these species. We also report the first record of White Nose Syndrome in Turkey, which has been detected in a cave close to the Bulgarian state border on a large *Myotis* species.

**CORNUT (J.), ELGER (A.), LAMBRIGOT (D.), MARMONIER (P.) & CHAUVET (E.), 2010.** Early stages of leaf decomposition are mediated by aquatic fungi in the hyporheic zone of woodland streams. *Freshwater Biology* 55(12, December):2541-2556. DOI: <http://dx.doi.org/10.1111/j.1365-2427.2010.02483.x>.

SUM: 1. Leaf litter constitutes the major source of organic matter and energy in woodland stream ecosystems. A substantial part of leaf litter entering running waters may be buried in the streambed as a consequence of flooding and sediment movement. While decomposition of leaf litter in surface waters is relatively well understood, its fate when incorporated into river sediments, as well as the involvement of invertebrate and fungal decomposers in such conditions, remain poorly documented. 2. We tested experimentally the hypotheses that the small interstices of the sediment restrict the access of the largest shredders to buried organic matter without compromising that of aquatic hyphomycetes and that fungal

decomposers in the hyporheic zone, at least partly, compensate for the role of invertebrate detritivores in the benthic zone. 3. Alder leaves were introduced in a stream either buried in the sediment (hyporheic), buried after 2 weeks of exposure at the sediment surface (benthic-hyporheic), or exposed at the sediment surface for the entire experiment (benthic). Leaf decomposition was markedly faster on the streambed surface than in the two other treatments (2.1- and 2.8-fold faster than in the benthic-hyporheic and hyporheic treatments, respectively). 4. Fungal assemblages were generally less diverse in the hyporheic habitat with a few species tending to be relatively favoured by such conditions. Both fungal biomass and sporulation rates were reduced in the hyporheic treatment, with the leaves subject to the benthic-hyporheic treatment exhibiting an intermediate pattern. The initial 2-week stage in the benthic habitat shaped the fungal assemblages, even for leaves later subjected to the hyporheic conditions. 5. The abundance and biomass of shredders drastically decreased with burial, except for *Leuctra* spp., which increased and was by far the most common leaf-associated taxon in the hyporheic zone. *Leuctra* spp. was one of the rare shredder taxa displaying morphological characteristics that increased performance within the limited space of sediment interstices. 6. The carbon budgets indicated that the relative contributions of the two main decomposers, shredders and fungi, varied considerably depending on the location within the streambed. While the shredder biomass represented almost 50% of the initial carbon transformed after 80 days in the benthic treatment, its contribution was <0.3% in the hyporheic one and 2.0% in the combined benthic-hyporheic treatment. In contrast, mycelial and conidial production in the permanently hyporheic environment accounted for 12% of leaf mass loss, i. e. 2-3 times more than in the two other conditions. These results suggest that the role of fungi is particularly important in the hyporheic zone. 7. Our findings indicate that burial within the substratum reduces the litter breakdown rate by limiting the access of both invertebrate and fungal decomposers to leaves. As a consequence, the hyporheic zone may be an important region of organic matter storage in woodland streams and serve as a fungal inoculum reservoir contributing to further dispersal. Through the temporary retention of litter by burial, the hyporheic zone must play a significant role in the carbon metabolism and overall functioning of headwater stream ecosystems. KW: Aquatic hyphomycetes, litter breakdown, organic matter, river sediment, shredders.

**Council of Europe - Conseil de l'Europe, 2010.** Convention on the Conservation of European Wildlife and Natural Habitats. Standing Committee, 30<sup>th</sup> meeting, Strasbourg, 6-10 December 2010. Complaint in stand-by. Threats to Vjetrenica cave (Bosnia and Herzegovina). Report by the NGO. Document prepared by: The Academy of Sciences and Arts of Bosnia and Herzegovina, 3 p.

**COURTIN (F.), STONE (W. B.), RISATTI (G.), GILBERT (K.) & VAN KRUNINGEN (H. J.), 2010.** Pathologic findings and liver elements in hibernating bats with white-nose syndrome. *Veterinary Pathology OnlineFirst*, published on 28 January 2010, 47(2):214-219.

DOI: <http://dx.doi.org/10.1177/0300985809358614>. ABS: Two groups of vespertilionid bats were collected from affected hibernacula. In group 1 (n, 14; pathology and microbiology), the average body weights of all species were at the lower limit of published ranges. Twelve bats (86%) had mycotic growth in the epidermis, hair follicles, and sebaceous glands. *Geomyces destructans*, with its characteristic curved conidia, was observed microscopically, cultured, and confirmed by polymerase chain reaction. Dermatitis and mural folliculitis was nil to mild. When focally coinfecting with Gram-negative bacteria, there was necrosis and pustules. Fat stores were little to abundant in 12 bats (86%) and nil in 2. Thirteen bats (93%) had pulmonary congestion and 7 (50%) had bone marrow granulocytosis. In group 2 (n, 24; liver elements), 3 bats (13%) had potentially toxic lead levels and 1 (4%), potentially toxic arsenic level. There was no evidence of major organ failure or consistent element toxicity. KW: Bat, fungus, *Geomyces*, metals, minerals, Vespertilionidae, white-nose syndrome.

**CRESP   (D.), BOVER (P.), GINARD (A.), VICENS (D.), VADELL (M.), BARCEL   (M.   .) & GR  CIA (F.), 2010.** Les cavitats de la Serra de Na Burguesa. Zona 9: Son Boronat-L'hostalet (3a part) (Calvi  , Mallorca). *Endins* 34:125-140.

- CRN  EVIĆ (M.), KARDUM (K. I.) & SUDAREVIĆ (N.), 2010.** Conservation education of cave and subterranean biodiversity: Dubrovnik underground tales:80, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIĆ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The example of field research, as a basis of activity of natural history museums and of the management of protected natural areas, is used in order to create educational publications for children of preschool and school age on the subject of protection of karst phenomena and subterranean biodiversity of the Dubrovnik region. For this purpose the results of interdisciplinary workshops for children were used to review their interests. The workshops consisted of lectures, movie screenings, use of speleological equipment, field work - cave visiting, and finally, as the summary, a creative element, the life-size reconstruction of a cave addressing the aspects of subterranean fauna. The workshop results pointed out themes of greater interest such as field research, use of speleological equipment and subterranean fauna. The idea is to adapt educational publications in accordance to the age group they are meant to appeal to. The publications will contain information regarding karst phenomena, legislation, protected natural areas and subterranean biodiversity. Also, for each of the species the publications are to contain the data relating to their distribution, their biotope, the threat to species as well as a visual depiction of them. Selected were those species that are described in the Red Data Books of the Republic of Croatia according to IUCN categories of threat, listed in legislation with a particular attention on the species significant to the Dubrovnik region. On the example of the story about explorers of the Dubrovnik caves, with the emphasis on the significance of the scientific research for the purpose of conservation of subterranean biodiversity, the aim is to create educational publications that will be both, a guide for the youngest Dubrovnik Natural History Museum visitors as well as a "Homework". <http://www.icsb2010.net/>
- CRYAN (P. M.), METEYER (C. U.), BOYLES (J. G.) & BLEHERT (D. S.), 2010.** Wing pathology of white-nose syndrome in bats suggests life-threatening disruption of physiology. *BMC Biology* 8(November 11):135. DOI: <http://dx.doi.org/10.1186/1741-7007-8-135>. ABS: White-nose syndrome (WNS) is causing unprecedented declines in several species of North American bats. The characteristic lesions of WNS are caused by the fungus *Geomyces destructans*, which erodes and replaces the living skin of bats while they hibernate. It is unknown how this infection kills the bats. We review here the unique physiological importance of wings to hibernating bats in relation to the damage caused by *G. destructans* and propose that mortality is caused by catastrophic disruption of wing-dependent physiological functions. Mechanisms of disease associated with *G. destructans* seem specific to hibernating bats and are most analogous to disease caused by chytrid fungus in amphibians.
- CUART CASTELL (J.), 2010.** *Phylogeography and phylogenetics of Icelandic groundwater amphipods based on the 16S rRNA gene*. Faculty of Live and Environmental Sciences, University of Iceland, 101 Reykjavik, Iceland. ABS: Icelandic groundwater amphipods survived the glaciations in refugia forming new endemic species such as *Crangonyx islandicus* and *Crymostygius thingvallensis*. However a strong evolutionary pressure has led to a morphological convergence that makes difficult a clear taxonomy classification within this group. The aim of this study is twofold, firstly to assess the position of these species within the superfamily Crangonyctoidea, and secondly to assess and compare the phylogeography of *C. islandicus* using different fragment sizes (420 and 1200 base pairs) of the 16S rRNA gene. A taxonomy of the family Crangonyctoidea using the 16S gene differs from the one based on morphology. A higher variation rate was found along the 1200 bps fragment due to a faster evolutionary rate, than in the smaller region.
- CUKROV (M.), MANCONI (R.), CUKROV (N.), JALŽIĆ (B.) & DESPALATOVIĆ (M.), 2010.** Biodiversity in anchialine caves: First record of the tubeworm *Ficopomatus enigmaticus* (Annelida, Polychaeta):73, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by:

Ajda MOŠKRIĆ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: *Ficopomatus enigmaticus* (Fauvel, 1923) is a sedentary polychaete which has been found worldwide inhabiting coastal brackish waters, lagoons and estuaries of warm temperate areas of both hemispheres. This tubeworm builds calcareous tubes on any hard substrate (Serpulidae) with distinctive collar-like rings at irregular intervals and is relatively easy to identify. It is an efficient suspension-feeder, very tolerant and physiologically well adapted to temperature and salinity variations, eutrophic conditions and low dissolved oxygen content. Here we report on the first record of *F. enigmaticus* in two anchialine caves which are located along the Mesozoic coastal carbonate rocks of the Mediterranean Sea, namely the Orljak cave in the Krka River Estuary (Croatia, E-Adriatic) and the Bue Marino cave in the Gulf of Orosei (Sardinia, W-Tyrrhenian Sea). The Orljak cave has an entrance ca. 50 m from the coast without direct connection with the Krka Estuary. The cave is 23 m deep and 90 m long with two pools. The Bue Marino cave with entrance above the sea level and direct connection with marine water has a well developed underground drainage. An almost horizontal profile and several pools characterises the three branches of this karstic complex with a total length ca. 20 km. In Orljak cave salinity ranges from 2 to 8 in winter, and from 7 to 13 during summer. Water temperature varies from 15 to 17°C in summer and from 11 to 13°C in winter. Salinity values in the Bue Marino range from 28.4-32.3 in summer to pure freshwater during winter floods, and water temperatures at the surface were 19-20°C in summer. *F. enigmaticus* inhabits, in both caves, totally dark zones on rocky walls or submerged parts of speleothemes, of surfaces water layers until 1 m depth. The density is low with solitary growing individuals, contrasting the typical gregarious growth of the species. Environmental conditions confirm the well known extreme adaptability of the species, also to live in the dark, and suggest its ability to survive, although intermittently, in freshwater. R. M. was supported by the Italian Ministero dell'Ambiente e della Tutela del Territorio e del Mare (MATTM), Ministero dell'Istruzione, Universit   e Ricerca (MIUR), and the EU program INTERREG Sardinia-Corsica-Tuscany on Biodiversity. <http://www.icsb2010.net/>

- CULVER (D. C.), 2010.** Foreword. Tom POULSON and Speleobiology - A Reflection:vii-xii. DOI: <http://dx.doi.org/10.1201/EBK1578086702-f>. In: TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.), *Biology of Subterranean Fishes*. Edited by TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.). ISBN: 978-1-57808-670-2. eBook ISBN: 978-1-4398-4048-1. Science Publishers 2010. 460 p.
- CULVER (D. C.) & PIPAN (T.), 2010.** Climate, abiotic factors, and the evolution of subterranean life. *Acta Carsologica* 39(3):577-586. ABS: Climate, and more generally the physical conditions in caves and other subterranean habitats have a profound influence on the biota. At longer time scale (centuries), climate change can force and/or isolate species in subterranean habitats. Not only Pleistocene climate changes, but earlier ones as well, such as the Messinian salinity crisis were important in this regard. While many speleobiologists assume that caves are nearly constant environmentally and with scarce organic carbon, this is not the case, especially in non-cave subterranean habitats. Many shallow subterranean habitats, such as epikarst, seepage springs, and talus harbor highly modified organisms, ones without eyes and pigment and with elongated appendages. Yet these habitats are highly variable with respect to temperature and other environmental factors, and often have high levels of organic carbon. Overall, the role of these shallow subterranean habitats in the evolution and biogeography of subterranean species may be crucial. On smaller spatial scales, environmental differences, such as differences in chemistry of epikarst water, may be important in allowing large numbers of species to coexist. <http://carsologica.zrc-sazu.si/?stran=issue&volume=39&issue=3>
- CULVER (D. C.) & PIPAN (T.), 2010.** Shallow subterranean habitats - gateway to the subterranean realm:22. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIĆ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: We define shallow subterranean habitats (SSHs) as aphotic environments within 10 m of the surface and with species limited

to subterranean environments. We review four such habitats-shallow interstitial habitats, seeps (hypotelminorheic), epikarst, and milieu souterrain superficiel (MSS). For each habitat type, we review information on environmental variability (especially detailed temporal temperature profiles), species composition, and general aspects of morphology of stygobionts and troglobionts in the habitat. The sites reviewed showed temperature variation throughout the year although variation was less than that of surface sites. Many showed seasonal and daily variation as well. Epikarst drips were the least variable and seeps the most variable. Numbers of troglolobiotic and stygobiotic species in SSHs ranged from seven in seeps near Washington, DC and MSS sites in southern France to 14 in epikarst drips in Županova jama in Slovenia. Most SSH sites also had species apparently specialized for these habitat types, as well as generalist species. An analysis of the subterranean amphipod genus *Stygobromus* indicated that species from epikarst and seep sites showed no differences in the level of troglomorphy compared to cave species in the same lineages. These results suggest that the primary selective factor in the evolution of troglomorphy is darkness, not lack of food or seasonality. SSHs hold considerable promise as repositories of subterranean biodiversity and as evolutionary laboratories for the study of adaptation. <http://www.icsb2010.net/>

**ĆURČIĆ (B. P. M.), DIMITRIJEVIĆ (R. N.), RAĐA (T.), ĆURČIĆ (N. B.) & MILINČIĆ (M.), 2010.** *Chthonius (Chthonius) onaei* n. sp. (Chthoniidae, pseudoscorpiones), a new epigeal species from Croatia. *Archives of Biological Sciences* 62(2):495-501. DOI: <http://dx.doi.org/10.2298/ABS1002495C>.

ABS: A new epigeal pseudoscorpion, *Chthonius (Chthonius) onaei* n. sp. is erected from Podašpilje, nr. Omiš, Mt. Omiška Dinara, Dalmatia, Croatia. Its interrelations with two close congeners, *Chthonius (C.) litoralis* Hadži, 1933 and *Chthonius (C.) dalmatinus* Hadži, 1930 are briefly discussed. KW: Pseudoscorpions, *Chthonius*, *Chthonius onaei* n. sp., Dalmatia, Croatia.

**ĆURČIĆ (B. P. M.), LEMAIRE (J.-M.), ĆURČIĆ (S. B.), DIMITRIJEVIĆ (R. N.), MILINČIĆ (M.) & PECELJ (J. M.), 2010.** Two new epigeal pseudoscorpions (Neobisiidae, Pseudoscorpiones) from the Maritime Alps, France. *Archives of Biological Sciences* 62(3):827-832. DOI: <http://dx.doi.org/10.2298/ABS1003827C>.

BL: Cf p. 832, "Remarks. The pseudoscorpions in France, both cave-dwelling and epigeal, are scarcely known (Harvey, 1990). This is particularly due to the fact that they have been neglected during faunistic studies, and that pseudoscorpionologists in France are diminishing in number in an exponential manner. Moreover, the names of a number of these arachnids are synonyms".

**ĆURČIĆ (B. P. M.), MAKAROV (S. E.), RAĐA (T.), ĆURČIĆ (S. B.), ĆURČIĆ (N. B.) & PECELJ (J. M.), 2010.** On three new cave Pseudoscorpion species (Pseudoscorpiones, Neobisiidae) From Mt. Mosor, Dalmatia (Croatia). *Archives of Biological Sciences* 62(3):811-826. DOI: <http://dx.doi.org/10.2298/ABS1003811C>.

ABS: Most subterranean pseudoscorpions are concentrated in regions with a Mediterranean climate. Although data on the abundance of pseudoscorpion species in the humid tropics are lacking, preliminary observations suggest that the number of species is greater in the Mediterranean area than in tropical rain forests. Speciation in pseudoscorpions has not been studied in great detail. New taxa are constantly being described. Exact data on the different niche preferences which are a prerequisite for evolutionary studies are available for only a few cases. The pseudoscorpions are not particularly suitable for genetic investigations due to their extended generation times. The cave-dwelling forms of the genus *Neobisium* L. Koch comprise many phyletic lines, some less specialized and others highly adapted to cave life. To trace their origin, biogeography and evolution, it is necessary to compare the evidence about troglolobitic species with that of the epigeal forms from different European habitats, especially in the Mediterranean or Dinaric regions. To the south of the river Zrmanja, up to the lower Neretva valley, a massive Holokarst region rises to a considerably height. Many summits attain between 1800 and 2000 m, and Mt. Dinara gave its name to both the Dinaric region and the Dinaric Karst. The karst of Mt. Mosor (and Mts. Kozjak and Biokovo), is quite different from that previously discussed. This is a zone of younger, intensively folded mountains. Their

karst, although young, appears to be deep and almost fully developed. In this study, descriptions of *Neobisium montdori* n. sp., *N. mosorensis* n. sp., and *N. dalmatinum* Beier, 1939, all from caves on Mt. Mosor, Dalmatia (Croatia), have been presented, with some details on the comparative morphology of both sexes and tritonymph. KW: Pseudoscorpiones, Neobisiidae, *Neobisium montdori* n. sp., *N. mosorensis* n. sp., and *N. dalmatinum* evolution, biogeography, biospeleology, development, Mt. Mosor, Dalmatia, Croatia.

**ĆURČIĆ (B. P. M.), RAĐA (T.), ĆURČIĆ (S. B.) & ĆURČIĆ (N. B.), 2010.** On *Roncus almissae* n. sp., *R. krupanjensis* n. sp., and *R. radji* n. sp., three new pseudoscorpions (Pseudoscorpiones, Neobisiidae) from Croatia and Serbia, respectively. *Archives of Biological Sciences* 62(2):503-513. DOI: <http://dx.doi.org/10.2298/ABS1002503C>.

ABS: Three new species of the pseudoscorpion genus *Roncus* L. Koch (Neobisiidae) are described from Croatia (from nr. Omiš, Dalmatia: *R. almissae* n. sp.) and Serbia (near the town of Krupanj, north-western Serbia, Lukića Pećina Cave and nr. Izvor: *R. krupanjensis* n. sp., and *R. radji* n. sp.), and their diagnostic characteristics are illustrated. Their interrelations with phenetically close congeners are analyzed; in addition, the presence/absence of microsetae proximal to the trichobothria eb and esb is established as an important taxonomic characteristic. KW: Pseudoscorpiones, Neobisiidae, *Roncus almissae*, *Roncus krupanjensis*, *Roncus radji*, Dalmatia, Serbia.

**DANKO (Š.), KRIŠTÍN (A.) & KRIŠTOFIK (J.), 2010.** *Myotis alcaethoe* in eastern Slovakia: occurrence, diet, ectoparasites and notes on its identification in the field. *Vespertilio* 13/14:77-91. <http://www.ceson.org/publikace.php?p=13>

**D'ANTONI-NOBÉCOURT (J.-C.), 2010.** Le coin des livres. Le "Progetto Powerpoint" de la Società Speleologica Italiana. *Spelunca* 119(Septembre, 3<sup>e</sup> trimestre):52-53.

**DATRY (T.), LAFONT (M.) & LARNED (S. T.), 2010.** Hyporheic annelid distribution along a flow permanence gradient in an alluvial river. *Aquatic Sciences - Research Across Boundaries* 72(3, June):335-346. DOI: <http://dx.doi.org/10.1007/s00027-010-0139-6>.

ABS: In this study, we examined hyporheic annelid assemblages along a gradient of flow permanence (FP) and compared assemblages in gaining (groundwater-fed) and losing (runoff-fed) sections of the alluvial Selwyn River, New Zealand. To reduce the effects of poor taxonomic resolution, we used a dataset with most taxa identified to the genus or species level. We predicted that annelid assemblages would vary in structure and composition along FP gradients due to differences in desiccation resistance between taxa. We also predicted that groundwater-fed (gaining) and runoff-fed (losing) river sections would be inhabited by dissimilar annelid assemblages due to differences in river-aquifer connections and recolonization sources. We found a negative relationship between taxon richness and FP, indicating that, on average, two annelid taxa are lost from hyporheic assemblages in the Selwyn River with every 10% decrease in FP. Low FP appears to favour annelid taxa that tolerate moist or dry conditions in sediments, as shown by a negative relationship between FP and the proportion of desiccation-tolerant taxa. A high proportion of hypogean taxa distinguished the groundwater-fed and perennial-gaining reach from the other reaches. In spite of the large differences in physical structure between the intermittent-gaining and the ephemeral-losing reach, we found few between-reach differences in annelid assemblages and, in particular, no differences in % hypogean taxa. These varied results illustrate the need to employ both categorical and continuous variables in ecological analyses: the combined categorical and gradient approach used in the present study is likely to explain more variability than either univariate approach alone. KW: Oligochaetes, Interstitial sediments, Drying, SW-GW exchanges, Longitudinal patterns, Temporary river.

**DÁVALOS (L. M.) & RUSSELL (A.), 2010.** Complementarity in extinction drivers among Caribbean endemic bats:120. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Identifying drivers of extinction in natural

populations has become critical in the face of widespread anthropogenic modifications of climate, landscapes, and availability of intact habitat. Understanding the mechanisms underlying extinction in the wild is complicated because external drivers - such as habitat loss or hunting pressure - and intrinsic traits - such as dispersal abilities and body size - and their interactions contribute to the eventual demise of a population. Most bat extinctions in the West Indies have been attributed to habitat loss caused by natural climate change or anthropogenic deforestation, but the role of intrinsic traits in the extinction of some species remains obscure. We analyzed regional patterns of extinction using two complementary approaches, island biogeography and phylogenetic generalized estimating equations, to investigate the relative contribution of extrinsic and intrinsic extinction drivers in this fauna. Glacial and post-glacial changes in surface area and distances between landmasses can explain up to 96% of the variation in extinction between islands, demonstrating the power of this null model to explain the number of species lost across communities. This island-based method cannot help identify vulnerable species, or traits that make populations more susceptible to extinction. Phylogeny-based analyses of the relationship between extinction and species traits suggests obligate hot cave dwellers and wide-ranging species were more vulnerable to extinction during the Pleistocene glaciations. These complementary approaches provide a framework for understanding the role of extrinsic and intrinsic drivers and their interaction in driving Holocene and Anthropocene extinctions.

**DE ARMAS (L. F.), 2010.** Schizomida de Sudamérica (Chelicerata: Arachnida). *Boletín de la Sociedad Entomológica Aragonesa* 46(1<sup>er</sup> semestre):203-234. RES: Se realiza un inventario de los esquizómidos de Sudamérica, citando una sola especie troglobia de Ecuador: *Tayos ashmolei* Teddell & Cokendolpher, 1984.

**DE ARMAS (L. F.), 2010.** Nuevos arácnidos de Puerto Rico (Arachnida: Amblypygi, Araneae, Opiliones, Parasitiformes, Schizomida, Scorpiones). *Boletín de la Sociedad Entomológica Aragonesa* 47(2<sup>e</sup> semestre):55-64. RES: Se registran taxones de Puerto Rico, describiendo varias nuevas especies de cuevas de este país sudamericano.

**DEHARVENG (L.), TIAN (M.), LI (Y.) & BEDOS (A.), 2010.** Invertebrate biodiversity of the Guangxi caves (southern China):131. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Fast progress in the knowledge of Southern China cave biodiversity occurred during the last two decades, and accelerated since 2005. Recent efforts focused on the caves of Guangxi. The present paper lists all troglitic invertebrates, described or undescribed species, that were recorded and collected so far in this province. To the impressive radiations of cave fish and cave beetles already documented, we can now add the radiation of cave *Sinella* among springtails and that of several families of millipedes. Several of the taxa encountered, including several of the most diversified ones, have no close relatives outside caves in the region, and can be qualified of relicts. Distribution patterns of the most remarkable groups of Guangxi troglites are given and discussed. Geographical, ecological and taxonomical gaps in our knowledge are emphasized and future prospects are outlined. <http://www.icsb2010.net/>

**DELANGE (Y.), 2010.** Il y a 200 ans naissait Charles DARWIN et paraissait la Philosophie zoologique de LAMARCK. *Les Amis du Muséum national d'Histoire naturelle* 241(Mars):4-9.

**DELIRY (C.), 2010.** Ptéridophytes de la région Rhône-Alpes & Dauphiné. *Histoires Naturelles* 11. BL: Cf *Adiantum capillus-veneris* (Capillaire de Montpellier), fentes humides et grottes sur terrain calcaire ou siliceux, fossés d'irrigation; *Polypodium cambricum* (Polypode austral - syn.: *Polypodium australe*), rochers et murs ombragés, grottes; *Polypodium interjectum* (Polypode intermédiaire - parents ancestraux *Polypodium cambricum* et *Polypodium vulgare*), murs et rochers, grottes.

**DELIRY (C.), 2010.** Éléments de biodiversité dans la région Rhône-Alpes & Dauphiné. *Histoires Naturelles* 12. Février 2010 (1) Deuxième édition - Février 2010 (2) / Troisième édition - XXX.

**DELLUC (B.) & DELLUC (G.), 2010.** Les découvertes d'art pariétal en Dordogne depuis un demi-siècle (1947-2000). *Spelunca Mémoires* 34(2009):33-64. BL: Cf p. 35, grotte de Rouffignac (ou grotte de Miremont) Henri BREUIL la parcourt sur 400 mètres environ, durant une ou deux heures, le 4 Août 1915, le nez au sol, à la recherche d'un *Trechus* cavernicole, "spécial à cette caverne et depuis longtemps connu", avec l'entomologiste Charles ALLUAUD.

**DeLONG (L.), 2010.** El Malpais National Monument to Close Caves. El Malpais News Release. National Park Service U. S. Department of the Interior, 2 p. <http://www.caves.org/WNS/index.htm>

**DELTSEV (C. C.), VRENOSI (B.), BLAGOEV (G. A.) & LAZAROV (S.), 2010.** A faunistic and zoogeographical review of spiders in Albania (Arachnida: Araneae):112. In: *18<sup>th</sup> International Congress of Arachnology, University of Podlasie & International Society of Arachnology, Siedlce, Poland, 11-17 July 2010, Book of Abstracts*, editor: Marek ŻABKA, ISBN: 978-83-7051-575-1, 507 p. ABS: The spider fauna of Albania is represented by 168 species from 34 families. In this number, 54 species are new announced for the country. This number was established after a critical review of the existing literature data and original collection made in last 15 years during the field survey covering mostly the coastal parts, caves and some mountain areas. This number of species is not final, because the territory of Albania is poorly explored. According to their current distribution, the Albanian species can be classified in 17 zoogeographical categories, grouped into 4 complexes: widely distributed, European, Balkan endemics and Mediterranean. Widely distributed species are dominants (61 species), but the most characteristic are Balkan endemics (30 species). The number of endemics is really high and reflects the local character of the fauna.

**DENITTO (F.), PASTORE (M.) & BELMONTE (G.), 2010.** Occurrence of the Guinean species *Herbstia nitida* Manning & Holthuis, 1981 (Decapoda, Brachyura) in a Mediterranean submarine cave and a comparison with the congeneric *H. condyliata* (Fabricius, 1787). *Crustaceana* 83(8):1017-1024. [DOI: http://dx.doi.org/10.1163/001121610X513685](http://dx.doi.org/10.1163/001121610X513685).

**DHORA (D.), 2010.** *Regjistër i Specieve të Faunës së Shqipërisë 2010 [Register of Species of the Fauna of Albania 2010]*. Botimet, Shkodër: Camaj-Pipa. ISBN: 978-99956-02-07-3, Copyright©: Dhimitër DHORA, 207 p.

**DIEULEVEUT (T.), LIERON (V.) & HINGRAT (Y.), 2010.** Nouvelles données sur la répartition des Chiroptères dans le Maroc oriental (années 2007 à 2009) [New data on the distribution of Bats in eastern Morocco (years 2007 to 2009)]. *Bulletin de l'Institut scientifique, section Sciences de la Vie*, 32(1, Juillet):33-40. RÉS: De nouvelles données pour 19 espèces de chauves-souris rencontrées au cours de prospections intensives réalisées dans l'est du Maroc entre 2007 et 2009 sont présentées. Ces espèces sont *Rhinopoma microphyllum*, *Rhinopoma cystops*, *Rhinolophus ferrumequinum*, *Rhinolophus hipposideros*, *Rhinolophus mehelyi*, *Rhinolophus blasii*, *Asellia tridens*, *Myotis punicus*, *Myotis nattereri*, *Myotis emarginatus*, *Eptesicus isabellinus*, *Hypsugo savii*, *Pipistrellus pipistrellus*, *Pipistrellus kuhlii*, *Pipistrellus rueppellii*, *Otonycteris hemprichii*, *Plecotus gaisleri*, *Miniopterus schreibersii*, *Tadarida teniotis*. Certaines d'entre elles (*Rhinopoma microphyllum*, *Rhinolophus blasii*, *Myotis nattereri*, *Myotis emarginatus*, *Pipistrellus rueppellii*, *Otonycteris hemprichii* et *Tadarida teniotis*) n'avaient que rarement été contactées précédemment et nos prospections apportent ainsi des informations inédites sur leur statut et leur répartition. MC: Chiroptères, répartition, Maroc. ABS: New records of 19 bat species from eastern Morocco are presented, including *Rhinopoma microphyllum*, *Rhinopoma cystops*, *Rhinolophus ferrumequinum*, *Rhinolophus hipposideros*, *Rhinolophus mehelyi*, *Rhinolophus blasii*, *Asellia tridens*, *Myotis punicus*, *Myotis nattereri*, *Myotis emarginatus*, *Eptesicus isabellinus*, *Hypsugo savii*, *Pipistrellus pipistrellus*, *Pipistrellus kuhlii*, *Pipistrellus rueppellii*, *Otonycteris hemprichii*, *Plecotus gaisleri*, *Miniopterus schreibersii*, *Tadarida teniotis*. All data have been collected between 2007 and 2009. Some of them relate to species until now rarely

- detected in Morocco previously, *Rhinopoma microphyllum*, *Rhinolophus blasii*, *Myotis nattereri*, *Myotis emarginatus*, *Pipistrellus rueppellii*, *Otonycteris hemprichii* and *Tadarida teniotis*, and new data are provided on their status and distribution. KW: Bats, distribution, Morocco.
- DITTMAR (K.) & MAYBERRY (J. R.), 2010.** Bat activity in large roosts drives diurnal cave microclimate variation. *Speleobiology Notes* 2:12-14. KW: Bats, biological activity, cave microclimate, diurnal temperature variation. [http://www.nsm.buffalo.edu/Research/SPELEOBIOLOGY\\_NOTES/index.php/Spelo/article/view/23](http://www.nsm.buffalo.edu/Research/SPELEOBIOLOGY_NOTES/index.php/Spelo/article/view/23)
- DIXON (G.), 2010.** *Biodiversity of Cave-Obligate Animals on the Domain of the University of the South, Franklin County, Tennessee.* A thesis submitted to the faculty of the University of the South in partial fulfillment of the requirements for honors in the Department of Biology, May 5<sup>th</sup>, 2010. ABS: The southern Cumberland Plateau in Tennessee and Alabama has the greatest diversity of cave obligate animals in the United States. The 13000 acre campus (referred to as the "Domain") of Sewanee: The University of the South is located on the southern Cumberland Plateau in Franklin County, Tennessee. There are more than 70 caves on the Domain, which, combined, have more than 15 km of horizontal passageway. We examined the biodiversity of cave animals on the Domain at the species level and at the genetic level. Through a survey of the seven largest horizontal caves on the Domain, we identified 21 cave-obligate species, including two new county records. This accounts for nearly half of the species reported for Franklin County. For our genetic analysis, we selected five diverse taxa (a millipede, a beetle, a fly, an aquatic isopod, and a spider) that were collected from multiple caves, and compared their mitochondrial cytochrome oxidase I gene sequences. Across the five taxa we found: (1) low genetic diversity within caves (mean nucleotide diversity within caves across all taxa: 0.25%), (2) high genetic divergence between caves (divergence between caves within taxa ranged from 2.5%-10.9%, with two exceptions), and (3) little evidence for gene flow between caves (FST between caves within taxa >0.57, with one exception). Thus, the Domain supports tremendous species diversity, and an even more remarkable level of genetic diversity within those species across caves on a very small scale (no caves used in the genetic comparisons were >3 km apart). Our observation of high genetic divergence between caves on a small scale highlights the importance of cave conservation on a regional scale.
- DIXON (J. W.), 2010.** Mammalia, Chiroptera, Vespertilionidae: Filling hibernacula distribution gaps for cave roosting bats from Iowa (U. S. A.). *Check List* 6(4):511-514. ABS: Adequate roost sites for hibernacula are an important factor in the distribution and abundance of temperate bat species and knowledge of specific hibernacula is necessary to make sound management decisions. Caves are recognized as one of the most important roosting sites for bats, yet surveys in caves are uncommon in North America. This paper presents data on the distribution and abundance of bats hibernating in Iowa (U. S. A.) caves and includes new hibernacula records. These are the first published records of bats in Iowa caves in almost 25 years. <http://www.checklist.org.br/archive?vol=6&num=4>
- DOCAMPO (S.) & TRIGO (M. M.), 2010.** Anthropogenic activity and its influence on a natural cavity: effects of fungal spore levels in the air of the Cave of Nerja. *Coalition* 20(July):2-7. <http://www.rtpc.csic.es/>
- DODELIN (C.), 2010.** Compte rendu de captures effectuées à la Grotte de la Doria. *La Feuille Dessous* 24(Janvier):9-12.
- DODELIN (C.), 2010.** Malagasy 2010. Expédition spéléologique dans les Tsingy de Namoroka à Madagascar. Journalier. Introduction. 2 p.
- DODELIN (C.), 2010.** Grotte de l'Arclusaz n° 3. Massif de l'Arclusaz. Commune de Saint-Pierre-d'Albigny. 3 p.
- DODELIN (C.), 2010.** Spéléologie dans le Gard et le sud Ardèche, du 4 au 8 avril 2010. 8 p.
- DODELIN (C.) & DODELIN (D.), 2010.** Séjour spéléologique en Belgique, du 15 au 19 janvier 2010. 9 p.
- DOLE-OLIVIER (M.-J.) & MALARD (F.), 2010.** Faune stygobie: émergence d'un monde inconnu [Cave faunas: the emergence of an unknown world]. *Bulletin mensuel de la Société linnéenne de Lyon*, hors-série n° 2: ? RÉS: Souvent hors de portée et invisible, la vie dans les eaux souterraines est restée très longtemps secrète ou anecdotique. La faune stygobie, caractérisée par une vie exclusive dans les eaux souterraines, est cependant bien développée. En région Rhône-Alpes elle est représentée par plus de 130 espèces appartenant en majorité au groupe des Mollusques et surtout des Crustacés. Environ 78% de la connaissance régionale actuelle est postérieure à 1960 et des recherches récentes montrent que la biodiversité régionale est largement sous estimée. Les connaissances en termes d'occurrence et d'abondance des espèces restent très partielles en raison d'une sous exploration de certains types d'aquifères (poreux et fissurés) et de certaines aires géographiques. La faune stygobie n'a été prise en compte dans les inventaires d'espèces patrimoniales ou à protéger que de manière très marginale, bien que de nombreuses formes soient rares, endémiques, ou vulnérables. ABS: Often out of reach and invisible, the life in subterranean waters remained for a long time secret or anecdotal. The stygobitic fauna characterized by an exclusive life in subterranean waters is however well developed. Rhone-Alpes has around 130 species, mostly molluscs and crustaceans. Approximately 78% of the current regional knowledge is post-1960 and recent researches show that the regional biodiversity is widely under-estimated. The knowledge in terms of occurrence and abundance of the species remain very partial because of an under exploration of certain types of aquifers (porous and fissured) and of many geographical areas. The stygobitic fauna was only taken into account in the inventories of patrimonial species to protect it in a very marginal way, although numerous forms are rare, endemic, or vulnerable. [http://www.linneenne-lyon.org/rubrique.php?id\\_rubrique=41](http://www.linneenne-lyon.org/rubrique.php?id_rubrique=41)
- DOMÍNGUEZ (M.), SANZ (A.), CHÁVEZ (J.) & ALMAGUER (N.), 2010.** Cyclical Reproduction in Females of the Cuban Lizard *Anolis lucius* (Polychrotidae). *Herpetologica* 66(4, December):443-450. DOI: <http://dx.doi.org/10.1655/09-058.1>. ABS: We describe the gonadal and fat-body cycles and their relationship to environmental factors for Cuban female *Anolis lucius* (Polychrotidae). We obtained monthly samples of lizards from the karstic caves at Boca de Jaruco, Havana, Cuba. The lizards reached sexual maturity at 45.0 mm snout-vent length and at approximately 7 mo of age. Female *A. lucius* showed seasonal reproduction from March to August. The nonreproductive season occurred from September to February, as identified by the absence of active oogenesis. Vitellogenic ovaries, and almost all females having one or two oviductal eggs, characterized the peak reproductive interval from May to August. In contrast, fat-body mass diminished from May to July and reached its highest values from September to January. The clutch size is one egg per oviposition, and oviposition events occurred from July to September. Increased photoperiod and environmental temperature induced ovarian activity. RES: Los ciclos gonadal y de los cuerpos grasos, y su relación con factores ambientales son descritos para las hembras del lagarto cubano *Anolis lucius* (Polychrotidae). Mensualmente algunos lagartos fueron capturados en las cuevas cársicas de Boca de Jaruco, La Habana, Cuba. La madurez sexual fue alcanzada con 45 mm de longitud hocico-cloaca y aproximadamente a los 7 meses. El ciclo reproductivo es estacional y la reproducción ocurrió desde marzo a agosto. La estación no reproductiva identificada por ausencia de actividad gonadal, ocurrió desde septiembre a febrero. La máxima actividad reproductiva fue observada desde mayo a julio, todas las hembras presentaron ovarios vitelogénicos y en su mayoría uno o dos huevos oviducuales. En contraste, los cuerpos grasos disminuyeron desde mayo a julio y alcanzaron sus máximos valores desde septiembre a enero. Las puestas son de un huevo por cada vez desde el mes de julio a septiembre. Incrementos del fotoperíodo y de la temperatura ambiental indujeron la actividad ovárica. KW: *Anolis*, Cuba, Fat body, Ovary, Reproductive cycle.
- DOUADY (C. J.), MALARD (F.), KONECNY (L.), MORVAN (C.), COLSON-PROCH (C.) & CALVIGNAC (S.), 2010.** A new phylogenetic framework to decipher evolutionary processes involved in groundwater:164. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The hidden and unexpectedly high diversity of living forms in groundwater is only beginning to emerge, following more than a



century and a half of collection and identification of stygobionts (i. e. obligate groundwater species). Botosaneanu (1986) reported over 7000 obligate groundwater species worldwide, a number which is now an underestimate because new species are continuously being described and many await description. Although species inventories are far from being complete, biodiversity patterns emerged because of continued efforts in cataloging and mapping diversity at global, continental and regional scales. On the other hand process involved in groundwater colonization, adaptation and diversification have remained elusive to study. This is the direct consequence of two key factors. First, pattern-based approaches always suffer from the difficulty to link patterns to processes. Indeed, no single mechanism needs to explain a given pattern. Second, sampling constraints, organism rarity and fragility, and morphological convergence that plague taxonomic assignment are only few of the difficulties that groundwater biologists have to face. Thus, it comes as no surprise that subterranean biogeography has essentially developed on assumptions that still require more formal testing. As a first step toward process investigation we have developed within the framework of the DEEP research program a large phylogeny of the Aselloidea super-family with a special emphasis on one of the most diverse stygobiont genera: the genus *Proasellus*. Our phylogenetic inferences is based on three genes (two mitochondrial plus a nuclear one), includes 173 populations for about 90 species and subspecies. Taxonomic affinities between and within taxa as well as subsequent investigations are discussed. <http://www.icsb2010.net/>

**DOUANBOUBPHA (B.), BUMRUNGSRI (S.), SOISOOK (P.), MURRAY (S. W.), PUECHMAILLE (S. J.), SATASOOK (C.), BU (S. S. H.), HARRISON (D. L.) & BATES (P. J. J.), 2010.** A Taxonomic Review of *Hipposideros halophyllus*, with Additional Information on *H. ater* and *H. cineraceus* (Chiroptera: Hipposideridae) from Thailand and Myanmar. *Acta Chiropterologica* 12(1, June):29-50. DOI: <http://dx.doi.org/10.3161/150811010X504572>.

ABS: Based on recent field surveys in Thailand, Myanmar, and northern peninsular Malaysia, this paper reviews the taxonomy, morphometric and acoustic characters, distribution and ecology of the little known, globally endangered species *Hipposideros halophyllus*. It lists nine new localities records, including the first from northern and peninsular Thailand, which represent a substantial increase in the species' known range; it confirms the record from northern peninsular Malaysia. In addition, it provides further information on two other small species of the *Hipposideros bicolor* group, *H. ater* and *H. cineraceus*. KW: *Hipposideros halophyllus*, *H. ater*, *H. cineraceus*, distribution, ecology, echolocation, baculum, Southeast Asia.

**DOUANBOUBPHA (B.), BUMRUNGSRI (S.), SOISOOK (P.), SATASOOK (C.), THOMAS (N. M.) & BATES (P. J. J.), 2010.** A Taxonomic Review of the *Hipposideros bicolor* Species Complex and *H. pomona* (Chiroptera: Hipposideridae) in Thailand. *Acta Chiropterologica* 12(2, December):415-438. DOI: <http://dx.doi.org/10.3161/150811010X537990>.

ABS: Following extensive field work in Thailand (2006-2008), this paper reviews the taxonomic status of the three species of the *Hipposideros bicolor* group. Based on morphometric characters and acoustic data, the two phonic types, *H. bicolor* (131 kHz) and *H. bicolor* (142 kHz) are treated as distinct species. *Hipposideros bicolor* (131 kHz) is designated as *H. bicolor*; *H. bicolor* (142 kHz) is provisionally designated as *H. atrox*. The morphometric characters, acoustic data, and geographical distribution of *H. pomona* are also reviewed. The diagnostic characters of these frequently confused taxa are discussed, with a detailed study of the external, cranio-dental, and bacular morphology, and acoustic features. New data on the conservation status, distribution and ecology of these three species are included. KW: *Hipposideros bicolor* group, *H. atrox*, *H. pomona*, taxonomy, distribution, Thailand.

**DRAGU (A.), ABASCAL (F.), BORISSOV (I.) & ZARDOYA (R.), 2010.** Low genetic diversity in the last surviving population of *Rhinolophus mehelyi* from Romania:123-124. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-

87154-46-5, 380 p. ABS: Mehely's horseshoe bat *Rhinolophus mehelyi* is a vulnerable species with an increasingly fragmented distribution. The species is rare and poorly known but appears to be declining across its entire range. In Romania *R. mehelyi* is critically threatened and prone to extinction. The remnant population forms maternity and hibernation colonies in a single location (Limanu Cave) situated in southern Dobrogea. Following dramatic declines in the past fifty years, the current population size is estimated at only 100 adult individuals. In the present study we examined the consequences of population decline and limited dispersal on population genetic structure and variation. We compared patterns of genetic diversity of the Romanian population with that of two Bulgarian populations, using mitochondrial D-loop DNA sequences. The alignment of 40 *R. mehelyi* sequences resulted in 10 distinct haplotypes with a total number of 9 polymorphic sites, of which 5 were parsimony informative characters. The most abundant haplotype (RHm3) was the only lineage found in all sampled colonies. A single haplotype was found in the Romanian population compared to 10 in Bulgaria, suggesting genetic isolation. This study confirms for the first time the low genetic diversity of this species in Romania, a serious threat to the survival of this species in this part of its geographical range.

**DRAVEC (L.), KOSTELIĆ (B.) & MANDIĆ (A.), 2010.**

Protection of speleological objects in the region of Istria through the European Union projects:80-81. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: In order to protect sources of potable water, prevent their pollution, and reduce the harmful anthropogenic impact on karst relief in general, the Region of Istria began planning on a project which would with the financial assistance of EU funds assure better and safer management of the speleological facilities and environment in general. Most of the territory of Istria is situated on limestone rocks. Most of speleological objects represent the direct connection between surface and underground water flows so their protection presents logical and very important activity for the entire community. The project "Underground Istria" is one of the most successful projects financed by the European Union which had its main objective in improvement of the speleological facilities status and their protection. Within the project 9 speleological objects were cleaned and sanitized, the database of speleological objects was created, together with numerous workshops and lectures for the local population and high school students in order to introduce the community especially young people with the importance of caves and pits as karst phenomena in the Istria. Considering that sustainability of karst is possible only by conduction of continuous scientific research and monitoring of their status Region of Istria applied a new "karst Underground Protection" project on the cross-border cooperation call Slovenia-Croatia 2007-2013 as logical continuation of previously mentioned "Underground Istria". Numerous new activities are planned within the two years of duration of KUP project and one of them are subterranean biology researches and the education of speleologists about the possible more scientific approach to the caving. Project will assure better cooperation and common operating of Croatian and Slovenian regional and state institutions involved in environment protection together with recognition of areas of natural landscape and the geographical particularities of the karst relief in Istrian peninsula. Many other activities with an objective of preventing further pollution of karstic aquifer are also proposed and should be implemented during KUP project. Complete inventory and proposed way of managing the speleological objects within the project area should assure their sustainability and reconstruction of an old abandoned school building in the village of Vodice in municipality of Lanišće and its conversion into so called "Speleo house" should provide the further development of the caving in Istria. <http://www.icsb2010.net/>

**DRESCHER (N.), LOOS (J.), LEVANONY (T.), DAYAN (T.), SCHULDT (A.), SCHÄFER (K.) & ASSMANN (T.), 2010.** Unexpected rich terrestrial subterranean fauna in Israel: first results from the inventory of 13 caves:131-132. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Israel's north is comparatively rich in karst formations but preliminary results of

several authors indicate a poor terrestrial subterranean invertebrate fauna. A first detailed inventory of the terrestrial subterranean arthropod fauna from 13 caves ranging from Upper Galilee to the Judean Foothills revealed numerous species with clear troglomorphic features (e. g. prolonged extremities, reduced pigmentation and eyes). The troglomorphic species belong to 9 families of 7 orders. Of these, at least four species were represented exclusively in a single cave. Troglobites appeared among the orders Araneida, Pseudoscorpionida, Isopoda (Oniscidea), Coleoptera, Homoptera, Hymenoptera (Formicidae) and Chilopoda. The records of blind and depigmented representatives of Homoptera, typically found in tropical regions, and microphthalmic ants with distinct adaptations to a subterranean life are perhaps the most spectacular ones. Several (if not most) of the discovered species with troglomorphic features seem to be new to science. The terrestrial cave fauna of Israel cannot be classified as poor in taxa any longer. This reclassification as a highly diverse fauna is also supported by records from the superficial underground compartment. In the light of these new results we discuss biogeographic aspects of the southern boundary of troglomorphic species in the Western Palaearctic and suggest the development of conservation action plans for the protection of this highly adapted and so far overlooked subterranean fauna in Israel.  
<http://www.icsb2010.net/>

**DREYBRODT (J.) & LAUMANN (M.), 2010.** *The Unknown North of Laos. Part 3 - 2009-2010: Karst and Caves of the Provinces Houaphan and Oudomxay.* *Berliner Höhlenkundliche Berichte* 38. 132 p., colour photo tables, many maps and surveys. Voir: STEINER (H.), Chapter 6: Biospeleological observations:64-? ABS: Presents the results of the 2009-2010 international expeditions to northern Laos. 28.3 km of cave passage from 39 caves. Includes the new longest cave of northern Laos (Tham Chom Ong System), which is also the 2<sup>nd</sup> longest cave of Laos and the currently 9<sup>th</sup> longest cave of SE Asia. Has chapters on physico-chemical water analysis, speleothem dating as well as biospeleology. In English language with a German and French abstract. Before the publication of Dreybrodt & Laumanns (2005a), which summarises the exploration done between 2000 and 2005, northern Laos was virtually unknown to speleology. Only a few reconnaissance projects were conducted prior to 2000 in the province of Luang Phrabang. The afore-mentioned publication provided information on 24.3 km of cave passages from 68 caves. In the framework of the "Northern Lao-European Cave Project" ([www.laocaveproject.de](http://www.laocaveproject.de)) the investigations were continued in 2006 in Vieng Phouka (Luang Nam Tha province), and in 2007 and 2008 mainly in Vieng Xai (Houaphan province) (Dreybrodt & Laumanns 2008). This publication reports on the findings of the years 2009 and 2010, including a biospeleological chapter, a chapter on physico-chemical water analysis and the speleogenesis of the Tham Chom Ong System as well as a chapter on palaeoclimatic research. It comprises descriptions of 39 caves with 28,3 km of new passages. Overall, 80 km of cave passage from 176 caves has been surveyed and published to date in northern Laos (excluding Vang Vieng and Kasi).  
<http://www.speleo-berlin.de/php/abstracts.php?volume=38&lan=EN#summary>

**DRIESSEN (M. M.), 2010.** Enhancing conservation of the Tasmanian glow-worm, *Arachnocampa tasmaniensis* Ferguson (Diptera: Keroplatidae) by monitoring seasonal changes in light displays and life stages. *Journal of Insect Conservation* 14(1, Février):65-75. DOI: <http://dx.doi.org/10.1007/s10841-009-9225-2>. ABS: The light displays by the Tasmanian Glow-worm, *Arachnocampa tasmaniensis* Ferguson (Diptera: Keroplatidae), in Exit and Mystery Creek caves in southeast Tasmania, Australia have been recognised as a world heritage value under the criterion relating to outstanding natural phenomena. To conserve and manage these populations, particularly in response to potential tourism development, a better understanding of their ecology is needed. Aspects of the life cycle of *A. tasmaniensis* were monitored over 24 months. A strong seasonal pattern was found, with pupae and adults most common in spring and summer. The increase in numbers of pupae and adults coincided with an increase in the number of prey caught in silk threads produced by the larvae. Larvae were present throughout the year but the number glowing varied both seasonally and spatially. In Mystery Creek Cave, the number of larvae glowing was generally highest during summer and autumn and lowest in winter and early spring. In Exit Cave, there was no consistent seasonal pattern in the number of larvae glowing among sites, and overall there was less variation between monthly counts

than at Mystery Creek Cave. This difference in seasonal patterns between the two caves may be due to a difference in climate, with Mystery Creek Cave possibly experiencing a greater drying out of the cave air in winter than Exit Cave. KW: Tourism, Cave fauna, Cave climate, Food availability, Australia, Speleology.

**DRIESSENS (T.) & SIEMERS (B. M.), 2010.** Cave-dwelling bats do not avoid TMT and 2-PT - components of predator odour that induce fear in other small mammals. *Journal of Experimental Biology* 213(14, July 15):2453-2460. DOI: <http://dx.doi.org/10.1242/jeb.044743>. SUM: Recognition and avoidance of predators is fundamental for the survival of prey animals. Here we conducted the first study assessing chemosensory predator recognition in cave-dwelling bats. We used a Y-maze approach to test the reaction of greater mouse-eared bats (*Myotis myotis*) to two synthetically derived components of predator odour (2,4,5-trimethyl-3-thiazoline, TMT, a component of fox faeces scent; and 2-propylthietane, 2-PT, a component of mustelid scent) and to the natural scent of the least weasel (*Mustela nivalis*). It is well documented that rodents and several other small mammals show strong and at least partly innate fear reactions when confronted with these odors. By contrast, the bats did not show any avoidance or fear reaction, despite the fact that relatively high odorant concentrations were presented. Furthermore, they did not react differently towards predator scent and towards acrid but otherwise neutral odors (basil or goat). The number of entries into the Y-maze arm with the odour source and the time spent in this arm as well as the bats' overall exploratory activity and several other behavioural variables were not affected by the odour treatments. Generally, the sense of smell is well developed in bats and plays an important role in bat behavioural ecology. It is thus somewhat surprising that the bats did not show any avoidance reaction to predator scent, even though direct contact with a mustelid or fox would result in death. We discuss ecological explanations that might have prevented bats from evolving olfactory predatory recognition and avoidance. KW: Predator recognition, olfaction, scent, TMT, 2-PT, least weasel, bats.

**DROUIN (P.), 2010.** Le coin des livres. Analyse de l'ouvrage: *Voyage spéléologique*, par Pierre STRINATI et Villy AELLEN, Supplément n° 18 à *Stalactite*. Publication de la Société suisse de Spéléologie, 2009, 88 p. *Spelunca* 117(Mars, 1<sup>er</sup> trimestre):59.

**DROUIN (P.), 2010.** Lot. Analyse de l'ouvrage: *L'Ouysse. Du bassin de Thémis à Belcastel*. Publication de l'Association Racines, 2007, 182 p. *Spelunca* 119(Septembre, 3<sup>e</sup> trimestre):8.

**DUARTE (R. H.), 2010.** Coleções de aranhas, redes científicas e política: a teia da vida de Cândido de MELLO LEITÃO (1886-1948). *Boletim do Museu Paraense Emílio Goeldi, Ciências Humanas*, 5(2, Maio/Ago.):417-434. DOI: <http://dx.doi.org/10.1590/S1981-81222010000200013>.

[http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S1981-81222010000200013&lng=pt&nrm=iso&tlng=pt](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1981-81222010000200013&lng=pt&nrm=iso&tlng=pt)

**DUMNICKA (E.), 2010.** Stygobiotic oligochaetes in Poland with remarks on their occurrence and distribution in Central Europe:74. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Despite that oligochaetes are very common in subterranean waters and usually form significant part of the benthic community in this habitat, knowledge concerning their diversity, ecological requirements as well as the distribution is only fragmentary. The stygobiotic and stygophilic species from the families Lumbriculidae, Naididae (former family Tubificidae) and Enchytraeidae were found in subterranean waters of Central Europe. Lumbriculidae are represented by genus *Trichodrilus*; particular species were found in various kind of subterranean waters, including the springs. From the family Naididae only a small number of species is known. They belong to subfamilies such as Tubificinae, Rhyacodrilinae and Phallogrilinae, which has origin in a different aquatic environment. Family Enchytraeidae (mainly genera *Cernosvitoviella* and *Enchytraeus*) seems to be the most common in subterranean waters of Central Europe, but enchytraeids of this

environment were studied almost exclusively in Hungary and Poland. The number of stygobionts or even the existence of such species among enchytraeids is not known because some of the species described from cave waters have wider distribution and the others are similar to surface species (aquatic or terrestrial). The diversity of stygobiotic oligochaete species is higher in karst areas than in regions of other geology due to the concentration of biospeleological studies in karst localities. Some of stygobionts have wide distribution, e. g. *Trichodrilus cernosvitovi*, known from West- and Central Europe, the others are found in a few localities or even seem to be endemic for one karst region. In Central Europe the knowledge concerning stygobiotic species diversity and distribution is highly insufficient and more studies in subterranean aquatic environment are needed. <http://www.icsb2010.net/>

**DUR  N (J. J.) & CARRASCO (F.), 2010.** *Cuevas: Patrimonio, Naturaleza, Cultura y Turismo*, Madrid, Asociaci  n de Cuevas Tur  sticas Espa  olas, DUR  N (J. J.) & CARRASCO (F.), Eds. Voir: HERMOS  N (B.), NOV  KOV   (A.), JURADO (V.), L  JZ (L.), PORCA (E.), ROGELIO (M. A.), S  NCHEZ-MORAL (S.) & S  JZ-JIM  NEZ (C.), Observatorio microbiol  gico de cuevas: evaluaci  n y control de comunidades f  ngicas en cuevas sometidas al impacto de actividades tur  sticas [Caves microbial observatory: assessment and control of fungal communities in show caves]:513-520.

**DVOR   AK (K.), 2010.** History of the presentation of the *Proteus* (*Proteus anguinus*) in Postojna Cave:81-82. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The presentation of the *Proteus* to the public and the development of Postojna Cave as a show cave are closely connected. The *Proteus* (*Proteus anguinus*) is without a doubt one of the most charismatic animals from the point of view of the interpretation of the natural phenomena of the subterranean world. The history of the presentation of the *Proteus* goes back two centuries. Many visitors came to Postojna to see the *Proteus*, not the cave - in the days before the discovery of its inner sections. It is also interesting to follow the history of the ways in which the *Proteus* has been presented - since through its interpretation we gain an insight into the attitude of contemporary visitors and the cave management towards this subterranean creature. The first researchers shared the fundamental satisfaction of entering uncharted territory (like Luka   E   when he discovered the cave) when they observed the *Proteus* in the natural environment of the Black Cave. The occasional visitors from the beginning of the 19<sup>th</sup> century took part in romantic, mystery-filled visits to which a certain amount of prestige was often attached. These visits were complemented by the looting of stalactites and other cave formations and the purchase of a "human fish", as the *Proteus* was known. Mass tourism began to develop with the arrival of the railway, and in particular after the Second World War: a visit to Postojna Cave and the *Proteus* became a programmed dramatic presentation where nothing was left to chance. A visit to the cave ceased to be a natural experience and became an urban, stage-managed event. The *Proteus* was a constituent part of the visit, so the need for "urbanisation" of the cave has also been reflected in the pools in which specimens of *proteus* have been presented in Postojna Cave over the last 50 years. Today, urban requirements have given way to nature protection regulations and legislation. First and foremost are conditions for presenting cave-dwelling animals to the public. The route of a standard visit to Postojna Cave is largely unchanged. Visitors do, however, have the opportunity of a more in-depth individual experience - either of specific sections of the cave system or of cave fauna. The trends that point to a future interpretational approach include the search for authenticity and the desire for exclusive experiences. There is also a yearning for the fundamental satisfaction of the original discoverers - that of seeing and experiencing something genuine, such as seeing animals in their natural environment. As managers of the cave, we are therefore looking for ways to bring the cave fauna as close as possible to different sections of the public, using modern interpretation methods and tools, and in the most sustainable manner possible. <http://www.icsb2010.net/>

**DZAL (Y.), McGUIRE (L. P.), VESELKA (N.) & FENTON (M. B.), 2010.** Going, going, gone: the impact of white-nose syndrome on the summer activity of the little brown bat (*Myotis lucifugus*). *Biology Letters*. Published online before print November 24, 2010, [DOI](https://doi.org/10.1098/rsbl.2010.0859):

<http://dx.doi.org/10.1098/rsbl.2010.0859>. ABS: Since its discovery in the winter of 2005-2006, white-nose syndrome (WNS) has killed over one million little brown bats (*Myotis lucifugus*) in the American northeast. Although many studies have reported die-offs of bats at winter hibernacula, it is important to understand how bat mortality linked to WNS at winter hibernacula affects bat activity levels in their summer ranges. In the summer (May-August) of 2007, 2008 and 2009, we recorded echolocation calls to determine bat activity at sites along the Hudson River, NY (within approx. 100 km of where WNS was first reported). We documented a 78 per cent decline in the summer activity of *M. lucifugus*, coinciding with the arrival and spread of WNS. We suggest that mortality of *M. lucifugus* in winter hibernacula is reflected by reduced levels of activity in the summer and that WNS affects the entire bat population of an area, and not only individual hibernacula. KW: White-nose syndrome, *Myotis lucifugus*, bats, summer activity, bat mortality.

**EBERHARD (S. M.), 2010.** Impacts of Climate Change on Subterranean Wetlands in Western Australia:2 p. Abstract of keynote address presented to Climate Change and WA Wetlands and waterways: current knowledge and future direction, 6th July 2010, Wollaston Conference Centre, Mt Claremont, Perth.

**EBERHARD (S. M.), 2010.** Impacts of climate change on stygofauna in southwest Western Australia:82-83. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Southwest Western Australia has experienced an unparalleled climate shift since the mid 1970's, characterised by reduced rainfall which has contributed to declining groundwater levels. Climate modelling attributes part of this change to atmospheric greenhouse gases, and predicts the drying trend will increase over coming decades. Groundwater pools and streams in limestone caves at Yanchep and the Leeuwin-Naturaliste region are habitat for assemblages of stygofauna associated with tree roots which grow in the cave pools and streams. Because of the declining water levels, these Aquatic Root Mat Communities were listed as Threatened Ecological Communities (TECs) (status Endangered) under the Federal Environmental Protection and Biodiversity Conservation Act. A study of the Leeuwin-Naturaliste caves and dependent stygofauna communities characterised their ecological relationships with hydrology, vegetation, rainfall, climate and other potential threatening processes. Radiometric dating and stratigraphic leveling of sediments were used to reconstruct a history of groundwater changes in Jewel Cave spanning the Early Pleistocene to Present. The lowest palaeo groundwater levels were recorded near the end of the Pleistocene (ca. 12000 BP), followed by generally elevated levels through the Holocene. Molecular genetic evidence from two species of crustaceans endemic to Jewel Cave suggests that the stygofauna survived in situ, the low groundwater levels experienced in the Late Pleistocene. In the last five years however, groundwater in Jewel Cave has declined below the lowest recorded Pleistocene limit, and all known occurrences of its stygofauna community have disappeared, and are presumed extinct. Recovery Plans prepared for the Leeuwin-Naturaliste and Yanchep TECs have met with limited success. Faced with a continued drying climate trend in southwest Western Australia, the future outlook for survival of the Leeuwin-Naturaliste communities, and other stygofauna in shallow limestone aquifers, is less than optimistic. The impact of a drying climate in this region is compounded by increasing extractive demands on groundwater resources associated with urbanisation in the Perth Basin. The coastal limestone aquifers, which occupy a narrow linear band and provide the most prospective habitat for stygofauna, are also most impacted by urban developments, reduced water quality and contamination, and potentially saltwater intrusion caused by pumping or sea level rise. Recently the Augusta-Margaret River Tourism Association (AMRTA) has instigated measures to control and manage the groundwater decline in Lake Cave, by harvesting rainfall to supplement groundwater recharge and sustain the cave lake, which is a major ecotourism drawcard. In tandem with this, a major study is underway to understand the hydrology and stygofauna in Lake Cave, with the ultimate goal of developing management strategies for coping with climate change. <http://www.icsb2010.net/>

**EBERHARD (S. M.) & MOULDS (T. A.), 2010.** Review of the subterranean biodiversity of the Nullarbor plain,

Southern Australia:39. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The Nullarbor Plain covers an area over 200000 km<sup>2</sup> and is one of the largest areas of continuous exposed karst in the world. Scientific documentation of the caves and biological collections commenced in the late 19<sup>th</sup> century although much of this earlier information on caves and cave fauna has remained scattered in scientific journals, unpublished reports, museum collections, speleological databases and private records. This has hindered integration and coherent assessment of the region's karstic and subterranean biodiversity values, needed for informed conservation management of this highly significant karst area. The purpose of this study was to compile an inventory of caves and karst features, and develop a preliminary characterization of subterranean biodiversity values, including knowledge gaps and future research needs. Presently, more than 687 caves and nearly 3000 other karst features (dolines, blowholes, rock shelters, etc) have been recorded, of which approximately 200 have had biological collections. The compiled database of biological collections comprised nearly 2000 occurrence records of 309 provisional taxa belonging to 134 families. Invertebrates comprised 90% of these records, with bats and birds representing the remainder. The most well represented invertebrate taxa were arachnids (157 taxa), followed by insects, crustaceans, and myriapods. The overall taxonomic resolution was low, with less than one-half (49%) of the fauna identified to species level, however, the obligate subterranean fauna known to date comprises at least 26 species in 19 genera. Stygobionts are conspicuously absent from most Nullarbor caves despite the presence of large saline lakes in about a dozen caves. Stygobionts with marine affinities have been recorded from caves on the Roe Plain, a portion of the Nullarbor karst which was subject to a marine transgression in the Pliocene-Early Pleistocene. To assist with setting conservation priorities, the caves were assigned a preliminary biological importance ranking based on a combination of obligate species richness, total species richness, and cave length. This study identified major gaps in taxonomic knowledge, geographic sampling coverage, and reservation status for biologically important caves, and highlighted the need for further systematic surveys. <http://www.icsb2010.net/>

**EBERHARD (S. M.), STEVENS (N.), PERINA (G.) & BELL (P.), 2010.** Troglifauna in the Pilbara region, Western Australia - Patterns in diversity and distribution, and sampling considerations for conservation assessment:38. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Discovery of diverse terrestrial invertebrate assemblages in subterranean habitats associated with iron-ore bearing rocks in the Pilbara region has driven a spate of troglifauna surveys as part of pre-mining environmental impact assessment. We present the results from recent surveys undertaken by mining companies which contribute new understanding towards this remarkable hidden element of biodiversity in Western Australia's arid regions. Patterns in the systematic composition, species richness and abundance of troglifauna assemblages collected from mining exploration drill holes are described. The systematic composition of the assemblages includes arachnids (Araneae, Pseudoscorpionida, Schizomida, Palpigrada), insects (Diplura, Thysanura, Coleoptera, Hemiptera, Blattodea), myriapods (Diplopoda, Chilopoda, Symphyla, Pauropoda) and crustaceans (Isopoda). Species distribution patterns, which ranged from regionally widespread to highly localised short-range endemics, were not necessarily concordant with geologic habitat discontinuities. Among the taxa which exhibited morphological modifications to subterranean life (troglomorphy), such as loss of eyes and pigment and elongation of appendages, their degree of specialization varied, and a proportion of troglomorphic taxa were more typically associated with soil, plant roots or leaf litter, as opposed to deep subterranean habitats. The emerging patterns and characteristics of the subterranean assemblages have important ramifications for interpretation of ecological survey data, and the conservation assessment of "troglifauna". We identify some key issues involved with survey and assessment of troglifauna, and highlight future challenges in this rapidly developing research field. <http://www.icsb2010.net/>

**EFSA (European Food Safety Authority) Panel on Animal Health and Welfare, 2010.** Scientific Opinion on African Swine Fever. *EFSA Journal* 8(3):1556, 149 p. **DOI:** <http://dx.doi.org/10.2903/j.efsa.2010.1556>. Available online: [www.efsa.europa.eu/efsajournal.htm](http://www.efsa.europa.eu/efsajournal.htm). BL: *Ornithodoros tholozani*, cave tick.

**EFSA (European Food Safety Authority) Panel on Animal Health and Welfare, 2010.** Scientific Opinion on the Role of Tick Vectors in the Epidemiology of Crimean Congo Hemorrhagic Fever and African Swine Fever in Eurasia. *EFSA Journal* 8(8):1703, 156 p. **DOI:** <http://dx.doi.org/10.2903/j.efsa.2010.1703>. Available online: [www.efsa.europa.eu/efsajournal.htm](http://www.efsa.europa.eu/efsajournal.htm).

**ELIAS (N. A.), HASHIM (R.) & KINGSTON (T.), 2010.** Energy and nutritional demands in *Hipposideros bicolor* 142 kHz giving birth right on time:127. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: The high energetic and nutritional demands of pregnancy and lactation in bats are presumed to require that species in seasonal habitats breed when food availability is greatest. Failure to match parturition with food availability could incur individual fitness costs and, should mismatches occur repeatedly, lead to population declines. In this study, we determine whether an insectivorous rainforest bat from Malaysia, *Hipposideros bicolor* 142 kHz, synchronizes reproductive activity with insect availability, and if insect availability correlates with local climate variables (temperature and rainfall). The study was conducted in lowland dipterocarp forest around Kuala Lompat Research Station (3°43'N, 102°10'E), Pahang, Malaysia between February and December 2009. Bats were trapped with four-bank harp traps in the forest understorey for five nights each week, and once a month at a nearby cave. A total of 180 female adults were captured, and within-month recaptures were excluded. Females were assigned to five major reproductive categories by examination of the condition of mammary glands and pubic nipples and abdominal palpation: not reproductive; early pregnancy; pregnant; lactating; post-lactating. Two light traps were run simultaneously to the trapping in order to correlate the presence of insects as food source for these small flying mammals. HOBO Automated Weather Station was used to monitor the temperature and rainfall in the study area. Our findings suggest that *Hipposideros bicolor* 142 kHz has a restricted seasonal monoestry pattern of reproduction in which females produce one litter in a single season each year. Pregnancy was detected as early as February and lactating individuals recorded from April until September. The highest percentage of lactating individuals was recorded in May, which corresponded to the maximum mean rainfall and the highest mean insect dry biomass at the study site, suggesting that this species synchronizes parturition and lactation with the period of maximum food abundance in the habitat.

**ELLIS (M.), 2010.** *The Caves of Phitsanulok*. December 2010, 21 p.

**ELLIS (M.), 2010.** *The Caves of Thailand. 5. The Caves of Chiang Mai*. Published by Takobi Ltd Lom Sak Phetchabun Thailand, [takobilt@yahoo.co.uk](mailto:takobilt@yahoo.co.uk), <http://www.thailandcaves.shepton.org.uk>, Copyright © Martin ELLIS, 2010, 79 p.

**ELLISON (L. E.), 2010.** A Retrospective Survival Analysis of Townsend's Big-Eared Bat (*Corynorhinus townsendii*) from Washington State. *Northwestern Naturalist* 91(2):172-182. **DOI:** <http://dx.doi.org/10.1898/NWN09-10.1>. ABS: Townsend's Big-eared Bat (*Corynorhinus townsendii*) is a species of conservation concern for many states and provinces. However, little is known about key demographic parameters, such as survival, for this species due to its sensitivity to human disturbance. This species can also be vulnerable to injuries from wing bands; the most commonly applied marking technique used in the past to estimate survival in bats. During the US Fish and Wildlife Service's Bat Banding Program (1932-1972), CM Senger banded 1346 Townsend's Big-eared Bats at 3 major cave systems in Washington during 1964-1975, and continued to

recapture banded bats until 1980. I applied current mark-recapture techniques to retrospectively estimate survival of hibernating Townsend's Big-Eared Bats banded by CM Senger. I also investigated sex, time, and trend effects on survival and capture probabilities of these 3 populations of bats using Cormack-Jolly-Seber (CJS) open models and the modeling capabilities of program MARK. For each location, estimates of annual survival and capture probabilities varied somewhat by sex and ranged from 0.54 to 0.68 for males and 0.60 to 0.67 for females. During the banding study, band injuries were noted and populations declined at all locations potentially violating assumptions of the CJS model. However, the dataset from which these estimates were derived is likely to be the most complete and well-maintained dataset in the Bat Banding Program files. Resulting annual survival estimates from these data were relatively precise and modeling provided evidence of time and trend effects and differences in survival between the sexes. These results provide historical, post hoc estimates of an important life-history parameter for this species of bat wintering in caves in 3 localized areas of Washington State. KW: Bat banding, *Corynorhinus townsendii*, mark-recapture, survival analysis, Townsend's Big-eared Bat, Washington.

**ENGEL (A. S.), 2010.** Book Review. ROMERO Aldemaro, 2009, *Cave Biology: Life in Darkness*, New York, Cambridge University Press, 306 p. ISBN: 978-0-521-82846-8 (hardback) and ISBN: 978-0-521-53553-3 (paperback). *Integrative and Comparative Biology* 50(4, October 19):689-691. **DOI:**

<http://dx.doi.org/10.1093/icb/icq067>. ABS: Karst landscapes comprise roughly 20% of earth's ice-free land surface underlain by soluble rocks. These landscapes typically consist of extensive underground water-flow systems that include sinking streams, sinkholes, and caves. Caves are generally considered to be solutional or collapse-enlarged openings in rock that are enterable by humans, but certainly such openings can exist that are inaccessible to humans. Most cave systems form from some sort of a surface to subsurface hydrological connection within a drainage basin, but lithological and tectonic constraints often limit connectivity of passages across drainage basins. Therefore, cave systems are considered discontinuous habitats. Because of potential geographical and hydrological isolation, caves and other subterranean habitats can provide insight into evolutionary processes, assuming that answers to questions related to how the subsurface came to be colonized, or what the tempo of evolution has been for animals, can be agreed upon. Certainly, to colonize the subsurface, organisms have had to adapt to potential energy and nutrient limitations, oxygen deprivation, geochemically variable solutions, and even the higher water pressures that come with living at depth. The idea that life could flourish in the absolute darkness of caves and other subterranean terrestrial habitats has perplexed naturalists, scientists, and biologists for centuries, including even the most well known of these like Charles Darwin. Cave animals are undoubtedly peculiar creatures, with distinctive troglomorphic characteristics that include being eyeless, depigmented, and having elongated appendages. However, troglomorphy is not limited to organisms from caves, as interstitial (i. e., relating to water-bearing strata, including the hyporheic zone and deep aquifers) and superficial (i. e., epikarst, talus slopes, seeps) subterranean habitats also yield a remarkably rich troglomorphic fauna. Was the ability to live in subsurface habitats derived from preadaptive metabolic, behavioral, or even genetic traits of ancestral individuals, or was it from genetic modification or phenotypic plasticity of individuals...

**ENGEL (A. S.), 2010.** Chapter 10. Microbial Diversity of Cave Ecosystems:219-238. **DOI:** [10.1007/978-90-481-9204-5\\_10](https://doi.org/10.1007/978-90-481-9204-5_10). In: BARTON (L. L.), MANDL (M.) & LOY (A.), *Geomicrobiology: Molecular and Environmental Perspective*. Springer Dordrecht, Heidelberg, London, New York. Library of Congress Control Number: 2010931683. i-xiv + 435 p. ISBN 978-90-481-9203-8, e-ISBN 978-90-481-9204-5. **DOI:** [10.1007/978-90-481-9204-5](https://doi.org/10.1007/978-90-481-9204-5), BARTON (L. L.), MANDL (M.) & LOY (A.), editors. ABS: The formation of natural caves (speleogenesis) is due to any number of processes that result in the hollowing out of rock, including dissolution, mechanical weathering, volcanic activity, or even the melting of glacial ice. Caves are classified based on the solid rock that they developed within, the proximity to the groundwater table (e. g., above, at, or below it), the speleogenetic history of a feature, and the overall passage morphology and organization (e. g., cave length, passage

shape, passage arrangement, passage levels) (Fig. 10.1). Caves are one type of feature that characterizes a karst landscape, which develops in soluble rocks (e. g., limestone, dolomite, gypsum, halite) that roughly coincides with the global distribution of carbonate sedimentary rocks of all geologic ages (e. g., Ford & Williams, 2007). Although karst comprises ~15-20% of the Earth's ice-free land surface, karst caves are not interconnected, not within the same hydrological drainage basin and definitely not across different drainage basins.

**ESMAEILI RINEH (S.), AKMALI (V.) & SHARIFI (M.), 2010.** Tadovan Cave - a living ecosystem in Iran for study of bats. Poster 45:70. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR   EK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p.

**ESMAEILI RINEH (S.), AKMALI (V.) & SHARIFI (M.), 2010.** Tadovan Cave - a living ecosystem for study of bats in Iran:130. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR   EK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: The Tadovan cave is locating in the village of Tadovan, about 65 km north of Jahrom in the Fars province. The Tadovan cave is a large and complex cave inhabited by many species of bats. The cave is a home to approximately 10000 bats (at least eight species including *Rhinopoma microphyllum*, *R. muscatellum*, *Myotis blythii*, *M. capaccinii*, *Rinolophus blasii*, *R. euryale*, *R. hipposideros*, and *Miniopterus schreibersi*) in four seasons. In the first chamber, we found approximately 300 *Rhinopoma* individuals of both species. In other parts of the cave, *Rhinolophus euryale*, *R. blasii*, *R. hipposideros*, *Myotis blythii*, *M. capaccinii*, and *Miniopterus schreibersi* hung from the cave ceiling. Several bat specimens were surveyed for ectoparasites. The found ectoparasites included the genera *Spinturnix*, *Eyndhovenia*, *Ixodes*, *Pencilidia*, and the family Sterblidae. The inventory of the cave includes identification of the bat species, population estimate, ectoparasite load and reproduction state in the bats inhabiting the cave. This information are of particular interest as the cave could be impacted by human disturbance including developmental projects of ecotourism.

**ESMAEILI RINEH (S.) & SARI (A.), 2010.** Niphargids of Iran with focus on the Zagros Mountains:142, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Pervious studies on Iranian niphargids were limited to a single record of *Niphargus valachicus*. Despite many underground sources of water in Iran, especially at the Zagros Mountains, there are no further studies on hypogean amphipods associated with caves and springs with underground origin. The Iranian basin is a large triangular depression flanked by Elburz Mountains in the north and Zagros Mountains in the west. The Zagros Mountains extend diagonally from eastern Turkey to the north of the Persian Gulf and Pakistan border. The current survey aims to study members of the genus *Niphargus* in Iran taxonomically and phylogenetically. At the First step, the karst areas and springs in the west of Iran were located. The specimens were collected from several localities including: Dimeh spring in Chaharmahal-Va-Bakhtiari province, Brolan spring in Azarbaijan province, Sasan River in Fars province, Ghor-Ghale cave in Kermanshah province, Razbashi spring in Lorestan province and Ghaemshahr and Danial cave in Mazandaran province, Cheshmeh-Siah in Kohgiluyeh-Va-Boyerahmad Province. All species of the current study belong to the genus *Niphargus*. Drawings of the key characters were made using Camera Lucida on a compound microscope. Geographical distribution of all species is plotted around the Zagros Mountains. It seems there are at least three new species among the specimens collected from different water source around the Zagros Mountains. The main diagnostic characters of each species will be used in an illustrated key for niphargids of Iran. <http://www.icsb2010.net/>

**ESPINASA (L.), FURST (S.), ALLEN (T.) & SLAY (M. E.), 2010.** A New Genus of the Subfamily Cubacubaninae (Insecta: Zygentoma: Nicoletiidae) from Caves in South-

- Central and Southwestern USA. *Journal of Cave and Karst Studies* 72(3, December):161-168. DOI: <http://dx.doi.org/10.4311/jcks2009isc0097>. ABS: The genus *Speleonycta* is erected, and *S. ozarkensis*, n. sp., is described and separated from other species of the subfamily Cubacubaninae. The type species was collected from several caves in the Ozark Plateau, while two more species, collected from a cave in Arizona and from a cave in California, remain under study. Morphology and preliminary analyses using histone DNA indicate that the new genus may be related to *Texoreddellia*, another nicoletioid from caves of Texas and northern Mexico.
- ETTENAUER (J. D.), 2010.** *Culture dependent and - independent identification of microorganisms on monuments.* Angestrebter akademischer Grad Magister der Naturwissenschaften (Mag. rer.nat.), Wien, im 4 Mai 2010, 224 p.
- EVENHUIS (N. L.), 2010.** *Authors of fly names. A preliminary list of all authors who have proposed Diptera names at the family-level or below.* Bishop Museum Technical Report 51:181 p.
- FAILLE (A.), 2010.** Les Coléoptères troglobies de l'île de Sulawesi (Indonésie); description du mâle du Paussidae cavernicole *Eustra saripaensis* Deuve, 2002 (Coleoptera) [Troglobitic Coleoptera of Sulawesi (Indonesia); description of the male of the cavernicolous Paussidae *Eustra saripaensis* Deuve, 2002 (Coleoptera)]. *Bulletin de la Société entomologique de France* 115(3):375-380. RÉSUMÉ: Nous présentons ici les résultats de prospections biopéléologiques réalisées en août et septembre 2007 dans les grottes de la région de Maros, Sulawesi. De nouvelles localités du Carabidae *Mateuellus troglobiticus* Deuve sont citées et le mâle d'*Eustra saripaensis* Deuve est décrit. L'étude de l'édage de cet insecte permet d'émettre des hypothèses quant à ses affinités phylogénétiques avec les autres espèces du genre. Une carte de répartition des espèces d'*Eustra* connues à ce jour est présentée, et la distribution du genre est discutée.
- FAILLE (A.), BOURDEAU (C.) & FRESNEDA (J.), 2010.** A new species of blind Trechinae from the Pyrenees of Huesca, and its position within *Aphaenops* (sensu stricto) (Coleoptera: Carabidae: Trechini). *Zootaxa* 2566(August 13):49-56, 4 pl., 16 réf. ABS: A new trechine species *Aphaenops parvulus* sp. n. (Carabidae, Trechini) is described from Esjamundo cave in the Pyrenees of Huesca, Spain. The new species belongs to the subgenus *Aphaenops* (sensu stricto), but differs from its closest congeners by the small size-it is the smallest species of the group-and characters of the aedeagus. Molecular data based on fragments of a mitochondrial (COI) and a nuclear (LSU) genes recognised *Aphaenops parvulus* sp. n. as a sister taxon to *A. eskualduna* Coiffait. *Aphaenops eskualduna* is reported from Spain with precision for the first time. KW: Carabidae, Trechini, *Aphaenops parvulus* sp. n., subterranean environment, Pyrenees, Spain, molecular phylogeny. <http://www.mapress.com/zootaxa/list/2010/2566.html>
- FAJDIGA (B.) & STUPAR (M.), 2010.** Subterranean protection starts on the surface:84. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The Slovenian legislation ensures the establishment of protected areas with several laws, among which The nature conservation Act (since 1999) provides a legal framework and effective mechanism for planning and management of protected areas. The first initiatives for karst conservation were connected with the protection of caves. Some clearly defined suggestions for cave protection have been given (Badiura & Brinšek, 1908, Pirc, 1911) defining the necessity of protection of cave fauna and dripstone. The protection of underground caves with interesting cave fauna and flora was stated in the third part of Spomenica (1920) which represents the first Slovenian nature conservation program. Considering the lithology of Slovenia, with the majority of the bedrocks having carbonate origin, the majority of large protected areas are obviously also linked with carbonate surface. Protected areas of Slovenian karst landscape presents three quarters of all protected areas in the country which indicates the great nature conservation value of karst. A legal step towards the protection of all caves was defined, when the parliament declared The Cave protection act in 2004. This act defines protection and restricts the use of caves; it determines the protection regimes, protection measures and other rules of behaviour in caves. It also defines the minimal standard which each cave should fulfil to achieve a status of natural heritage. Generally speaking every cave whose length exceeds 10 meters is automatically given the status of natural heritage. Since 2004 some of the most important cave habitats are protected as a part of the European ecological network Natura 2000. An important legislation for cave conservation has thus been enacted, but it is still necessary to attain a more complex protection of the karst underground areas and thereby cave habitats. The problem of the protection of the karst underground can not be solved only on the basis of the conservation legislation. Mostly the problems of endangerment are linked with the pollution on the surface. Thereby, to achieve the protection of karst subterranean areas it is necessary to protect the surface within range of underground water. The system for the complex conservation should be based on the concept of interaction of all spheres of activity on the surface; urbanism, industry, agriculture, traffic, waste water purification. <http://www.icsb2010.net/>
- FANCIULLI (P. P.), LORETI (M.) & DALLAI (R.), 2010.** A new cave species of *Deuteraphorura* (Collembola: Onychiuridae) and redescription of four species of the genus from Italy. *Zootaxa* 2609(September 13):34-54, 6 pl., 31 réf. ABS: The description of a new species and the redescription of four species of the genus *Deuteraphorura* are given. *Deuteraphorura caprelleana* sp. nov. is characterized by the peculiar distribution of dorsal (32/033/33354) and ventral (3/011/3212) pseudocelli that allow to recognize it from the other congeneric species. Furthermore, four species, *Deuteraphorura apuanica* (Dallai, 1970), *D. pseudobosnaria* (Dallai, 1970), *D. pseudoinsubraria* (Dallai, 1970) and *D. pseudoghidini* (Dallai, 1969), are redescribed based on type and new topotypic material to furnish the description of some characters, especially concerning the chaetotaxy, not considered in the original description. A proposed key to the Italian species is also reported. KW: Springtails, taxonomy, chaetotaxy, identification key, *Deuteraphorura caprelleana* sp. nov. <http://www.mapress.com/zootaxa/list/2010/2609.html>
- FARLEY (D.), 2010.** Mark Twain National Forest caves close due to bat fungus. *Southeast Missourian*, Friday, April 30. <http://www.semissourian.com/story/1630698.html>
- FAURE (P. A.), VESELKA (N.), McERLAIN (D. D.), HOLDSWORTH (D. W.), EGER (J. L.), CHHEM (R.), MASON (M. J.), BRAIN (K. L.) & FENTON (M. B.), 2010.** P 27. A stylohyal-tympanic connection signals laryngeal echolocation in bats:474. In: *9<sup>th</sup> International Congress of Neuroethology, Salamanca (Spain), 2-7 August 2010.* Sponsored by the International Society for Neuroethology ([neuroethology.org](http://neuroethology.org)). Abstracts. ABS: Echolocation is an active form of perception where animals emit sounds and then listen to the reflected echoes to form images of their environment in their brain. For this process to work outgoing sounds must be represented at a neuronal level for future comparison with returning echoes. The mechanism effecting this neuronal representation is presently unknown. The ability to echolocate has evolved at least four times in mammals (bats, whales, shrews, tenrecs) and twice in birds (oilbirds and cave swiftlets). Although echolocation is usually associated with bats, it is not characteristic of them. Most echolocating bats emit sounds from the larynx, but within one family (Pteropodidae) of mainly non-echolocating bats a few species emit broadband unstructured sounds by clicking their tongue. Using anatomical data obtained from microcomputed tomography scans of 26 species (n = 35 fluid-preserved bats), we found that proximal articulation of the stylohyal bone (part of the mammalian hyoid apparatus) with the tympanic bone always distinguishes laryngeally-echolocating bats from both non-echolocating and tongueclicking pteropodid bats. The stylohyal bone functions in breathing, swallowing and phonation; the tympanic bone surrounds and supports the tympanic membrane. In many high duty cycle bats the stylohyal bone was fused to the tympanic bone. A previous report on the stylohyal bone in the oldest known fossil bat (*Onychonycteris finneyi*) suggested that it did not echolocate; however, we speculate that *O. finneyi* may have used laryngeal echolocation because its stylohyals may have articulated with its tympanics. Coupling the larynx to the ear via a stylohyal-tympanic

connection could serve multiple functions in hearing and echolocation, and provides an independent anatomical character to distinguish laryngeally-echolocating bats from all other bats. Our discovery reopens basic questions about the timing and the origin of flight and echolocation in the early evolution of bats.

**FAURE (P. A.), VESELKA (N.), McERLAIN (D. D.), HOLDSWORTH (D. W.), EGER (J. L.), CHHEM (R.), MASON (M. J.), BRAIN (K. L.) & FENTON (M. B.), 2010.** A bony connection signals laryngeal echolocation in bats:132-133. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Echolocation is an active form of perception where animals emit sounds and then listen to the reflected echoes to form images of their environment in their brain. For the process to work outgoing sounds must be represented at a neuronal level for future comparison with returning echoes. The mechanism effecting this neuronal representation is presently unknown. The ability to echolocate has evolved at least four times in mammals (bats, whales, shrews, tenrecs) and twice in birds (oilbirds and cave swiftlets). Although echolocation is usually associated with bats, it is not characteristic of them. Most echolocating bats emit sounds from the larynx, but within one family of mainly non-echolocating bats (Pteropodidae), a few species emit broadband unstructured sounds by clicking their tongue. The diversity of echolocation is reflected in the variety of signals that bats emit, which can include constant frequency (CF-narrowband) and/or frequency modulated (FM-broadband) components that can be long or short in duration and emitted in varying temporal patterns. Using anatomical data obtained from micro-computed tomography scans of fluid preserved bats, we found that proximal articulation of the stylohyal bone with the tympanic bone always distinguishes laryngeally-echolocating bats from both non-echolocating and tongue-clicking pteropodid bats. The stylohyal bone is part of the mammalian hyoid apparatus and functions in breathing, swallowing and phonation; the tympanic bone surrounds and supports the tympanic membrane. In many high duty cycle species, the stylohyal was fused at a point or along the entire length of contact with the tympanic. A previous report on the stylohyal in the oldest known fossil bat (*Onychonycteris finneyi*) suggested that it did not echolocate; however, we speculate that *O. finneyi* may have had the capacity for laryngeal echolocation because its stylohyals may have articulated with its tympanics. A coupling of the larynx to the ear via a stylohyal-tympanic connection could serve multiple functions in hearing and echolocation, and provides an independent anatomical character to distinguish laryngeally-echolocating bats from all other bats. Our discovery reopens basic questions about the timing and the origin of flight and echolocation in the early evolution of bats.

**Fédération Française de Spéléologie (F. F. S.), 2010.** Galerie de la mémoire. Géo MARCHAND (1922-2010). *Spelunca* 119(Septembre, 3<sup>e</sup> trimestre):64.

**Fédération Spéléologique Européenne (F. S. E.), 2010.** White-Nose Syndrome (WNS) in Europe? Fact sheet for cavers. Le "Syndrome du Nez Blanc (SNB)" en Europe? Feuillet d'information pour les spéléos. 5 p.

**FEDOR (P. J.), DORIČOVÁ (M.), PROKOP (P.) & MOUND (L. A.), 2010.** Heinrich UZEL, the father of Thysanoptera studies. *Zootaxa* 2645(October 14):55-63, 1 pl., 11 réf. <http://www.mapress.com/zootaxa/list/2010/2645.html>

**FELDERHOFF (K. L.), BERNARD (E. C.) & MOULTON (J. K.), 2010.** Survey of *Pogonognathellus* Börner (Collembola: Tomoceridae) in the Southern Appalachians Based on Morphological and Molecular Data. *Annals of the Entomological Society of America* 103(4, July):472-491. DOI: <http://dx.doi.org/10.1603/AN0910>. ABS: *Pogonognathellus* Börner is the most common genus of tomocerid Collembola in the southern Appalachian region of the United States. Scale pattern, cuticle color, and molecular data were used with morphology and chaetotaxy to reappraise the members of this genus. *P. bidentatus* and *P. elongatus* are confirmed as well-marked species; *P. nigritus* Maynard is removed from synonymy with *P. elongatus* and

reestablished as a valid species, and a neotype is designated. Two new species are described. *Pogonognathellus danieli* n. sp. from a cave in Great Smoky Mountains National Park resembles the California cave species *P. celsus* but possesses clubbed tenent hairs on all tibiotarsi; in *P. celsus*, the tenent hairs are pointed. *P. mystax* n. sp. is related to the "*P. flavescens* complex" but differs in having a purple clypeus and a prominent band of light scales along the posterior edge of each tergite. Many collections of *P. flavescens*-like and *P. dubius*-like specimens were made but molecular analysis indicated that these specimens consisted of four *P. dubius*-like taxa and four *P. flavescens*-like taxa. True *P. flavescens* from Sweden (type locality) were molecularly distinct from the putative American *P. flavescens* included in the analysis. A tentative phylogenetic tree indicated three clades of southern Appalachian *Pogonognathellus*: one clade containing *P. bidentatus*; another clade containing species with posterior cephalic macrochaetae but without anterior macrochaetae on the fourth abdominal tergite (Abd. IV; *P. elongatus*, *P. nigritus*, and an undescribed species); and a third clade without posterior cephalic macrochaetae but with one pair of anterior macrochaetae on Abd. IV (*P. danieli*, *P. mystax*, and eight undescribed species). KW: Appalachian Mountains, Collembola, phylogeny, taxonomy, Tomoceridae.

**FENDRIHAN (S.), 2010.** Microorganisms isolated from subsurface environments and their importance for astrobiology and theoretical biology. *ELBA Bioflux* 2(1, July 30):23-36. ABS. Objective: the article is a review of the very controversial microbial life in subsurface environments like caves, rocks, mines, deep subsurface water and springs, in very special extreme environments. Material and Methods: the methods of isolation of the bacteria and archaea from subsurface environments are discussed too and analysed. Results: the results of years of investigations showed the possibilities of adaptation to extreme environments and survival on very long periods of times, even geological eras, of some microorganisms. The inner biochemical, physical, biological and energetic mechanisms are still not elucidated, even some features were discovered. Conclusion: an extensive and intensive work of cooperation in this field of activity is required to discover the mechanisms of long term survival in extreme conditions of the subsurface microorganisms. KW: Subsurface environments, astrobiology, microorganisms, extreme environments, dormant state, long term survival. REZ: Obiectiv: Articolul este o trecere în revistă a controversatei probleme a vieții microbiene în mediile subterane cum ar fi peșterile, minele, apele subterane și izvoarele, în medii extreme foarte speciale. Material și metodă: metodele de izolare a bacteriilor și arhaea din mediile subterane sunt discutate și analizate în lucrare. Rezultate: rezultatele multor ani de investigații arată că este posibil ca microorganismele să se adapteze la medii extreme și să supraviețuiască chiar pe perioade de timp la nivelul unor ere geologice. Mecanismul intim biochimic, fizic, biologic și energetic este în continuare o problemă de elucidat, chiar dacă unele elemente au fost identificate. Concluzii: o muncă extensivă și intensivă în cooperare, în acest domeniu, este necesară pentru descoperirea mecanismului ce permite lunga supraviețuire în condiții extreme a microorganismelor din mediul subteran. CC: Medii subterane, astrobiologie, microorganismele, medii extreme, supraviețuirea pe termen lung. <http://www.elba.bioflux.com.ro/home/online-first-articles/>

**FERNÁNDEZ (O.) & NARANJO (M.), 2010.** Catálogo de cavidades de la isla de Gran Canaria (Islas Canarias). *Vulcania* 9:?. [http://www.vulcania.org/index.php?option=com\\_content&view=article&id=61&Itemid=22](http://www.vulcania.org/index.php?option=com_content&view=article&id=61&Itemid=22)

**FERREIRA (R. L.), 2010.** Hidden biodiversity: recent advances and perspectives in Brazilian subterranean biology:43-44. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: In recent years, inventories of cave fauna carried out across diverse regions of Brazil have shown a great number of new species, many of which belong to new genera, families and even suborders. In the last five years, at least 300 troglotrophic species were discovered in Brazilian caves. Many of these species are highly troglomorphic. During past decades, researchers thought that the Neotropical region would harbor few troglotrophic species due to the low climatic severity in the tropics during the glacial maxima in comparison to temperate regions. The main model that assumes the isolation and

evolution of species in underground systems in the world is based on these climatic changes occurring during distinct glacial maxima. However, the great amount of new species recently discovered in Brazilian caves and their high degree of troglomorphy indicates, that the events of climatic changes in Neotropics, even if not so severe as in temperate regions, could have led to the isolation of subterranean lineages. Or, alternatively, other mechanisms of isolation (e. g. parapatric speciation, oceanic introgressions and regressions), might have led to the evolution of many lineages of subterranean fauna in Brazil. Furthermore, especially for terrestrial troglobionts, it seems that there is a geographic belt in northeastern Brazil (from SW to NE) in which troglobiotic species are concentrated. This belt eventually can represent the area in which many ancient populations had first become isolated due to the separation of the continuous evergreen tropical forest that used to exist in the area during the last glacial maximum, when the Amazon forest and the Brazilian Atlantic forest were connected. The Neotropical region is also characterized by the huge diversity of higher taxonomic groups of subterranean animals, what makes it especially interesting for ecological studies. <http://www.icsb2010.net/>

**FERREIRA (R. L.) & SOUZA-SILVA (M.), 2010.** The cave lithology determining the structure of the cave invertebrate communities in the Brazilian Atlantic rain forest:44-45, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Only limestone and a few arenitic, ferruginous and granitic caves had their invertebrate communities studied. The present study aimed to compare the structure of invertebrate communities associated with carbonatic, magmatic, siliciclastic and ferruginous caves. Significant differences related to richness were observed when comparing pairs of caves: siliciclastic and carbonatic, ferruginous and siliciclastic, magmatic and siliciclastic, and magmatic and ferruginous. Significant differences in relative abundance were observed between ferruginous and siliciclastic caves, and magmatic and siliciclastic caves. Ferruginous caves had the highest richness of troglomorphic species. Total richness of invertebrates was significantly positively correlated with cave length regardless of lithology. Relative richness and relative diversity of invertebrates in siliciclastic caves was positively related with the altitudinal variation. Total species richness of invertebrates was significantly positively correlated with environmental stability in siliciclastic caves. Total abundance of invertebrates was significantly positively correlated with environmental stability in carbonatic caves. Cave lithology determines clear differences in richness, abundance, and diversity of subterranean invertebrate communities. Ferruginous caves have the highest richness, and fauna composition most different from caves of other lithologies. Linear development of caves in different rock types causes difference in amount of species. Cave size should always be considered along with lithology when different caves are biologically evaluated. <http://www.icsb2010.net/>

**F. G., 2010.** Lascaux: "Les fresques se portent bien". *Le Nouvel Observateur* 2406(16-22 D  cembre):109.

**FILIPPOVA (A.), PURSCHKE (G.), TZETLIN (A. B.) & M  LLER (M. C. M.), 2010.** Musculature in polychaetes: comparison of *Myrianida prolifera* (Syllidae) and *Sphaerodoropsis* sp. (Sphaerodoridae). *Invertebrate Biology* 129(2, Spring):184-198. ABS: The relationship of the polychaete taxa Syllidae and Sphaerodoridae within Phyllococida is still unresolved: phylogenetic analyses either show them as sister groups or more widely separated. The present article aims to provide information about the structure of the muscular system that could be essential for understanding their relationship. A crucial point is whether the body wall contains circular muscles, which has recently been shown to be absent in more taxa than previously known. The F-actin filaments in members of *Myrianida prolifera* (Syllidae) and *Sphaerodoropsis* sp. (Sphaerodoridae) were labeled with phalloidin and their three-dimensional relationships reconstructed by means of confocal laser scanning microscopy. Among the noteworthy differences that emerged between the species are (1) members of *M. prolifera* possess four, those of *Sphaerodoropsis* sp. eight, longitudinal muscle strands; (2) the body wall in *M. prolifera* contains transverse fibers in a typical, supralongitudinal position, while in *Sphaerodoropsis* sp., corresponding fibers lie beneath the longitudinal strands; (3) pro- and peristomium in *M. prolifera* have no distinct F-actin fibers, while five longitudinal pairs and three single transverse muscular

fibers shape the anterior end in *Sphaerodoropsis* sp.; (4) the proventricle of *M. prolifera* comprises primarily radial muscle fibers arranged in distinct rows, while in *Sphaerodoropsis* sp. the axial proboscis consists of longitudinal and circular fibers and radial fibers are lacking; (5) in *M. prolifera*, the proximal and distal sections of the two anteriormost pairs of dorsal cirri possess longitudinal myofilaments, which are separate from the body wall musculature; by contrast, all appendages in *Sphaerodoropsis* sp. do not; (6) both species have bracing muscles: in *M. prolifera* they are positioned above the longitudinal fibers, whereas in *Sphaerodoropsis* sp. they are uniquely positioned between longitudinal and sublongitudinal transverse fibers. These results do not support a sister-group relationship of Syllidae and Sphaerodoridae. In addition, *Sphaerodoropsis* sp. is yet another example in the list of polychaetes lacking typical circular muscles in the body wall. KW: Annelida, phalloidin, F-actin, evolution, proventricle. <http://onlinelibrary.wiley.com/doi/10.1111/j.1744-7410.2010.00191.x/abstract>

**FIOHAIS (C.), 2010.** Portugal subterr  neo. *Sol*, 3 de Dezembro.

[http://sol.sapo.pt/inicio/Opiniao/interior.aspx?content\\_id=6028&opiniao=Opini%30](http://sol.sapo.pt/inicio/Opiniao/interior.aspx?content_id=6028&opiniao=Opini%30)

**FISER (C.) & TRONTELJ (P.), 2010.** Adaptive morphology of subterranean amphipod communities:165-166. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Morphological evolution of subterranean species has been hitherto studied in relation to surface species. Still, closely related subterranean species co-exist at a number of sites. The stability of such communities implies niche-separation and thereby minimized competition. Consequently, co-existing species are expected to differ in their functional morphology. In this study we analyzed 16 niphargid communities consisting of minimally three species, both from caves and interstitial habitats. In 33% of the cave communities and 63% of the interstitial communities the species were more dissimilar than expected if communities were assembled by chance. We searched for parallel morphological differentiation independently occurring across communities, and for evidence for the adaptive value of morphological differences. In cave communities, Principal Component Analysis (PCA) clearly distinguished three eco-types, i. e. phreatic, lentic, and epikarstic species. The three habitats can be described by pore size and water velocity. Phreatic species are large and stout with elongated appendages. Species from streams are large and slender with short appendages, and species from crevices are small and of various shapes and proportions. Covariance analysis of morpho-traits suggests that pore size affects evolution of body length, and water velocity affects the length of appendages. Interstitial communities consist of small and stout, small and vermiform, and larger and slender species. The third type may be opportunists, typically found also outside interstitial communities. Differences among species in this homogenous habitat cannot be explained by physical parameters, but the morphological types might differ in their trophic niche. To test this hypothesis, we compiled another set of measurements describing gnathopod shape as a surrogate for feeding ecology. Both datasets were separately subjected to PCA. In both datasets the first Principal Component explained over 90% of variation. First Principal Components from both datasets significantly correlated with each other. Slender community member with large gnathopods are presumable predators, while stouter species with feeble gnathopods are presumable microfeeders. <http://www.icsb2010.net/>

**FISER (Ž.), MOŠKRIČ (A.) & FISER (C.), 2010.** A molecular test for *Niphargus krameri* (Crustacea: Amphipoda) intraspecific diversity:57, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The taxonomic research on amphipods in the *Niphargus krameri* species complex has had a long history, making it an educative example of an intensely studied taxon whose taxonomy kept unfolding proportionally with the amount of invested work. The first record dates to 1935 when Schnellenberg described *N. puteanus* ssp. *krameri*. S. Karaman raised it to the species level in 1954. Based on a minor morphological variation, he additionally described *N. krameri* f. *spinulifemur* and *N. krameri* ssp. *timavi*. Thirty years later, in 1984, G. Karaman identified autapomorphic



traits in both subspecific taxa and raised them to a species level. Moreover, G. Karaman also reported on coexisting populations of *N. krameri* and *N. spinulifemur* inhabiting northern Istra Peninsula and Italian Venezia Giulia lacking crossbreeds. More recently, we distinguished three distinct, geographically well-delimited morphs of *N. krameri* s. str. that can be identified on a basis of setal patterns on gnathopods in adult specimens. Despite the congruence between morphological and geographic data, no taxonomic conclusions were made in that study. Here we approached the problem using molecular data. Newly obtained 28S rDNA (nuclear) and COI (mitochondrial) sequences for 19 specimens from 11 localities were aligned with published sequences and subjected to a phylogeny test. Results show a clear separation of specimens into two strongly supported clades that match with geographical division and agree, to some extent, with the distribution of setal patterns. It is evident that gene flow between some populations is restricted, probably due to poor dispersal abilities in a geologically diverse environment, which supports the idea of *N. krameri* being in the course of speciation and perhaps also morphological differentiation. All datasets justify hypothesizing a new species distributed across W and N Istria. <http://www.icsb2010.net/>

**FLOT (J.-F.), BAUERMEISTER (J.) & DATTA GUPTA (S.), 2010.** *Niphargus* amphipods and their Thiothrix ectosymbionts in Frasassi (Central Italy): a tale of multiple invasions and host specificity:166-167. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The sulfide-rich Frasassi caves in central Italy contain a rare example of a freshwater ecosystem supported entirely by chemoautotrophy. *Niphargus ictus*, the only amphipod species previously reported from this locality, was recently shown to host *Thiothrix* ectosymbionts on its cuticle. Whereas chemoautotrophic symbioses are widespread in the marine environment, this is the first instance of such a symbiosis to be reported from a freshwater ecosystem. Since the habitat of *N. ictus* is highly fragmented and is comprised of streams and lakes with various sulfide concentrations, we conducted a detailed study to examine the potential genetic diversity of this species within Frasassi. By sequencing one nuclear (ITS) and two mitochondrial (COI and 12S) regions, we found that four partially sympatric *Niphargus* clades are present in Frasassi. One of these clades corresponds to the published description of *N. ictus*, two others have since then been described as *N. frassassianus* and *N. montanarius*, and the fourth clade remains undescribed due to the scarcity of available specimens. Phylogenetic analyses of 28S ribosomal DNA (rDNA) sequences reveal that, among these four putative species, only *N. montanarius* and the fourth clade are closely related to each other. These results suggest that the Frasassi cave ecosystem was invaded independently by three different *Niphargus* lineages, one of which eventually split into two clades. Our unexpected finding of distinct *Niphargus* species in Frasassi prompted us to look for *Thiothrix* symbionts on each of them. Scanning electron microscopy showed filamentous ectosymbionts on all three *Niphargus* species examined to date (*N. ictus*, *N. frassassianus* and *N. montanarius*), and their assignment to the genus *Thiothrix* was confirmed by sequencing 16S rDNA libraries. Phylogenetic analyses of 16S rDNA sequences reveal that *Thiothrix* ectosymbionts are not monophyletic. Moreover, some symbiotic *Thiothrix* lineages are found on more than one *Niphargus* species, which may indicate past lateral transfers. In spite of this, ARISA (Automated Ribosomal Intergenic Spacer Analysis) shows that the symbiotic communities associated with the three *Niphargus* hosts are distinct and highly host-specific, suggesting that ongoing symbiont transmission occurs chiefly from parent to offspring. <http://www.icsb2010.net/>

**FLOT (J.-F.), WÖRHEIDE (G.) & DATTA GUPTA (S.), 2010.** Unsuspected diversity of *Niphargus* amphipods in the chemoautotrophic cave ecosystem of Frasassi, central Italy. *BMC Evolutionary Biology* 10:171. **DOI:** <http://dx.doi.org/10.1186/1471-2148-10-171>.

ABS: Background: The sulfide-rich Frasassi caves in central Italy contain a rare example of a freshwater ecosystem supported entirely by chemoautotrophy. *Niphargus ictus*, the sole amphipod species previously reported from this locality, was recently shown to host the first known case of a freshwater chemoautotrophic symbiosis. Since the habitat of *N. ictus* is highly fragmented and is comprised of streams and lakes with various sulfide concentrations, we conducted a detailed study to examine

the potential genetic diversity of this species within Frasassi. Results: By sequencing one nuclear (ITS) and two mitochondrial (COI and 12S) regions, we show that four partially sympatric *Niphargus* clades are present in Frasassi. Morphological and behavioral data obtained for three of these clades are perfectly congruent with this molecular delineation and make it possible to distinguish them in the field. Phylogenetic analyses of 28S ribosomal DNA sequences reveal that, among the four clades, only two are closely related to each other. Moreover, these four clades occupy distinct niches that seem to be related to the chemical properties and flow regimes of the various water bodies within Frasassi. Conclusions: Our results suggest that four distinct *Niphargus* species are present in Frasassi and that they originated from three or four independent invasions of the cave system. At least two among the four species harbor *Thiothrix* epibionts, which paves the way for further studies of the specificity and evolutionary history of this symbiosis.

**FONG (D. W.) & KAVANAUGH (K. E.), 2010.** Population dynamics of the stygobiotic amphipod crustacean *Stygobromus tenuis potomacus* and isopod crustacean *Caecidotea kenki* at a single hypotelminorheic habitat over a two-year span:22-23. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: We monitored the population size of the stygobiotic amphipod, *Stygobromus tenuis potomacus*, and of the stygobiotic isopod, *Caecidotea kenki*, at the resurgence of a hypotelminorheic habitat for two years at an average sampling interval of 10 days. Surface abundance of *S. tenuis* ranged from zero to 35 around a mean of 12.02, while *C. kenki* ranged from 10 to 101 around a mean of 44.86. Water temperature varied from 9.4 to 17.8°C about a mean of 14.15°C, while depth varied from 2 to 14 mm about a mean of 6.10 mm. Temperature was uncorrelated with depth. Abundances of the two species were also uncorrelated. Abundance of *S. tenuis* showed a significant decrease with increasing temperature ( $R^2 = 0.51$ ), and a weak increase with increasing depth but a decrease beyond a depth of 8 mm ( $R^2 = 0.23$ ). Abundance of *C. kenki* showed a weak increase with increasing temperature with a decrease beyond 15°C ( $R^2 = 0.28$ ), and no dependence on depth ( $R^2 = 0.03$ ). We conclude that *C. kenki* is a specialist of the surface habitat immediately adjacent to the resurgence of hypotelminorheic water, and that *S. tenuis* is adapted to the colder subterranean water of the hypotelminorheic. When surface temperature is low, *S. tenuis* may actively move to the surface to forage. We suggest that this movement may be associated with lower temperatures because at higher temperatures the quality and quantity of resources may be insufficient to offset metabolic losses. <http://www.icsb2010.net/>

**FOSTER-TURLEY (P.), GRIMES (A.) & SEDEJ (M.), 2010.** Biodiversity analysis update for Montenegro, May 2010, 53 p.

**FOWLER (R.), 2010.** Quantitative Real-Time PCR as a tool for the quantification and characterization of microorganisms in caves and karst aquifers: phytoplankton, lampenflora, bacterial communities, and fecal source tracking:167-168. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: PCR is a molecular tool to generate many copies of a specific DNA in a process called amplification, and quantitative Real-Time PCR (qRT-PCR) includes monitoring fluorescence during the PCR reaction and amplification process. In qRT-PCR, increase in fluorescence accompanies the accumulation of multiple copies of a target DNA fragment after successive cycles of PCR with specific primers. We use fluorescence measurements along with calibrated standards as a means to quantify specific sequences of DNA in complex mixtures of DNA extracted from the environment. Three examples are presented in detail: 1) DNA was extracted from cultures of *Chlorella* algae and from field samples along karstic surface streams. qRT-PCR with primers specific for *Chlorella* 18S rDNA was to measure concentrations of *Chlorella*, an indicator of phytoplankton abundance at cave springs or in surface channels. *Chlorella* is also a constituent of lampenflora, and qRT-PCR will soon be applied in lampenflora growth experiments; 2) Environmental DNA was extracted from cave sediments

or artificial substrates and bacterial 16S rDNA was amplified with universal bacterial primers. Bacterial 16S rDNA concentrations were measured and bacterial community phylogenetic trees were derived for each study site; and 3) qRT-PCR of *Bacteroides* 16S rDNA is being investigated to quantify and identify fecal contamination sources. Further analysis of the *Bacteroides* from different fecal samples illustrates that qRT-PCR coupled with other techniques can identify animal hosts responsible for point source fecal pollution in caves and karst aquifers. <http://www.icsb2010.net/>

**FRANK (J. H.) & THOMAS (M. C.), 2010.** Rove Beetles of the World, Staphylinidae (Insecta: Coleoptera: Staphylinidae). EENY-114 (IN271), 10 p.

**FRAVAL (A.), 2010.** *Les Épingles entomologiques*. Alain Fraval, publié le 14 avril 2010, 396 p. RÉs: Disponible en versions papier et informatique (pdf) sur: [www.lulu.com](http://www.lulu.com). Qu'on fait les Insectes pendant les dix dernières années? Publiées au fur et à mesure sur le site "OPIE-Insectes" ([www.inra.fr/opie-insectes/](http://www.inra.fr/opie-insectes/), rubrique Épingles), 626 brèves tirées au jour le jour de l'actualité grand public appelées "Épingles" sont rassemblées dans ce recueil. Des éléments variés d'entomologie générale, médicale, systématique, agricole, aquatique, vétérinaire, sociétale, militaire... Des sujets émergents, originaux, récurrents... Les Insectes sauvages, ceux d'élevage, ceux des villes et des champs, les menacés, les envahisseurs, les protégés, les vecteurs, les jouets, les Insectes génétiquement modifiés, les disparus et les réapparus. Des nouvelles rassurantes, surprenantes, inquiétantes, intéressantes, piquantes, étranges... de tout un monde. À lire à la file, en papillonnant ou à partir des index.

**Freshwater Biological Association (FBA), 2010.** Course Programme 2010. Identification courses from the specialists. 8 p. <http://www.fba.org.uk/>

**FRESNEDA (J.), BOURDEAU (C.) & FAILLE (A.), 2010.** Descripción de *Bathysciola liqueana* sp. n. de los Pirineos centrales (Francia). Designación de lectotipos y datos de distribución de las especies del grupo de *B. meridionalis* (Jacquelin du Val, 1854) (Insecta, Coleoptera, Leiodidae, Cholevinae, Leptodirini) [Description of *Bathysciola liqueana* n. sp. from the central Pyrenees. Designation of lectotypes and distribution data for species of the *B. meridionalis* group (Jacquelin du Val, 1854) (Insecta, Coleoptera, Leiodidae, Cholevinae, Leptodirini)]. *Animal Biodiversity and Conservation* 33(2):131-142. ABS: We describe a new species of the genus *Bathysciola* Jeannel, 1910 (*B. liqueana* n. sp.) belonging to the "meridionalis" group. It was collected in a subterranean environment, in Liqué cave, Larroque massif, Moulis, Ariège, France. The closest species is *Bathysciola meridionalis* (Jacquelin du Val, 1854), also known from Ariège. The new species differs mainly in morphological characteristics of the aedeagus: short, wide, with rounded apex in *B. liqueana* n. sp. whereas it is long, narrow, with pointed apex in *B. meridionalis*. We discuss the taxonomical position of the new species and provide illustrations of structures showing the differences between the two species, along with distribution data, including for *B. finismillennii* Fresneda & Salgado, 2006. We designate lectotypes of *B. meridionalis* and *B. nitidula* Normand, 1907. KW: Coleoptera, Leiodidae, *Bathysciola*, "meridionalis" group, Pyrenees. RES: Se describe una nueva especie del género *Bathysciola* Jeannel, 1910 (*B. liqueana* sp. n.) que pertenece al grupo "meridionalis". Se ha encontrado en medio subterráneo, en la Grotte de Liqué, macizo de Larroque, Moulis, Ariège, Francia. La especie más similar es *Bathysciola meridionalis* (Jacquelin du Val, 1854), también descubierta en Ariège. Los caracteres distintivos se encuentran básicamente en el edeago: es corto, ancho, con el ápice redondeado en *B. liqueana* sp. n. y largo, estrecho, con el ápice puntiagudo en *B. meridionalis*. Se discute su posición taxonómica y se completa el estudio con ilustraciones de las estructuras que permiten distinguir estos táxones, así como también los datos de distribución de que se dispone, incluyendo también a *B. finismillennii* Fresneda & Salgado, 2006. Se designan los lectotipos de *B. meridionalis* y de *B. nitidula* Normand, 1907. PC: Coleoptera, Leiodidae, *Bathysciola*, Grupo "meridionalis", Pirineos. <http://www.raco.cat/index.php/ABC/article/view/214976>

**FRESNEDA (J.), BOURDEAU (C.) & FAILLE (A.), 2010.** Sobre la presencia de *Catops subfuscus* Kellner, 1846 en los Pirineos (Coleoptera, Leiodidae, Cholevinae, Catopini)

[On the presence of *Catops subfuscus* Kellner, 1846 in the Pyrenees (Coleoptera, Leiodidae, Cholevinae, Catopini)] [Sobre la presencia de *Catops subfuscus* Kellner, 1846 en los Pirineos (Coleoptera, Leiodidae, Cholevinae, Catopini)]. *Arxius de Miscel·lània Zoològica* 8:9-14. ABS: We provide new distribution data for *Catops subfuscus* Kellner, 1846. We update the geonomy of the species and, based on recent data, we confirm its presence in the subterranean environment on both sides of the Pyrenean massif. Illustrations of the aedeagus and a distribution map are provided. KW: Cholevinae, *Catops subfuscus*, Subterranean environment, Pyrenees. RES: Se aportan nuevos datos de distribución de *Catops subfuscus* Kellner, 1846. Se actualiza su geonemia confirmando con datos recientes su presencia en el medio subterráneo de ambas vertientes del macizo pirenaico. Se completa el estudio con ilustraciones del edeago y un mapa de distribución. PC: Cholevinae, *Catops subfuscus*, Medio subterráneo, Pirine.

[http://w3.bcn.es/V65/Serveis/Noticies/V65Relacio\\_NoticiaGaleriaDetail/Ctl/0.4702.418159056\\_418911889\\_1\\_1327683541\\_1327683523.00.html?accio=detail](http://w3.bcn.es/V65/Serveis/Noticies/V65Relacio_NoticiaGaleriaDetail/Ctl/0.4702.418159056_418911889_1_1327683541_1327683523.00.html?accio=detail)

**FRESNEDA (J.) & DUPRÉ (É.), 2010.** *Nafarroa sorogainensis* n. g. n. sp., un nuevo Leptodirini hipógeo de los Pirineos navarros (España) (Coleoptera: Leiodidae: Cholevinae). *Heteropterus Revista de Entomología* 10(1):1-14. RES: Se describe un nuevo género y una nueva especie de un Leptodirini de cuevas del norte de España. [http://www.heteropterus.org/c\\_heteventomol.html](http://www.heteropterus.org/c_heteventomol.html)

**FRESNEDA (J.), FERY (H.) & FAILLE (A.), 2010.** El complejo de *Bathysciola ovata* (Kiesenwetter, 1850): designación de lectotipos, establecimiento de sinonimias y consideraciones taxonómicas y corológicas (Coleoptera, Leiodidae, Cholevinae, Leptodirini). *Boletín de la Sociedad Entomológica Aragonesa* 46:95-104. RES: Se revisan los taxones del complejo de *Bathysciola ovata* (Kiesenwetter, 1850), aportando varias sinonimias y un n. stat. Se citan algunas cavidades donde se ha capturado especies de este complejo. <http://www.sea-entomologia.org/Publicaciones/Boletines/Boletin46/boletin46.htm>

**FRESNEDA (J.), GREBENNIKOV (V. V.) & RIBERA (I.), 2010.** The geographic and phylogenetic limits of Leptodirini:152-153. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The tribe Leptodirini of the family Leiodidae includes one of the most extensive known radiations of subterranean beetles, with almost 900 species in ca. 240 genera. The highest diversity of the tribe is found in the Mediterranean basin, in particular in the north and east of the Iberian peninsula, Corsica and Sardinia, the southern Alps, Balkan peninsula, Romania and Southern Russia, the Caucasus, Middle East and Iran. The monophyly of the western Palaearctic Leptodirini is well supported both from morphological and molecular characters, but there are a number of genera outside this geographical area that have usually been linked with Leptodirini based either on their general appearance or in some specific characters, but are of uncertain phylogenetic position. The recent finding of specimens of two of these genera (*Fusi* and *Sciaphyes*) by one of us (VVG) in the Siberian far East, and the accessibility to specimens of another (*Platycholeus*) allowed us a reexamination of their phylogenetic relationships, and a more precise delimitation of both the geographic and phylogenetic limits of Leptodirini. <http://www.icsb2010.net/>

**FRESSEL (N.), ŽVORC (P.), KIPSON (M.), ZRNČIĆ (V.) & HAMIDOVIĆ (D.), 2010.** Activity and roosting ecology of mixed colony of *Miniopterus schreibersii* and *Rhinolophus euryale* in a cave near Zagreb: improving current bat monitoring and cave management. Poster 73:72. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan

- HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p.
- FRESSEL (N.), ŽVORC (P.), KIPSON (M.), ZRNČIĆ (V.) & HAMIDOVIĆ (D.), 2010.** Activity and roosting ecology of a mixed colony of *Miniopterus schreibersii* and *Rhinolophus euryale* in a cave near Zagreb: Improving current bat monitoring and cave management:135-136. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: The summer colony of two bat species inhabits the entrance part of the Veternica cave, a popular touristical destination of the Medvednica Nature park in Croatia. The monitoring of the size and status of the colony in the period of 6 months, from early spring until early autumn only confirmed a maternity status of the *Rhinolophus euryale* colony. Despite microclimatic conditions in the cave being suitable for both species, the sensitivity of the *Miniopterus schreibersii* to visitor disturbance might cause the species to desert the roost at the critical time just prior to giving birth. Suggestions are made to modify the monitoring programme and cave management to minimise the effects of disturbance on the bats.
- FRICK (W. F.), HOWARD (K. W.), CHILSON (P. B.) & KUNZ (T. H.), 2010.** Spatio-temporal variability in nightly dispersal patterns of *Tadarida brasiliensis*: Modeling bat movements in 3D:136. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: We examine spatio-temporal variation in foraging dynamics of Brazilian free-tailed bats (*Tadarida brasiliensis*) in south-central Texas, demonstrating the potential of radar aerocology for advancing understanding of ecological interactions in the atmosphere. Brazilian free-tailed bats disperse nightly in dense columns from cave and bridge roosts and forage at high altitudes (300-2500 m AGL) over large spatial extents that are easily detectable with Doppler weather radar (WSR-88D) installations. Understanding variation in emergence behavior of Brazilian free-tailed bats provides a model system for testing hypotheses about the influence of abiotic factors on the dynamics of group behavior. Using high resolution Level II NEXRAD radar products, we test hypotheses about the influence of weather conditions such as surface temperature, precipitation and cloud cover on timing and relative density of bat emergences to determine how atmospheric cues determine group behavior and foraging dynamics of an aerial nocturnal predator. We visualize bat emergences in 3-dimensional space and investigate seasonal variation in emergence behavior. In addition, we highlight the utility of radar visualizations for generating new hypotheses about foraging behavior of aerial species by demonstrating how radar makes it possible to "observe" behavior at temporal and spatial scales not previously possible.
- FRICK (W. F.), POLLOCK (J. F.), HICKS (A. C.), LANGWIG (K. E.), REYNOLDS (D. S.), TURNER (G. G.), BUTCHKOSKI (C. M.) & KUNZ (T. H.), 2010.** An emerging disease causes regional population collapse of a common North American bat species. *Science* 329(August 6):679-682. **DOI:** <http://dx.doi.org/10.1126/science.1188594>. ABS: White-nose syndrome (WNS) is an emerging disease affecting hibernating bats in eastern North America that causes mass mortality and precipitous population declines in winter hibernacula. First discovered in 2006 in New York State, WNS is spreading rapidly across eastern North America and currently affects seven species. Mortality associated with WNS is causing a regional population collapse and is predicted to lead to regional extinction of the little brown myotis (*Myotis lucifugus*), previously one of the most common bat species in North America. Novel diseases can have serious impacts on naïve wildlife populations, which in turn can have substantial impacts on ecosystem integrity.
- FRICK (W. F.), REYNOLDS (D. S.) & KUNZ (T. H.), 2010.** Influence of climate and reproductive timing on demography of little brown myotis *Myotis lucifugus*. *Journal of Animal Ecology* 79:128-136. **DOI:** <http://dx.doi.org/10.1111/j.1365-2656.2009.01615.x>.
- FRIEDRICH (M.), RAI (P.), BARRETT (R.), DAINES (B.) & CHEN (R.), 2010.** The blind cave beetle that isn't: histological, behavioral and molecular evidence of functional photoreceptors in *Ptomaphagus hirtus*:153-154. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The small carrion beetle genus *Ptomaphagus* diversified into more than 50 species, which range from ancestral surface dwellers to facultative and obligatory cave inhabitants in the Southeast of the United States. One of the best-studied representatives is the troglobite *Ptomaphagus hirtus*, which is endemic to the cave system of Mammoth Cave National Park. *P. hirtus* adults are characterized by complete reduction of the hind wings and near complete reduction of the compound eye to a small lens patch. In his survey of North American cave animals, Packard (1888) was unable to detect photoreceptors or optic neuropils in sections of the adult head of *P. hirtus*, which led him to conclude that *P. hirtus* lacks visual senses. This assessment, however, is in conflict with the subsequent discovery that the specification of lens cells in the developing insect compound eye is dependent on inductive signals from differentiating photoreceptors. We therefore readdressed the question whether *P. hirtus* possesses a functional visual system. In serial sections of the adult head, we found organized cell clusters immediately beneath the lens patch cuticle. These cell clusters are separated from the head cavity by a basal membrane, which is penetrated by optic nerve like structure reminiscent of the organization of the retina in surface beetle species. Consistent with the presumed presence of photoreceptors, *P. hirtus* tested negatively phototactic in light versus dark choice assays. In addition, deep sequencing of transcripts from *P. hirtus* adult head tissue recovered orthologs of genes, which are known to be specifically involved in phototransduction including opsins. In combination, these data suggest the presence of functional photoreceptors and the preservation of visual capacity in *P. hirtus*. <http://www.icsb2010.net/>
- FUJITA (N.), MILLER (A.), MILLER (G.), GERSHMAN (K.), GALLAGHER (N.), MARANO (N.), HALE (C.) & JENTES (E.), 2010.** Imported Case of Marburg Hemorrhagic Fever Colorado, 2008. *JAMA* 303(5, February 3):413-415. <http://jama.ama-assn.org/cgi/content/full/303/5/413>
- FURMAN (A.), POSTAWA (T.), ÖZTUNÇ (T.) & ÇORAMAN (E.), 2010.** Cryptic diversity of the bent-wing bat, *Miniopterus schreibersii* (Chiroptera: Vespertilionidae), in Asia Minor. *BMC Evolutionary Biology* 2010, 10:121. **DOI:** <http://dx.doi.org/10.1186/1471-2148-10-121>. BL: Cf p. 2: "We refer to the matrilineal lineages of *M. schreibersii* as *M. s. schreibersii* (type locality: Kolumbacs cave, Romania; Kuhl, 1817) and *M. s. pallidus* (type locality: South coast of Caspian Sea, Iran; Thomas, 1907).
- FUSZARA (E.), FUSZARA (M.), KOWALSKI (M.), LESIŃSKI (G.), CYGAN (J. P.), NITKIEWICZ (T.), SZARLIK (A.) & WOJTOWICZ (B.), 2010.** Population changes in natterer's Bat *Myotis nattereri* and daubenton's bat *M. daubentonii* in winter roosts of central Poland. *Polish Journal of Ecology* 58(4):769-782.
- GAISLER (J.), KOVAŘÍK (M.), ŘEHÁK (Z.), ZIMA (J.) & ZUKAL (J.), 2010.** Bats and bat research in the Moravian Karst: 1850-2010:139-140. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: The Moravian Karst (MK) is a 24 km long and 2 to 6 km wide area of Devonian limestones with over 1000 natural caves. Scientific interest in bats of these caves started after F. A. Kolenati, a Czech physician and great naturalist, came to Brno in 1849. Within the 2<sup>nd</sup> half of the 19<sup>th</sup>

- century, 12 species, and, within the 1<sup>st</sup> half of the 20<sup>th</sup> century, 14 species of bats were recorded. At present, 22 bat species are known from the MK territory, 17 of them hibernating in caves. Among them, *Rhinolophus hipposideros*, *Myotis myotis*, *M. emarginatus* and *Barbastella barbastellus* are the most abundant. In the years 1957-1980 hibernating bats were marked and recaptured, since 1981 the numbers of bats found in underground shelters have been monitored without marking or other disturbance except by short-time illumination. In addition to caves, bats were sampled in buildings for various purposes, such as to study their reproduction, and in 1992-2001, summer occurrence of bats in buildings was recorded by checking 222 lofts, attics and similar roof spaces on the territory of the MK. Flight activity and seasonal changes in the visits to caves by bats have been studied since 1971 by mist-netting. In different habitats of the MK, flight activity of bats has been recorded by ultrasound detectors since 1991. New methods such as the double infrared light barrier have been applied to record seasonal and overnight changes in flight activity of bats since 1997, together with automatically recorded values of temperature and other climatic factors. In this paper, new results of monitoring the dynamics of bat numbers within the last decades and a recent discovery of a complete albino *R. hipposideros* will be reported.
- GAL  N (C.), 2010.** Evoluci  n de la fauna cavern  cola: mecanismos y procesos que explican el origen de las especies troglobias? February. [http://www.aranzadi-zientziak.org/index.php?id=414&L=http://kamini.biz/slike/jonop/alidel/&tx\\_ttnews\[pointer\]=1&cHash=e60a983f81](http://www.aranzadi-zientziak.org/index.php?id=414&L=http://kamini.biz/slike/jonop/alidel/&tx_ttnews[pointer]=1&cHash=e60a983f81)
- GAL  N (C.), 2010.** Pensamiento sist  mico y matrices de racionalidad en Bioespeleolog  a, Ciencia y Medio Ambiente August. [http://www.aranzadi-zientziak.org/index.php?id=414&L=http://kamini.biz/slike/jonop/alidel/&tx\\_ttnews\[pointer\]=1&cHash=e60a983f81](http://www.aranzadi-zientziak.org/index.php?id=414&L=http://kamini.biz/slike/jonop/alidel/&tx_ttnews[pointer]=1&cHash=e60a983f81)
- GAL  N (C. A.) & NIETO (M.), 2010.** Mycetozoa: Extra  nas formas de vida en cuevas de Gipuzkoa. Nuevos hallazgos en karsts en caliza urgoniana en Aizkorri (Igitegi), Izarraitz (Aixa) y Udalaizt (Montxon Koba). October. <http://www.aranzadi-zientziak.org/index.php?id=414&L=4''' and 1=1 -->
- GAL  N (C. A.), NIETO (M.) & MARTIN (C. V.), 2010.** Recubrimientos de microorganismos (Mycetozoa) y espeleotemas en una cueva en caliza jur  sica de la cuenca del r  o Leizar  n (Gipuzkoa, Pa  s Vasco). September. <http://www.aranzadi-zientziak.org/index.php?id=414&L=4''' and 1=1 -->
- GALDENZI (S.), COCCHIONI (F.), FILIPPONI (G.), MORICETTI (L.), SCURI (S.), SELVAGGIO (R.) & COCCHIONI (M.), 2010.** The sulfidic thermal caves of Acquasanta Terme (central Italy). *Journal of Cave and Karst Studies* 72(1, April):43-58. **DOI:** <http://dx.doi.org/10.4311/jcks2008es0056>.
- GALLARDO (T.) &   LVAREZ COBELAS (M.), 2010.** Bibliograf  a Bot  nica Ib  rica, 2009. Phycophyta. *Botanica Complutensis* 34:117-120.
- GANDIN (M.), 2010.** Deuxavit  s    Chiropt  res du Fum  lois. *Sp  leo-Dordogne* 190(2<sup>e</sup> trimestre 2009, d  p  t l  gal: Octobre 2010):18-20.
- GARC  A (N.), CUTTELOD (A.) & ABDUL MALAK (D.), 2010.** *The Status and Distribution of Freshwater Biodiversity in Northern Africa*. Gland, Switzerland, Cambridge, UK, and Malaga, Spain: IUCN, 2010. xiii + 141 p. ISBN: 978-2-8317-1271-0, GARC  A (N.), CUTTELOD (A.) & ABDUL MALAK (D.), eds. <http://books.google.fr/books?id=iN5RCAH4HgC&printsec=frontcover#v=onepage&q&f=false>
- GARC  A (R.), 2010.** Rese  a Bibliogr  fica: *Fauna Cavern  cola de Gran canaria, secretos del mundo subterr  neo*. *Vulcania* 9:?  
[http://www.vulcania.org/index.php?option=com\\_content&view=article&id=61&Itemid=22](http://www.vulcania.org/index.php?option=com_content&view=article&id=61&Itemid=22)
- GARC  A-RAWLINS (A.), NASSAR (J. M.) & SIMAL (F.), 2010.** Dynamics of cave use by cave-dwelling bats in arid and semiarid zones in Northern Venezuela:52. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR  A  EK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p.
- GARC  A-RAWLINS (A.), NASSAR (J. M.) & SIMAL (F.), 2010.** Dynamics of cave use by cave-dwelling bats in arid and semiarid zones in northern Venezuela:142. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR  A  EK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Like in the rest of the Neotropics, arid and semiarid zones in Venezuela and the Caribbean are under variable degrees of threat, mainly produced by abrupt land cover changes and development. Bats generate important ecosystem services in these types of habitats, including pollination, seed dispersal and enormous consumption of insects. Cave-dwelling bats are the most affected for human activities, mainly because they can be grouped into large colonies, especially during the reproductive season, being more vulnerable to vandalism. In order to propose and implement management measures to protect cave-dwelling species in xeric ecosystems, we need to identify which caves are used as shelters and how these are being used throughout time. We identified 13 caves used as bat roosts among northern Venezuela (9) and Bonaire, Netherland Antilles (4). We monitored each cave bimonthly, during one year. Physical and microenvironmental characterization was made, simultaneously with bat captures using mist nets to determine species composition and estimate their relative abundance in each roost. A GIS was generated including location and biological information of each cave. A total of 14 bats species were registered (3-7 spp./cave). Temporal changes in bat presence and species composition in the caves were particularly evident in three of the surveyed caves (1 Bonaire, 2 Venezuela). These caves contain the largest colonies, in some cases, maternity colonies. Temporal differences are mainly caused by the migratory, nectar-feeding species, *Leptonycteris curasoae*. With the information obtained we are designing a calendar indicating periods at which each bat roost is more susceptible to human disturbances and an index to assess the levels of susceptibility. We determined that between June and August is the time window of highest sensitivity for many species in the region, therefore extreme protective measures should be applied in some of the caves.
- GARGOMINY (O.), 2010.** *R  f  rentiel taxonomique de la faune, la flore et la fonge de France m  ropolitaine et d'outre-mer*. TAXREF v3.0 Sources. Mus  um national d'Histoire naturelle (MNHN), Service du Patrimoine Naturel (SPN). Lundi 20 Septembre 2010, 22 p.
- GAUCHON (C.), 2010.** Le coin des livres. Analyse de l'ouvrage: *Stage national "  quipier scientifique 2008", grotte de Gournier*. Rapport coordonn   par Didier CAILHOL, F. F. S. (E. F. S. et Commission Scientifique), 76 p. *Spelunca* 117(Mars, 1<sup>er</sup> trimestre):58.
- GAZARYAN (S.), 2010.** Distribution and migratory status of *Pipistrellus pipistrellus* and *P. pygmaeus* in the Russian Caucasus:144. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR  A  EK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: I analyzed 113 time-expanded records of echolocation calls, presumably emitted by *Pipistrellus pipistrellus* or *P. pygmaeus*, to clarify the distribution of these species in the Russian portion of the Caucasus and in Cis-Caucasia. Since 2006, the calls were recorded in 47 locations; bats of studied species were mist-netted in 28 of them. The following six parameters were measured from each call: start frequency (SF), end frequency (EF), middle frequency (MF), frequency of maximum energy (FMAX), duration (D) and inter-pulse interval (IPI). Calls of 20 hand-released bats of each species were used to classify the remaining field records with discriminant function analysis. As a result, presence of *P. pipistrellus* and *P. pygmaeus* were confirmed in 35 and 39 locations respectively, both species were found together in 17 locations. Occurrence of *P. pipistrellus* was revealed in all investigated parts of the Russian Caucasus, when *P. pygmaeus* wasn't yet found in its central part. *P. pygmaeus* is similar with long-distance migrants by the seasonal

variation in sex ratio. Female bats slightly predominate during spring and autumn, but are exceptionally rare from late May to mid-August. Moreover, I failed to reveal breeding colonies, lactating females or subadult bats in the studied area. This suggests species' migrations outside the region. At the same time, lactating females and young bats prevailed in summer records of *P. pipistrellus*. Its breeding colonies are known from forests in the Caucasus and in the flood-plains of Ciscaucasia. Both species of pipistrelle hibernate in the Russian Caucasus. *P. pipistrellus* have been recorded hibernating in crevices of rocks and buildings, as well as in caves. Winter roosts of *P. pygmaeus* still unknown, but echolocation calls of active bats are often recorded during thaws. Probably, *P. pygmaeus* hibernates in tree holes in the areas with a mild climate, and this could explain its absence in the Central Caucasus.

**GELHAUS (M.) & ZAHN (A.), 2010.** Roosting ecology, phenology and foraging habitats of a nursery colony of *Pipistrellus nathusii* in the southwestern part of its reproduction range. *Vespertilio* 13/14:93-102. <http://www.ceson.org/publikace.php?p=13>

**General Fisheries Commission for the Mediterranean (GFCM) - Commission Générale des Pêches pour la Méditerranée (CGPM), 2010.** Scientific Advisory Committee (SAC). Twelfth Session. Budva, Montenegro, 25-29 January 2010. Report of the Transversal Workshop on Selectivity Improvement and Bycatch Reduction (available only in English), Tunis, Tunisia, 23-25 September 2009.

**GEOFFROY (J.-J.), 2010.** Sandro RUFFO (26 Août 1915 - 2010). *SIBIOS-ISSB Newsletter* 7(2006-2010):47.

**GEOFFROY (J.-J.) & COINEAU (Y.), 2010.** Pierre RÉVEILLET, 8 Juillet 1924 - 20 Juin 2007. *SIBIOS-ISSB Newsletter* 7(2006-2010):35-36.

**GEOFFROY (J.-J.) & IORIO (É.), 2010.** The French soil- and cave-dwelling centipedes (Chilopoda): updated checklist and distribution in mainland France, Corsica and Monaco, with emphasis on subterranean fauna, conservation purposes and regional biodiversity:132-133, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: According to field investigations and researches in collections conducted during the last period 1997-2009, this work provides an update on the checklist, taxonomic status and distribution of the class Chilopoda in France (s. l.). The area comprises three entities recognised by the Fauna Europaea Project: French Mainland, Corsica and Monaco. Lapses or inaccuracies in the presence of species in the territory have been updated. The proposed checklist reminds several recent synonymies, species recently collected in France or taxa recently described. The updated French centipede fauna comprises 140 taxa (136 species and 4 subspecies). Among them, 1 species belongs to the order Scutigermorpha (<1% of the Chilopoda); 63 taxa (60 species and 3 subspecies) belong to the order Lithobiomorpha (45% of the Chilopoda); 9 species belong to the order Scolopendromorpha (6% of the Chilopoda); 67 taxa (66 species and 1 subspecies) belong to the order Geophilomorpha (48% of the Chilopoda). In order to improve the checklist, the presence in France or the validity of several taxa must be definitively confirmed. In addition, several species described from edaphic and subterranean compartments must be revised. On the other hand, several species not formally listed in France but distributed in adjacent areas are strongly suspected to be collected in French Mainland in the near future, among them *Eupolybothrus excellens* (Silvestri), *Eupolybothrus tridentinus* (Fanzago), *Lithobius ambulotentus* Demange & Serra, *Lithobius derouetae* Demange, *Lithobius nodulipes* Latzel, *Lithobius schubarti* Demange, *Geophilus pygmaeus* Latzel. Taxa still undescribed could also certainly be discovered from some poorly-known parts of the country, noteworthy from caves and subterranean systems (s. l.). The ecological and patrimonial status of species is specified, particularly regarding troglomorphic and troglobiotic taxa among the chilopod community. Several highly troglomorphic taxa, linked with a high degree of endemism are selected and proposed as good candidates

for major patrimonial interest and conservation measures, such as for instance *Lithobius cavernicola* Fanzago, *Lithobius cherpinedensis* Iorio, *Lithobius fagniezi* Ribaut, *Lithobius henroti* Demange, *Lithobius raffaldi* Iorio, *Lithobius scotophilus* Latzel, *Lithobius speluncarum* Fanzago, *Lithobius typhlus* Latzel, *Cryptops Umbricus Umbricus* Verhoeff, *Cryptops umbricus lewisi* Iorio, *Geophilus persephones* Foddai & Minelli. Some of them could be selected for future IUCN Red Lists. These results are included in the French Fauna database "Fauna Gallica Myriapoda", to be forwarded to the "Fauna Europaea" and to the SPN-INPNMNH databases. <http://www.icsb2010.net/>

**GEORGE (A. S.), MCKENZIE (N. L.) & DOUGHTY (P.), 2010.** *A Biodiversity Survey of the Pilbara Region of Western Australia, 2002-2007*. Edited by GEORGE (A. S.), MCKENZIE (N. L.) & DOUGHTY (P.), *Records of the Western Australian Museum*, Supplement 78. BL: Voir: PINDER (A. M.), HALSE (S. A.), SHIEL (R. J.) & McRAE (J. M.). An arid zone awash with diversity: patterns in the distribution of aquatic invertebrates in the Pilbara region of Western Australia:205-246.

**GEORGIEV (D. G.), 2010.** In search of the thermal springs species *Bithynia rumelica* and *Melanopsis parreyssi* in Bulgaria. *Tentacle* 18(January):16-17.

**GERBER (J.), 2010.** Leslie HUBRICHT (1908-2005), His Publications and New Taxa. *American Malacological Bulletin* 28(1/2, February):15-27. **DOI**

<http://dx.doi.org/10.4003/006.028.0208>. ABS: Leslie HUBRICHT (1908-2005) was one of the leading experts for the taxonomy, distribution and ecology of terrestrial gastropods of the eastern United States. He published more than 150 papers and introduced 108 new names for molluscan taxa from this area. Over six decades, he amassed a collection of 43000 lots of eastern North American terrestrial gastropods with approximately 500000 specimens, now housed in the Field Museum of Natural History, Chicago. Besides his work on molluscs, he also did extensive research on freshwater crustaceans (Isopoda and Amphipoda) of the eastern U. S., describing 40 new taxa in this group. This paper provides complete lists of Hubricht's publications and of his new taxa in the Mollusca and Crustacea. A brief biographical sketch of HUBRICHT and a list of taxa named for him are also given. KW: Bibliography, Gastropoda, Isopoda, Amphipoda, eastern North America.

**GIACHINO (P. M.), 2010.** From the cavernicolous to the subterranean concept: past and present in Leptodirinae (Coleoptera, Cholevidae):154. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: A brief overview of the evolution of the classification of Cholevidae Leptodirinae is given. It is based on experience acquired in the research of terrestrial subterranean fauna in Greece during the last 20 years. An interpretation of the relationship between fauna and the different spatial components of the Subterranean Environment is discussed. Attention is given to the definition of the subterranean environment in the Euro-Mediterranean area and of its limits, with some of its different components (fissure network of the bedrock, MSS and caves). This is compared to the endogean environment that is characteristic of the soil, and the use of the term "subterranean fauna" is restricted only to the hypogean habitat. Similarly, the faunas associated with the subterranean environment are defined, as well as the relationship between fauna and fissure network of the bedrock and the influence of bedrock type and tree cover on fissure network and MSS formation and colonization. Description of methodology and techniques used in the multi-annual research on the subterranean fauna in Greece and the result obtained concerning Leptodirinae beetles are presented. <http://www.icsb2010.net/>

**GIANI (N.), SAMBUGAR (B.), MARTÍNEZ-ANSEMIL (E.), MARTIN (P.) & SCHMELZ (R.), 2010.** Groundwater oligochaetes (Annelida, Clitellata) of Slovenia:75. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Historical data on the biodiversity of oligochaetes

inhabiting ground waters of Slovenia depict a fauna of approximately 50 species, 20 of which are stygobionts. In the last decades, new researches in Slovenian ground waters enabled us to study into more depth the oligochaete fauna of this environment. The studied material resulted from the three main sources: a campaign in Slovenian caves conducted by Fabio STOCH, a large collection of groundwater fauna made available to us by Boris SKET, and samples collected during the European project PASCALIS. The data derived from the examination of this large amount of material enabled us to broaden the faunistic spectrum of oligochaetes of Slovenia, as well as to show that the oligochaete biodiversity in Slovenian ground waters is a substantial fraction of the European one. Endemic and very rare species constitute a remarkable proportion of the stygobiont oligochaete fauna. Among these, the genera *Rhyacodriloides*, *Cermosvitoviella*, *Parvidrilus*, *Trichodrilus* and *Haber* are some of the most outstanding taxa. In Pajsarjeva Cave, which was sampled many times over the past 15 years, the sporadic presence of some species, as well as the high rate of presence of stygobionts lead us to formulate a hypothesis about the relationship between the faunal data and the hydrogeology of the cave. <http://www.icsb2010.net/>

**GIBERT (J.), GEOFFROY (J.-J.) & MESSANA (G.), 2010.** Jacques MATHIEU, January 28<sup>th</sup> 1942 - July 27<sup>th</sup> 2007. *SIBIOS-ISSB Newsletter* 7(2006-2010):37-42.

**GILLAM (E. H.), HRISTOV (N. I.), KUNZ (T. H.) & McCracken (G. F.), 2010.** Echolocation behavior of Brazilian free-tailed bats during dense emergence flights. *Journal of Mammalogy* 91(4):967-975. DOI: <http://dx.doi.org/10.1644/09-MAMM-A-302.1>.

ABS: Brazilian free-tailed bats (*Tadarida brasiliensis*) emerge from cave roosts in dense columns in which adjacent bats are separated by only small distances. We describe and quantify variation in the structure of echolocation calls produced by these emerging bats and determine if call structure changes in relation to the rate of emergence measured using thermal infrared imaging. We recorded emergence calls at 2 roosts, 1 housing approximately 200000 bats and the other approximately 17000 bats. We found that Brazilian free-tailed bats emit distinct frequency-modulated (FMstart) and constant frequency (CFstart) calls during emergence that are significantly different from echolocation calls they emit while foraging. We propose that these calls provide different information for orientation within the emergence column. CFstart calls are very similar to social calls used by Brazilian free-tailed bats, suggesting 2 potential functions for this call type. The structure of both the FMstart and CFstart calls were not related to the number of bats emerging from a roost, although significant structural differences existed between sites. The differences between sites could be associated with the spacing of bats during emergence, because bats appeared to form tighter columns at the larger roost colony compared to the smaller colony. KW: Bats, echolocation, emergence, *Tadarida*.

**GINARD (A.), VICENS (D.), ROSSELLÓ (J. A.), PONS (G. X.), MIR-GUAL (M.), PLA (V.), CRESPI (D.), BARCELÓ (M. À.) & BOVER (P.), 2010.** Pteridòfits i briòfits de les cavitats de la serra de na Burguesa (Serra de Tramuntana, Mallorca). *Endins* 34:69-86. RES: Se citen els pteridòfits i els briòfits que s'han observat tant a les cavitats naturals com a les mines i pedreres de la serra de na Burguesa. En comparació amb la zona central de la serra de Tramuntana, no hi ha una flora briofítica i pteridofítica relictual, exceptuant *Homalia lusitanica* i *Asplenium scolopendrium* que s'han trobat a una única cavitat, el Clot des Sero. *Asplenium sagittatum* s'ha observat a 15 cavitats i en una d'aquestes ha desaparegut una població, per causes desconegudes, en un període d'uns sis anys. *Anogramma leptophylla*, *Asplenium petrarchae* i *Asplenium trichomanes* subsp. *inexpectans* és la primera vegada que se citen en aquesta serra. ABS: We have studied the pteridophytes and bryophytes observed in natural cavities as well as in mines and quarries of Na Burguesa mountain range. Compared with the central area of the Tramuntana mountains, it is not present a relictual bryophyte and pteridophyte flora, except *Homalia lusitanica* and *Asplenium scolopendrium* found at a single cavity, the Clot des Sero. *Asplenium sagittatum* was observed in 15 of these cavities and in one of them it was noticed its decline for unknown reasons, during the last six years. *Anogramma leptophylla*, *Asplenium petrarchae* and *Asplenium trichomanes* subsp. *inexpectans* are recorded for the first time in this area.

**GIRARD-CLAUDON (J.), 2010.** Évolutions récentes des populations de chiroptères en région Rhône-Alpes: essai

de synthèse [Recent evolution of bat populations in Rhone-Alpes: a synthesis]. *Bulletin mensuel de la Société linnéenne de Lyon*, hors-série n° 2?: RÉS: Le groupe des chiroptères compte trente-quatre espèces en France. En raison de leurs mœurs nocturnes, ces mammifères n'ont été étudiés que tardivement. En effet, il n'y avait que peu de chiroptérologues dans la région jusqu'à la moitié du vingtième siècle. Au cours de la fin de ce siècle, le nombre de spécialistes a considérablement augmenté et les techniques d'études des chauves-souris se sont largement développées et diversifiées. Cet article est un essai de synthèse sur l'évolution des populations de chauves-souris en Rhône-Alpes. Nous pouvons distinguer deux périodes différentes: - Au cours des années 1950-1960, les populations de chauves-souris se sont effondrées en France, probablement en raison des activités humaines (modification dans les pratiques agricoles, urbanisation, transport, tourisme souterrain, etc.). - Au cours de la fin du vingtième siècle des suivis ont été mis en place progressivement par les chiroptérologues. Malgré le peu de recul, des tendances d'évolutions semblent se dégager. Ainsi nous pouvons par exemple dire qu'il semblerait que les effectifs des populations de rhinolophes (*Rhinolophus hipposideros* et *R. ferrumequinum*) augmentent, de même que ceux des murins de grande taille (*Myotis myotis* et *M. oxygnathus*). Ces interprétations sont toutefois à prendre avec précaution et à relativiser avec la taille des populations existantes au début du vingtième siècle. Les suivis mis en place actuellement sont à maintenir sur le long terme afin de détecter toutes nouvelles fluctuations. En parallèle les actions de conservation doivent être poursuivies et amplifiées pour éviter tout nouveau déclin d'origine anthropique. ABS: The Chiroptera include 34 species in France. As a result of their nocturnal habits, these mammals have only lately been studied. Indeed, there were few chiropterologists until the mid-20<sup>th</sup> century. Throughout the second half of the century the number of specialists has increased considerably and the techniques of studies of bats widely developed and diversified. This article is an attempt to synthesise information on the evolution of the bat populations in Rhone-Alpes. We can distinguish two different periods: i) during the 50's and 60's bat populations collapsed in France, probably as a result of human activity (changes in agricultural practices, urbanisation, transport, subterranean tourism etc.) ii - towards the end of the 20<sup>th</sup> century surveys were progressively implemented by chiropterologists. Despite the limited period concerned, the evolutionary trends seem to have halted. Thus we can, for instance, state that it appears that the population densities of horseshoe bats (*Rhinolophus hipposideros*, *R. ferrumequinum*) are increasing, as are those of the mouse-eared bats (*Myotis myotis* and *M. oxygnathus*). These interpretations are nevertheless to be taken with caution and weighed against the size of populations existing at the beginning of the 20<sup>th</sup> century. Current studies need to be maintained long-term to detect any new fluctuations. In parallel, conservation measures should be pursued and increased, in order to avoid further decline as a result of human intervention. [http://www.linneenne-lyon.org/rubrique.php3?id\\_rubrique=41](http://www.linneenne-lyon.org/rubrique.php3?id_rubrique=41)

**GIRIBET (G.), VOGT (L.), PÉREZ GONZÁLEZ (A.), SHARMA (P.) & KURY (A.), 2010.** A multilocus approach to harvestmen phylogeny with emphasis on biogeography and the phylogeny of Laniatores. *Cladistics* 26(4, August):408-437. <http://onlinelibrary.wiley.com/doi/10.1111/j.1096-0031.2009.00296.x/abstract>

**GIUDICELLI (J.) & OLIVARI (G.), 2010.** Les cours d'eau méditerranéens à régime de soutien karstique. Spécificités écologiques et hydrobiologiques [Mediterranean-type streams supplied from karstic aquifers. Ecological and hydrobiological characteristics]. *Ecologia mediterranea* 36(1):25-44. RÉS: Les cours d'eau à régime karstique sont alimentés par des aquifères souterrains. Leurs caractéristiques physico-chimiques sont: la faible variabilité des débits, car les apports d'eau souterraine assurent des débits réguliers avec des étiages peu marqués et des crues modérées; la température de l'eau, basse et constante sur la totalité ou sur une partie importante du cours; la minéralisation élevée des eaux de surface, avec de fortes teneurs en calcium. Ces caractéristiques confèrent aux cours d'eau karstiques des spécificités écologiques et faunistiques originales, atypiques dans le contexte régional méditerranéen. Le présent article porte sur quatre cours d'eau à régime karstique: l'Argens (Var), la Siagne et le Loup (Alpes-Maritimes), les Sorgues (Vaucluse). Il met en évidence leur originalité hydroécologique et surtout les particularités de leur peuplement analysées à travers la faune de macroinvertébrés. La

communauté des invertébrés de ces cours d'eau karstiques est dominée en effectifs par des taxons qui nécessitent une concentration importante en calcium (Crustacés Gammaridae, Coléoptères Elmidae, Gastéropodes). Une des particularités faunistiques les plus remarquables, commune à ces cours d'eau, est la présence d'espèces sténothermes d'eau froide qui vivent habituellement dans le crénal et le rhithral des cours d'eau de montagne, à des altitudes bien supérieures à celles où elles ont été récoltées dans les cours d'eau karstiques. Une analyse comparative du statut écologique de 11 espèces sténothermes, que l'on trouve à la fois dans les cours d'eau de régime karstique et dans les cours d'eau de type méditerranéen, a été réalisée. De plus, les cours d'eau recevant les apports des systèmes karstiques hébergent des populations qui, du fait de leur caractère sténotherme, se sont trouvées isolées par rapport aux cours d'eau méditerranéens adjacents. Ceci explique la présence d'espèces endémiques. En définitive, les cours d'eau de régime karstique, bien qu'ils soient assez nombreux, sont atypiques dans la région méditerranéenne. On y trouve des conditions hydrologiques, thermiques et des peuplements (ripisylves, biocénoses, populations) qui sont habituellement présents dans des cours d'eau de montagne et dans des cours d'eau médio-européens. MC: Eaux courantes, karst, hydrologie, température, chimie des eaux, hydrobiologie, invertébrés, sud-est France. ABS: Seasonality and variability in rainfall is the principal attribute of Mediterranean-type climate. As a consequence, Mediterranean-type streams exhibit strong seasonal variability which can lead to extreme conditions of flooding and drying. Large areas of karst geology occur in the Mediterranean region, consequently large amounts of water may be stored in subterranean aquifers; so, many karstic streams occur in Mediterranean-climate areas. Karstic streams are lotic habitats supplied from underground water in contrast to surface run-off, and this gives them some characteristics quite different from those of other true Mediterranean streams; mainly, water conditions are more regular and uniform. Karstic streams, vary little in flow volume and temperature all year round (the temperature fluctuates by only a few degrees, even in areas with cold winters and warm summers; summer temperatures seldom exceed 20°C). Moreover, water issuing from sedimentary rocks, such as limestones, contains large amount of dissolved salts, notably calcium bicarbonate; these streams are liable to deposit calcium carbonate (tufa concretions). The present paper concerns four karstic watercourses in Provence (South-East France); it relates the influence of the ground water supplying on hydrology, ecology and hydrobiology of streams issuing from limestone formations. The peculiarities of these streams and the specificities of their animal community, analyzed through the knowledge of their macroinvertebrate fauna, are pointed out. In the studied karstic streams, the invertebrate community is dominated in numbers by taxa (Crustacea *Gammarus*, Coleoptera Elmidae, Gasteropoda) regularly found in strongly mineralized water-courses with high Ca contents; these taxa have always been found associated. In addition to that, two species of Diptera Simuliids, *Simulium xanthinum* and *S. galloprovinciale*, occur on tufa (from Spain to Libanon). One of the most noteworthy faunal peculiarity, common to karstic hydrologic regime watercourses, is the occurrence of a lot of coldstenothermous invertebrates which usually live at higher altitudes in mountain streams and in springs. Their occurrence in Mediterranean streams at middle and low altitudes is atypic. This peculiarity is correlated with thermal regime of the karstic streams which appear as cold enclaves in the Mediterranean region. The ecology of 11 cold-stenothermous species (1 Planarian, 3 Ephemeroptera, 2 Plecoptera, 4 Trichoptera, 1 Blepharicerid) which are both inhabitants of karstic and of non-karstic streams in the same mediterranean region (South-East France) is compared. The invertebrate community of karstic streams also contains some endemic species. The most worthy of note is *Rhyacophila vallisclusae*, a caddisfly (Trichoptera) which lives in the upper reach of the river Sorgue. This species, belonging to the European group of *R. vulgaris*, is clearly distinguished from all species in this group by the strongly marked brachyptery of specimens; it appears to be a relic remnant of an ice age fauna which could survive in an aquatic environment characterized by its remarkable cold stenothermy. KW: Running waters, karst system, thermic, chemistry, hydrobiology, benthic invertebrates, south-east France.

**GLÖER (P.) & PEŠIĆ (V.), 2010.** The freshwater Snails of the genus *Bythinella* Moquin-Tandon (Gastropoda: Rissosoidea: Hydrobiidae) from Montenegro. *Archives of Biological Sciences* 62(2):441-447. [DOI: \*\*http://dx.doi.org/10.2298/ABS1002441G\*\*](https://doi.org/10.2298/ABS1002441G). ABS: New records of freshwater snails of the genus *Bythinella* Moquin-Tandon from Montenegro are presented. *Bythinella dispersa*, 1973 and *B. luteola* Radoman, 1976 are recognized and defined as separate species; *B.*

*taraensis* n. sp., which lives partially sympatric with *B. dispersa* in the canyon of the River Tara, is described as new. All *Bythinella* spp. in Montenegro inhabit the Dinaric part of the Black Sea drainage area, while it is practically absent from the Adriatic drainage area. KW: Montenegro, *Bythinella dispersa*, *Bythinella luteola*, *Bythinella taraensis* n. sp.

**GOATER (S.), GARDNER (A.) & KNOTT (B.), 2010.** Are stygofauna really protected in Western Australia?:85. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The protection of ecological communities within ground water, as distinct from groundwater-dependent surface ecosystems, is relatively novel in water resource management policy. Given the international focus on protection of ground water communities, it is pleasing to note that Australia, in particular Western Australia (WA), is considered among the scientific community as world leading in its recognition of the need to protect groundwater resources and their dependent ecosystems through water resource policy. In WA, there is considerable regulatory focus currently on the protection of groundwater-dependent stygofauna as competing priorities to develop groundwater resources for human use begin to be realised. Accordingly, in the past 10 years, collaboration between speleologists, scientists, and government institutions has been matched by increased regulatory focus - requiring commercial and industrial proponents to fund surveillance programs to inform proposals undergoing Environmental Impact Assessments (EIA) by the Environmental Protection Authority (EPA). Yet, contrary to external perceptions, the collaboration has not been without its difficulties due to inconsistent application of the EPA guidance by administrative authorities and a general uncertainty over a proponent's legal obligations towards protecting stygofauna. During the years 2005-2009 I investigated whether the regulatory framework in WA, ostensibly designed to protect stygofauna, really achieves that objective - specifically in the context of abstraction of ground water for the town of Exmouth in northern WA. Particularly, I sought to unravel the confusion over legal and regulatory responsibilities towards stygofauna conservation and clarify the true statutory protection afforded to these animals under national and WA State laws. Here, I discuss: (i) an overview of historic and present-day Commonwealth and WA State legislation providing directly or indirectly for protection of stygofauna; (ii) inconsistencies and/or limitations of administrative and policy documents used to regulate stygofauna conservation; and, (iii) avenues for improving links between regulatory, scientific and societal groups to better protect stygofauna in Australia. <http://www.icsb2010.net/>

**GODLEVSKA (L.), GHAZALI (M.), KHOKHLOVA (A.) & TYSHCHENKO (V.), 2010.** Bat key underground sites in eastern Crimea, Ukraine: Numbers, threats and future:150-151. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: In 2000 Ukrainian bat-workers started a systematical work on survey and inventory of bat fauna of the Crimean peninsula (southern Ukraine), mainly in connection with bat underground roosts. Unique large bat aggregations were discovered in underground cavities of eastern Crimea: nine important bat sites were found. All of them are anthropogenic, mostly represented by limestone mines of different length (up to 50 km). In summer, the sites are used by ca. 26000 bat individuals, represented mostly by maternity and male colonies of *Myotis blythii* and *Rhinolophus ferrumequinum*. The most detailed census in winter 2010 revealed more than 21000 bat individuals (ca. 79% *M. blythii*, 20% *R. ferrumequinum*). Besides these two species three more were found regularly: *Myotis mystacinus*, *Plecotus austriacus*, *Eptesicus serotinus*. It was revealed that most of cavities are important bat mating sites. Evidently, all the sites are located at the relatively small area (a distance between the outermost sites is 75 km) and may create a united roost complex. The bat aggregations are the biggest in Ukraine. However, all of them are under constant threats. Among them there are: attendance cavities by people and directed full or partial blocking of entrances, leading to closing of cavities for bats or to critical changes in existing favorable for bats microclimatic conditions. A characteristic feature of many mine objects is presence of the great number of entrances. Thus, standard methods of protection (by putting grilles or fences at their entrances) are not applicable here. A work on conservation of the sites,

that as well includes reserving sites by giving them an official status of protected objects, has been started.

**GOFFREDO (S.), GASPARINI (G.), MARCONI (G.), PUTIGNANO (M. T.), PAZZINI (C.) & ZACCANTI (F.), 2010.** Gonochorism and planula brooding in the Mediterranean endemic orange coral *Astroides calycularis* (Scleractinia: Dendrophylliidae). Morphological aspects of gametogenesis and ontogenesis. *Marine Biology Research* 6(5):421-436. DOI: <http://dx.doi.org/10.1080/17451000903428488>.

BL: Cf p. 422-423, " *Astroides calycularis* is found at depths of 0-50 m (Rossi, 1971), but is typically found in the shallow infralittoral (0-15 m depth), on vertical walls or inside caves (Kruzic & al., 2002)".

**GOLOVATCH (S. I.), GEOFFROY (J.-J.) & MAURIÈS (J.-P.), 2010.** Review of the Millipede Genus *Pacidesmus* Golovatch, 1991, with Descriptions of Three New Species from Caves in Southern China (Diplopoda: Polydesmida: Polydesmidae). *Tropical Natural History* 10(2, October):159-169. ABS: The small Southeast to East Asian genus *Pacidesmus* currently encompasses seven species, all keyed and mapped, including three new from caves in Guangxi Province, China: *P. tiani* n. sp., *P. bedosae* n. sp. and *P. armatus* n. sp. All six congeners from southern China have only been found in caves, all likely representing troglodites, whereas the sole epigeal species is known from a high-montane forest in northern Thailand. Such a vast disjunction is certainly due to undercollecting, also meaning a far more diverse fauna of *Pacidesmus* to actually exist. KW: Diplopoda, *Pacidesmus*, new species, cave, China.

<http://www.biology.sc.chula.ac.th/TNH/vol10%20no2.html>

**GOLOVATCH (S. I.), MIKHALJOVA (E. V.), KORSÓS (Z.) & CHANG (H.-W.), 2010.** The Millipede Family Haplodesmidae (Diplopoda, Polydesmida) Recorded in Taiwan for the First Time, with the Description of a New Species. *Tropical Natural History* 10(1, April):27-36. <http://www.biology.sc.chula.ac.th/TNH/vol10%20no1.html>

**GONZÁLEZ-GORDILLO (J. I.), ANGER (K.) & SCHUBART (C. D.), 2010.** Morphology of the larval and first juvenile stages of two Jamaican endemic Crab species with abbreviated development, *Sesarma windsor* and *Metopaulias depressus* (Decapoda: Brachyura: Sesarmidae). *Journal of Crustacean Biology* 30(1, February):101-121. DOI: <http://dx.doi.org/10.1651/08-3110.1>.

ABS: The complete larval development and the morphology of the first juvenile stages of two freshwater-breeding crab species endemic to Jamaica are described and illustrated in detail in the present paper. One of these species, *Sesarma windsor*, lives in and near caves in the karst regions of central western Jamaica, whereas the second species, *Metopaulias depressus*, occurs sympatrically but with a wider range in western and central Jamaica in water-filled leaf axils of bromeliads. Even if these species are placed in separate genera, they are extant representatives of the same adaptive radiation that resulted in at least ten Jamaican endemic crab species thriving in different land-locked habitats. Consequently, larval morphologies of the two species are very similar, but conspicuously different from the developmental patterns in their marine relatives. Both species display an abbreviated mode of development, showing morphological reductions in some features and pre-displacement in the expression of several others. Both species pass through two non-feeding zoeal stages, after which *S. windsor* moults to a facultatively lecithotrophic megalopa. In contrast, *M. depressus* directly moults from the zoea II to a juvenile stage (also facultatively lecithotrophic) that shows a mixture of juvenile and vestigial larval characters, such as a partly folded pleon, but no longer larval traits such as natatory pleopods. This represents the first record of larval development with no megalopal stage for Sesarmidae. A closely related species from mangroves in the Caribbean and northeastern South America, *Sesarma curacaoense*, shows a reduction in larval development, but with different morphological characteristics. We here discuss whether this could be a shared ontogenetic character or the consequence of convergent evolution. KW: Bromeliads, fresh water, larval development, mangroves, Thoracotremata.

**GOODMAN (S. M.), MAMINIRINA (C. P.), BRADMAN (H. M.), CHRISTIDIS (L.) & APPLETON (B. R.), 2010.** Patterns of morphological and genetic variation in the endemic Malagasy bat *Miniopterus gleni* (Chiroptera: Miniopteridae), with the description of a new species, *M. griffithsi*. *Journal of Zoological Systematics and Evolutionary Research* 48(1, February):75-86. DOI: <http://dx.doi.org/10.1111/j.1439-0469.2009.00524.x>.

ABS: Over the past decade, major advances have been made concerning the systematics and species diversity of Malagasy bats, largely based on specimens collected during inventories and associated morphological and molecular genetic studies. Herein we describe a new species of endemic bat from southern Madagascar, *Miniopterus griffithsi* sp. n., which is the sister taxa to *Miniopterus gleni*, a taxon described in 1995 (holotype from Sarodrano, just north of the Onilahy River in the southwest). Based on current information, *M. griffithsi* is found in the sub-arid bioclimatic zone, south of the Onilahy River, and *M. gleni* occurs in a variety of different bioclimatic zones, north of the Onilahy River to the northern portion of the island and on the near shore island of Ile Sainte Marie. The realization that *M. griffithsi* was a separate entity was first based on phylogeographic studies of the *M. gleni* complex. Comparisons using 397 bp of mitochondrial cytochrome b found a divergence of 1.2% within animals occurring across much of Madagascar north of the Onilahy River, 0.07% in those south of the Onilahy River, and 7.4% in populations separated by this river. Subsequently, morphological characters were identified that supported the specific separation of populations occurring south (*M. griffithsi*) and north of the Onilahy River (*M. gleni*), which include tragus shape, pelage coloration, and skull proportions. KW: Miniopteridae, *Miniopterus*, *Miniopterus gleni*, *Miniopterus griffithsi* sp. n. - Madagascar, morphological variation, phylogeography. RÉS: Au cours de la dernière décennie, d'importants progrès ont été accomplis en ce qui concerne la compréhension de la systématique et de la diversité des espèces de chauves-souris malgaches, en grande partie basée sur des spécimens collectés au cours des inventaires ainsi que sur les études morphologiques et génétiques moléculaires associées. Nous décrivons ici une nouvelle espèce de chauve-souris du sud de Madagascar, *Miniopterus griffithsi* sp. n., qui est la sœur de *M. gleni*, un taxon décrit en 1995 (holotype de Sarodrano, juste au nord de la rivière Onilahy). Sur la base des informations actuelles, *M. griffithsi* se trouve dans la zone bioclimatique sub-aride de l'île, au sud de la rivière Onilahy, et *M. gleni* se produit dans une variété de zones bioclimatiques, du nord de la rivière Onilahy jusqu'au nord de l'île et sur l'île Sainte Marie. Les deux espèces semblent utiliser des grottes et des abris sous roche comme gîtes diurnes. Le fait que *M. griffithsi* soit une entité distincte est fondé sur des études phylogéographiques du complexe *M. gleni*. Les comparaisons avec les 397 bp du mitochondrial cytochrome b montre une divergence de 1,2% dans les animaux qui se produisent dans la majeure partie de Madagascar au nord de la rivière Onilahy, 0,07% dans celles au sud de la rivière Onilahy et 7,4% dans les populations séparées par cette rivière. Par la suite des caractères morphologiques ont été identifiés, comprenant la forme du tragus, la coloration du pelage et les proportions du crâne, soutenant ainsi la séparation des populations qui se produisent au sud (*M. griffithsi*) et au nord de la rivière Onilahy (*M. gleni*). La zone d'occupation connue pour *M. griffithsi* est d'environ 740 km<sup>2</sup>, mais ce n'est certainement pas représentatif de la distribution de cette espèce.

**GOTTSTEIN (S.), ŽGANEC (K.), KRNEVIĆ (V. C.) & POPIJAČ (A.), 2010.** Life history traits of the epigeal populations of *Niphargus dalmatinus* (Crustacea: Amphipoda) along the Cetina River, Croatia:23-24. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Very little is known about the epigeal niphargid autecology. The aim of this study was to establish the life history traits of the endemic amphipod *Niphargus dalmatinus*, which regularly inhabits springs, epigeal streams and rivers in Middle Dalmatia. Three replicate samples were collected once a month with benthos net in the period from August 2004 to August 2005 at ten study sites located in the upper, middle and lower reaches of the Cetina River and its tributaries. The highest population density of the species was recorded on two study sites in hypocrenal zone, where the mean water temperature reached 9.7°C with the narrow range of 7.3-12.5°C.



Oviparous females were recorded year-round at the main spring and in the upper course, but were more numerous during spring (March, April, May) and autumn (October) months. The sex-ratio (males vs. females) was in favour of males almost throughout the all study year. Mean number of eggs was 30 for 100 analysed females, but one female carried a maximum of 111 eggs. There was no correlation between fecundity and female body size (total body length). A better insight into the life history strategy of *N. dalmatinus* will help to interpret the distribution patterns, population structures, and the coexistence with other crustacean species. <http://www.icsb2010.net/>

**GOURMAND (A.-L.), 2010.** *Les Chiroptères. Plan régional d'actions 2009-2013. Région Centre. Sologne Nature Environnement*, Juin 2009, document validé par le Conseil Scientifique Régional du Patrimoine Naturel de Région Centre, réuni en séance plénière du 30 Mars 2010, à Orléans La Source, 67 p.

**GRÀCIA (F.), CLAMOR (B.), GAMUNDÍ (P.) & FORNÓS (J. J.), 2010.** El sistema de cavitats Gleda - Camp des Pou (Manacor, Mallorca). *Endins* 34:35-68. RES: La connexió entre la cova de sa Gleda i l'avenc des Camp de Pou ha permès afegir un nou sistema al llevant de Mallorca, el sistema Gleda-Camp des Pou, de 13500 m de recorregut, que situa aquesta cavitat litoral com la de major recorregut subaquàtic d'Europa dins d'aquesta situació i espeleogènesi. Es comenten les principals fites de l'exploració del sistema i els aspectes tècnics per poder realitzar les tasques exploratòries a la cavitat. Es fa la descripció tant dels nous sectors descoberts com de les contribucions novadores dels sectors ja coneguts. L'estudi de l'estructura de la cavitat, amb la superposició de la topografia a la superfície del terreny, les sales d'esfondrament i els condicionants litològics ajuden a comprendre millor la gènesi i evolució de la cavitat. Un aspecte a destacar és el contrast entre els sectors més occidentals, profusament decorats per espeleotemes, amb els sectors orientals a on són gairebé absents. Se citen un total de 12 espècies de crustacis a les aigües subterrànies de la cavitat, capturades especialment a les proximitats de la boca, ja que bona part del sistema presenta densitats poblacionals molt baixes per tractar-se d'un hàbitat molt oligotròfic. ABS: The connection established between Cova de sa Gleda and Avenc des Camp des Pou has allowed to add a new extensive cave system to the great speleological potential of eastern Mallorca coastal karst area: with a development of 13500 m, this system is the longest underwater littoral cave known up to now in Europe. The main benchmarks in its exploration are exposed, as well as the technical aspects of the diving tasks developed in the cave. The description of the recently discovered extensions is presented in this paper together with new observations on the previously known sectors of the system. The study of the cave pattern -using the superimposition of the survey on the map of the area- and the disposition of collapse chambers linked to clear lithological conditionings, contribute to a better understanding of its genesis and evolution. An aspect that must be highlighted is the sharp contrast existing between the western sectors, very well-decorated with speleothems, and the eastern ones where the speleothems are almost practically absent. A total of 12 crustacean species have been cited in the cave waters, collected especially near the cave entrance because the population densities are very low due to the oligotrophic character of this habitat.

**GRÀCIA (F.), GAMUNDÍ (P.), CLAMOR (B.), TRIAS (M.), FORNÓS (J. J.), FEBRER (M.) & POCOVÍ (J.), 2010.** Noves aportacions a l'estudi de les cavitats de Cala Falcó - Cala Varques (Manacor, Mallorca). *Endins* 34:141-154.

**GRETTIA, 2010.** *Inventaire des invertébrés continentaux des estrans rocheux et sableux de Basse-Normandie*. Rapport pour la Région Basse-Normandie, l'Agence de l'eau Seine-Normandie, la DREAL de Basse-Normandie, le Conseil général de la Manche et le Syndicat mixte Calvados Littoral Espaces Naturels. 136 p.

**GRIEBLER (C.), STEIN (H.), KELLERMANN (C.), BERKHOFF (S. E.), BRIELMANN (H.), SCHMIDT (S. I.), SELESI (D.), STEUBE (C.), FUCHS (A.) & HAHN (H. J.), 2010.** Ecological assessment of groundwater ecosystems - Vision or illusion? *Ecological Engineering* 36(9, September):1174-1190, Special issue on

interaction among groundwater, surface water and ecosystems: A key issue for integrated water management. DOI: <http://dx.doi.org/10.1016/j.ecoleng.2010.01.010>.

ABS: Environmental policy and in particular the European water legislation, in the framework of the EU Groundwater Directive, has started to consider groundwater not only as a resource but as a living ecosystem. A precondition for comprehensive groundwater protection is thus the assessment of the biological and ecological state. The assessment of ecosystems requires consideration of ecological criteria, which so far are not available for groundwater systems. In the framework of a national project, the German Federal Environment Agency (UBA) supports a consortium of scientists and stakeholders from water boards and regional environmental authorities to develop a first concept for an ecological assessment scheme for groundwater ecosystems. The attempts towards an integrative concept include the following steps: (i) selection of appropriate biological and ecological parameters, (ii) typology of groundwater ecosystems, (iii) derivation of a reference status (Leitbild) and natural background values for biological variables, (iv) identification of potential bioindicators and definition of threshold values, and (v) development of an assessment model. These proposed steps are discussed on the basis of a data set from two groundwater landscapes in Southern Germany. Investigations considered three different spatial units, i. e. the habitat unit at the local scale, and the aquifer type unit as well as the landscape unit at the regional scale. Fauna as well as bacterial communities could provide valuable ecological information on the ecosystems status. The paper reviews "state of the art" knowledge and evaluates the near future perspectives for the development and implementation of groundwater ecosystems assessment programmes. KW: Aquifers, Bioindicators, Ecological assessment, Groundwater ecosystems, Biomonitoring, Stygofauna.

**GRIFFIN (D. W.), GONZALEZ (C.), TEIGELL (N.), PETROSKY (T.), NORTHUP (D. E.) & LYLES (M.), 2010.** Observations on the use of membrane filtration and liquid impingement to collect airborne microorganisms in various atmospheric environments. *Aerobiologia* ? DOI: <http://dx.doi.org/10.1007/s10453-010-9173-z>. ABS: The influence of sample-collection-time on the recovery of culturable airborne microorganisms using a low-flow-rate membrane-filtration unit and a high-flow-rate liquid impinger were investigated. Differences in recoveries were investigated in four different atmospheric environments, one mid-oceanic at an altitude of ~10.0 m, one on a mountain top at an altitude of ~3,000.0 m, one at ~1.0 m altitude in Tallahassee, Florida, and one at ~1.0 m above ground in a subterranean-cave. Regarding use of membrane filtration, a common trend was observed: the shorter the collection period, the higher the recovery of culturable bacteria and fungi. These data also demonstrated that lower culturable counts were common in the more remote mid-oceanic and mountain-top atmospheric environments with bacteria, fungi, and total numbers averaging (by sample time or method categories) <3.0 colony-forming units (CFU) m<sup>-3</sup>. At the Florida and subterranean sites, the lowest average count noted was 3.5 bacteria CFU m<sup>-3</sup>, and the highest averaged 140.4 total CFU m<sup>-3</sup>. When atmospheric temperature allowed use, the high-volume liquid impinger utilized in this study resulted in much higher recoveries, as much as 10× greater in a number of the categories (bacterial, fungal, and total CFU). Together, these data illustrated that (1) the high-volume liquid impinger is clearly superior to membrane filtration for aeromicrobiology studies if start-up costs are not an issue and temperature permits use; (2) although membrane filtration is more cost friendly and has a "typically" wider operational range, its limits include loss of cell viability with increased sample time and issues with effectively extracting nucleic acids for community-based analyses; (3) the ability to recover culturable microorganisms is limited in "extreme" atmospheric environments and thus the use of a "limited" methodology in these environments must be taken into account; and (4) the atmosphere culls, i. e., everything is not everywhere. KW: Bacteria, Fungi, Methods, Membrane filtration, Liquid impingement, Aeromicrobiology, Microbiology.

**GRIMES (K. G.), 2010.** *Field Guide to Volcanic Caves of Western Victoria*. Published for the 14<sup>th</sup> International Symposium on Vulcanospeleology and the International Union of Speleology Commission on Volcanic Caves, August, 2010. Edited by Ken G. GRIMES with contributions by Ken G. GRIMES, Elery HAMILTON-

SMITH and Susan WHITE. BL: Cf p. 8, "Porndon Arch caves, where he gave due emphasis to the presence of the bats, and found that some settlers were using the guano as garden fertilizer"; p. 9, "Hamilton-Smith (1968, 1972) and Simpson & Smith (1964) studied the bat populations and the invertebrate fauna, primarily in Skipton Cave and some of the Byaduk Caves. There is also an interesting study of the ecology of Tunnel Cave by a group of students (Johnson & others, 1968)"; p. 20, "The mining activities may have contributed to the disappearance of the large bat colony (reported by Robinson, and by Selwyn in 1875, but gone by the time the cave was visited by Fletcher in 1895)". <http://www.vulcanospeleology.org/symposia.html>

**GRISMER (L. L.), SUMONTHA (M.), COTA (M.), GRISMER (J. L.), WOOD (P. L. Jr), PAUWELS (O. S. G.) & KUNYA (K.), 2010.** A revision and redescription of the rock gecko *Cnemaspis siamensis* (Taylor, 1925) (Squamata: Gekkonidae) from Peninsular Thailand with descriptions of seven new species. *Zootaxa* 2576(August 25):1-55, 23 pl., 32 réf. ABS: A taxonomic revision of *Cnemaspis siamensis* (Smith, 1925) revealed it to be a complex composed of four species: *C. siamensis* (Smith, 1925) which occurs on Ko Tao Island, Surat Thani Province and on the peninsula ranges from Khao Mod, Surat Thani Province in the south, northward east of the Tenasserim Mountains to Kaeng Krachan National Park, Phetchaburi Province; *C. chanardi* sp. nov. ranging from Tai Rom Yen National Park, Surat Thani Province in the north, southward through the western foothills of the Nakhon Si Thammarat and Sankalakhiri Mountains to Phuphaphet Cave, Satun Province and westward to Khlung Thom District, Krabi Province; *C. vandeventeri* sp. nov. ranging from Kapur District, Ranong Province southward to at least Khlung Had Sompen, District, Ranong Province west of the Tenasserim and Phuket Mountains and possibly all the way to Phuket Island; and *C. kamolnorrathai* sp. nov. restricted to the northwestern section of the Isthmus of Kra, ranging from Tham Khao Sonk, Thachana District, Surat Thani Province southward to Tai Rom Yen National Park, Surat Thani Province. These species are easily separated from one another on the basis of their unique combination of having or lacking prelocaal pores, dark gular markings, a series of lightly colored bars on the flanks, and a lightly colored, prescapular crescent as well as other aspects of squamation. Four additional new species from western and southern Thailand are also described: *C. huaseesom* sp. nov. from Sai Yok National Park, Kanchanaburi Province; *C. punctatonuchalis* sp. nov. from Thap Sakae District, Prachuap Khiri Khan Province; *C. narathiwatensis* sp. nov. ranging from Waeng District, Narathiwat Province south to Bang Lang, Yala Province; and *C. niyomwanae* sp. nov. from Thum Khao Ting, Palean District, Trang Province, Thailand. These species are differentiated from each other and all other *Cnemaspis* on the basis of their unique combinations of color pattern and squamation characters. This brings the total number of species of *Cnemaspis* in Thailand from five to 12 and continues to illustrate that the unrealized diversity in this group is a function of unfocused collecting efforts coupled with poor taxonomy. KW: Squamata, Gekkonidae, *Cnemaspis*, Thailand, new species. <http://www.mapress.com/zootaxa/list/2010/2576.html>

**GROL (B. P. F. E.) & VOÛTE (A. M.), 2010.** Hibernating bats in the Schenkgroeve, an artificial limestone cave in south Limburg, the Netherlands. *Lutra* 53(1):29-46. <http://www.zoogdierverseniging.nl/node/1018>

**Groupe Chiroptères Aquitains (GCA), 2010.** Le Vallon du Cros... menacé par l'un des fuseaux de la LGV. Décembre 2009 (Version actualisée le 18 Janvier 2010), 12 p.

**Groupe herpétologique drômois & LPO Drôme, 2010.** *Atlas préliminaire des Reptiles et des Amphibiens de la Drôme*. ISBN: 978-2-9534797-1-3, Septembre 2010, 107 p. Voir: VINCENT (S.), 2010. Pélodyte ponctué *Pelodytes punctatus* (Daudin, 1803):36-37.

**Groupe mammologique normand, 2010.** Plan Interrégional d'Action Chiroptères 2009-2013. Bilan 2009-2010. Haute-Normandie. 105 p., 8 Décembre 2010. <http://www.gmn.asso.fr/index.php?post/Un-nouveau-site>

**GRÜNKE (S.), LICHTSCHLAG (A.), BEER (D. de), KUYPERS (M.), LÖSEKANN-BEHRENS (T.), RAMETTE (A.) & BOETIUS (A.), 2010.** Novel

observations of *Thiobacterium*, a sulfur-storing Gammaproteobacterium producing gelatinous mats. *The ISME Journal* 4(March 11):1031-1043. DOI:

<http://dx.doi.org/10.1038/ismej.2010.23>. ABS: The genus *Thiobacterium* includes uncultivated rod-shaped microbes containing several spherical grains of elemental sulfur and forming conspicuous gelatinous mats. Owing to the fragility of mats and cells, their 16S ribosomal RNA genes have not been phylogenetically classified. This study examined the occurrence of *Thiobacterium* mats in three different sulfidic marine habitats: a submerged whale bone, deep-water seafloor and a submarine cave. All three mats contained massive amounts of *Thiobacterium* cells and were highly enriched in sulfur. Microsensor measurements and other biogeochemistry data suggest chemoautotrophic growth of *Thiobacterium*. Sulfide and oxygen microprofiles confirmed the dependence of *Thiobacterium* on hydrogen sulfide as energy source. Fluorescence in situ hybridization indicated that *Thiobacterium* spp. belong to the Gammaproteobacteria, a class that harbors many mat-forming sulfide-oxidizing bacteria. Further phylogenetic characterization of the mats led to the discovery of an unexpected microbial diversity associated with *Thiobacterium*. KW: Gelatinous mats, microsensor, sulfur oxidizer, *Thiobacterium*.

**Grupo de Espeleología de Villacarrillo (G. E. V.), 2010.** Nueva Especie Cavernícola. *En Acción* 29:11. Revista de Voluntariado Ambiental. Consejería de Medio Ambiente de la Junta de Andalucía.

**GUADANUCCI (J. P. L.), BRAGA (P. L. M.), DE SOUZA SÁ (F.) & DA FONSECA FERREIRA (R.), 2010.** A troglodyte population of *Diplura* sp. (Araneae: Mygalomorphae: Dipluridae) in a quartzitic cave in Diamantina, Minas Gerais, Brazil:172. In: *18<sup>th</sup> International Congress of Arachnology, University of Podlasie & International Society of Arachnology, Siedlce, Poland, 11-17 July 2010, Book of Abstracts*, editor: Marek ŻABKA, ISBN: 978-83-7051-575-1, 507 p. ABS: The cave Monte Cristo, located at 18°17.822'S, 43°33.511'W, is an approximately 200 meters long quartzitic formation. Hypogean environments house animals classified in three ecological-evolutionary categories according to their dependency on the cave: troglodyte, troglodyte and troglodyte. During an inventory survey on cavernicolous arachnids in caves in Diamantina, state of Minas Gerais, several representatives of *Diplura* sp. were found. Considering the rarity of dense populations of Mygalomorphae spiders in caves, this finding led us to conduct a survey on the population dynamics of such species. Representatives of the genus *Diplura* are easily recognized by its mid-sized body, long posterior lateral spinnerets and presence of a maxillary lyra composed of few clavate setae. They build silky webs with tunnels with sheet web at the entrance, what makes them easily found. This work aims at studying this population and present data on the abundance of individuals, spatial distribution within the cave, territoriality, phenology and circadian rhythm. We have done three excursions from January to March of 2010, when all webs with spiders were marked and numbered, and all spiders found were marked with coloured ink on the carapace. A total of 38 individuals were marked, what makes it the largest mygalomorph population recorded inside a cave, 13 in the first trip, nine in the second and 16 in the third. Several spiderlings were found in the third excursion, indicating the end of the reproductive season, when all juveniles have already hatched and started to disperse and establish shelters in the habitat. Twenty four individuals were found close to the entrance, and the rest were at the aphotic region, where temperatures are lower and more constant and humidity is higher. We found no significant difference in the abundance of potential preys in the different regions of the cave, having no relation to spider distribution. Only one spider changed its web location during the observations and built a new shelter less than 1 meter away. Moreover, the number of old exuviae deep within the webs of many spiders found indicates that once the spider has established its web, it remains there for the rest of the life. Careful searches have been done in the surroundings of the cave and no representatives or webs of *Diplura* sp. were found, showing the clear preference for the cave environment. Several other animals are known to inhabit caves as troglodytes (e. g. bats, harvestman, pseudoscorpions, several insects), what shows the importance for the preservation of such environments. Monthly observations will be done during a year to evaluate aspects on the phenology and circadian rhythms of this population.

- GUBALA (W. J.) & WOŁOSZYN (B. W.), 2010.** Bats hibernating in underground shelters of Małe Pieniny mountains (the Carpathian Mountains, Southern Poland). *Travaux du Muséum national d'Histoire naturelle "Grigore Antipa"* 53(Décembre):347-350. **DOI:** <http://dx.doi.org/10.2478/v10191-010-0025-4>. ABS: Six bat species were observed during winter censuses in years 2005-2009: Lesser horseshoe bat, Mouse-eared bat, Daubenton's bat, Whiskered/Brandt's bat, Northern bat and Brown long-eared bat. *Rhinolophus hipposideros* was most numerous (67% of all bats recorded). Largest hibernaculum on Polish side of range was mine Bania w Jarmucie, with maximum 29 bats during a single control, through the years of research number of species and individuals was increasing. Rarely seen in Outer Carpathians *Eptesicus nilssonii* winter roost was found in Homole Ravine. KW: Southern Poland, Małe Pieniny Mountains, hibernation, *Rhinolophus hipposideros*, six species. RÉS: Six espèces de chauves-souris ont été observées pendant les recensements d'hiver au cours des années 2005-2009: petit rhinolophe, chauve-souris murine, vespertilion de Daubenton, murin de Brandt, sérotine boréale et oreillard. *Rhinolophus hipposideros* a été la plus nombreuse (67% de toutes les chauves-souris observées). Le plus grand hibernaculum de la zone investiguée en Pologne a été la mine de Bania w Jarmucie, avec un maximum de 29 chauves-souris pendant un seul contrôle, le nombre d'espèces et d'individus croissant au cours des années de recherches. Bien que rarement vu en-dehors des Carpates, un point d'hivernage de *Eptesicus nilssonii* a été découvert dans la réserve de Homole Ravine. ABS in română: În perioada inventarierii efectuate între 2005 și 2009, au fost observate șase specii de lilieci: liliacul mic cu potcoavă, liliacul comun, liliacul de apă, liliacul mustăcios, liliacul nordic și liliacul urecheat. *Rhinolophus hipposideros* a fost cel mai numeros (67% din toate semnalările). Cel mai mare hibernaculum din partea poloneză a arealului a fost mina Bania w Jarmucie, cu maximum 29 de lilieci în timpul unui singur control. De-a lungul anilor de cercetare numărul speciilor și al indivizilor a crescut. Observat mai rar în Carpații Exteriori, *Eptesicus nilssonii* a fost raportat în adăpostul pentru iernat din Rezervația Homole Ravine.
- GUERNAOUI (S.), RAMAOUI (K.), RAHOLA (N.), BARNABE (C.), SERENO (D.) & BOUMEZZOUGH (A.), 2010.** Malformations of the genitalia in male *Phlebotomus papatasi* (Scopoli) (Diptera: Psychodidae). *Journal of Vector Ecology* 35(1, June):13-19. **DOI:** <http://dx.doi.org/10.1111/j.1948-7134.2010.00052.x>. BL: Cf p. 13. "*P. papatasi* has a significant ecological plasticity and can be found in various biotopes, including houses, animal sheds, and caves (GUERNAOUI (S.), 2006)".
- GUGLIELMONE (A. A.), ROBBINS (R. G.), APANASKEVICH (D. A.), PETNEY (T. N.), ESTRADA-PEÑA (A.), HORAK (I. G.), SHAO (R.) & BARKER (S. C.), 2010.** The Argasidae, Ixodidae and Nuttalliellidae (Acari: Ixodida) of the world: a list of valid species names. *Zootaxa* 2528(July 6):1-28, 54 réf. <http://www.mapress.com/zootaxa/list/2010/2528.html>
- GUICHARD (C.-A.), 2010.** Découverte de la grotte Guichard en Algérie (1863). *Spéléo-Dordogne* 191(3<sup>e</sup> trimestre 2009, dépôt légal: Décembre 2010):43-49.
- GUICHARD (F.), 2010.** Activités du Spéléo-Club de Périgueux, 2<sup>e</sup> trimestre 2009. *Spéléo-Dordogne* 190(2<sup>e</sup> trimestre 2009, dépôt légal: Octobre 2010):3-17. Voir: GUICHARD (F.), DELLUC (B.) & DELLUC (G.), 15 Mai 2009, grotte de La Croix (Condat-sur-Trincou):11-13, 1 pl. avec 6 ph. coul. et 1 croquis. BL: Cf p. 12, 1 ph. coul. d'un Champignon sphérique rongé par des Limaces; p. 13, "Dépôt d'ordures à l'entrée et curieux Champignons sphériques poussant sur le sol argileux."
- GUICHARD (F.), 2010.** Activités du Spéléo-Club de Périgueux, 3<sup>e</sup> trimestre 2009. *Spéléo-Dordogne* 191(3<sup>e</sup> trimestre 2009, dépôt légal: Décembre 2010):3-19. Voir: GUICHARD (F.), HARTE (J.-P.) & LUQUET (M.), 5 au 15 Août 2009, Grand Canyon Caverns (Arizona, USA):13.
- GUICHARD (F.), 2010.** Le XV<sup>e</sup> Congrès international de l'U. I. S., Kerville - Texas (U. S. A.). *Spéléo-Dordogne* 191(3<sup>e</sup> trimestre 2009, dépôt légal: Décembre 2010):26-31, 2 pl. avec 20 ph. coul., 3 topographies, 2 logos.
- GUICHARD (F.) & DARCY (G.), 2010.** 8 Janvier 2009, grotte ornée de Vielmouly 2 (Meyrals):7-8. In: GUICHARD (F.), Activités du Spéléo-Club de Périgueux, 1<sup>er</sup> trimestre 2009. *Spéléo-Dordogne* 189(1<sup>er</sup> trimestre 2009, dépôt légal: Février 2010):3-23.
- GUICHARD (F.) & DARCY (G.), 2010.** 8 Janvier 2009, grotte de Vielmouly (Les Eyzies-de-Tayac-Sireuil):8. In: GUICHARD (F.), Activités du Spéléo-Club de Périgueux, 1<sup>er</sup> trimestre 2009. *Spéléo-Dordogne* 189(1<sup>er</sup> trimestre 2009, dépôt légal: Février 2010):3-23.
- GUICHARD (F.) & DARCY (G.), 2010.** 13 Janvier 2009, grotte de l'aérodrome d'Eyrissou (Saint-Crépin-et-Carlucet):9. In: GUICHARD (F.), Activités du Spéléo-Club de Périgueux, 1<sup>er</sup> trimestre 2009. *Spéléo-Dordogne* 189(1<sup>er</sup> trimestre 2009, dépôt légal: Février 2010):3-23.
- GUICHARD (F.), DELLUC (B.) & DELLUC (G.), 2010.** 15 Mai 2009, grotte de La Croix (Condat-sur-Trincou):11-13, 1 pl. avec 6 ph. coul. et 1 croquis. In: GUICHARD (F.), Activités du Spéléo-Club de Périgueux, 2<sup>e</sup> trimestre 2009. *Spéléo-Dordogne* 190(2<sup>e</sup> trimestre 2009, dépôt légal: Octobre 2010):3-17. BL: Cf p. 12, 1 ph. coul. d'un Champignon sphérique rongé par des Limaces; p. 13, "Dépôt d'ordures à l'entrée et curieux Champignons sphériques poussant sur le sol argileux."
- GUICHARD (F.), HARTE (J.-P.) & LUQUET (M.), 2010.** 5 au 15 Août 2009, Grand Canyon Caverns (Arizona, USA):13. In: GUICHARD (F.), Activités du Spéléo-Club de Périgueux, 3<sup>e</sup> trimestre 2009. *Spéléo-Dordogne* 191(3<sup>e</sup> trimestre 2009, dépôt légal: Décembre 2010):3-19.
- GÜMÜŞ (B. A.), 2010.** Massacre of land snails after crop harvest in Turkey. *Tentacle* 18(January):9-10.
- GÜMÜŞ (B. A.), 2010.** The land snails of Kâhta, Adiyaman, Turkey (Mollusca: Gastropoda: Pulmonata). *Munis Entomology & Zoology* 5(1):286-289.
- GUZIK (M. T.), AUSTIN (A. D.), COOPER (S. J. B.), HARVEY (M. S.), HUMPHREYS (W. F.), BRADFORD (T.), EBERHARD (S. M.), KING (R. A.), LEYS (R.), MUIRHEAD (K. A.) & TOMLINSON (M.), 2010.** Is the Australian subterranean fauna uniquely diverse? *Invertebrate Systematics* 24(5):407-418. **DOI:** <http://dx.doi.org/10.1071/IS10038>. ABS: Australia was historically considered a poor prospect for subterranean fauna but, in reality, the continent holds a great variety of subterranean habitats, with associated faunas, found both in karst and non-karst environments. This paper critically examines the diversity of subterranean fauna in several key regions for the mostly arid western half of Australia. We aimed to document levels of species richness for major taxon groups and examine the degree of uniqueness of the fauna. We also wanted to compare the composition of these ecosystems, and their origins, with other regions of subterranean diversity world-wide. Using information on the number of "described" and "known" invertebrate species (recognised based on morphological and/or molecular data), we predict that the total subterranean fauna for the western half of the continent is 4140 species, of which ~10% is described and 9% is "known" but not yet described. The stygofauna, water beetles, ostracods and copepods have the largest number of described species, while arachnids dominate the described troglofauna. Conversely, copepods, water beetles and isopods are the poorest known groups with less than 20% described species, while hexapods (comprising mostly Collembola, Coleoptera, Blattodea and Hemiptera) are the least known of the troglofauna. Compared with other regions of the world, we consider the Australian subterranean fauna to be unique in its diversity compared with the northern hemisphere for three key reasons: the range and diversity of subterranean habitats is both extensive and novel; direct faunal links to ancient Pangaea and Gondwana are evident, emphasising their early biogeographic history; and Miocene aridification, rather than Pleistocene post-ice age driven

diversification events (as is predicted in the northern hemisphere), are likely to have dominated Australia's subterranean speciation explosion. Finally, we predict that the geologically younger, although more poorly studied, eastern half of the Australian continent is unlikely to be as diverse as the western half, except for stygofauna in porous media. Furthermore, based on similar geology, palaeogeography and tectonic history to that seen in the western parts of Australia, southern Africa, parts of South America and India may also yield similar subterranean biodiversity to that described here.

**HAASE (M.), FONTAINE (B.) & GARGOMINY (O.), 2010.** Rissoidae freshwater gastropods from the Vanuatu archipelago. *Hydrobiologia* 637:53-71. DOI:

<http://dx.doi.org/10.1007/s10750-009-9985-4>. ABS: During expeditions to Santo and the Torres islands belonging to the Vanuatu archipelago in 2006 and 2007, ten new species of tateid gastropods confined to springs, the upper most, slowly flowing regions of streams or the groundwater had been discovered. These species were now described based on shell morphology and anatomy. In accordance with geography, these characters placed the species from Vanuatu between those from New Caledonia and Fiji, suggesting a stepping stone-like dispersal across the Pacific with an origin in New Zealand and the far end on the Austral islands. We also assessed the threat status of the new species according to the IUCN Red List criteria and concluded that they should be amended by explicit incorporation of the scale of potential human impact or stochastic natural events relative to the size of the habitat of organisms. KW: Crenobiontic, Dispersal, IUCN Red List categories, Pacific islands, Santo, Tateidae, Torres islands.

**HAHN (H. J.), BORK (J.) & SCHMIDT (S. I.), 2010.** What is groundwater? A new approach, and what this means to fauna:24. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by:

Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: On the 18<sup>th</sup> International Symposium on Biospeleology in Cluj, we asked the question, whether all water that is called "groundwater" is real groundwater. Following a hydrological approach, we concluded that much of the so-called groundwater is actually hyporheic water. Furthermore, we argued for distinguishing subsurface water by the origin of the organic matter - either from the saturated or from the unsaturated zone. In the last years, we modified this idea and applied it to several data sets from Korea and Germany. The results are promising, indicating that groundwater communities at these sites reflect the strength of the hydrological exchange and the origin of the water either from the saturated (surface water bodies) or from the unsaturated zone (soils). However, there are many gaps of knowledge and open questions left, which should be discussed along this presentation. <http://www.icsb2010.net/>

**HALSE (S. A.), 2010.** Distribution patterns of different groups of troglofauna in the Pilbara region, Western Australia: are arachnids the most restricted troglofauna?:40. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by:

Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The Pilbara region of Western Australia hosts very diverse subterranean communities under its arid surface. Recent sampling has shown that the diversity of troglofauna in the region matches that already documented for stygofauna and that the region truly is a subterranean fauna hotspot. Groups such as schizomids seem to be particularly diverse but cockroaches, beetles, bugs, silverfish, bristletails, pauropods, spiders, pseudoscorpions, palpigrids, centipeds and millipedes are also represented by many species. Sampling to date has been focused in hard rock geologies, where troglofauna inhabit the crevices created by weathering. One of the outstanding characteristics of troglofauna occurrence in the Pilbara is that almost all species are found in the subterranean landscape mosaic, rather than in caves. However, rather than being a unique pattern of occurrence, this may be a general pattern globally, with the focus on caves and subterranean fauna reflecting ease of access rather than unique occurrence. One implication of troglofauna species occurring in the landscape matrix rather than caves is that, where the matrix is a widespread habitat, at least some troglofauna species might be expected to be widespread also. Recent surveys in the Pilbara have provided the opportunity to test this hypothesis and showed

that some species are, indeed, widespread. However, species ranges appear to be at least as strongly influenced by phylogeny as by distribution of their habitats, with insect groups usually more widespread than arachnids. A cautionary note in relation to determining species ranges is that defining what constitutes a troglofauna species is often difficult because DNA divergence between populations of the same subterranean species may be very high compared with the patterns in related surface species, which are usually used as abenchmark. Region-scale sampling, however, provides a much better basis for interpreting genetic and morphological variation than site-specific work. One important challenge for troglofauna survey work is to devise efficient methods of sampling alluvium and softer substrates at depth. Only after this has been done are we likely to develop a proper understanding of troglofauna distributions. <http://www.icsb2010.net/>

**HAMAIDI (F.), DEFAYE (D.) & SEMROUD (R.), 2010.** Copepoda of Algerian fresh waters: checklist, new records, and comments on their biodiversity. *Crustaceana* 83(1):101-126. DOI:

<http://dx.doi.org/10.1163/001121609X12512848343603>.

**HANÁK (V.), ANDĚRA (M.) & BENDA (P.), 2010.** Česká chiropterologická bibliografie: Soupis publikovaných a diplomových prací od počátků výzkumu v českých zemích do konce roku 2009 [Czech chiropterological bibliography: List of published papers and theses from the beginning of the research in the Bohemian Lands till 2009]. *Vesperilio* 13/14:165-262. ABS: The bibliography summarises, for the first time, all publications dealing with chiropterology in the Czech Republic from the earliest stage of bat research (early 19<sup>th</sup> century) till the year 2009. Included are also all citations of papers by Czech authors working abroad or using study material from foreign countries. Citations are sorted into seven categories based on the following criteria: (A) original papers in scientific journals (both Czech and international) - 1127 citations; (B) abstracts of conference presentations (both national and international) - 355 citations; (C) non-fiction (popular) papers for the public - 226 citations; (D) theses from Czech universities - 157 citations; (E) books with a substantial part dealing with bat biology - 94 citations; (F) list of some older bibliography sources - 32 citations; (G) methodological and technical publications - 128 citations. Since the target users are mostly Czech readers, all the citations are given in the original languages not supplemented with English translations. KW: Bibliography, Czech Republic, Czech authors, bats, Chiroptera. <http://www.ceson.org/publikace.php?p=13>

**HAND (S. J.) & GRANT-MACKIE (J. A.), 2010.** The bat fauna of Mé Auré Cave, Moindou, New Caledonia: evidence of human consumption and a new species record from the recent past. Poster 15:67. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p.

**HAND (S. J.) & GRANT-MACKIE (J. A.), 2010.** The bat fauna of Mé Auré Cave, Moindou, New Caledonia: evidence of human consumption and a new species record from the recent past:161. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Vertebrate remains recovered from a cave near Mé Auré on the central south-western coast of the main island of New Caledonia (Grande Terre), south-west Pacific, include those of flying-foxes and smaller, insectivorous bats, as well as birds, frogs, rodents and humans. The Mé Auré Cave deposit accumulated over a period of some 3000 years, from before colonization of the area by Lapita people to the present. In the deposit's upper levels, bat remains approximate the modern New Caledonian fauna, and probably represent bats that lived and died in the cave as well as those brought in as prey by barn owls. In the lowest levels, only flying-foxes are represented, their blackened remains and other evidence indicating they were cooked and eaten by people. Our data suggest that at least one insectivorous bat species has become extinct in New Caledonia

- during the last 250 years. Alternatively, it is possible that this bat continues to be part of the extant New Caledonian fauna but has yet to be recorded by modern faunal surveys.
- HARA (M. R.) & PINTO-DA-ROCHA (R.), 2010.** Systematic review and cladistic analysis of the genus *Eusarcus* Perty, 1833 (Arachnida, Opiliones, Gonyleptidae). *Zootaxa* 2698(December 3):1-136, 53 pl., 163 réf. <http://www.mapress.com/zootaxa/list/2010/2698.html>
- HARIELLE (C.), 2010.** La "Grande Grotte" ou grotte de Queylou (Les Eyzies-de-Tayac-Sireuil). *Spéléo-Dordogne* 190(2<sup>e</sup> trimestre 2009, dépôt légal: Octobre 2010):31-47, 1 pl. avec 7 ph. coul., 7 fig., 1 dépliant non paginé (entre les pages 36 et 37, topographie), 1 dessin.
- HARIELLE (C.), 2010.** Grottes Lamina Ziloua (Camou-Cihigue - 64) ou grotte de la source chaude de Camou-Cihigue. *Spéléo-Dordogne* 191(3<sup>e</sup> trimestre 2009, dépôt légal: Décembre 2010):37-42, 1 pl. avec 6 ph. coul.
- HARRACA (V.), IGNELL (R.), LÖFSTEDT (C.) & RYNE (C.), 2010.** Characterization of the Antennal Olfactory System of the Bed Bug (*Cimex lectularius*). *Chemical Senses* 35(3):195-204. **DOI:** <http://dx.doi.org/10.1093/chemse/bjp096>. BL: Cf p. 203: "Therefore, the few compounds for which *C. lectularius* still possesses receptors are essential for its sensory ecology, as well as remains from its primary habitats in caves and its hosts".
- HARTNOLL (R. G.), BRODERICK (A. C.), GODLEY (B. J.), MUSICK (S.), PEARSON (M.), STROUD (S. A.) & SAUNDERS (K. E.), 2010.** Reproduction in the Land Crab *Johngarthia lagostoma* on Ascension Island. *Journal of Crustacean Biology* 30(1, February):83-92. **DOI:** <http://dx.doi.org/10.1651/09-3143.1>.
- HAUSER (B.), 2010.** Leo WEIRATHER (1887-1965) revisited:154-155. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: As Egon Pretner's monograph on Leo Weirather finally goes to press in Innsbruck, the editor of this posthumous publication presents a short sketch of the life and work of Weirather, the extraordinary Tyrolean pioneer of biospeleological exploration in the Balkans, and explains the background to Weirather's use of "code names" (Decknamen) for his collecting sites. The speaker was, while assistant at the Zoological Institute in Innsbruck, in close contact with Weirather for some years, and tried in vain to safeguard his scientific legacy for Innsbruck University. When Weirather passed away, the speaker was able to facilitate the deposit of Weirather's collection and unpublished works in the Geneva Natural History Museum, thereby avoiding their dispersal or loss. The commitment of Dr. Claude Besuchet, the famous beetle specialist of the Geneva Museum, actively supported by Prof. Villy Aellen, the then director and a well known biospeleologist, was of crucial importance in saving Weirather's legacy in 1966. As a responsible curator Besuchet did not content himself with making this interesting acquisition, but took the trouble to make this hidden treasure accessible to the biospeleologists of the world. He accepted the offer of the doyen of cave fauna research in the Balkans, Egon Pretner, to take on the Sisyphean task of deciphering Weirather's list of localities and lent him portions of the precious files over a number of years. Egon Pretner (1896-1982), who lived and worked in Postojna (Adelsberg), the birthplace of biospeleology and the site of this conference, was uniquely qualified for this arduous task. As a citizen of the Austro-Hungarian Monarchy he attended the German grammar school of Trieste, (his native town) and learned the same style of German shorthand (following the system of Gabelsberger, long since abandoned), as was used by Weirather. Later as citizen of the former Yugoslavia he had experience of the changes to place names that were imposed. Finally, having explored a huge number of caves himself, he had a tremendous topographic knowledge which helped him to translate Weirather's partly outdated names into modern nomenclature. He not only invested years in decoding hundreds of index-cards, but also drew up a synthesis: a sort of "Fauna endemica" that had been Weirather's unrealized dream. Pretner's magnum opus is a rare and illuminating example of scientific altruism! When he entrusted his manuscript of 168 typed pages in German, (Pretner 2010: Die Verdienste Leo Weirathers um die Biospeleologie, insbesondere Jugoslawiens, sein Hohlenkataster und seine Sammelplätze. - *Ber. nat.-med. Verein Innsbruck* 97 (in press)) to the speaker for publication in Geneva in the mid-1970s, the political situation in Yugoslavia was starting its gradual deterioration. In the end, publication abroad became impossible without serious consequences for the author, who thus passed away without the satisfaction of seeing the results of all his heroic efforts in print. Subsequent changes to the hierarchy of the Geneva Museum meant that publishing the manuscript was no longer a priority. The unexpected appearance of a draft version of part of Pretner's monograph on Weirather, translated into English (Giachino & Lana, eds., 2006: Leo Weirather (1887-1965): Diaries of a biospeleologist at the beginning of the XX century. - *Fragmenta Entomologica* 37(2):1-264) which increases its value, lent a new impetus to the publication of the complete work. <http://www.icsb2010.net/>
- HAZELTON (E. R.) & HOBBS III (H. H.), 2010.** Effects of glaciation on the distribution of troglomorphic biota in Ohio, USA:41, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Glaciation events are thought to have impacted cavernicoles by displacing, extirpating, or, in the case of stygobionts, possibly expanding species' habitats exponentially and allowing for larger geographic ranges. The distribution of caveadapted fauna in Ohio offers evidence for this theory. Glaciers covered approximately two-thirds of Ohio during the Wisconsin ice-age and their boundaries are well-documented, covering both carbonate and non-carbonate (sandstone, conglomerate) cave-bearing bedrock. Recent investigations in the caves and springs of Ohio have resulted in a better understanding of the distribution and species of cave-adapted fauna inhabiting the subterranean environs of the state. More than 260 caves and springs in 31 counties in Ohio were surveyed for biota between 2007 and 2009, specimens were preserved in 70% ethyl alcohol (95% for arachnids), and subsequently identified. Combining this information with data from previous collections, fifteen cave-adapted species were identified from Ohio: eight troglobionts and seven stygobionts. Troglobionts are represented by four species of carabid beetles, three species of arachnids, and two pseudoscorpions. Stygobionts include four species of amphipods and three species of isopods. Of these troglomorphs, 11 are endemic to Ohio and seven are new to science. Most cave-adapted species were found in isolated populations (sitespecific endemics and often only a single cave-adapted species per cave). However, up to four species were found syntopically. Although troglobiotic species were more numerous, stygobiotic species had a greater distribution as has been documented elsewhere in the United States (eight troglobionts found in nine caves in six counties vs. seven stygobionts found in 22 caves in eight counties). Troglobionts were confined to counties contiguous with unglaciated counties (found not more than 58.77 km from most recent glacial boundary (Wisconsin, Pleistocene), and only one occurrence was documented outside of a contiguous five-county region. Stygobionts were documented much farther inside of the most recent glacial extent, as far as 135.53 km from this boundary. These results support the findings of biospeleological research in other regions of the United States as they relate to regional distribution patterns of terrestrial and aquatic caveobligate species. <http://www.icsb2010.net/>
- HEADS (S. W. fls), 2010.** The first fossil spider cricket (Orthoptera: Gryllidae: Phalangopsinae): 20 million years of troglomorphosis or exaptation in the dark? *Zoological Journal of the Linnean Society* 158(1, January):56-65. **DOI:** <http://dx.doi.org/10.1111/j.1096-3642.2009.00587.x>. ABS: A new spider cricket (Orthoptera: Gryllidae: Phalangopsinae) is described from an adult female preserved in Early Miocene (Burdigalian) amber from the Dominican Republic. *Araneagryllus dylani* gen. et sp. nov. represents the first fossil record of Phalangopsinae, and is assigned to the tribe Luzarini, subtribe Amphiacustina stat. nov. A cladistic analysis of Amphiacustina places *Araneagryllus* gen. nov. within a clade comprising *Arachnopsita*, *Leptopedetes*, *Longuripes*, *Mayagryllus*, *Nemoricantor*, and *Prolonguripes*. This clade is the sister group to a clade comprising *Amphiacusta*, *Cantrallia*, and *Noctivox*. The results of this analysis suggest that: (1) the common ancestor of all *Amphiacustina* was epigeal,

and was likely to have been cavicolous and/or straminicolous; (2) strict troglobitism evolved twice within *Amphiacustina*, once in the lineage leading to *Noctivox* and again in the clade comprising *Mayagrillus*, *Arachnopsita*, *Longuripes*, and *Prolonguripes*; and (3) *Prolonguripes* is secondarily epigean, having reverted to life above ground. The occurrence of *Araneagrillus* gen. nov. in amber indicates that it was not troglotic, but was instead more likely to have been straminicolous, living on the ground and foraging amongst leaf litter. *Araneagrillus* gen. nov. possesses a number of characters that are usually considered to be adaptive to a troglotic life history, suggesting that many so-called troglotomorphies are not adaptations to life in caves, but are instead likely to have been exaptive. KW: Amphiacustae, Dominican amber, Ensifera, Neotropics.

**HENDERSON (K.), 2010.** The 6<sup>th</sup> ISCA Congress 2010. Or how to find happiness in the changing world of caves. *AKMA Journal* 81(December):15 p.

**HERMOS  N (B.), NOV  KOV   (A.), JURADO (V.), L  IZ (L.), PORCA (E.), ROGELIO (M. A.), S  NCHEZ-MORAL (S.) & S  IZ-JIM  NEZ (C.), 2010.** Observatorio microbiol  gico de cuevas: evaluaci  n y control de comunidades f  ngicas en cuevas sometidas al impacto de actividades tur  sticas [Caves microbial observatory: assessment and control of fungal communities in show caves]:513-520. In: DUR  N (J. J.) & CARRASCO (F.), *Cuevas: Patrimonio, Naturaleza, Cultura y Turismo*, Madrid, Asociaci  n de Cuevas Tur  sticas Espa  olas, DUR  N (J. J.) & CARRASCO (F.), Eds. RES: En la   ltima d  cada se est   asistiendo a una progresiva colonizaci  n de cuevas visitables por microorganismos. As  , las cuevas de Lascaux, Montignac, Francia, y de Casta  ar de Ibor, C  ceres, sufrieron brotes de *Fusarium solani*, hongo que ha sido encontrado tambi  n en la cueva de Do  a Trinidad, Ardales, M  laga. En este trabajo se plantean las bases para la creaci  n de un Observatorio Microbiol  gico de Cuevas, desde donde se pueda controlar los hongos presentes en el ecosistema, y detectar a tiempo aquellos brotes que pudieran comprometer la integridad de la cueva y sus pinturas rupestres, en el caso que las tuviera. Al mismo tiempo, se pretende estudiar las relaciones entre la comunidad f  ngica y los habitantes de las cuevas (insectos, roedores, etc.), ya que muchos de los hongos presentes son par  sitos de otros organismos y los utilizan para su entrada y dispersi  n en la cueva. Para el desarrollo de este estudio es fundamental el control del aire de la cueva, as   como la utilizaci  n de t  cnicas moleculares como la amplificaci  n de secuencias de los genes de ARN ribos  mico 18S e ITS con el fin de identificar los miembros de las comunidades f  ngicas. La distribuci  n espacial y temporal de los componentes de la comunidad f  ngica se llevar   a cabo mediante muestreos en distintas estaciones del a  o en las diferentes salas de las cuevas. Al mismo tiempo se determinar   la presencia de hongos metabolicamente activos en distintos nichos. El conocimiento de los procesos de dispersi  n de esporas y su modelizaci  n teniendo en cuenta las corrientes de aire y los gradientes de temperatura, la eventual colonizaci  n de distintos materiales por comunidades microbianas, las caracter  sticas tr  ficas de estas comunidades y las relaciones entre los distintos habitantes de la cueva deben permitir el dise  o de una estrategia de control que garantice su conservaci  n. PC: Cadena tr  fica, col  mbolos, cuevas, hongos, roedores. ABS: The last decade has seen a progressive colonisation of visitable caves by microorganisms. The caves of Lascaux, Montignac, France, and of Casta  ar de Ibor, C  ceres, have suffered outbreaks of *Fusarium solani*, a fungus that has also been found in Do  a Trinidad Cave, Ardales, M  laga. This work sets out the bases for the creation of a Cave Microbiological Observatory for controlling the fungi present in the ecosystem and the timely detection of outbreaks that could compromise the integrity of the cave and any cave paintings present. At the same time, it is intended to study the relationships between the fungal community and cave inhabitants (insects, rodents, etc.), as many of the fungi present are parasites, and use the inhabitants to enter the cave and disperse in it. The execution of this study entails monitoring the air of the cave, and the use of molecular techniques such as the amplification of gene sequences of 18S and ITS ribosomal RNA to identify the members of the fungal communities. The spatial and temporal distribution of the components of the fungal community will be examined by samplings in different seasons of the year in the various halls of the caves. The presence of metabolically active fungi in various niches of the caves will be tested. Knowing the processes of spore dispersion and modelling it taking into

account air currents and temperature gradients, the eventual colonisation of different materials by microbial communities, the trophic nature of the latter, and the relationships between the different inhabitants of the cave, should enable the design of a control strategy to guarantee its conservation. KW: Caves, colembola, food chain, fungi, rodents.

**HERMOS  N (B.), NOV  KOV   (A.), JURADO (V.), L  IZ (L.), PORCA (E.), ROGERIO (M. A.), S  NCHEZ-MORAL (S.) & S  IZ-JIM  NEZ (C.), 2010.** Microbial observatory of Spanish caves: assessing the origin of fungal outbreaks:101. In: 20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The last decade has seen a progressive colonization of visitable caves by microorganisms. The caves of Lascaux, Montignac, France, and of Castanar de Ibor, Caceres, have suffered outbreaks of *Fusarium solani*, a fungus that has also been found in the air and sediments of the Dona Trinidad Cave, Ardales, Malaga. This work sets the bases for the creation of a Cave Microbiological Observatory for controlling the fungi present in the ecosystem and the timely detection of outbreaks that could compromise the integrity of the cave and any cave paintings present. At the same time, it is intended to study the relationships between the fungal community and cave inhabitants (insects, rodents, etc.), as many of the fungi present are parasites, and use the inhabitants to enter the cave and disperse in it. The execution of this study entails monitoring of the cave air, and the use of molecular techniques such as the amplification of gene sequences of 18S and ITS ribosomal RNA to identify the members of the fungal communities. Knowing the processes of spore dispersion and modelling it taking into account air currents and temperature gradients, the eventual colonization of different materials by microbial communities, the trophic nature of the latter, and the relationships between the different inhabitants of the cave, should enable the design of a control strategy to guarantee its conservation. <http://www.icsb2010.net/>

**HERSHLER (R.), LIU (H.-P.) & LANG (B. K.), 2010.** Transfer of *Cochliopa texana* to *Pyrgulopsis* (Hydrobiidae) and description of a third congener from the lower Pecos River basin. *Journal of Molluscan Studies* 76(3, August 22):245-256. DOI: <http://dx.doi.org/10.1093/mollus/eqy002>. ABS: The Phantom Cave snail (*Cochliopa texana*), a little-studied rissooidean gastropod that is locally endemic within the lower Pecos River basin (Texas) and currently a candidate for addition to the Federal list of threatened and endangered species, is redescribed and transferred to the hydrobiid genus *Pyrgulopsis*, based on shell and anatomical characters. Specimens from the type locality (Phantom Lake Spring) and San Solomon Spring are larger than those from East Sandia Spring and also differ somewhat in shell shape and shape of the central cusps of the lateral radular teeth. However genetic (mtCOI, NDI) variation within and among these geographically proximal (613 km) populations was slight, providing no basis for the recognition of distinct conservation units of this imperiled species. We also describe *Pyrgulopsis ignota* n. sp., which was recently discovered in a different part of the lower Pecos River basin and initially confused with the Phantom Cave snail. These two species differ in shell shape, operculum morphology, and form and glandular ornament of the penis. They are also strongly differentiated genetically from each other and from (13) other regional congeners (pairwise sequence divergence >6.3 for both genes). A Bayesian phylogenetic analysis of the COI and NDI dataset indicated that these two snails are not closely related and that *P. ignota* occupies a basal position relative to other regional congeners.

**HIPPA (H.), VILKAMAA (P.) & HELLER (K.), 2010.** Review of the Holarctic *Corynoptera* Winnertz, 1867, s. str. (Diptera, Sciaridae). *Zootaxa* 2695(December 3):1-197, 127 pl., 159 r  f. <http://www.mapress.com/zootaxa/list/2010/2695.html>

**HITCHCOCK (A.), 2010.** Shale Peak Cave and the Discovery of a New Species of Cave Cricket. *Cape Peninsula Speleological Society (CPSS) Newsletter* (March):2 p.

**HLAV  C (P.) & JAL  I   (B.), 2010.** Endogean and cavernicolous Coleoptera of the Balkan. X. Two new

species of *Machaerites* (Coleoptera: Staphylinidae: Pselaphinae) from Croatia. *Natura Croatica* 19(1, June 30):111-119. ABS: *Machaerites pavleki* sp. nov. and *M. marjanaci* sp. nov., new cavernicolous species of the tribe Bythinini are described from Croatia. The catalogue of all species of the genus placed in two species-groups is provided. KW: Coleoptera, Staphylinidae, Pselaphinae, Bythinini, *Machaerites*, biospeleology, Croatia, taxonomy. [http://hrcak.srce.hr/index.php?show=clanak&id\\_clanak\\_jezik=82773](http://hrcak.srce.hr/index.php?show=clanak&id_clanak_jezik=82773)

**HODGSON (D.), 2010.** The biology of Scoska Cave:67. In: British Cave Research Association, Abstracts from the BCRA Summer Cave Biology Field Meeting, 8 September 2010, Arncliffe Village Hall and Scoska Cave, Lifford, Yorkshire, UK. *Cave and Karst Science* 37(2, this issue has a cover date of August 2010 and was published in December 2010). ABS: This site has been known as a haunt of Tissue moths (*Triphosa dubitata*) for 100 years and I have recorded Herald (*Scoliopteryx libatrix*) and Tissue moths at this site for 50 years. Herald moths are known to hibernate in caves as well as barns, outbuildings and ice houses, etc. as some always appear to be active throughout the winter. After several summer visits it was found the Tissues came to the cave in early August and stay in the cave until April/early May and just like the bats at this site (five species) swarm and mate at this site from late August until October some going through a period of torpor in the winter but none hibernating like the Heralds. Over a period of five seasons the moths have been counted, temperature and humidity recorded as well as checking light levels to see what triggered the moths to come and go. As time went on humidity readings and light levels were dropped as they did not appear to affect the moths however things like noise due to increased water levels were recorded as these seemed to affect the Tissues (or was it the air circulation due to the movement of the water) with readings as high as 85 decibels recorded. Scoska Cave is a very important site for Tissue moths and although in the same period other sites have been logged only one other site (Stonelands Cave) has had moths in double figures once. All other sites have been in single figures whilst the highest count at Scoska is 262 that is when on average for the last five years only one Tissue each year has been recorded in an average of 80000 sightings. Why is Scoska so special? To date the mystery has not been solved despite searching for caterpillars in surrounding woodland and comparing to other sites like Doukabottom and Dow caves that are isolated but in which we do get Tissues. Is it the cold air waterfall that tumbles down Gildersbank Sike that guides the Tissues to the cave entrance or is it something in the condensation water that provides them with some form of nutrition to sustain them through the winter. More work is still needed at this site. <http://bcra.org.uk/pub/candks/index.html?j=110>

**HOF (B.), 2010.** Galerie de la mémoire. Yves CRÉAC'H (1921-2010). *Spelunca* 119(Septembre, 3<sup>e</sup> trimestre):64.

**HOFF (M.), 2010.** *Bibliographie botanique de l'Alsace et des environs. Flore, végétation, paysages, protection de la nature, histoire, biographies, ethnobotanique.* Avec la collaboration de P. de Ruffray, A. Untereiner, H. Brisse, G. Ochsenbein, T. Trautmann et la participation de J. Estrade, J. P. Klein, Y. Sell, B. Weigel. Société botanique d'Alsace, 3 Mai 2010, 251 p.

**HOLSINGER (J. R.), 2010.** Sandro RUFFO (26 Août 1915 - 2010). *SIBIOS-ISSB Newsletter* 7(2006-2010):47.

**HORSTKOTTE (J.), RIESCH (R.), PLATH (M.) & JÄGER (P.), 2010.** Predation by three species of spiders on a cave fish in a Mexican sulfur cave. *Bulletin of the British arachnological Society* 15(2):55-58.

**HORVÁTH (E.), KONTSCÁN (J.) & MAHUNKA (S.), 2010.** Hungarian acarological literature. *Opuscula Zoologica* 41(2):97-174. [http://opuscula.elte.hu/opuscula41\\_2.htm](http://opuscula.elte.hu/opuscula41_2.htm)

**HRISTOV (N. I.), BETKE (M.), THERIAULT (D. E. H.), BAGCHI (A.) & KUNZ (T. H.), 2010.** Seasonal Variation in Colony Size of Brazilian Free-Tailed Bats at Carlsbad Cavern Based on Thermal Imaging. *Journal of Mammalogy* 91(1, February):183-192. **DOI:** <http://dx.doi.org/10.1644/08-MAMM-A-391R.1>. ABS: The

colony of Brazilian free-tailed bats (*Tadarida brasiliensis*) at Carlsbad Cavern, New Mexico, is a well-known example of this highly gregarious and conspicuous species in North America. For nearly a century researchers have tried to estimate the size of this colony, but different census methods and lack of repeatability have resulted in questionable estimates that have given rise to poorly understood but highly popularized, long-term population trends for this migratory species. In this study we present accurate seasonal estimates of colony size based on a recently developed census method-thermal infrared imaging and computer vision analysis. The size of the colony was estimated several times monthly from March through October 2005. Our estimates range from 67602 to 793838 bats, values that are orders of magnitude lower than the largest historic estimates. Consecutive estimates of nightly emergences show fluctuations of as many as 291000 individuals, indicating that colony composition is considerably more dynamic than previously thought. Our results, combined with a quantitative analysis of emergence behavior, question the validity of early historic estimates that millions of bats once roosted in this cave and suggest that the long-term pattern of decline reported for this species might not be as severe as currently thought. KW: Bats, census, colony dynamics, colony estimate, computer vision, historic estimates, seasonal variation, *Tadarida brasiliensis*, Three-dimensional (3D) modeling.

**HUMPHREYS (W. F.), GUZIK (M. T.), BRADFORD (T.), COOPER (S. J. B.), LEJIS (R.), WATTS (C. H. S.) & AUSTIN (A. D.), 2010.** Groundwater calcretes: sheets of subterranean habitat scattered on an Archaean landscape:24-25. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Groundwater (phreatic) calcretes are the main, often the only, habitat for aquatic troglobionts through much of arid Australia. Originally considered as homogeneous habitats, calcretes are proving to be complex in structure and enigmatic in origin and timing. Essentially, they form thin patches of suitable troglobiont habitat overlaying the Archaean shield in a climatically challenging region largely lacking surface water and where they support diverse aquatic troglobiont communities. The aquatic troglobionts include Gondwanan elements (e. g., Spelaeogriphacea and some Parabathynellidae and Candoninae) as well as late Tertiary colonisers (e. g., Dytiscidae, Oniscidea). Groundwater flow in the Yilgarn is confined to broad palaeodrainage systems incised in the Archaean basement which forms the watersheds. This restricts groundwater connectivity between catchments but may not eliminate faunal exchange owing to the low gradients in the landscape. The calcretes were deposited as thin sheets, generally ~10-20 m thick, from groundwater near the base level salt lakes (playas). The southern part of the Western Shield comprises the Yilgarn where six major palaeovalleys are beaded with salt lakes and their associated groundwater calcretes that each form a geologically discrete unit. Biologically the calcretes form subterranean islands in the desert. The stygobionts are mostly endemic each to a single calcrete irrespective of whether the species may be air breathing (Dytiscidae), or not (Amphipoda), or whether they are interstitial (Parabathynellidae). The groundwater between the calcretes occurs in a matrix unsuitable for aquatic troglobionts. Chemical sedimentation of calcretes from groundwater flow progresses through the combined effects of evaporative concentration, groundwater level fluctuations and selective ion-exchange reactions. Together, these result in complex porosity and permeability zones that may account for the fine scale phylogeography of the aquatic troglobionts. Gene flow does occur through the length of a single large calcrete (scale 104 m) although the populations are not panmictic. No detailed fine scale hydrology has been conducted on calcretes but molecular genetic research reveals fine-scale differentiation with isolation by distance that supports the presence of heterogeneous subterranean landscape even within small spatial scales (102-103 m), and that different species of aquatic troglobionts, even of sympatric sister species, do not have a genetically concordant response to this spatial heterogeneity. <http://www.icsb2010.net/>

**ICIPE, 2010.** Icipe Scientist Re-discovers the World's Rarest and Strangest Fly. <http://www.icipe.org/component/content/article/11/258-icipe-scientist-re-discovers-the-worlds-rarest-and-strangest-fly.html>

**IEPURE (S.), 2010.** Cornel Constantin PLESA, 3 August 1931 - 15 August 2008. *SIBIOS-ISSB Newsletter* 7(2006-2010):43.

**IKER (B. C.), KAMBESIS (P.), OEHRLE (S. A.), GROVES (C.) & BARTON (H. A.), 2010.** Microbial Atrazine Breakdown in a Karst Groundwater System and Its Effect on Ecosystem Energetics. *Journal of Environmental Quality* 39(March/April):509-518. DOI: <http://dx.doi.org/10.2134/jeq2009.0048>. ABS: In the absence of sunlight energy, microbial community survival in subterranean aquifers depends on integrated mechanisms of energy and nutrient scavenging. Because karst aquifers are particularly sensitive to agricultural land use impacts due to rapid and direct hydrologic connections for pollutants to enter the groundwater, we examined the fate of an exogenous pesticide (atrazine) into such an aquifer and its impact on microbial ecosystem function. Atrazine and its degradation product deethylatrazine (DEA) were detected in a fast-flowing karst aquifer underlying atrazine-impacted agricultural land. By establishing microbial cultures with sediments from a cave conduit within this aquifer, we observed two distinct pathways of microbial atrazine degradation: (i) in cave sediments previously affected by atrazine, apparent surface-derived catabolic genes allowed the microbial communities to rapidly degrade atrazine via hydroxyatrazine, to cyanuric acid, and (ii) in low-impact sediments not previously exposed to this pesticide, atrazine was also degraded by microbial activity at a much slower rate, with DEA as the primary degradation product. In sediments from both locations, atrazine affected nitrogen cycling by altering the abundance of nitrogen dissimulatory species able to use nitrogenous compounds for energy. The sum of these effects was that the presence of atrazine altered the natural microbial processes in these cave sediments, leading to an accumulation of nitrate. Such changes in microbial ecosystem dynamics can alter the ability of DEA to serve as a proxy for atrazine contamination and can negatively affect ecosystem health and water quality in karst aquifers.

**INGERSOLL (T. E.), NAVO (K. W.) & VALPINE (P. de), 2010.** Microclimate preferences during swarming and hibernation in the Townsend's big-eared bat, *Corynorhinus townsendii*. *Journal of Mammalogy* 91(5, October):1242-1250. DOI: <http://dx.doi.org/10.1644/09-MAMM-A-288.1>. ABS: Townsend's big-eared bat (*Corynorhinus townsendii*) is a North American bat that hibernates in caves and mines. These underground habitats also are important roost sites during fall swarming, a period during which bats undergo preparation for hibernation. During swarming bats are very active at night, rousing frequently several times a night to fly within and between roosts. During hibernation nighttime activity is suppressed so that bats rouse and move infrequently. Daytime activity is suppressed during both periods by daily torpor. Both hibernacula and swarming roosts have particular thermal requirements associated with energetic optimization. Swarming roosts tend to have a higher minimum temperature than hibernacula, facilitating efficient arousal from torpor. Both roost types have low maximum temperatures, facilitating conservation of stored body fat resources. We explored and tested preferences of *C. townsendii* for microclimates in these habitats. Our results confirm that *C. townsendii* prefers habitats that are thermally constrained such that temperatures and related microclimate variables are optimum for swarming or hibernation activities. KW: Bat, caves, habitat preference, hibernacula, hibernation, mines, swarming.

**IPSEN (A.), 2010.** How efficient are the non invasive protection measures in the Segeberg Cave in Northern Germany for the population of bats and subterranean beetles:86. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The natural monument Kalkberg, which includes the Segeberger Cave, the gypsum hill and the Small Segeberg Lake, is intensively influenced by human. If measures of protection are necessary, the Kalkberg Stadium, the show cave and the cave as a hibernating place for more than 22000 bats and the habitat for the endemic cave beetle *Choleva septentrionis holsatica* must be considered. During the last three years such measures of protection and the modernization of the lighting with participation of experts were planned in the underground gypsum show cave, in cave passages not open for the public, and on the overground rock faces of the hill. Most of these measures are already realised. Thus it was possible to minimize the effects of primarily planned geotechnical measures. The focus was on noninvasive techniques to assure to protect the ecosystem. <http://www.icsb2010.net/>

**ISAIA (M.), 2010.** Subterranean arachnids of the Western Italian Alps (Arachnida: Araneae, Opiliones, Palpigradi, Pseudoscorpiones):202-203. In: *18<sup>th</sup> International Congress of Arachnology, University of Podlasie & International Society of Arachnology, Siedlce, Poland, 11-17 July 2010, Book of Abstracts*, editor: Marek ŻABKA, ISBN: 978-83-7051-575-1, 507 p. ABS: The presentation shows the results of five years of work dedicated to the Subterranean Arachnids of the Western Italian Alps. The work, that has just been published by the Natural Museum of Torino (NW-Italy), is based on unpublished material collected by Enrico LANA and Marco ISAIA throughout an intense field work from 2005 to 2010, on literature records and on the complete revision of the material cited in the previous regional catalogue of the cave-dwelling spiders of Piemonte. The work is the outcome of a fruitful collaboration of several European arachnologists, who identified different arachnid groups. A special mention to Axel L. SCHÖNHOFER (Germany) and Erhard CHRISTIAN (Austria) for their contributions on harvestmen and palpigrades, respectively. Scorpions and mites have not been considered. The exclusion of scorpions is justified by the troglonec life of the few species recorded in the studied area. Concerning mites, records of an extremely specialized species of *Troglocheles* (Prostigmata: Rhagidiidae) will be published separately. The work covers 366 subterranean cavities, most of them located in province of Cuneo (166), followed by Torino (69), Biella (38), Vercelli (30), Aosta (22), Novara (21), Verbania (15), and Alessandria (5). We present 104 species (74 spiders, 14 harvestmen, 2 palpigrades, and 14 pseudoscorpions). Twelve (4 spiders, 2 palpigrades, and 6 pseudoscorpions) are considered as troglonec on the basis of obvious troglomorphy, 28 as troglophilic (20 spiders, 6 harvestmen, and 2 pseudoscorpions). For each species identification aids are provided, including several illustrations of diagnostic features (original drawings), in situ photographs, maps of the hypogean localities in the Western Italian Alps, large-scale distribution and considerations from the ecological and faunistic points of view. Spiders represent the major order of arachnids recorded in the study area, with *Meta menardi* and *Metellina merianae* being the most abundant, followed by *Nesticus eremita*, *Malthonica silvestris*, *Pimosa rupicola* and *Troglohyphantes lucifera*. The latter two are endemic to the southern and northern sectors of the Western Alps respectively. Most remarkable are the troglonec species of the genus *Troglohyphantes* (*T. konradi*, *T. pedemontanus*, *T. lanai*) that also show, together with the troglophilic *T. bornensis*, *T. nigraerosae* and *T. pluto*, the most restricted distributions. Another interesting species is the troglonec *Nesticus morisii*, only known from the type locality in the Maritime Alps. *Meta bourneti*, a troglophilic and markedly thermophilous species of Turanic-European-Mediterranean corotype, is confined, in NW Italy, to one cave in the province of Cuneo and a few caves in Susa Valley (province of Torino). Among opilionids, the most interesting taxa are *Holoscotolemon oreophilum*, three species of *Ischyropsalis*, and *Leiobunum religiosum*. All of these species show restricted distribution and a strong relation with subterranean habitats. Palpigrades represent the flagship of this work and of the entire arachnological fauna of the Western Italian Alps. The data presented in the book are of outstanding significance. According to current knowledge, the south-western part of the Alpine chain houses *Eukoenaia bonadonai* and *E. strinati*. Both species belong to the spelaea/austriaca complex and show highly developed troglomorphic features. Records are from three caves in the province of Cuneo. Despite the lack of details and the difficulty in finding updated information on the Western Alpine species, the pseudoscorpion section is mainly based on literature data. Several species such as *Pseudoblothrus peyerimhoffi*, *P. ellingseni*, *Chthonius italicus*, *C. troglophilus*, and *Neobisium zoiai* deserve special attention for their pronounced troglomorphy and the restricted distribution. With respect to overall arachnid species richness, the most important caves are located in the Alpine districts of Alpi Maritime and Alpi Liguri (province of Cuneo) which may thus be considered as a hot-spot of biodiversity. Curiously, the most interesting assemblage is found in an artificial cave, the abandoned military bunker of Vernante (province of Cuneo), that houses 9 species of subterranean arachnids. Among these, at least 6 taxa are extremely specialized and some of them, like *Troglohyphantes konradi* and *Nesticus morisii* (for which the bunker is the locus typicus), show restricted or punctual distribution. The current state of conservation policy in the Western Italian Alps is also discussed. Nearly one third (122) of the recorded caves are situated in Protected Areas, but only in five cases the cave habitat ("8310, Caves not open to public" according to 92/43 Habitat Directive) is mentioned in the official document. Despite the presence of extraordinary biocoenoses and the proximity to protected



areas, a number of caves are still unprotected. Examples are the above-mentioned military bunker of Vernante, which is also known for the presence of endemic cave-dwelling insects, and many caves in the Southern and Western Alpine districts, which likewise harbour numerous specialized endemics. The vulnerability of several populations of species deserving protection measures, such as *Ischyropsalis carli*, *Nesticus morisii*, *Troglohyphantes pluto*, *Meta bourneti*, *Neobisium zoiai* and *Pseudoblothrus peyerimhoffi*, is highlighted.

**ISAIA (M.) & PANTINI (P.), 2010.** New data on the spider genus *Troglohyphantes* (Araneae, Linyphiidae) in the Italian Alps, with the description of a new species and a new synonymy. *Zootaxa* 2690(November 29):1-18, 9 pl., 42 r  f. ABS: In this paper we describe *Troglohyphantes lanai* n. sp. from Pennine Alps and the unknown female of *T. bonzanoi*, from Ligurian Alps. Based on the collection of new material and on the examination of the paratypes, *T. delmastroi* Pesarini, 2001 is proposed as junior synonym of *T. iulianae* Brignoli, 1971 (new synonymy). We also provide new faunistic and ecological data on the Italian species of *Troglohyphantes*, focusing mainly on Central Italian Alps. Phenetic species groups previously proposed in literature for the Italian species have been updated in view of recent literature and new findings. Pesarini's complexes of species are used to map the species distribution in the Italian Alps. KW: Cave-dwelling spiders, endemism, systematics. <http://www.mapress.com/zootaxa/list/2010/2690.html>

**IUCN, 2010.** Species of the Day: Kitti's Hog-nosed Bat. June. 1 p. <http://www.iucnredlist.org/species-of-the-day/archives>

**IUCN, 2010.** Species of the Day: Madagascan Roussette. May. 1 p. <http://www.iucnredlist.org/species-of-the-day/archives>

**IVAN (O.) & VASILIU (N. A.), 2010.** Fauna of Oribatid mites (Acari, Oribatida) from the Movile Cave area (Dobrogea, Romania). *Travaux de l'Institut de Sp  ologie "Emile Racovitza"* 49:29-40. ABS: The paper discusses the results of the investigations performed on the oribatid fauna collected from the Movile Cave area. 35 species, belonging to 25 genera and 17 families have been identified; among them 2 genera and 6 species are new for the Romanian fauna. The taxonomic and zoogeographical spectrum of the fauna was analyzed, as well as the occurrence of the species depending on depth. KW: Fauna, oribatid mites, Movile Cave. <http://www.speotravaux.iser.ro/10en.html>

**JAHELKOV  (H.) & VAŠIČKOV  (P.), 2010.** Social calls and behaviour of *Rousettus aegyptiacus*: First results:182-183. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR CEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Social calls and social behaviour was recorded in a captive colony of 30 to 50 individuals of *Rousettus aegyptiacus* in Prague zoo. Flying foxes are kept in tropical nocturnal pavilion designed as artificial cave with possibility of free flight across whole area. The calls and respective behaviour were recorded 90 min prior the full "bat night" with use of infra-red torch and camera with night shot. The calls were divided into five main categories: (a) tonal calls with multiple harmonics (fundamental loudest frequency 0.75-1.16 kHz, frequency with maximal energy 4.5-14.5 kHz, duration 34-251 ms), (b) broadband screech-like calls (frequency with maximal energy 3.3-16.0 kHz, duration 32-348 kHz), (c) series of converted V-shaped high-pitched calls (fundamental loudest frequency 8-11 kHz), (d) series of weak short steep FM calls, (e) tonal calls of juveniles (fundamental loudest frequency 1.5-3.0 kHz, frequency with maximal energy 1.8-12.0 kHz). First two types were produced during face to face (wrestling) or face to back (biting the neck, usually male - female) interaction. Besides aggressive behaviour were recorded also grooming activities, cluster distribution, movements, etc. During time of early lactation were observed protection of mother with juvenile by a male against other individuals and leaving off juveniles at nearby branches during time of feeding.

**JALŽIĆ (B.) & BREGOVIĆ (P.), 2010.** The edge of the range of genus *Anthroherpon* in Croatia:156, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIĆ and Peter TRONTELJ, ISBN 978-961-

269-286-5. ABS: Although they have always attracted the attention of many biologists, subterranean beetles of genus *Anthroherpon* deserve to be still observed. The Republic of Croatia is the edge of their range, and no one has yet systematically analysed data on them. As part of the posters it will be presented the historical and recent data of these interesting beetles, as a result of re-survey of known sites from the existing literature (two caves: Špilja za Gromačkom vlakom, Močiljska špilja; one pit: Glogova jama). It will also be processed data from new sites (Kornjatuša jama) and will be compared with the nearest cave type locality in Bosnia and Herzegovina. For now, the species recorded in Croatia are *Anthroherpon apfelbecki apfelbecki* and *Anthroherpon matulici*. During this study the discovery of new taxa is possible. The poster will clearly display the distribution and taxonomy of the genus *Anthroherpon* in Croatia. There will be also a small note on the genus *Leptomeson*. <http://www.icsb2010.net/>

**JANCIĆ (N.), 2010.** Which animal and plant species are the most exposed to the consequences of global warming in Slovenia and which social consequences are related to them?

**JANION (C.), 2010.** The search for springtails: Boomslang and Silvermine, November 2010. *Cape Peninsula Speleological Society (CPSS) Newsletter* (December):2 p.

**JANSSENS (F.) & DE BRUYN (L.), 2010.** III. Entomologische Bijdragen. III.1. A new cave species of the genus *Oncopodura* Carl & Lebedinsky, 1905 from Belgium (Collembola: Oncopoduridae). *Entomo-Info* 21(3):49-56. ABS: An undescribed species of *Oncopodura* was found by Leruth (1939) while making his inventory of the fauna of Belgian caves. The "lost" collection of Collembola specimens of 1932-1934 of Leruth was backtracked by Michel Dethier and eventually recovered from the Museo Nacional de Ciencias Naturales of Madrid in Spain. In the Delhez collection of Belgian cave fauna, inventorised by Michel Dethier, some *Oncopodura* specimens were tentatively identified as *Oncopodura reyersdorfensis*. During a more recent exploration of Belgian caves (1999-2001), Michel Dethier recovered new specimens of an undescribed *Oncopodura*, with a post-antennal organ similar to that of *Oncopodura reyersdorfensis*, which was tentatively published as a new undescribed species. The new species, *Oncopodura dethieri* sp. nov., is here described as a new species to science. ABS: Leruth (1939) ontdekte een nog niet beschreven soort *Oncopodura* gedurende het opstellen van een inventaris van de Belgische grotten fauna. Leruth's verloren gewaande verzameling van Collembola specimens van 1932-1934 werd opgespoord door Michel Dethier en teruggevonden in het Museo Nacional de Ciencias Naturales te Madrid in Spanje. In de Delhez verzameling van de Belgische grotten fauna, geinventariseerd door Michel Dethier, werden enkele *Oncopodura* specimens onder voorbehoud geïdentificeerd als *Oncopodura reyersdorfensis*. In de loop van een meer recente exploratie van Belgische grotten (1999-2001) vond Michel Dethier nieuwe specimens van een nog niet beschreven soort *Oncopodura* met een post-antennaal orgaan gelijkende op dat van *Oncopodura reyersdorfensis*, die voorlopig gepubliceerd werden als een nieuwe soort. De nieuwe soort, *Oncopodura dethieri* sp. nov., wordt hier beschreven als een nieuwe soort voor de wetenschap. KW: Cave species, post-antennal organ, 3D reconstruction, confocal laser scanning microscopy.

**JEFFERY (W. R.), 2010.** Pleiotropic tradeoffs between constructive and regressive traits during troglomorphic evolution:117-118. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIĆ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The adaptive benefits of regressive troglomorphic traits, such as eye and pigment degeneration, are difficult to identify in cave animals. We have approached this problem by studying the developmental and molecular relationships between several different constructive and regressive traits. In the cavefish *Astyanax mexicanus*, sonic hedgehog (*shh*) overexpression along the embryonic midline is responsible for eye degeneration. Subsequently, *shh* overexpression spreads to the cavefish oral-pharyngeal area. Cavefish have constructive oral-pharyngeal traits, including larger mouths and more taste buds, relative to surface dwelling *Astyanax*. A tradeoff between constructive oral pharyngeal development and optic degeneration has been demonstrated by conditional *shh* overexpression in surface *Astyanax*

embryos, which increases mouth and taste bud development at the expense of eyes via pleiotropic Shh signaling. Cavefish lack melanin synthesis in regressed pigment cells due to loss-of-function mutations in *oca2*, which normally regulates the supply of L-DOPA precursor during melanin synthesis. The block in cavefish pigmentation occurs at a metabolic branch point in which L-tyrosine is normally converted either (1) to L-DOPA, DOPAquinone, and melanin by tyrosinase or (2) to L-DOPA, dopamine, and related catecholamines by tyrosine hydroxylase and other enzymes. A similar block in the initial step of melanin synthesis has evolved independently in the cave plant hopper *Oliarus polyphemus* and other diverse cave animals. In *Astyanax* cavefish, the benefit of lost melanin pigment appears to be the production of excess L-DOPA and its derivative dopamine by the second alternative pathway, which promotes constructive development of dopaminergic neurons and enhances the magnitude of adaptive feeding behavior. We conclude that the evolution of beneficial constructive traits could have driven regressive traits via developmental tradeoffs encoded in pleiotropic genes, which adapt cave animals to life in darkness. <http://www.icsb2010.net/>

**JEFFERY (W. R.) & STRICKLER (A. G.), 2010.** Chapter 6. Development as an Evolutionary Process in *Astyanax* Cavefishes:141-182. **DOI:**

<http://dx.doi.org/10.1201/EBK1578086702-c6>. In: TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.), *Biology of Subterranean Fishes*. Edited by TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.). ISBN: 978-1-57808-670-2. eBook ISBN: 978-1-4398-4048-1. Science Publishers 2010. 460 p.

**JIANG (T.), LIU (R.), METZNER (W.), YOU (Y.), LI (S.), LIU (S.) & FENG (J.), 2010.** Geographical and individual variation in echolocation calls of the intermediate leaf-nosed bat, *Hipposideros larvatus*. *Ethology* 116(8, August):691-703. **DOI:** <http://dx.doi.org/10.1111/j.1439-0310.2010.01785.x>.

ABS: The cause and significance of variation in echolocation call frequency within hipposiderid bats is not well understood despite an increasing number of allopatric and sympatric examples being documented. We examined variation patterns in the resting frequency (RF) of echolocation calls emitted by the intermediate leaf-nosed bat, *Hipposideros larvatus*, on a broad geographical scale. Data mining technology and Kruskal-Wallis test both showed substantial variation with a longitudinal pattern in RF in *H. larvatus* among colonies, and this variation was associated with geographical distance and not body size. In addition, we found that a high degree of variability between individuals was hidden under the geographical variation. The results support an effect of random cultural drift, and challenge the prey detection hypothesis. Moreover, an acoustic difference among local island colonies may be indicative of a vocal dialect. We found that each colony of *H. larvatus* seems to maintain a "private bandwidth", which could be used for colony identity and individual communication thus helping individuals and colonies to get a number of fitness benefits.

**JOCHUM (A.), WEIGAND (A. M.), SLAPNIK (R.) & KLUSMANN-KOLB (A.), 2010.** *Zospeum*: Luminaries of the Dark - Barcoding highlights an old taxonomic conundrum besetting microsnails (Pulmonata, Ellobioidea, Carychiidae). Abstract. The Malacological Society of London Molluscan Forum, Nov. 30, 2010, NHM London, UK.

**JOHNSON (J. B.), FORD (W. M.), RODRIGUE (J. L.), EDWARDS (J. W.) & JOHNSON (C. M.), 2010.** Roost selection by male Indiana myotis following forest fires in Central Appalachian Hardwoods Forests. *Journal of Fish and Wildlife Management* 1(2):111-121; e1944-687X. **DOI:** <http://dx.doi.org/10.3996/042010-JFWM-007>.

**JONES (B.), 2010.** Microbes in caves: agents of calcite corrosion and precipitation:7-30. **DOI:** <http://dx.doi.org/10.1144/SP336.2>. In: PEDLEY (H. M.) & ROGERSON (M.), *Tufas and Speleothems: Unravelling the Microbial and Physical Controls*, Edited by: PEDLEY (H. M.) & ROGERSON (M.), University of Hull, UK. *Geological Society, London, Special Publications*, 336.

ABS: Diverse biogenic and abiogenic processes produce calcite speleothems. From a biogenic perspective, cave microbes mediate a wide range of destructive and constructive processes that collectively influence the growth of calcite speleothems and their internal fabrics. Destructive processes include substrate breakdown by dissolution, boring and residue micrite production, whereas constructive processes include microbe calcification, trapping and binding of detrital particles to substrates, and microbial induced calcite precipitation. Biogenesis can be established from: (1) the presence of mineralized microbes; (2) fabrics, such as stromatolite-like structures, that can be attributed to microbial activity; and/or (3) geochemical proxies (carbon and oxygen isotopes, lipid biomarkers) considered indicative of microbe activity. Such criteria have, for example, been used to demonstrate microbial involvement in the formation of pool fingers, stalactites/stalagmites, cave pisoliths and moonmilk. Nevertheless, absolute proof of microbial biogenesis in calcitic speleothems is commonly difficult because taphonomic processes and/or diagenetic processes commonly mask evidence of microbial activity. The assumption that calcitic speleothems are abiogenic, which has been tacitly assumed in many studies, is dangerous as there is clear evidence that microbes thrive in most caves and can directly and indirectly influence calcite precipitation in many different ways.

**JONES (D. S.), TOBLER (D.), SCHAPERDOTH (L.), MAINIERO (M.) & MACALADY (J. L.), 2010.** Community structure of subsurface biofilms from the thermal sulfidic caves of Acquasanta Terme, Italy. *Applied and Environmental Microbiology* 76(17, September):5902-5910. **DOI:** <http://dx.doi.org/10.1128/AEM.00647-10>.

**JUAN (C.) & EMERSON (B. C.), 2010.** Evolution underground: shedding light on the diversification of subterranean insects. *Journal of Biology* 9(3):17, 5 p. **DOI:**

<http://dx.doi.org/10.1186/jbiol227>. ABS: A recent study in *BMC Evolutionary Biology* has reconstructed the molecular phylogeny of a large Mediterranean cave-dwelling beetle clade, revealing an ancient origin and strong geographic structuring. It seems likely that diversification of this clade in the Oligocene was seeded by an ancestor already adapted to subterranean life. See research article <http://www.biomedcentral.com/1471-2148/10/29> website.

**JUAN (C.), GUZIK (M. T.), JAUME (D.) & COOPER (S. J. B.), 2010.** Evolution in caves: Darwin's "wrecks of ancient life" in the molecular era. *Molecular Ecology* 19(18, September):3865-3880. **DOI:**

<http://dx.doi.org/10.1111/j.1365-294X.2010.04759.x>. ABS: Cave animals have historically attracted the attention of evolutionary biologists because of their bizarre "regressive" characters and convergent evolution. However, understanding of their biogeographic and evolutionary history, including mechanisms of speciation, has remained elusive. In the last decade, molecular data have been obtained for subterranean taxa and their surface relatives, which have allowed some of the classical debates on the evolution of cave fauna to be revisited. Here, we review some of the major studies, focusing on the contribution of phylogeography in the following areas: biogeographic history and the relative roles of dispersal and vicariance, colonization history, cryptic species diversity and modes of speciation of cave animals. We further consider the limitations of current research and prospects for the future. Phylogeographic studies have confirmed that cave species are often cryptic, with highly restricted distributions, but have also shown that their divergence and potential speciation may occur despite the presence of gene flow from surface populations. Significantly, phylogeographic studies have provided evidence for speciation and adaptive evolution within the confines of cave environments, questioning the assumption that cave species evolved directly from surface ancestors. Recent technical developments involving "next generation" DNA sequencing and theoretical developments in coalescent and population modelling are likely to revolutionize the field further, particularly in the study of speciation and the genetic basis of adaptation and convergent evolution within subterranean habitats. In summary, phylogeographic studies have provided an unprecedented insight into the evolution of these unique fauna, and the future of the field should be inspiring and data rich. KW: Cave animals, cryptic species, phylogeography, speciation, subterranean, vicariance and dispersal.

**JUBERTHIE (C.), 2010.** Jacques Pierre DURAND, 12 Juillet 1936 - 13 Avril 2007. *SIBIOS-ISSB Newsletter* 7(2006-2010):26-34.

**JUBERTHIE (C.), 2010.** Mesovoid shallow substratum (MSS):25-26. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The MSS was discovered by Juberthie et al. (1980, 1981) in the French Pyrenees, then in 1981 in Carpathian Mountains in Romania (Juberthie et al.). At the same time Ueno described in Japan the Upper Hypogean Habitat. In 1986, Oromi et al. described from Canary Islands a Volcanic MSS type found also in Hawaii by Howarth. The MSS is present in mountains of the temperate zone. The MSS is recorded at least from: Canary Islands, Spain, France, Italy, Austria, Czech Republic, Slovenia, Romania, Bulgaria, Greece, Turkey, Japan, Taiwan, China, Hawaii. The MSS is located beneath the last mineral horizon of soil and the compact bedrock. The more frequent MSS is composed of a network of small voids in screes covered by soil. When a soil has covered the scree, a climatic subterranean habitat, similar to the climate of caves is generated and a new MSS is available for colonization. The difference consists in the greater range of seasonal temperature variations. In karstic areas the MSS lies at the foot of carbonated cliffs; it can be connected with caves. The second type is very superficial cracks of the rocks, covered by soil. The third type is the Volcanic MSS in scoriaceous layers or in some types of lava flow, or in combination of the first and the second. The MSS extends the subterranean habitat. It is present in karstic areas but mainly in other types of rocks, without caves. Trophic resources consist in organic matters introduced by meteoric waters, and soil animals which penetrate passively or actively. Two fauna communities inhabit the MSS: one specific to the MSS, and the other composed of selected soil dwellers. The specific community is composed of troglophile and troglotrophic species, the same as in caves, or specific to MSS. Dominant group, the Coleoptera Trechinae and Leptodirinae: around 120 troglotrophic species, and 46 genera. Also found are: Isopoda, Pseudoscorpiones, Araneae, Chilopoda, Diplopoda, Collembola, Campodea, Blattaria, Orthoptera, Diptera. In Pyrenees, a scree on a slope of a glacial valley was formed at the end of the last glacial period, from 24000 to 12000 BP, the genesis of the MSS began 12000-13000 years ago when climate changed, and a soil covered the scree. It was colonized by Coleoptera Aphaenops and Speonomus migrating from small populations surviving in limestone caves in the neighbouring karstic massif. The MSS is really a permanent subterranean habitat similar to caves. <http://www.icsb2010.net/>

**JUGOVIC (J.), 2010.** Vrstna in rasna morfološka diferenciacija jamskih kozic *Troglocaris* aggr. *anophthalmus* (Crustacea: Decapoda: Atyidae) na Dinarskem krasu [Cave shrimps *Troglocaris* aggr. *anophthalmus* (Crustacea: Decapoda: Atyidae), species and racial morphological differentiation in the dinaric karst]. Doktorska disertacija [Doctoral dissertation], Univerza v Ljubljani, Biotehniška fakulteta, Oddelek za biologijo, Ljubljana, 2010, 173 p.

**JUGOVIC (J.), PREVORČNIK (S.), ALJANČIČ (G.) & SKET (B.), 2010.** The shrimp rostrum between phylogeny and adaptation:118, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Cave shrimps of the subgenus *Troglocaris* (Crustacea: Decapoda: Atyidae), exhibit high variability in rostral length and dentition. In the shrimp populations that are co-occurring with its amphibian predator *Proteus anguinus*, longer rostra armed with more numerous teeth are recorded. These shrimps are also larger than the ones living in the presumably *Proteus*-free environment. Discrepancies between the molecularly established phylogenetic relations and distributions of rostral length, as well as body size, directed our search towards possible environmental influences and possible defence mechanisms of cave shrimps. Although there are some exceptions, the common use of the rostral length is disputable in the diagnoses of the Atyid taxa. In preliminary laboratory observations no successful frontal attack of *Proteus* was recorded on shrimps with long rostra. Also, a handling time of *Proteus* feeding on shrimps with long rostra was longer. <http://www.icsb2010.net/>

**JUGOVIC (J.), PREVORČNIK (S.), BLEJEC (A.) & SKET (B.), 2010.** Linking molecular phylogeny to morphological evolution in *Troglocaris* (Crustacea: Decapoda: Atyidae):58. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Ever since first species of *Troglocaris* (Dormitzer, 1853) was described the taxonomy of the genus has been unresolved. Only after the phylogenetic reconstruction (COI, 16S rRNA and 28S rRNA) of the putative *Troglocaris* taxa from three separated distribution areas - from the Dinarides (Western Balkan Peninsula), S France and Caucasus - their phylogenetic relationships were revealed. The only French species was relocated into a new genus as *Gallocaris inermis* Sket & Zakšek, 2009, being more closely related to the epigeal *Dugastella valentina* (Ferrer Galdiano, 1924) than to its supposed congeners. The taxa from the other two areas constitute a monophylum comprising the Caucasian *Xiphocaridinella* Sadvovsky, 1930, and three Dinaric subgenera: sg. *Troglocaris* (= *Troglocaris* s. str.), sg. *Speleocaris* Matjašič, 1956 and sg. *Troglocaridella* Babić, 1922. Eleven species and phylogroups of the Dinaric subgenera were morphometrically analysed. The accordance of morphology and molecular data is demonstrated by multivariate statistical analyses. Although already a set of non-sexual characters enables distinct separation of all subgenera, optimal accordance of morphological and molecular data is achieved by the consideration of sexual characters in adult males. At the subgeneric level, both phylogenetic subclades of the subgenus *Speleocaris* are morphologically recognized, together with most of their species. In *Troglocaris* s. str., however, only a combination of numerous characters can separate phylogroups to some extent. A few characters, inappropriate for the multivariate statistics support the separation additionally. While the majority of the morphometric characters seem to be a subject of a phylogenetic patrimony, rostral characteristics and body size may be a result of adaptation. Eventually, the molecular approach remains the most appropriate for a reliable determination of the most *Troglocaris* s. str. species and phylogroups. <http://www.icsb2010.net/>

**JURADO (V.), PORCA (E.), CUEZVA (S.), FERNANDEZ-CORTES (A.), SÁNCHEZ-MORAL (S.) & SÁIZ-JIMÉNEZ (C.), 2010.** Fungal outbreak in a show cave. *Science of the Total Environment* 408(17, August 1<sup>st</sup>):3632-3638. **DOI:** <http://dx.doi.org/10.1016/j.scitotenv.2010.04.057>. ABS:

Castañar de Ibor Cave (Spain) was discovered in 1967 and declared a Natural Monument in 1997. In 2003 the cave was opened to public visits. Despite of extensive control, on 26 August 2008 the cave walls and sediments appeared colonized by long, white fungal mycelia. This event was the result of an accidental input of detritus on the afternoon of 24 August 2008. We report here a fungal outbreak initiated by *Mucor circinelloides* and *Fusarium solani* and the methods used to control it. KW: Show caves, Fungal outbreak, Control of fungi, *Mucor circinelloides*, *Fusarium solani*.

**JUSTINIANO (E. D.), NIEVES-RIVERA (Á. M.) & SANTOS-FLORES (C. J.), 2010.** Preliminary Survey of Copepods from Cueva Clara, Río Camuy Caves Park, Puerto Rico. *Espeleorevista Puerto Rico* 3(Junio-Diciembre):13-16. ABS: Recent surveys have recorded cosmopolitan cyclopoid copepods such as *Macrocyclops albidus*, *Mesocyclops aspericornis*, *Microcyclops varicans* and *Eucyclops agilis* from Cueva Clara de Empalme (or Cueva Clara) in the Río Camuy Caves Park of the Río Camuy Cave System (RCCS) in the northern karst of Puerto Rico. Our findings do not support the widely accepted notion that cave dwelling organisms are for the most part endemic and/or highly specialized species, leading to the conclusion that not all cave fauna is necessarily endemic. Further detailed examination of cave-dwelling copepod fauna using molecular techniques would prove beneficial in determining whether species found are indeed individuals of a particular species with a wide distribution, or if the presence of cryptic species is a viable explanation. KW: Copepoda, Cyclopoidea, microcrustaceans, karst, caverns, Caribbean. <http://www.cuevaspr.org/>

**KAJI (T.) & TSUKAGOSHI (A.), 2010.** Heterochrony and modularity in the degeneration of maxillopodan nauplius eyes. *Biological Journal of the Linnean Society* 99(3,

March):521-529. DOI: <http://dx.doi.org/10.1111/j.1095-8312.2009.01382.x>. ABS: Eye degeneration is a general evolutionary tendency shown in many animal groups that are adapted to dark environments. Thus far, the degenerative process has only been discussed within a few taxonomic units, in terms of both evolution and development, and more studies are needed to deal adequately with this area of ostracod biology. The ostracods and copepods examined in the present study are small crustaceans that are widely diversified in the aquatic environment, and also in interstitial environments, and their "nauplius eyes" (primitive eye in Crustacea; typically composed of three or four ocelli) show various degrees of degeneration. The ultrastructure and ontogeny of their degenerated nauplius eyes are described for the first time in the present study, using transmission electron microscopy. According to our observations, two morphotypes for degenerative nauplius eyes (i. e. "tapetal-less form" and "pigment reduced form") are found in both taxa. The first description of the embryogenesis of normal (none-degenerated) nauplius eyes of surface species is also provided. From a comparison between the embryogenesis of normal nauplius eyes and the postembryogenic development of the "tapetal-less form", it is strongly suggested that the "tapetal-less form" is derived by paedomorphic evolution. On the basis of our observations, as well as on previous studies, we propose the hypothesis that modularity, in the form of hierarchical interactions, exists in the nauplius eye (i. e. the tapetal cells constitute an independent developmental module to be distinguished from other developmental or functional modules, including both the pigmented cells and the sensory cells). According to our hypothesis on the nauplius eyes, we also discuss the possibility that the degenerative process is constrained within the general developmental and functional context. KW: Copepoda, interstitial, ontogeny, Ostracoda.

**KANAGARAJ (C.), MARIMUTHU (G.) & RAJAN (K. E.), 2010.** Genetic analysis on three South Indian sympatric hipposiderid bats (Chiroptera, Hipposideridae) [An  lisis gen  tico de tres murci  lagos hiposid  ridos (Chiroptera, Hipposideridae) simp  tricos del sur de la India]. *Animal Biodiversity and Conservation* 33(2):187-194. ABS: In mitochondrial DNA, variations in the sequence of 16S rRNA region were analyzed to infer the genetic relationship and population history of three sympatric hipposiderid bats, *Hipposideros speoris*, *H. fulvus* and *H. ater*. Based on the DNA sequence data, we observed relatively lower haplotype and higher nucleotide diversity in *H. speoris* than in the other two species. The pairwise comparisons of the genetic divergence inferred a genetic relationship between the three hipposiderid bats. We used haplotype sequences to construct a phylogenetic tree. Maximum parsimony and Bayesian inference analysis generated a tree with similar topology. *H. fulvus* and *H. ater* formed one cluster and *H. speoris* formed another cluster. Analysis of the demographic history of populations using Jajima's D test revealed past changes in populations. Comparison of the observed distribution of pairwise differences in the nucleotides with expected sudden expansion model accepts for *H. fulvus* and *H. ater* but not for *H. speoris* populations. KW: Chiroptera, *Hipposideros*, mtDNA, 16S rRNA, Phylogeny. RES: Se analizaron las variaciones en las secuencias de la regi  n del ARNr 16S del ADN mitocondrial, con el fin de deducir la relaci  n gen  tica y la historia de la poblaci  n de tres murci  lagos hiposid  ridos simp  tricos: *Hipposideros speoris*, *H. fulvus* e *H. ater*. Bas  ndonos en los datos de las secuencias del ADN, observamos una diversidad de nucle  tidos mayor y una diversidad haplot  pica relativamente menor en *H. speoris* que en las otras dos especies. Las comparaciones por pares de la divergencia gen  tica dio como resultado una relaci  n gen  tica entre los tres murci  lagos hiposid  ridos. Utilizamos las secuencias haplot  picas para construir un   rbol filogen  tico. Los an  lisis de inferencia bayesiana y de m  xima parsimonia dieron lugar a un   rbol con una topolog  a similar. *H. fulvus* e *H. ater* formaban un conglomerado, y *H. speoris* formaba otro conglomerado. El an  lisis de la historia demogr  fica de las poblaciones, utilizando el test D de Jajima, puso de manifiesto cambios de poblaci  n sucedidos en el pasado. La comparaci  n de la distribuci  n observada de las diferencias de nucle  tidos por pares con el modelo previsto de expansi  n s  bita se acepta para las poblaciones de *H. fulvus* e *H. ater*, pero no as   para las de *H. speoris*. PC: Chiroptera, *Hipposideros*, ADNm, ARNr 16S, Filogenia. <http://www.raco.cat/index.php/ABC/article/view/214979>

**KA  UCH (P.), FORN  SKOV   (A.), BARTONI  KA (T.), BRYJA (J.) &   EH  K (Z.), 2010.** Do two cryptic pipistrelle bat species differ in their autumn and winter

roosting strategies within the range of sympatry? *Folia Zoologica* 59(2):102-107. ABS: Large hibernating aggregations and behaviour called late summer or autumn "invasions" when large groups of bats enter buildings are known in pipistrelles. We investigated differences in roosting behaviour between two cryptic species (common pipistrelle, *Pipistrellus pipistrellus*, and soprano pipistrelle, *Pipistrellus pygmaeus*) during autumn and winter periods. In total 463 bats were sampled in both caves and buildings with temporary occurrence during the period of late summer and autumn mating and presumable migrations from late July to September (10 sites), and in all known types of hibernacula from late November to March (34 sites). Sampling sites were located within the Czech Republic, Slovakia, Serbia and Romania in areas where the two species occur sympatrically throughout the summer. Using a DNA-based identification method, all but four individuals were identified as *P. pipistrellus*. It means that winter roosts of *P. pygmaeus* remain largely unknown in the area. Similarly, no *P. pygmaeus* was found in the "invasion" assemblages. Very abundant groups of *P. pipistrellus* in underground hibernacula and its exclusive occurrence in sites of "invasions" suggest that roosting behaviour during this time may be species-specific. KW: *Pipistrellus*, ecology, hibernacula, invasions, PCR-identification. [http://www.ivb.cz/folia/pdf\\_obsah.htm](http://www.ivb.cz/folia/pdf_obsah.htm)

**KARAMAN (I. M.) & OZIMEC (R.), 2010.** New long-legged cave-dwelling representatives of the Balkan genus *Cyphophthalmus* (Opiliones, Cyphophthalmi, Sironidae) and the question of functional significance of troglobite appendage elongation:119. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: During recent biospeleological research of the Velebit Mountains (Croatia), performed by members of Croatian biospeleological Society (CBSS), new taxa of the genus *Cyphophthalmus* (Opiliones, Sironidae) have been found. New taxa inhabit all regions of Velebit Mountains regularly in ca. 100 m deep cave habitat. New *Cyphophthalmus* taxa are characterized by very elongated appendages compared with some closely related troglobitic species from the same genus and troglobitic sironids generally. There are some endogean representatives of the same genus with elongated appendages too. This fact opens a question about functional significance of appendage elongation in troglobites, as a rule. Is it an adaptation or not? Specimens of new *Cyphophthalmus* from North and Middle Velebit show some morphoanatomical differences compared with specimens from South Velebit. But molecular analyses show no differences between the two taxa considered to be two different subspecies. Due to the fact that all collected specimens are females and that their *receptacula seminis* are not well sclerotized, we assume that the taxa are parthenogenetic. <http://www.icsb2010.net/>

**KARANOVIC (T.), 2010.** First record of the harpacticoid genus *Nitocrellopsis* (Copepoda, Ameiridae) in Australia, with descriptions of three new species. *Annales de Limnologie - International Journal of Limnology* 46(4):249-280. DOI:

<http://dx.doi.org/10.1051/limn/2010021>. ABS: Three new freshwater ameirid species were discovered in the Western Australian subterranean habitats and described in this paper. They all proved to belong to the genus *Nitocrellopsis* Galassi, De Laurentiis & Dole-Olivier, 1999, representing the first record of this genus in Australia. *Nitocrellopsis operculata* sp. nov. was collected in 2003 in the Pilbara region, during the Pilbara Regional Survey, led by the Western Australian Department of Environment and Conservation (DEC). It can be distinguished from all other congeners by the reduced armature of the antennal exopod, which is an autapomorphic feature. Also, no other species of *Nitocrellopsis* has cuticular windows on prosomal or urosomal somites, or six elements on the third exopodal segment of the second leg. *Nitocrellopsis halsei* sp. nov. and *N. pinderi* sp. nov. are sister-species, collected in 2007 in the neighbouring Yilgarn region, by the private environmental consulting company Bennelongia Pty Ltd. Numerous morphological similarities include somite ornamentation, armature patterns of the swimming legs and the fifth leg, as well as the shape and armature of the antennula, antenna and almost all mouth appendages, while the main differences between the two are observed in the body size and habitus appearance, caudal rami shape and size, presence/absence of large lateral pores on the fourth pedigerous somite, number of spinules on

the anal operculum, number of setae on the madibular endopod, and shape of the exopod of the fifth leg. Although they differ from any other congener by a combination of characters, no significant autapomorphic features were observed. In order to find a more natural allocation of these three species, a cladistic analysis is performed on all current members of *Nitocrellopsis* and three outgroup taxa, based on 45 morphological characters. The resulting cladogram shows that the ingroup is well defined by at least four synapomorphies, but the Australian species from the two regions are only remotely related to each other, showing the importance of looking at small-scale patterns when inferring Gondwanan biogeography. Three sister-species pairs are recognized in the genus and a key to all 12 members is provided. KW: Cladistics, phylogeny, Pilbara, stygofauna, subterranean, Tethyan relics, Western Australia, Yilgarn, zoogeography.

- KARAYTUĞ (S.), SAK (S.) & ALPER (A.), 2010.** A new species of *Odaginiceps* Fiers, 1995 (Copepoda, Harpacticoida, Tetragonicipitidae) from the Mediterranean coast of Turkey. *ZooKeys* 53:1-12. [DOI: http://dx.doi.org/10.3897/zookeys.53.389](http://dx.doi.org/10.3897/zookeys.53.389). ABS: Male and female of *Odaginiceps korykosensis* sp. n. (Copepoda, Harpacticoida, Tetragonicipitidae), collected in the intertidal zone of Kızkalesi beach along the Mediterranean coast of Turkey (Mersin Province), are described. The new species is the fifth member of the genus and can easily be distinguished from the other species by the presence of four setae/spines on the second endopodal segment of P4 and by the structure of the caudal rami. Previously, representatives of the genus *Odaginiceps* have been reported from Gulf of Mexico, off Bermuda and Kenya. *O. korykosensis* sp. n. is the first record of the genus in the Mediterranean Sea. KW: Harpacticoida, Tetragonicipitidae, *Odaginiceps*, taxonomy, new species.
- KAYA (R. S.), KUNT (K. B.), MARUSIK (Y. M.) & UĞURTAŞ (İ. H.), 2010.** A new species of *Tegenaria* Latreille, 1804 (Araneae, Agelenidae) from Turkey. *ZooKeys* 51:1-16. [DOI: http://dx.doi.org/10.3897/zookeys.51.467](http://dx.doi.org/10.3897/zookeys.51.467). ABS: A new species of the spider genus *Tegenaria* Latreille, 1804 is described, based on newly collected specimens from Turkey. Detailed morphological descriptions, diagnosis and figures of the copulatory organs of both sexes are presented. Finally, a checklist and distribution maps for Turkish *Tegenaria* species are provided. KW: Agelenidae, new species, *Tegenaria*, Turkey.
- KEIM (B.), 2010.** Desperate Efforts to Save Endangered Bats May Fail. *Wired Science* (March 12, 6:30 am). [www.Wired.com. http://www.wired.com/wiredscience/2010/03/big-eared-bat-captive-colony/](http://www.wired.com/wiredscience/2010/03/big-eared-bat-captive-colony/)
- KEIM (B.), 2010.** Controversy Erupts Over Captive Endangered Bat Colony. *Wired Science* (March 18, 11:41 am). [www.Wired.com. http://www.wired.com/wiredscience/2010/03/bat-colony-update/](http://www.wired.com/wiredscience/2010/03/bat-colony-update/)
- KEIM (B.), 2010.** America's Most Common Bat Headed for Eastern Extinction. *Wired Science* (August 5, 2:00 pm). [www.Wired.com. http://www.wired.com/wiredscience/2010/08/bat-extinction/](http://www.wired.com/wiredscience/2010/08/bat-extinction/)
- KEIM (B.), 2010.** Bat Disease Threatens to Close America's Caves. *Wired Science* (October 18, 6:30 am). [www.Wired.com. http://www.wired.com/wiredscience/2010/10/cave-closings/](http://www.wired.com/wiredscience/2010/10/cave-closings/)
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**KETMAIER (V.), DI RUSSO (C.), RAMPINI (M.) & COBOLLI (M.), 2010.** Genetic divergence in the cave cricket *Troglophilus neglectus* (Orthoptera, Rhaphidophoridae): mitochondrial and nuclear DNA data. *Subterranean Biology* 7(2009, December):25-33.

**KLINGENBERG (C. P.), 2010.** There's something afoot in the evolution of ontogenies. *BMC Evolutionary Biology* 2010 10(July 22):221. [DOI: http://dx.doi.org/10.1186/1471-2148-10-221](http://dx.doi.org/10.1186/1471-2148-10-221).

ABS: Allometry, the association between size and shape, has long been considered an evolutionary constraint because of its ability to channel variation in particular directions in response to evolution of size. Several recent studies, however, have demonstrated that allometries themselves can evolve. Therefore, constraints based on these allometries are not constant over long evolutionary time scales. The changes in ontogeny appear to have a clear adaptive basis, which establishes a feedback loop from adaptive change of ontogeny through the altered developmental constraints to the potential for further evolutionary change. Altogether, therefore, this new evidence underscores the tight interactions between developmental and ecological factors in the evolution of morphological traits.

**KŁYS (G.), & WOŁOSZYN (B. W.), 2010.** Ecological aspects of bat hibernacula in temperate climate zone of Central Europe. *Travaux du Muséum national d'Histoire naturelle "Grigore Antipa"* 53(Décembre):489-497. [DOI: http://dx.doi.org/10.2478/v10191-010-0034-3](http://dx.doi.org/10.2478/v10191-010-0034-3).

ABS: In temperate climate zone, undergrounds (caves) are the main place for bat hibernation. It is possible to distinguish three kinds of usage of caves by bats: caves used as a hibernaculum, where bats spend the winter period, caves used as shelters for reproductive colonies during the summer period, and caves used as temporary shelters during transitional period (spring and fall) and also as places for food. Caves used as hibernaculum must offer a suitable microclimate for bats. Several important physical factors decide on the selection by bats of a refuge for a period of hibernation. The hibernaculum should have a zone of total darkness. During hibernation bats pay special attention to air circulation, humidity and temperature. These factors are also of significance in forming the microclimate condition inside cave system. Throughout the influence above mentioned factors, a connection between microclimatic condition and topoclimate appears in the cave system and, as a consequence, a refugioclimate forms. RÉS: Dans la zone de climat tempéré, les refuges souterrains sont le principal lieu d'hibernation des chauves-souris. On distingue trois modes d'utilisation des grottes par les chauves-souris: les grottes utilisées en tant que lieu d'hibernation, dans lequel les chauves-souris restent pendant l'hiver; les grottes utilisées comme gîtes pour les colonies de reproduction au cours de l'été et les grottes utilisées comme gîtes temporaires au cours des périodes de transition (au printemps et en automne) comme endroits propices pour y trouver leur nourriture. Les grottes qui constituent des refuges pour l'hibernation doivent offrir un microclimat optimum. Quelques facteurs physiques importants contribuent à la sélection d'un refuge pour la période d'hibernation. L'endroit d'hibernation est totalement obscur. Les chauves-souris sont particulièrement attentives pendant l'hibernation à la circulation de l'air, à l'humidité et à la température. Ces facteurs sont très importants pour la formation des conditions microclimatiques et topoclimatiques qui apparaissent dans le réseau de galeries. KW: Chiroptera, ecology, hibernation, cave microclimate, refugioclimate.

**KNIGHT (K.), 2010.** Predator odours don't bother bats. *Journal of Experimental Biology, Inside JEB*, 213(14, July 15):i-ii. [DOI: http://dx.doi.org/10.1242/jeb.047860](http://dx.doi.org/10.1242/jeb.047860).

**KNIGHT (L. R. F. D.) & GLEDHILL (T.), 2010.** The discovery of *Microniphargus leruthi* Schellenberg, 1934 (Crustacea: Amphipoda: Niphargidae) in Britain and its distribution in the British Isles. *Zootaxa* 2655(October 25):52-56, 2 pl., 10 réf. ABS: Salient taxonomic characters of *Microniphargus leruthi* Schellenberg, 1934 are given and figured together with some new observations and an account of its discovery in Britain. The current known distribution of this species within the British Isles is presented. KW: *Microniphargus*, Amphipoda, discovery, distribution, British Isles. <http://www.mapress.com/zootaxa/list/2010/2655.html>

**KÖHLER (J.), VENCES (M.), D'CRUZE (N.) & GLAW (F.), 2010.** Giant dwarfs: discovery of a radiation of large-bodied "stump-toed frogs" from karstic cave environments of northern Madagascar. *Journal of Zoology* 282(1, September):21-38. DOI: <http://dx.doi.org/10.1111/j.1469-7998.2010.00708.x>.

ABS: The endemic Malagasy microhylid genus *Stumpffia* usually comprises small-bodied terrestrial frogs with snout-vent lengths of 16 mm or less, with some miniaturized species as small as 10 mm in their adult stage, and only two described species reaching over 20 mm in snout-vent length. Previous studies have provided evidence for parallel miniaturization in Malagasy microhylids, with several species and candidate species previously assigned to *Stumpffia* probably belonging to other, still undescribed genera. Here, conversely, we report on the discovery of four new species of microhylids from northern Madagascar, of which two are larger than all previously known *Stumpffia*, but all clearly belong to this genus based on molecular phylogenetic relationships. All four species have fully developed digits, are closely related and occur in karstic limestone environments, with most specimens collected in caves, a habitat formerly unknown for cophylines. This newly discovered radiation of large-bodied and supposedly cave-dwelling *Stumpffia* contains one species from Nosy Hara, one from Ankarana, one from Ampombofofo and one from Montagne des Français, respectively. In the latter species, specimens can reach up to 28 mm snout-vent length. These new species are genetically differentiated from each other by 3.8-8.6% pairwise divergence in the 16S rRNA gene and furthermore by differences in coloration, extension of terminal finger discs, relative eye diameter and relative head width. We discuss the status of *Stumpffia madagascariensis* Mocquard, 1895 and consider it a valid species referable to one of the two small-bodied species identified from Montagne d'Ambre National Park. Furthermore, our results support that cophylines are highly microendemic and we provide support for a miniaturized ancestor of the large-bodied species described here, thus demonstrating that miniaturization is evolutionarily reversible. KW: Amphibia, Microhylidae, Cophylinae, *Stumpffia*, new species, microendemism, reversal of miniaturization.

**KOMAI (T.), YAMADA (Y.) & SHIRAKAWA (N.), 2010.**

A new hermit crab species of the genus *Catapaguroides* A. Milne-Edwards & Bouvier (Crustacea: Decapoda: Anomura: Paguridae) from the Ryukyu Islands, Japan, and additional record of *C. foresti* McLaughlin. *Zootaxa* 2690(November 29):32-42, 5 pl., 14 réf. ABS: Two species of the pagurid genus *Catapaguroides* A. Milne-Edwards & Bouvier, 1892, *C. longior* n. sp. and *C. foresti* McLaughlin, 2002, are reported herein. The new species is described on the basis of a single male specimen collected from a submarine cave at Onna Village, Okinawa Island, Ryukyu Islands, at a depth of 30 m. In general morphology, it is most similar to *C. inermis* de Saint Laurent, 1968, but is readily distinguished from that species by the elongate antennal acicle and the broad carpus of the right cheliped. Examination of newly collected specimens from Japan led us to conclude that *C. kasei* Osawa & Takeda, 2004 is a junior subjective synonym of *C. foresti* McLaughlin, 2002. An emended key to the presently recognized species of the genus is provided. KW: Crustacea, Decapoda, Anomura, Paguridae, *Catapaguroides*, new species, synonym, submarine cave, Ryukyu Islands. <http://www.mapress.com/zootaxa/list/2010/2690.html>

**KOMERIČKI (A.) & OZIMEC (R.), 2010.** Faunistic and biogeographic characteristics of the centipedes (Chilopoda) in Croatia with special review on the genus *Eupolybothrus* (Lithobiidae):133-134, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: This poster presents the fauna of centipedes in Croatia with a complete list of taxa, together with the detailed distribution and endemism for each taxon. Analyses of the centipede fauna have been performed according to all available references and systematic taxonomical survey of collections. All together 91 taxa of centipedes have been determined, of which 7 are endemic for Croatia. The largest number of taxa, 84.6%, belong to Mediterranean macroregion. Western-Panonian and Mountain macroregion are far behind with 48.3% and 46.1%, while the Eastern-Panonian macroregion has only 21.9% of centipede taxa recorded for

Croatia. Centipedes of Croatian fauna belong to 4 superfamilies; Scutigermorpha, Lithobiomorpha, Geophilomorpha and Scolopendromorpha. The superfamily Lithobiomorpha and genus *Lithobius* are the most abundant. Out of 91 Croatian taxa 50.5% belong to Lithobiomorpha, and 38.5% belong to genus *Lithobius*. Out of 91 taxa in Croatia, 37 are European endemics, 16 are cosmopolites, 6 are Mediterranean endemics, 5 are Eastern European endemics, 3 are Euromediterranean endemics and 1 is an Istrian endemic. The other taxa are European macroregional endemics and 7.8% of the total number of taxa are Croatian endemics. The genus *Eupolybothrus*, member of Lithobiidae family, is represented by 9 species, of which all are present only in the Mediterranean macroregion. Specimens have been collected from 43 different cavernicolous and epigeal localities, analyzed through UTM grid map of Croatia (10 x 10 km) and according to macroregions. Out of the 9 species, 3 are European endemics and are widely spread in Croatia, while Adriatic, Dinaric and Balkan endemics are each represented by 2 species. *E. leostygis* and *E. obrovensis* are troglobionts, found in Croatia only in a few caves, with a high degree of morphological adaptations to cave habitats. Other species are troglaphiles, also found mainly in caves, but in epigeal habitats as well. <http://www.icsb2010.net/>

**KONEC (M.) & BULOG (B.), 2010.** Three-dimensional

reconstruction of the inner ear of *Proteus anguinus* (Amphibia: Urodela):119-120, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: From serial histological sections (paraffin-embedded, 10 µm) of the otic region, a three-dimensional model of the left and right inner ear in the non-pigmented subspecies of *Proteus anguinus* was built. Sensory epithelia and the perilymphatic system were also reconstructed. A three-dimensional model of the right inner ear of the pigmented subspecies of *Proteus anguinus* was built from serial semi-thin sections (2.5 µm). Those were made from the isolated organ. All sections were photographed. The freeware program Reconstruct was used for reconstruction. It turned out to be useful. It enables all crucial steps in reconstruction: import of pictures, alignment, tracing and generating the three-dimensional model. The semi-thin sections were easier to align, because the sides of the block were still seen and served as fiducial marks. Three-dimensional models were accompanied by pictures of sections in order to present the detailed anatomy of the inner ear. This enabled us to confirm previous results and describe the anatomy of inner ear in the pigmented subspecies of *Proteus anguinus*. The membranous labyrinth turned out to be shorter in the pigmented subspecies. The description is based on a single individual organ; therefore it must be confirmed by additional research. <http://www.icsb2010.net/>

**KONEC (M.) & TRONTELJ (P.), 2010.** Microsatellites as

new tools to study the evolution of subterranean crustaceans:168-169. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The aquatic isopod *Asellus aquaticus* displays one of the most turbulent histories of cave invasion. Multiple lineages have invaded subterranean waters independently, sometimes even within a single cave, and have evolved various degrees of reproductive isolation and troglomorphy. Most work on the evolution of *Asellus aquaticus* conducted so far is based on mitochondrial DNA sequences. Mitochondrial DNA is inherited uniparentally and is highly sensitive to demographic events such as bottlenecks. But the history of a single genetic unit might not reflect the history of the species. Another drawback is the fact that it does not represent a population as a whole. The data would show no migration if only males disperse among populations. Diversity among populations of *Asellus aquaticus* in the Karst region of Slovenia and NE Italy has also been assessed by RAPD genetic markers, which suffer from low reproducibility and the dominant nature of the marker. Microsatellites on the other hand are diploid, co-dominant markers that enable us to identify homozygous and heterozygous individuals. They have very high mutation rates, so they are useful for inferring recent evolutionary events. They enable us to estimate the amount of gene flow and the effective number of migrants with more certainty. In the end they might reveal the processes of recent and/or ongoing speciation, where other markers show no variation. We tested a set of newly developed microsatellite markers on three populations of

*Asellus aquaticus* from the Ljubljana drainage. Two troglomorphic populations are from Planina Cave (Rak Channel and Pivka Channel), whereas the surface population is from Planina Polje, adjacent to the cave. So far, ten loci have been analyzed in subterranean populations, with seven of them also yielding positive results in the surface population. The results show that all three populations are significantly differentiated from each other. Pairwise  $F_{st}$  estimates are highest between the surface and the Pivka Channel population (0.8) and are also high (over 0.6) between the two cave populations (0.57). Expected heterozygosity and allele diversity are very similar in both cave populations. We interpret this strong structure and the apparent lack of gene flow in spite of the tight hydrological interconnectedness of all three populations as consequence of ongoing speciation with ecological divergence. Our new results contradict the results obtained by mitochondrial DNA analysis and they seem to indicate stronger genetic isolation among parapatric populations. The results show the importance of employing different genetic markers and taking all of them into consideration. <http://www.icsb2010.net/>

**KORBEL (K. L.) & HOSE (G. C.), 2010.** A tiered framework for assessing groundwater ecosystem health. *Hydrobiologia* 661(1, February)329-349, from the issue entitled "Lake Restoration: An Experimental Ecosystem Approach for Eutrophication Control", Guest Editors: D. P. Hamilton, M. J. Landman, QuickBird Satellite Imagery as a Tool for Restoration and Rehabilitation of Lake Sevan, Armenia, Guest Editor: Martin A. Stapanian. DOI: <http://dx.doi.org/10.1007/s10750-010-0541-z>. ABS: The notion of ecosystem health has been widely adopted in environmental policy, particularly in the management of river systems. Despite this, even a notional understanding of ecosystem health and its assessment in connected aquifer ecosystems remains elusive. In this article, we propose a definition and provide a tiered framework for the assessment of ecosystem health in groundwater. From the literature we identify general attributes of a healthy groundwater ecosystem and from these develop primary (Tier 1) indicators of health. Where Tier 1 benchmarks are exceeded or more detailed assessment is required, we discuss a range of indicators (Tier 2) that may together generate a multimetric index of groundwater health. Our case study using samples from an alluvial aquifer in north-western New South Wales, Australia, demonstrates the utility of both tiers of the framework, and the ability of the approach to separate disturbed and undisturbed sites. The process of multimetric development is simple and our Tier 2 benchmarks determined from limited data. Nevertheless, our framework will be applicable and readily adaptable to site-specific contexts. KW: Groundwater, Ecosystem health, Indicators, Aquifers, Stygofauna, Groundwater ecosystems. Handling editor: S. A. HALSE.

**KORNOBIS (E.) & PÁLSSON (S.), 2010.** Phylogeny of Crangonyctoidea: taxonomic status and origin of groundwater amphipods, endemic to Iceland, based on two nuclear genes:59. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Two new endemic species of subterranean freshwater amphipods, *Crangonyx islandicus* and *Crymostygius thingvallensis* were recently discovered in groundwater underneath porous lava fields in Iceland. We recently demonstrated that *Crangonyx islandicus* survived the repeated glaciations periods of the Ice Age in sub-glacial refugia. This species is widespread over the active volcanic zone and presents unique morphological and meristical features compared to other *Crangonyx* species and might represent a new genus. *Crymostygius thingvallensis*, defines a new family, is rare and has mainly been found in lake Thingvallvatn. These two species belong to the Crangonyctoidea super family, which has representatives both in North America and on the Eurasian continent. In order to understand where the species come from and to confirm their taxonomic status we have sequenced nuclear genes (18S rRNA and 28S rRNA, about 3000 bp per individual) from the two species from Iceland and from species from North- America, Europe and Asia. A comparison of the gene sequences to published sequences of other amphipod species resulted in phylogeny comprising 10 genes and a total of 21 species. On the taxonomic side, the phylogenetic analyses supports that the two species from Iceland are truly unpreviously described species. Furthermore, no species of Crangonyctoidea appeared

closely related to *C. thingvallensis*. An early divergence from the other species of the group is observed, confirming its monotypic family status. The *Crangonyx* genus is polyphyletic and *C. islandicus* is clearly distinct from the other *Crangonyx* species, and may thus define a new monotypic genus. *Crangonyx* species from Europe appeared more closely related to the *Stygobromus* and *Bactrurus* genus than with the other *Crangonyx* species. These findings clearly highlight the need for a taxonomic revision of the group. On the phylogeographic side, *C. islandicus* is more closely related to other *Crangonyx* species from North America which supports the hypothesis of an ancient colonization through groundwaters contacts between Greenland and Iceland during the early formation of the island. These two endemic species might therefore be the oldest inhabitants of Iceland. <http://www.icsb2010.net/>

**KORNOBIS (E.), PÁLSSON (S.), KRISTJÁNSSON (B. K.) & SVAVARSSON (J.), 2010.** Molecular evidence of the survival of subterranean amphipods (Arthropoda) during Ice Ages underneath glaciers in Iceland:60, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Two endemic groundwater arthropod crustacean species, *Crangonyx islandicus* and *Crymostygius thingvallensis*, were recently discovered at the mid-Atlantic volcanic island of Iceland. The extent of morphological differences from closest relatives, endemism, the geographic isolation of Iceland and its complete coverage by glaciers 21000 years ago, suggests that these two species have survived glaciation periods in a sub-glacial refugium. Here we provide a strong support for this hypothesis by an analysis of mitochondrial genetic variation within *Crangonyx islandicus*. Our results show that the species is divided into several distinct monophyletic groups, found along the volcanic zone in Iceland, which have been separated by 0.5 to around 5 million years. The genetic divergence between groups reflects geographic distances between sampling sites, indicating that divergence occurred after the colonization of Iceland. The genetic patterns and the dependency of genetic variation on distances from the tectonic plate boundary and altitude, point to recent expansion from several refugia within Iceland. This presents the first genetic evidence of a multicellular organisms, as complex as crustacean amphipods, which have survived glaciations underneath an ice sheet. This survival may be explained by geothermal heat linked to volcanic activities, which may have maintained favorable habitats in fissures along the tectonic plate boundary in Iceland during glaciations <http://www.icsb2010.net/>

**KORYTÁR (ĽU.), MIKOVÁ (E.) & UHRIN (M.), 2010.** Chiropterologický seminár 2010 [Chiropterological Seminar 2010]. *Vespertilio* 13/14:309-316. <http://www.ceson.org/publikace.php?p=13>

**KOVÁČ (ĽU.), EUPTÁČIK (P.), PAPAČ (V.), MOCK (A.) & MOUREK (J.), 2010.** Contribution to morphology of paligrade *Eukoenia spelaea* (Peyerimhoff, 1902) and its distribution in the Western Carpathians:134-135. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Paligrades are primarily inhabitants of upper soil layers of tropical forests. Moreover, they occur in caves of the Northern Hemisphere where they are extremely rare. *Eukoenia spelaea* (Peyerimhoff, 1902) is the only paligrade species inhabiting the caves in the Western Carpathians (Slovakia, Hungary). Firstly it was described as *Koenuia vagvoelgyi* Szalay, 1956. Later, Dozsa-Farkas & Loxsa (1970) made a redescription of the taxon and transferred it as subspecies to *Eukoenia austriaca*. However, it clearly belongs to *E. spelaea* complex that involves five subspecies with very vague taxonomic status since descriptions were made based on few specimens only and differential characters were not properly described. The present contribution is based on the detailed morphological study of a population from the Ardovska Cave in Slovakia. Unique collection of specimens allowed to study variability in the most important characters and to evaluate critically the subspecies status of the species. SEM electron-microscopy was used to study detailed morphological structures. At present 14 caves in the Western Carpathians are known to be inhabited by *Eukoenia spelaea*, 17 in Slovakia and 4 in Hungary. It is the

northernmost territory with distribution of palpigrades in the world. Paleogeological and paleogeographic data are used to explain distribution range of *E. spelaea* north to Pannonian Basin. Feeding habit of palpigrades is unknown. Results from observations of the gut content using fluorescent stain are shortly discussed. <http://www.icsb2010.net/>

**KOVÁČ (EU.) & PAPÁČ (V.), 2010.** Revision of the genus *Neelus* Folsom, 1896 (Collembola, Neelida) with the description of two new troglotrophic species from Europe. *Zootaxa* 2663(November 1):36-52, 9 pl., 21 réf. ABS: The paper deals with taxonomic revision of the genus *Neelus* Folsom, 1896. Two new species of the genus are described: *N. koseli* sp. nov. from caves of the eastern Slovakia and *N. klisurenensis* sp. nov. from the Velika Klisura Cave in Serbia (Kosovo). Both species represent first known troglotrophic forms of the genus with distribution restricted to caves. They exhibit clear troglomorphic features not shared by other species of the genus: elongated unguis, larger body, elongated sensilla of Ant. IV segment, and others. Comparative table and dichotomous identification key for species of the genus are provided, remarks on distribution and ecology of species of the genus are added. KW: *N. koseli* sp. nov., *N. klisurenensis* sp. nov., revision, description, cave fauna, identification key, geographic distribution, Slovakia, Serbia. <http://www.mapress.com/zootaxa/list/2010/2663.html>

**KOVBLYUK (M. M.), 2010.** Diversity and endemism of spiders (Arachnida: Araneae) of the Crimean Peninsula, Ukraine:224-226. In: *18<sup>th</sup> International Congress of Arachnology, University of Podlasie & International Society of Arachnology, Siedlce, Poland, 11-17 July 2010, Book of Abstracts*, editor: Marek ŽABKA, ISBN: 978-83-7051-575-1, 507 p.

**KRÄHLING (V.), DOLNIK (O.), KOLESNIKOVA (L.), SCHMIDT-CHANASIT (J.), JORDAN (I.), SANDIG (V.), GÜNTHER (S.) & BECKER (S.), 2010.** Establishment of Fruit Bat Cells (*Rousettus aegyptiacus*) as a Model System for the Investigation of Filoviral Infection. *PLoS Neglected Tropical Diseases* 4(8):e802. DOI: <http://dx.doi.org/10.1371/journal.pntd.0000802>. ABS: Background: The fruit bat species *Rousettus aegyptiacus* was identified as a potential reservoir for the highly pathogenic filovirus Marburg virus. To establish a basis for a molecular understanding of the biology of filoviruses in the reservoir host, we have adapted a set of molecular tools for investigation of filovirus replication in a recently developed cell line, R06E, derived from the species *Rousettus aegyptiacus*. Methodology/Principal Findings: Upon infection with Ebola or Marburg viruses, R06E cells produced viral titers comparable to VeroE6 cells, as shown by TCID50 analysis. Electron microscopic analysis of infected cells revealed morphological signs of filovirus infection as described for human- and monkey-derived cell lines. Using R06E cells, we detected an unusually high amount of intracellular viral proteins, which correlated with the accumulation of high numbers of filoviral nucleocapsids in the cytoplasm. We established protocols to produce Marburg infectious virus-like particles from R06E cells, which were then used to infect naïve target cells to investigate primary transcription. This was not possible with other cell lines previously tested. Moreover, we established protocols to reliably rescue recombinant Marburg viruses from R06E cells. Conclusion/Significance: These data indicated that R06E cells are highly suitable to investigate the biology of filoviruses in cells derived from their presumed reservoir.

**KRAPP-SCHICKEL (T.) & KRAPP (F.), 2010.** Sandro RUFFO: 24 August 1915 - 7 May 2010. *Journal of Crustacean Biology* 30(4, November):778-789. DOI: <http://dx.doi.org/10.1651/10-3351.1>.

**KRIŠTÚFEK (V.), CHROŇÁKOVÁ (A.) & MULEC (J.), 2010.** The heavy metal content in bat guano heaps in karst caves:101-102, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Compared to surface habitats, caves are frequently nutrient-poor. The main source of carbon in caves originates from percolation water, sinking streams and droppings of cave animals.

Bat guano is one of the most important food sources for cave invertebrates; however data on ecology and its degradation are still poor. Fresh bat guano contains a large quantity of chitin residues as fragmented and non-fragmented butterfly/mosquito scales, insect wings, hairs of bats and pollen. Recent studies of guano heaps from Domicca Cave (Slovak Karst, Slovakia) showed that fresh bat guano (0-11 years old) had low pH (3.2) and contained high concentrations of heavy metals (Cd, Cu, Zn). Bat guano (with and without harboring an active bat colony) from two caves from Slovenia (Škocjanske jame I, II and Predjama) were used as reference material for guano from Domicca Cave. All caves are populated by the same insectivorous bats *Miniopterus schreibersii* and in Domicca Cave by *Rhinolophus euryale* in addition. Guano without an active colony of bats had higher pH (4.5 in Škocjanske jame I and 6.1 in Predjama) compared to the fresh guano in Škocjanske jame II (pH 3.5). Guano samples (layer 0-5 cm) from Domicca Cave, Škocjanske jame I, II and Predjama contained (in mg per kg): 207 - 795 Cu, 167 - 1360 Zn, 0.81 - 11.8 Cd, 0.2 - 1.8 As, 2 - 48 Cr, 2 - 25 Pb and 0.3 - 0.5 Hg. Values some of these heavy metals in the guano samples exceeded EU limits for agricultural soils (EC Document 86/278/EEC): Cd 3-4 times, Cu 2-6 times and Zn 4 times. Extremely high amounts of heavy metals in guano can be a reason that chitinolytic activity of microorganisms in guano in many caves is inhibited or even stopped and thus guano remains preserved in caves for a long period. <http://www.icsb2010.net/>

**KUNT (K. B.), YAĞMUR (E. A.), ÖZKÜTÜK (S.), DURMUŞ (H.) & ANLAŞ (S.), 2010.** Checklist of the cave Dwelling Invertebrates (Animalia) of Turkey. *Biological Diversity and Conservation* 3(2):26-41. ABS: In this study, historical development of Turkish biospeleology is summarized with a checklist of cave dwelling Invertebrates of Turkey. After a review of the all available literature on the cave dwelling invertebrates fauna of Turkey, it was determined that 203 species have been reported. 29 of the species are from the phylum Mollusca, 5 species are from the subclass Oligochaeta, 1 species is from the subclass Hirudinea, 82 species are from the classis Arachnida, 1 genus and 19 species are from the classis Diplopoda, 1 genus and 4 species are from the classis Chilopoda, 42 species are from the classis Insecta and 21 species are from the subphylum Crustacea. In these, 104 species are Anatolian endemics. In this checklist, published locality records are given in detail for all species. KW: Biospeleology, Turkey, cave, checklist, Invertebrata. [http://www.biodicon.com/index\\_dosyalar/Page387.htm](http://www.biodicon.com/index_dosyalar/Page387.htm)

**KUNZ (T. H.), BRAUN DE TORREZ (E.), BAUER (D. M.), LOBOVA (T. A.) & FLEMING (T. H.), 2010.** Ecosystem services provided by bats:201. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: The current and expected impacts of climate change, emerging diseases, invasive species, unsustainable harvesting of bush meat, water and air pollution, increased use of pesticides, and introductions of genetically engineered crops are among the most important issues facing humanity. Throughout the world, bats have long provided essential services to natural ecosystems by suppressing insect populations, pollinating flowers, dispersing seeds, and redistributing essential nutrients from terrestrial and aquatic ecosystems to caves that support unique and endemic invertebrate and vertebrate faunas. However, the expected effects of climate change and the myriad of anthropogenic factors influencing flowering times, fruit production, insect production and migration, bat migration and distributions, and bat population densities remain largely unknown. With these actual and expected anthropogenic influences, it is unclear whether bat populations and species can be sustained, as we know them, under different predicted scenarios. Will insect populations increase or decrease in abundance, or will they spread beyond or contract from their current ranges? Can complex cave ecosystems be sustained when organic input of guano from bats becomes reduced? Can tropical forest ecosystems be sustained if pollination and seed dispersal activities are altered? Insectivorous bats are important in suppressing insects that feed on agricultural crops and disperse pathogens, causing economic losses to agriculture in the millions of dollars each year. Understanding the dynamics of insect and bat migration, nightly and seasonal dispersal of bats, dietary habits of bats, and the economic impact of these and related ecosystem services largely remain an elusive goal. Given these uncertainties, it is imperative that bat conservation be a top priority in the bat research community.



**KUNZ (T. H.), REICHARD (J. D.) & Boston University's Center for Ecology and Conservation Biology, 2010.** Status review of the Little Brown *Myotis* (*Myotis lucifugus*) and determination that immediate listing under the endangered species act is scientifically and legally warranted. <http://www.caves.org/WNS/index.htm>

**KURY (A. B.), CHAGAS (A. Jr), GIUPPONI (A. P. L.) & GONZALEZ (A. P.), 2010.** Amblypygi, Opiliones, Schizomida, Scorpiones and Chilopoda, Tocantins, Brazil. *Check List* 6(4):564-571. <http://www.checklist.org.br/archive?vol=6&num=4>

**KUZMIN (I. V.), NIEZGODA (M.), FRANKA (R.), AGWANDA (B.), MARKOTTER (W.), BREIMAN (R. F.), SHIEH (W.-J.), ZAKI (S. R.) & RUPPRECHT (C. E.), 2010.** Marburg Virus in Fruit Bat, Kenya. *Emerging Infectious Diseases* 16(2, February):352-354. **DOI:** <http://dx.doi.org/10.3201/eid1602.091269>.

**LAKOTA (J.), LOHAJ (R.) & DUNAY (G.), 2010.** Taxonomical and ecological notes on the genus *Scotoplanetes* Absolon, with the description of a new species from Montenegro (Coleoptera: Carabidae: Trechini). *Natura Croatica* 19(1, June 30):99-110. ABS: *Scotoplanetes aquacultor* n. sp. from the "Vodna jama" pit (Dragaljsko polje near Grahovo, southwest Montenegro), second known species of the genus is described, illustrated and compared with the congeneric species *Scotoplanetes arenstorffianus* Absolon, 1913. Based on the examination of the holotype, *Scotoplanetes arenstorffianus weiratherianus* Noesske, 1928 is reconsidered in synonymy to *Scotoplanetes arenstorffianus*. Data about the taxonomy of this remarkable genus, complemented with the description of habitat and the bionomy are given. KW: *Scotoplanetes aquacultor* sp. nov., new species, Coleoptera, Carabidae, Trechini, taxonomy, bionomy, subterranean environment, hygropetric, Montenegro. [http://hrcak.srce.hr/index.php?show=clanak&id\\_clanak\\_jezik=82796&lang=en](http://hrcak.srce.hr/index.php?show=clanak&id_clanak_jezik=82796&lang=en)

**LAMB (J. W.) & WYCKOFF (G. R.), 2010.** Cooperative White-nose Syndrome Monitoring and Surveillance Plan for Tennessee. LAMB (J. W.) & WYCKOFF (G. R.), eds. <http://www.caves.org/WNS/index.htm>

**LAMB (J. W.) & WYCKOFF (G. R.), 2010.** White-nose Syndrome Monitoring and Response Report for Tennessee. Technical report prepared for the Tennessee WNS Cooperators. 24 p.

**LANA (E.) & ISAILA (M.), 2010.** Subterranean arachnids of the Western Italian Alps (Arachnida: Araneae, Opiliones, Palpigradi, Pseudoscorpiones):135, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The poster shows the results of five years of field work dedicated to the Subterranean arachnids of the Western Italian Alps. These results that have been recently published in the "Monographies" of the Natural Sciences Museum of Torino (NW-Italy), concern material collected by the authors with an intense field work (2005-2010) and a fruitful collaboration with several European arachnologists (among them: A. L. Schonhofer and E. Christian - harvestmen and palpigrads). Spiders represent the major order recorded in the study area, with *Meta menardi* and *Metellina merianae* being the most abundant, followed by *Nesticus eremita*, *Malthonica silvestris*, *Pimoa rupicola* and *Troglohyphantes lucifuga*. Most remarkable are the troglolobitic species of the genus *Troglohyphantes* (*T. konradi*, *T. pedemontanus*, *T. lanai*) that also show, together with the troglolobitic *T. bornensis*, *T. nigraerosae* and *T. pluto*, the most restricted distributions. Another interesting species is the troglolobitic *Nesticus morisii*, only known from the type locality in the Maritime Alps. *Meta bourneti*, a troglolobitic and markedly thermophilous species is confined, in NW Italy, to one cave in the province of Cuneo and a few caves in Susa Valley (province of Torino). Among opiliones, the most interesting taxa are *Holoscotolemon oreophilum*, three species of *Ischyropsalis*, and

*Leiobunum religiosum*. Palpigrads represent the flagship of the work and of the entire arachnological fauna of the Western Italian Alps. According to current knowledge, the south-western part of the Alpine chain houses *Eukoeneria bonadonai* and *E. strinatii*. Several species of Pseudoscorpionids such as *Pseudoblothrus peyerimhoffi*, *P. ellingseni*, *Chthonius italicus*, *C. troglophilus*, and *Neobisium zoiai* deserve special attention for their pronounced troglomorphy and the restricted distribution. Scorpions and mites have not been considered, but an extremely specialized piedmontese species of *Troglocheles* (Prostigmata: Rhagidiidae) has been described recently by Miloslav Zacharda. <http://www.icsb2010.net/>

**LATELLA (L.), 2010.** Redescription of *Eocatops ambiguus*, Peyerimhoff, 1924 (Coleoptera, Cholevidae, Catopinae, Eucelopinae) from Libya. *Bollettino del Museo Civico di Storia Naturale di Verona, Botanica Zoologia*, 34:87-91. ABS: *Eocatops ambiguus*, Peyerimhoff, 1924 was described on the basis of one male collected in Lethe Cave (Lybia, Benghazi). In the original description no illustration of the habitus, aedeagus or other features are reported. In this paper *Eocatops ambiguus* is redescribed based on holotype from Benghazi and new specimens from Shahhat, Northern Lybia. Illustrations and SEM photographs of diagnostic features are reported. KW: Taxonomy, redescription, Cholevidae, *Eocatops ambiguus*, Lybia. RIAS: Ridescrizione di *Eocatops ambiguus*, Peyerimhoff, 1924 (Coleoptera; Cholevidae; Catopinae; Eucelopinae) della Libia *Eocatops ambiguus*, Peyerimhoff, 1924 è stato descritto in base alle osservazioni condotte su un unico esemplare maschio raccolto nella Grotta del Lete (Libia, Bengasi). Nella descrizione originale non sono state riportate le illustrazioni relative ai caratteri tassonomici o all'habitus. In questo lavoro *Eocatops ambiguus* viene ridescritto sulla base delle osservazioni condotte sull'Holotipus di Bengasi e su nuovi esemplari di Shahhat, nel Nord della Libia. PC: Tassonomia, ridescrizione, Cholevidae, *Eocatops ambiguus*, Libia.

**LATELLA (L.), VERDARI (N.) & GOBBI (M.), 2010.** Distribution and frequency of cave-dwelling terrestrial arthropods in two spatially closed karst areas of the eastern Italian Prealps:42, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The purpose of our research is to describe the spatial distribution of cave dwelling terrestrial arthropods in two geographically closed karst areas (Monte Baldo 398 km<sup>2</sup> and Monti Lessini 1403 km<sup>2</sup>) of the eastern Italian Prealps. Our aims were to test the influence of the: a) number of sampled caves, b) cave's geographic location and c) cave's elevation, on the troglolobitic and endemic species richness. A total of sixty caves (Baldo = 17; Lessinia = 43) and forty-one species (Baldo=6; Lessinia = 35) have been analysed. To avoid the positive correlation between the species richness and the number of caves sampled in each area, Lessinia has been divided in three cells with the same size of Baldo and with a comparable number of caves (Lessinia\_1 = 14, Lessinia\_2 = 15, Lessinia\_3= 14). We calculated species accumulation curves based on Mau Tau values to compare sampling completeness at all different cell sizes. Local richness has been estimated by using the incidencebased coverage (ICE) species richness estimator. The ANOVA test has been computed to evaluate differences in the frequency of endemic species in the different cells. A mean of 11.9 additional species was expected to be found in each of the three Lessinia cells, but not in the Baldo area (exp. sp = 6.46) as indicated by the ICE estimator. Both the troglolobitic and endemic species richness is not influenced by the elevation of the caves. The frequency of endemic species is significant higher in the Baldo area compared with the Lessinia's cells (ANOVA test: F<sub>3,59</sub>=16.92; p<0.0001). On the basis of these results the influence of the Quaternary glacial dynamics at local scale on the spatial distribution of troglolobites and on the frequency of endemic species is analysed and discussed. <http://www.icsb2010.net/>

**LAUMANN (M.), 2010.** *Karst and Caves of Myanmar. Berliner Höhlenkundliche Berichte* 39. 130 p., colour maps, many surveys, Michael LAUMANN, Editor. Voir: STEINER (H.), Chapter 7: Review of the biospeleology of Myanmar:84-? ABS: Everything on the caves and the karst of Burma. Descriptions of over 280 underground sites, including man-made underground temples. All available cave surveys, many of which are published for the first time. Has location maps, an in-depth bibliography as well as a synoptic list of

caves according to provinces. The compilation also has chapters on cave archaeology, and biospeleology, including cave-dwelling bats. In English language with a German and French abstract. Myanmar is still one of the "blank spots" on the speleological world map. The difficult political situation in the country and the restricted access to areas along its borders to Thailand, Laos and India have made only a few speleological expeditions possible so far. However, over the years several investigative projects were carried out with their results scattered in several publications. Especially in most recent times several expeditions were held. This volume aims to give a complete overview about the stand of speleological exploration of Myanmar. The results of all previous cave projects are presented to provide a solid basis for planning future explorations. This compilation also strives to align erroneous locations, name transcription problems as well as double denominations assigned to the same caves - all of which occurred in the literature. Furthermore a biospeleological overview is presented, including the bats of Myanmar. <http://www.speleo-berlin.de/gb/publikationen.php>

- LAUMANN (M.), 2010.**   chos des profondeurs.   tranger. Asie du Sud-Est. Vietnam. Explorations sp  l  ologiques dans le Sud du Vietnam. *Spelunca* 119(Septembre, 3<sup>e</sup> trimestre):10, traduction Olivier TESTA.
- LAUSEN (C. L.), 2010.** Wood Buffalo National Park - September Bat Survey. *Western Canadian Bat Network Newsletter* 17(Autumn):5.
- LAZAROV (S.), 2010.** A New Spider Species *Harpactea krumi* sp. n. from Bulgaria (Araneae, Dysderidae). *Acta zoologica bulgarica* 62(1):27-31.
- LEBRETON (B.) & BESSON (J.-P.), 2010.**    Biospeologica Bibliographia - Publications 2010-1. 30 Juin 2010. 7 p.
- LECOINTRE (G.), GALLUT (C.), CHANET (B.) & DETTA   (A.), 2010.** Du rififi chez les Poissons. *Pour la Science* 390(Avril):57-63.
- LEDDA (F. D.), CAEDDU (B.), PANSINI (M.), PRONZATO (R.) & MANCONI (R.), 2010.** Biodiversity inventory of Mediterranean marine caves: Porifera checklist with new records from Marine Protected Areas of Sardinia and Sicily. 8<sup>th</sup> World Sponge Conference, Girona, Spain, 20-24 September. Book of Abstracts.
- LEE (D. J.) & LEE (W.), 2010.** A new species of the genus *Bryocamptus* (Copepoda: Harpacticoida: Canthocamptidae) from Korea. *Proceedings of the Biological Society of Washington* 123(3):204-219. DOI: <http://dx.doi.org/10.2988/09-14.1>. ABS: *Bryocamptus (Echinocamptus) cheongokensis* sp. nov. is a harpacticoid copepod of the family Canthocamptidae that was collected from a pool in Cheongok cave, Donghae-shi, Kangwon-do, Korea. The new species is characterized by the following diagnostic characters: 1) an eight-segmented female antennule, 2) the absence of an inner seta on the second exopodal segment of P1, 3) the distal segments of the exopod of P2 to P4 are as long as the other two segments combined, and 4) there are six setae on the basoendopod of the female P5. This species has a slight resemblance to the "*hiemalis*" group. However, the new species is clearly distinguishable from the species in the "*hiemalis*" group by the combination of ornamentation of the free margin of the operculum, the number of setae on the P4 endopod, the length/width ratio of the P5 exopod in the female, and the number of setae on the first endopod segment and the lengths of each apical seta on the last endopod segment of P3 in the male. Thus far, 22 species have been reported in the subgenus *Echinocamptus*, and the "*hiemalis*" group includes ten species. Species in this group are typically found in the interstitial groundwater around springs, lakes, streams, and caves. The new species described herein is the first described member of the subgenus *Echinocamptus* from caves in Korea.
- LEGETT (K.), 2010.** Spread of White-Nose Syndrome Forces Closure of Caves. *Refuge Update* 7(6, November/December):7.
- LEHOTSK   (B.), 2010.** Bats in the Bratislava city, Slovakia:205-206. In: 15<sup>th</sup> International Bat Research

*Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR   EK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Bratislava, the capital of Slovak Republic, offers to bats a plenty of sites with suitable conditions for their life. The Bratislava territory spreads on the banks of Danube River in the altitude of 126-514 m above sea level. Besides urban elements, it is possible to find here also plenty of natural complexes at which the majority of them belong to the protected landscape area Mal   Karpaty. In total, 19 bat species were recorded in Bratislava territory (68% of the bat fauna of the Slovak Republic) during last 15 years. Most of them (12) were determined inside buildings or in crevices in blocks of flats. Mostly there were solitaire individuals, but also maternity colonies of 3 species (*Eptesicus serotinus*, *Pipistrellus pipistrellus*, *P. pygmaeus*) and several winter colonies of *Nyctalus noctula* were found. The most frequently observed species inside buildings was *Vespertilio murinus*. Foraging activity of 8 bat species was detected also by bat-detector. The most frequent species were *Nyctalus noctula*, *Eptesicus serotinus*, *Pipistrellus pygmaeus*, and *P. nathusii*. During winter, some of bats hibernate in underground spaces situated in surrounding forest - in cellars (4 species), caves (5 species), old mines (6 species) and old military shelters (bunkers), where 10 bat species were observed. Some of them (*Rhinolophus hipposideros*, *M. bechsteini*, *Myotis nattereri*) were observed in Bratislava territory only in this habitat type. From the beginning of the 20<sup>th</sup> century there are data about occurrence of *Miniopterus schreibersii*, *Myotis emarginatus* and *Eptesicus nilssonii*; nowadays, the occurrence of these species in Bratislava was not confirmed. The results confirmed that the Bratislava territory represents a heterogeneous area, suitable for foraging and shelter of bats.

- LEIJS (R.), 2010.** Evolution of chiltoniid amphipods from subterranean and surface habitats in Australia:61. In: 20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Stygobitic chiltoniid amphipods recently have been found in subterranean habits such as caves, aquifers, and underflow of rivers and creeks in a number of geographic areas in Australia (Yilgarn WA, Flinders Ranges and Eyre Peninsula SA and Musgrave Ranges NT). All the discovered subterranean species are depigmented and blind. Additionally, chiltoniid amphipods are also common in surface waters of the temperate zone of southern Australia (SW Western Australia, South Australia, Victoria and Tasmania) as well as in mound springs in the Great Artesian Basin and sinkholes in the SE of South Australia. Presently, six species in this group have been described: *Phreatochiltonia anophthalma* (subterranean) and *Austrochiltonia dalhousiensis* (surface), both from Dalhousie Springs; *Arabunnachiltonia murphyi* and *Wangiannachiltonia guzikae* from the Lake Eyre mound springs and *A. australis* and *A. subtenuis* from surface waters in Victoria and South Australia. The latter two species have been reported to have a wide distribution across entire southern Australia. Molecular analyses of mitochondrial and nuclear genes of subterranean and surface taxa collected from the entire geographical range of this group shows a number of interesting patterns: (1) There is no evidence for a wide spread distribution of *A. australis* and *A. subtenuis*. (2) There are numerous undescribed, morphological cryptic surface species that often are restricted to individual catchments. (3) There are a number of well defined subterranean clades of which its species are confined to different geographical areas. (4) There are also clades that each contains a mix of species from inland areas such as the Yilgarn and the Great Artesian Basin as well as from the coastal limestone aquifers of Eyre Peninsula. A dated phylogenetic tree, palaeogeographic and climatic data are used to address several evolutionary questions: (1) To what extent did the palaeogeography and historical climates shape the current distribution of the amphipod species and clades? (2) What triggered the evolution of subterranean species in the different areas? <http://www.icsb2010.net/>
- LENCIONI (V.), BERNAB   (P.) & LATELLA (L.), 2010.** Cold resistance in two species of cave-dwelling beetles (Coleoptera: Cholevidae). *Journal of Thermal Biology* 35(7, October):354-359. DOI: <http://dx.doi.org/10.1016/j.jtherbio.2010.07.004>. ABS: Supercooling points (SCPs), lower lethal temperatures (LLTs), and the effect of short-term exposures (1 min) to low temperatures were examined in the adults of two stenothermal leptodirin species, *Neobathyscia mancinii* and *Neobathyscia pasai* (Coleoptera, Cholevidae).

Specimens were collected from two caves in the Venetian Prealps (NE-Italy). Inter-species comparison highlighted lower values of SCP in *N. mancinii* ( $-7.1 \pm 0.9^\circ\text{C}$ ) than in *N. pasai* ( $-6.4 \pm 0.3^\circ\text{C}$ ), with no significant intersexual differences in both species. *N. pasai* ( $\text{LLT}_{50} \pm \text{SE} = -16.96 \pm 2.30^\circ\text{C}$ ;  $\text{LLT}_{100} = -25.41^\circ\text{C}$ ) tolerated short exposures to subzero temperatures better than *N. mancinii* ( $\text{LLT}_{50} \pm \text{SE} = -4.89 \pm 1.08^\circ\text{C}$ ;  $\text{LLT}_{100} = -11.72^\circ\text{C}$ ). According to the mortality and cumulative proportion of individual freezing curves (CPIF), SCPs and  $\text{LLT}_{100}$ , *N. pasai* may be defined as "strongly freeze tolerant", *N. mancinii* as "moderately freezing tolerant". Overall, these results may justify the different in-cave habitat selection showed by the two species (*N. pasai* was abundant close to the entrance where the temperature is variable whereas *N. mancinii* was confined to the internal part of the cave where the temperature is constant throughout the year), and suggest hypotheses on the effects of such habitat selection on freeze tolerance strategy adopted. Finally, they give new insights into possible responses to climate changes in cave dwelling species. KW: Supercooling point, Lower lethal temperatures, Freeze tolerance, Biospeleology; Leptodirinae.

**LENGYEL (G. D.), 2010.** Contribution to the knowledge of the harvestmen of Hungary (Arachnida: Opiliones). *Folia entomologica Hungarica [Rovartani Közlemények]* 71:5-13.

**LENGYEL (G. D.) & PÁLL-GERGELY (B.), 2010.** Notes on the landsnail (Gastropoda) and harvestman (Opiliones) fauna of Bihor and Vlădeasa mountains, Romania. *Studii și Comunicări Seria Științele Naturii* 10/11(2009-2010):91-111.

**LEVITON (A. E.) & ANDERSON (S. C.), 2010.** *The Herpetological Literature for Southwestern Asia. An indexed bibliography. Occasional Papers of the California Academy of Sciences* 157(January 29):622 p., ISSN 0068-5461.

**LEWIS (J. J.) & BOWMAN (T. E.), 2010.** The subterranean asellids of Maryland: Description of *Caecidotea nordeni*, new species, and new records of *C. holsingeri* and *C. franzi* (Crustacea: Malacostraca: Isopoda). *Journal of Cave and Karst Studies* 72(2, August):100-104. DOI: <http://dx.doi.org/10.4311/jcks2009lsc0092>. ABS: Five species of subterranean asellid are known from Maryland: *Caecidotea pricei*, *C. franzi*, *C. holsingeri*, *C. mausi* and *C. vandeli*. *Caecidotea nordeni*, n. sp. is a subterranean species described from Washington Co., Maryland and assigned to the *hobbsi* Group. A new locality for *C. franzi* in Kentucky is presented. This species was previously known from two caves in Maryland and Pennsylvania. The newly discovered population represents a range extension of over 400 km. The male pleopod 2 morphology of specimens from a Maryland population of the subterranean asellid *C. holsingeri* is compared with populations from three caves in West Virginia. The range of *C. holsingeri* extends from eastern West Virginia and adjacent Virginia to Garrett Co., Maryland.

**LIENHARD (C.), HOLUŠA (O.) & GRAFITTI (G.), 2010.** Two new cave-dwelling Prionoglarididae from Venezuela and Namibia (Psocodea: "Psocoptera": Trogiomorpha). *Revue suisse de Zoologie* 117(2, Juin):185-197. ABS: The new genus *Speleopsocus* Lienhard gen. n. is described for a strongly cave-adapted (troglóbite) new species from Venezuela, *Speleopsocus chimanta* Lienhard sp. n. This is the first New World representative of the subfamily Prionoglaridinae. A special structure on the foretarsus of this species is described and interpreted as an antenna cleaner. The new species *Sensitibilla etosha* Lienhard & Holuša sp. n., belonging to the subfamily Speleketorinae, is described from a cave in Namibia. This is the fourth species known of this genus which is endemic to southern Africa. KW: New genus, new species, cave fauna, troglóbite, antenna cleaner, living fossils. [http://www.ville-ge.ch/mhng/publication03\\_01.php](http://www.ville-ge.ch/mhng/publication03_01.php)

**LIENHARD (C.), OLIVEIRA DO CARMO (T.) & FERREIRA (R. L.), 2010.** A new genus of Sensitibillini from Brazilian caves (Psocodea: "Psocoptera": Prionoglarididae). *Revue suisse de Zoologie* 117(4, Décembre):611-635. ABS: The genus *Neotrogla* Lienhard gen. n. is described for three new cavedwelling species from Brazil: *Neotrogla brasiliensis* Lienhard sp. n. (from Minas Gerais State), *N. aurora*

Lienhard sp. n. (from Tocantins State) and *N. truncata* Lienhard sp. n. (from Bahia State). These species are the first Neotropical representatives of the subfamily Speleketorinae and the first New World representatives of the tribe Sensitibillini, previously known only from southern Africa. This distributional pattern of Sensitibillini is tentatively interpreted as due to Western Gondwanan vicariance. In the females of *Neotrogla* a complex of accessory structures to the spermathecal duct is described and denoted by the new term "gynosome". A hypothesis of functional complementarity, during copulation, between the "penis-like" gynosome and the strongly reduced male phallosome of *Neotrogla* is presented. KW: New species, Brazil, cave fauna, gynosome, phallosome, copulation, Western Gondwanan vicariance, living fossils. [http://www.ville-ge.ch/mhng/publication03\\_01.php](http://www.ville-ge.ch/mhng/publication03_01.php)

**LIN (A.-Q.), JIN (L.-R.), LIU (Y.), SUN (K.-P.) & FENG (J.), 2010.** Postnatal Growth and Age Estimation in Horsfield's Leaf-Nosed Bat *Hipposideros larvatus*.

*Zoological Studies* 49(6):789-796. ABS: Patterns of postnatal growth and development in the length of the forearm, body mass, and length of the total gap of the 4<sup>th</sup> metacarpal-phalangeal joint of *Hipposideros larvatus* were studied under natural conditions in southwestern China. Based on these data, we developed empirical growth curves, derived growth rates, and established age-predictive equations and 3 nonlinear growth models. The length of the forearm and body mass followed linear patterns of growth until day 16 with respective growth rates of 1.66 mm/d and 0.40 g/d, and subsequently decreased to a stable level. The length of the total epiphyseal gap increased up to 12 d and then linearly decreased. Some young bats could take flight with 89.32% of the forearm length and only 62.13% of the body mass of adults by day 20. Two linear regression equations for age estimation were derived from the forearm length and the length of the total epiphyseal gap for 1-32 d. Growth patterns of the forearm length and body mass were both best described by logistic nonlinear growth models. The growth rate of *Hipposideros larvatus* was greater than that of many tropical bat species. KW: Postnatal growth, *Hipposideros larvatus*, Age estimation, Body mass. <http://zoolstud.sinica.edu.tw/>

**LIN (Y.) & LI (S. Q.), 2010.** Leptonetid spiders from caves of the Yunnan-Guizhou Plateau, China (Araneae: Leptonetidae).

*Zootaxa* 2587(August 31):1-93, 61 pl., 42 réf. ABS: A total of 27 species of the family Leptonetidae occurring in caves of the Yunnan-Guizhou Plateau, Southwest China, are described, including two new genera, 26 new species and one new combination as follows: *Guineta gigachela* gen. nov. and sp. nov.; *Leptonetela anshun* sp. nov., *L. bama* sp. nov., *L. curvispinosa* sp. nov., *L. danxia* sp. nov., *L. digitata* sp. nov., *L. furcaspina* sp. nov., *L. geminispinata* sp. nov., *L. grandispina* sp. nov., *L. hamata* sp. nov., *L. hexacantha* sp. nov., *L. jinsha* sp. nov., *L. juulong* sp. nov., *L. liping* sp. nov., *L. maxillacostata* sp. nov., *L. meitan* sp. nov., *L. oktocantha* sp. nov., *L. palmata* sp. nov., *L. pentakis* sp. nov., *L. reticulopecta* sp. nov., *L. suae* sp. nov., *L. tetracantha* sp. nov., *L. tongzi* sp. nov. and *L. yangi* sp. nov.; *Sinoneta notabilis* gen. nov. and sp. nov., *S. sexdigiti* sp. nov. In addition, *Leptonetela quinquespinata* (Chen & Zhu, 2008) is transferred from *Qianleptoneta* Chen & Zhu, 2008. The morphology of *Guineta* gen. nov. and *Sinoneta* gen. nov. are studied. Keys to all genera from China and 27 species from Yunnan-Guizhou Plateau are given. All type specimens in this study are collected from caves of Yunnan-Guizhou Plateau, southwestern China and are deposited at the Institute of Zoology, Chinese Academy of Sciences in Beijing (IZCAS). KW: Taxonomy, new species, troglóbites, diagnosis, distribution. <http://www.mapress.com/zootaxa/list/2010/2587.html>

**LIPOVŠEK (S.), NOVAK (T.), JANŽEKOVIČ (F.) & PABST (M. A.), 2010.** Role of the fat body in the cave crickets

*Troglophilus cavicola* and *T. neglectus* (Rhaphidophoridae, Saltatoria) during overwintering:120. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The cave crickets *Troglophilus cavicola* and *T. neglectus* are the most widely distributed European species of the family Rhaphidophoridae. In both, the life cycle spans two years. They overwinter in caves where *T. cavicola* undergo sexual maturation, while *T. neglectus* do not. This non-feeding period is appropriate for a comparative study of the fat body role, especially in the energy supplying lipid and glycogen metabolism.

Optical and TEM cytological, and biochemical methods were applied. The fat body was studied at the beginning (November), in the middle (January) and at the end of overwintering in younger and older nymphs, and adults. Overwintering in warmer microhabitats, *T. cavicola* was expected to use lipids and glycogen more extensively than *T. neglectus*. In all individuals of both species, the fat body was composed of about 40 oval ribbons and consisted of two principal cell types: adipocytes and urocytes. Adipocytes are characterized by a large quantity of storage lipid droplets, glycogen rosettes and protein granula, and urocytes by glycogen rosettes and urate granula. Both undergo gradual structural changes. *T. cavicola* use glycogen continuously, but stop using lipids after the middle of overwintering, while the use of these substances is inverse in *T. neglectus*. <http://www.icsb2010.net/>

**LIPS (J.), BEDOS (A.), KAUFMANN (B.), RAHMADI (C.) & DEHARVENG (L.), 2010.** Arthropods of guano in Santo caves (Vanuatu):43, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The caves of Santo island in Vanuatu were biologically surveyed in September 2006 by the karst team of the expedition "Santo 2006". Focus was placed on guano habitats, which were present and rich in Arthropod species in most of the surveyed caves. Both free and standardized samplings were performed in 26 different guano caves, and at several guano sites in some caves. The diversity of arthropods guano communities was characterized by three features: 1) a low alpha-diversity; 2) inside each community hyperdominance of one or a few species; 3) unexpectedly high variation in species composition among sites. Guanobionts represented a much richer community than troglobionts in the studied area, with several species strictly limited to caves. <http://www.icsb2010.net/>

**LISE (A. A.), FERREIRA (A. C. K.) & CRUZ DA SILVA (E. L.), 2010.** Description of a new species of *Pikelinia* (Araneae: Filistatidae) from Brazil, with notes on its ecology. *Zootaxa* 2604(September 7):61-68, 6 pl., 5 r  f. ABS: *Pikelinia arenicola* sp. n. is described from a "restinga" ecosystem near Lagoa dos Patos, Rio Grande do Sul. It is the first member of the genus recorded from Brasil. Males of *P. arenicola* sp. n. resemble those of *P. tambilloi* but differ in having a larger palpal tibia, a differently shaped bulbous apex and a projection on the ventral face of the tarsus. Females can be distinguished from congeners by the shape of the epigastric flap. Ecological notes on the new species are provided. KW: Araneae, spiders, Filistatidae, taxonomy, new species, ecology, Brazil. <http://www.mapress.com/zootaxa/list/2010/2604.html>

**LIU (Yan), XU (W.-B.) & PAN (B.), 2010.** *Wentsaiboea tiandengensis* sp. nov. and *W. luochengensis* sp. nov. (Gesneriaceae) from Karst caves in Guangxi, southern China. *Nordic Journal of Botany* 28(6, December):739-745. **DOI:** <http://dx.doi.org/10.1111/j.1756-1051.2010.00893.x>. ABS: Two new species of Gesneriaceae, *Wentsaiboea tiandengensis* Yan Liu & B. Pan and *Wentsaiboea luochengensis* Yan Liu & W.-B. Xu from Karst caves in Guangxi, China are described and illustrated. *Wentsaiboea tiandengensis* resembles *W. renifolia*, but differs in the leaf blade being cordate or broadly ovate, the margin crenate or repand, with conspicuous pinnate veins 3-5 on each side, corolla throat constricted, corolla lobes ovate with apex acute, staminodes 3, and ovary broadly ovoid. *Wentsaiboea luochengensis* is similar to *W. renifolia*, but can be distinguished from the latter by the coriaceous leaf blade with 2-3 inconspicuous pinnate veins on each side, elliptic or broadly ovate to sub-rotund in shape, with sub-entire margin and attenuate to cuneate or sub-rotund base, broadly ovate or sub-rotund corolla lobes, rotund or obtuse apex, and 3 staminodes.

**LOHAJ (R.) & LAKOTA (J.), 2010.** Two new genera and species of aphaenopsoid cave-dwelling Trechini beetles from Croatia and Montenegro (Coleoptera: Carabidae: Trechinae). *Natura Croatica* 19(1, June 30):77-97. ABS: Two new genera of cave-dwelling aphaenopsoid Trechini beetles, *Jalzicaphaenops* gen. nov. *poljaki* sp. nov. from Dumen  i  a Őpilja (cave) near Rakovica (central Croatia) and *Acheroniotes* gen. nov. *mlejneki* sp. nov. from pits on Prekornica mountain range (central Montenegro) are described and illustrated. Both new genera are characterized by the presence of posterior pronotal setae, *Jalzicaphaenops* gen. nov. also by

the presence of a pair of setae on pronotal disc. The key to the identification of all hitherto known aphaenopsoid Trechini genera from Dinarids is given. Data on the distribution and ecology of these remarkable genera, complemented with descriptions of the type localities are also provided. KW: *Jalzicaphaenops* gen. nov. *poljaki* sp. nov., *Acheroniotes* gen. nov. *mlejneki* sp. nov., new genus, new species, subterranean environment, Coleoptera, Carabidae, Trechinae, taxonomy, Prekornica Mts., Croatia, Montenegro. [http://hrcak.srce.hr/index.php?show=clanak&id=clanak\\_jezik=82812](http://hrcak.srce.hr/index.php?show=clanak&id=clanak_jezik=82812)

**LOPES FERREIRA (R.), 2010.** Translocation of cave fauna in Brazilian iron ore cave:164-165. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: An experimental translocation of part of the invertebrate community from an iron ore cave to an artificial cavity was carried out in Brazil. The artificial gallery was exclusively built to receive individuals from the original cave. Such experiment was carried out since the original cave will be severely modified by archaeological research. The artificial cave was constructed trying to simulate the original conditions of the cave. Even the small channels in the rock that conform the cave were built through an external perforate machine. Plant species typically found in ferruginous outcrops were planted in hollows that were connecting the external environment with the gallery chamber. Inside these orifices, the root growth was stimulated with a supply of micronutrients and root hormones solution. Such procedure aimed to establish the trophic base in the artificial cave, which was, in the original cave, composed especially of roots of plants of the external vegetation. These roots were consumed by many invertebrate species in the original cave. A total of 57 invertebrate species have been translocated. Of these, 18 were considered to have high potential for the establishment of permanent populations in the gallery, 24 were considered as of low viability (even so, they could colonise), and for 15 the potential could not be established since only one individual was translocated. After 5 years, 23 species have colonised the artificial gallery. Different species have shown distinct dynamics since their occupation of the new habitat. Those differences are probably related to their different life histories. <http://www.icsb2010.net/>

**LORCH (J. M.), GARGAS (A.), METEYER (C. U.), BERLOWSKI-ZIER (B. M.), GREEN (D. E.), SHEARN-BOCHSLER (V.), THOMAS (N. J.) & BLEHERT (D. S.), 2010.** Rapid polymerase chain reaction diagnosis of white-nose syndrome in bats. *Journal of Veterinary Diagnostic Investigation* 22:224-230. ABS: A newly developed polymerase chain reaction (PCR)-based method to rapidly and specifically detect *Geomyces destructans* on the wings of infected bats from small quantities (1-2 mg) of tissue is described in the current study (methods for culturing and isolating *G. destructans* from bat skin are also described). The lower limits of detection for PCR were 5 fg of purified fungal DNA or 100 conidia per 2 mg of wing tissue. By using histology as the standard, the PCR had a diagnostic specificity of 100% and a diagnostic sensitivity of 96%, whereas the diagnostic sensitivity of culture techniques was only 54%. The accuracy and fast turnaround time of PCR provides field biologists with valuable information on infection status more rapidly than traditional methods, and the small amount of tissue required for the test would allow diagnosis of white-nose syndrome in live animals. KW: Bats, *Geomyces destructans*, polymerase chain reaction, white-nose syndrome. <http://jvdi.org/cgi/content/abstract/22/2/224>

**LOUGHMAN (Z. J.), SIMON (T. P.) & WELSH (S. A.), 2010.** Foreword. *Southeastern Naturalist* 9(Special Issue 3: Conservation, Biology, and Natural History of Crayfishes from the Southern United States, June):1-10. **DOI:** <http://dx.doi.org/10.1656/058.009.s301>.

**LOUGHMAN (Z. J.) & WELSH (S. A.), 2010.** Distribution and Conservation Standing of West Virginia Crayfishes. *Southeastern Naturalist* 9(Special Issue 3: Conservation, Biology, and Natural History of Crayfishes from the Southern United States, June):63-78. **DOI:** <http://dx.doi.org/10.1656/058.009.s304>. ABS: The diversity of crayfishes in West Virginia represents a transition between the species-rich southern Appalachian faunas and the depauperate crayfish diversity

in the northeastern United States. Currently, 22 described species occur in the state, of which 6 are given S1 status, and 3 are introduced species. One species, *Orconectes limosus* (Spinycheek Crayfish) is considered extirpated within the past decade. Imperiled species include *Cambarus veteranus* (Big Sandy Crayfish), *Cambarus elkensis* (Elk River Crayfish), *Cambarus longulus* (Atlantic Slope Crayfish), and *Cambarus nerterius* (Greenbrier Cave Crayfish). Three species - *O. virilis* (Virile Crayfish), *Orconectes rusticus* (Rusty Crayfish), and *Procambarus zonangulus* (Southern White River Crayfish) - have introduced populations within the state. *Procambarus acutus* (White River Crayfish) occurs in bottomland forest along the Ohio River floodplain, and is considered native. Several undescribed taxa have been identified and currently are being described. A statewide survey was initiated in 2007 to document the current distribution and conservation status of crayfishes in West Virginia.

**LOURENÇO (W. R.) & PHAM (D.-S.), 2010.** A remarkable new cave scorpion of the family Pseudochactidae Gromov (Chelicerata, Scorpiones) from Vietnam. *ZooKeys* 71:1-13. DOI: <http://dx.doi.org/10.3897/zookeys.71.786>. ABS: A new genus and species of scorpion belonging to the family Pseudochactidae are described based on four specimens collected in the Tien Son cave at the Phong Nha - Ke Bang National Park, Quang Binh Province, Vietnam. The new species represents a true troglitic element, the first one known for the family Pseudochactidae. This represents the third known record of a pseudochactid, and the first from Vietnam. KW: Scorpion, Vietnam, Phong Nha - Ke Bang National Park, karst cave system, new genus and species, troglitic element.

**LOURENÇO (S.) & PALMEIRIM (J. M.), 2010.** How did bat parasites evolved to successfully adapt to their hosts?:213-214. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Parasitism is one of the most successful modes of life. The transition to a parasitic lifestyle is associated to many advantages to parasites, which may include a stable environment, passive mobility, and a lower investment in nutritional functions. However, it also involves a variety of adaptive challenges that had to be met by parasites: In some cases they had to evolve ways to disperse between hosts that are often discontinuously distributed in space and time; they had to adapt to the frequent presence of potential competing parasites within the confined space of the host's body; and had to balance the exploitation of resources of a host with the need to keep it alive. The main aim of this five-year research work was to determine how bat ectoparasites have overcome some of these challenges and successfully adapted to their hosts, using two temperate-zone cave dwelling bats (*Miniopterus schreibersii* and *Myotis myotis*) and its ectoparasites as model systems. We found that a group of specific bat ectoparasites, the nycteribiids, was able to overcome the spatial unpredictability of its hosts within caves by evolving efficient sensorial mechanisms to locate them from a distance. In addition, some parasitic mites, ticks and nycteribiids were found to deal with the temporal unpredictability of their bat hosts, by maximising their reproduction during the reproductive period of bats, when more hosts were available and particularly vulnerable. Also, data showed that competition is likely to occur among bat parasite species, even if for short-term periods, influencing the structure of their communities. And finally, found evidence that the cost of parasitism by mites can be sufficiently severe to affect the body condition of their bat host. We discuss how these potential costs may play a role in the social structure of the bat. Overall, this study provided evidences that bat parasites have tightly coevolved with their hosts. Some of conclusions discussed here are likely to apply to other host-parasite systems involving bats in temperate-zones.

**LOURENÇO (W. R.) & DUHEM (B.), 2010.** Buthid scorpions found in caves; a new species of *Isometrus* Ehrenberg, 1828 (Scorpiones, Buthidae) from southern Vietnam [Scorpions Buthidae trouvés dans des grottes; une nouvelle espèce d'*Isometrus* Ehrenberg, 1828 (Scorpiones, Buthidae) du sud du Vietnam]. *Comptes Rendus Biologies* 333(8, August):631-636. DOI: <http://dx.doi.org/10.1016/j.crvi.2010.05.005>.

ABS: A new species, *Isometrus (Reddyanus) deharvengi* sp. n., is described from caves of the region of Hon Chong, Kien Giang in southern Vietnam.

Comments are also added about the scorpion fauna of Southeast Asia and cave dwelling buthid scorpions. KW: Scorpion, Buthidae, New species, *Isometrus*, Vietnam, Cave-dwelling. RÉ: Une nouvelle espèce, *Isometrus (Reddyanus) deharvengi* sp. n., est décrite des grottes de la région de Hon Chong, Kien Giang dans le sud du Vietnam. Des considérations sont également apportées sur la faune scorpionique du Sud-Est asiatique, ainsi que sur les scorpions Buthidae qui habitent au niveau des grottes. MC: Scorpion, Buthidae, Nouvelle espèce, *Isometrus*, Vietnam, Cavemicoles.

**LUCKY (A.) & WARD (P. S.), 2010.** Taxonomic revision of the ant genus *Leptomymex* Mayr (Hymenoptera: Formicidae). *Zootaxa* 2688(November 25):1-67, 28 pl., 38 réf. BL: Cf p. 31, 43, 60, Jenolan Cave; p. 43, 60, Wombeyan Caves <http://www.mapress.com/zootaxa/list/2010/2688.html>

**LUKIĆ (M.) & BEDEK (J.), 2010.** Behavior of cave fauna:177. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: For the last five years authors of this presentation have filmed macro scenes of cave fauna during biospeleological research in different parts of Croatia. All video material is filmed in situ using a Sony MiniDV camcorder DCR-HC1000. While observed and filmed many of species continued with their normal activities of feeding, exploring, moving around, mating, cleaning or interacting with another individual or species. Scenes chosen for this film show these interesting moments of cave life like: mating and feeding of *Alpioniscus*, entering a basin of stagnant water by *Titanethes*, feeding in Aranea, Chilopoda and Opiliones, grooming behavior in *Chthonius*, *Parastalita* and *Eupolybothrus*, and other interesting scenes. Macro filming of cave fauna discovers, in a unique way, interesting animals seen from different perspective in their natural environment. <http://www.icsb2010.net/>

**LUKIĆ (M.), HOUSSIN (C.) & DEHARVENG (L.), 2010.** Extreme troglomorphy in a new species of cave springtail, *Tritomurus* sp. nov., from Croatia (Collembola: Tomoceridae):121, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The family Tomoceridae includes 133 species in 16 genera. In the caves of Europe, Eastern Asia and northern America there are about 30 troglitic species. However, few species exhibit strong morphological adaptations to cave life. The most remarkable in this respect is *Tritomurus falcifer* Cassagnau, 1958. We present from Biokovo Mt. in Croatia a second highly troglomorphic species, *Tritomurus* sp. nov. *Tritomurus* sp. nov. was collected from -170 to -430 meters in Amfora jama pit. All specimens were found in the thin water-film flowing on vertical walls or very close to it (hygropetric habitat). A number of caves were explored during the last years on Biokovo but *Tritomurus* sp. nov. was not found in any other cave, probably because cave hygropetric is practically inaccessible for investigation in most of them. Interestingly, the rare *Tritomurus falcifer* from Pyrenean caves of the Arbas massif, very similar morphologically to *Tritomurus* sp. nov., also lives in the hygropetric. Both have the ventro-apical labial brush particularly developed. This mouthpart modification recalls similar filtrating structures observed in other species of the cave hygropetric, and suggests special feeding habits. Both of these species has remarkable slender claw as an adaptation to cave life and walking in the hygropetric. <http://www.icsb2010.net/>

**LUKIĆ (M.), HOUSSIN (C.) & DEHARVENG (L.), 2010.** A new relictual and highly troglomorphic species of Tomoceridae (Collembola) from a deep Croatian cave. *ZooKeys* 69:1-16. DOI: <http://dx.doi.org/10.3897/zookeys.69.739>.

ABS: *Tritomurus veles* sp. n. (Tomoceridae) is described from a Croatian cave. It is characterized by troglomorphic features (absence of eyes, reduced pigmentation, slender claw, pointed tibiotarsal tenent hairs) that only compare, among Tomoceridae, to the microendemic species *T. falcifer* from the Pyrénées. *Tritomurus veles* also shares with *T. falcifer* the absence of macrochaetae on head, a presumably non-adaptive character that within Tomoceridae is unique to these two species. Both species have no known epigeal relatives in their respective distribution areas and can

be considered as relictual. KW: New taxon, *Tritomurus*, Croatia, cave hypogetric, troglomorphy.

**LUKIĆ-BILELA (L.), PLEŠE (B.), BRUVO MAĐARIĆ (B.), IMEŠEK (M.), BILANDŽIJA (H.) & ĆETKOVIĆ (H.), 2010.** The mitochondrial genome analysis of the unique cave dwelling sponge *Eunapius subterraneus* Sket & Velikonja, 1984 (Porifera: Spongillidae):62. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIĆ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Although sponges possess plain morphology (absence of organs and tissues) and their phylogenetic position is at the base of the kingdom Metazoa several studies showed that sponges have strikingly complex genomes. Furthermore, their gene content and functional repertoire are more related to their orthologs in human than to either *Drosophila melanogaster* or *Caenorhabditis elegans* counterparts, so studies of these living fossils are important in terms of evolution and phylogeny. Sponges are mainly marine but a few taxa within Demospongiae (suborder Spongillina) live in freshwater. Cave fauna stands out among all other freshwater biota owning peculiar species which are usually distinct from that of surrounding freshwater habitats. *Eunapius subterraneus* Sket & Velikonja, 1984, is the only stygobitic member of the suborder Spongillina, therefore it was a challenge to elucidate the origin of this unique sponge by obtaining the complete mitochondrial genome data. Hopefully, more freshwater sponge mitochondrial DNA sequences will be available so that the phylogeny of this group could be completely resolved and progress in studies of biology, evolution, biodiversity and efficient conservation will be possible. <http://www.icsb2010.net/>

**LUNDBERG (J.), McFARLANE (D. A.) & BREWER-CARIAS (C.), 2010.** An extraordinary example of photokarren in a sandstone cave, Cueva Charles Brewer, Chimant   Plateau, Venezuela: Biogeomorphology on a small scale. *Geomorphology* (Article in Press). DOI: <http://dx.doi.org/10.1016/j.geomorph.2010.05.005>. ABS: A distinctive suite of small-scale erosional forms that are oriented towards the light occur close to the entrance of Cueva Charles Brewer, a large cave in a sandstone tepui, in SE Venezuela. These are the third example of photokarren ever studied in the world, the other two being from Borneo and Ireland. They are the only photokarren ever described from sandstone, and the only example from a non-carbonate environment. The host rock is a poorly-lithified unit of the Precambrian quartz arenite of the Roraima Supergroup. The forms are all oriented towards the light at 30   regardless of rock surface orientation. The primary (negative) erosional form is the tube. Coalescence of tubes results in the positive remnant forms of rods, pinnacles, and cones. The final stage is a bumpy, wavy surface of degraded cones. The size of the features varies with erosion rate, and details of the form vary with development stage. The main population averages 4.4 cm in depth, with 55% of the surface eroded. This is divided into 10% tubes, 70% rods, 10% cones, 5% linear valley and 5% wavy lowland. The micro-ecosystem includes many bacteria, diatoms, red algae, green algae, liverworts, and oribatid mites, but, surprisingly, no cyanobacteria. The presence of a surface biofilm inside the forms but not on the remnant rock surface and, in the non-degraded forms, the direct relationship of biomass with depth suggests that biological activity is the dominant control on development. In addition, direct bacterial corrosion was noted. These same features occur to varying extents in the photokarren of Borneo and Ireland, and the model for development that we present provides a unifying theory for all photokarren. (This study also includes the first published petrographic analysis of uppermost unit of the Mataui Formation). KW: Photokarren, Sandstone, Cave, Tepui, Diatom, Biofilm.

**EUPTAČIK (P.) & ŠUSTR (V.), 2010.** What we know about *Pantelozetes cavaticus* (Acari, Oribatida), notes on distribution, ecology, food preference and morphology:121-122, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIĆ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Oribatid mites are common soil dwelling animals; together with springtails (Collembola) they dominate the soil mesofauna. Many of these surface species can be

observed in caves. Only a few species show closer affinities to the cave environment. *Pantelozetes cavaticus* (Kunst, 1962) appears to be the most abundant and frequent eutroglophilous oribatid mite in the region of Central Europe. Our contribution is focused on summarising published data on its distribution and presentation of new data from Central Europe. Distribution within the caves (photic, disphotic, aphotic zone) is discussed with new data on substrate preference. Potential food sources in the oligotrophic cave environment are assessed on the base of digestive enzymes detection. A variability of several morphological characters of species is noted in the final part of the contribution. The study was supported by the grant VEGA 1/0139/09. <http://www.icsb2010.net/>

**MACHADO (A.) & GARCÍA (R.), 2010.** Descripción de nuevos *Laparocerus* hipogeos de La Palma, Islas Canarias (Espa  a) (Coleoptera, Curculionidae, Entiminae). *Bolet  n de la Sociedad Entomol  gica Aragonesa* 47(2   semestre):65-69. RES: Se describen una nueva especie y una nueva subespecie del g  nero *Laparocerus* y se incluye una clave para la separaci  n de las especies de *Machadotrox* que son anoftalmas e hipogeas.

**MAC  AS-HERN  NDEZ (N.), BIDEGARAY-BATISTA (L.), OROM   (P.) & ARNEO (M. A.), 2010.** Contrasting phylogeographies underlay among-lineage variation in species diversification in the spider genus *Dysdera* from the Canary Islands:260. In: *18<sup>th</sup> International Congress of Arachnology, University of Podlasie & International Society of Arachnology, Siedlce, Poland, 11-17 July 2010, Book of Abstracts*, editor: Marek ŹABKA, ISBN: 978-83-7051-575-1, 507 p. ABS: Phylogenetic studies at the population/species interface combined with the use of historical population genetics tools hold great promise for addressing key questions concerning the geography of speciation and its association to adaptive processes. We present a comparative phylogeographic and demographic analysis of two lineages originated as part of the large species radiation of the woodlouse-hunter spider genus *Dysdera* in the Canary Islands. Both lineages are endemic to Tenerife, share similar within-lineage genetic divergences and estimated time of origin. The morphological and ecological diversification patterns, however, differ significantly between the two lineages. The first lineage includes four nominal species, two of which have large, allopatric distributions on Tenerife (one restricted to laurel forest and the other widespread along different habitats) and the other two which are cave-dwelling species with restricted geographical ranges. The second lineage includes a single, widespread species that exhibits limited amount of phenotypic variation mainly associated to an elevation gradient. Phylogenetic and population analyses of mitochondrial and nuclear gene sequence data of 200 individuals confirmed lower gene flow and deeper geographical population structure in the highly diverse lineage, and uncovered cryptic diversity in both lineages. Common phylogeographic features in the two widespread species suggest that the geological history of Tenerife had left a footprint on the distribution of the genetic diversity. Our results also indicate that demographic and phylogeographic patterns may explain phenotypic diversification asymmetries among lineages, and demonstrate that contrasting ecological strategies (specialist vs. generalist) play a major role on structuring populations of these species.

**MAHUNKA (S.) & MAHUNKA-PAPP (L.), 2010.** New and little known Oribatid Mites from the Carpathian basin and the Balkan Peninsula (Acari: Oribatida). *Acta Zoologica Academiae Scientiarum Hungaricae* 56(3):211-234. BL: Cf p. 213: E-2681: Romania, Cave Meziad, litter from Fagus forest and moss from rocks, N46  45.765', E22  28.504', 390 m, 29.10.2009. Leg. CS. CSUZDI, J. KONTSCH  N, V. POP and ZS. UJV  RI.

**MA  STRE (G.), 2010.** Le scoop de derni  re heure. L'exp  dition Lengguru-Kaimana 2010 ram  ne des r  sultats hors du commun! *Spelunca* 120(D  cembre, 4   trimestre):3   de couverture. <http://lengguru.org>.

**MAKOL (J.), CICHOCKI (J.), FELSKA (M.), KŁOSIŃSKA (A.), ŁAYDANOWICZ (J.), ŁUPICKI (D.) & GABRYŚ (G.), 2010.** A New Data on Biology and Taxonomy of *Neotrombicula inopinata* (Oudemans, 1909) and *Leptotrombidium russicum* (Oudemans, 1902) (Acari: Actinotrichida: Trombiculidae). *Annales Zoologici* 60(3,

September):419-427.

**DOI:**  
<http://dx.doi.org/10.3161/000345410X535406>. ABS: The results of experimental rearing of *Neotrombicula inopinata* and *Leptotrombidium russicum* and of field studies aiming at finding the hitherto unknown habitats occupied by active postlarval forms are presented. Diagnoses of deutonymphs reared from field-collected larvae of both species are provided. Literature interpretation of deutonymph of *N. inopinata* is inconsistent with the characteristics of deutonymph of *N. inopinata* obtained from larvae by experimental rearing. Larvae of *L. russicum* and *L. silvaticum* can be separated only on the base of host spectrum. Considering the biology of the parasite and host species, it is likely that postlarval forms of bat-parasitizing species may be confined to tree and cave habitats, whereas those species that are known as parasites of rodents inhabit the soil habitats. KW: Parasitengona, Systematics, Deutonymphs, Hosts, Parasitism, Life cycle.

**MALARD (F.), KONECNY (L.), MAGNIEZ (G. J.) & DOUADY (C. J.), 2010.** The large distribution ranges of northern stygobiotic species of *Proasellus* (Isopoda): a test of cryptic diversity:169-170. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Species distribution patterns within the genus *Proasellus* (Asellidae, Isopoda) typically retain the imprint of cyclical changes in climate and glacier extent that occurred during the Pleistocene. Southern regions (latitude <45°N) contain a high number of endemic species whereas northern regions harbor a few widelydistributed species that could have dispersed northward from southern refuges soon after the last glacial episode. However, there is a risk in considering widelydistributed species as a support for dispersal whereas they may in fact comprise unrecognized sibling species. In this study, we used a phylogenetic approach to test for the occurrence of cryptic diversity within two epigeic species (*P. coxalis* and *P. meridianus*) and six stygobiotic species (*P. cavaticus*, *P. slavus*, *P. strouhali*, *P. synaselloides*, *P. valdensis* and *P. walteri*) showing large distribution ranges. First, the potential non monophyly of widely-distributed species was assessed from the topology of a *Proasellus* tree based on two independent mitochondrial loci (fragments coding for the COI protein and 16S rRNA). Second, the genetic divergence between potential cryptic sister species was compared to the divergence of known sister taxa. All species were monophyletic, with the exception of *P. slavus* and *P. nollii* which appeared to be synonyms. The epigeic species *P. meridianus* and *P. coxalis* were highly homogeneous with haplotypes almost identical over distances >1000 km. The stygobiotic species *P. valdensis* and *P. slavus* also showed very little genetic diversity although their extent of occurrence was 150 and >650 km, respectively. The four other stygobiotic taxa all showed some genetic divergence but cryptic diversity did not appear to reduce the range size of *P. strouhali* (>400 km) and *P. cavaticus* (>1000 km). Our results effectively supported the occurrence of large northern distribution ranges among species of *Proasellus*, including within the stygobiotic fauna. Northern dispersal either via surface or subsurface pathways remains the most plausible scenario for explaining the present-day species distribution patterns within the genus *Proasellus*. This research was conducted within the framework of the DEEP program (Disentangling Evolutionary and Ecological Processes shaping patterns of groundwater biodiversity). <http://www.icsb2010.net/>

**MALI (L. B.) & BULOG (B.), 2010.** Ultrastructure of previtellogene oocytes in the neotenic cave salamander *Proteus anguinus anguinus* (Amphibia, Urodela, Proteidae). *Protoplasma* 246(1/4):33-39. **DOI:**  
<http://dx.doi.org/10.1007/s00709-010-0117-9>. ABS: Oogenesis in the neotenic, cave dwelling salamander *Proteus anguinus anguinus* has not been studied yet, and this study provides a detailed description of the early growth of the oocytes. Early previtellogene oocytes ranging from 100 to 600 µm in diameter were examined by light and transmission electron microscopy. The oocytes were divided into two stages based on size, color, and histology. Stage I oocytes can be identified by their transparent cytoplasm and a homogenous juxtanuclear mass, composed of numerous lipid droplets and mitochondria. Stage II oocytes are no longer transparent and have increased in diameter to 300-600 µm, and many cortical alveoli differing in size have appeared. The common and most predominant ultrastructural characteristics of both stages of previtellogene oocytes are extensive quantities of smooth membrane, numerous mitochondria, and lipid droplets, as well as

abundant free ribosomes. Myeline-like structures and remarkable annulate lamellae of closely packed membrane stacks are also frequently observed. Previtellogenic oocytes are the most predominant oocytes in the ovaries of *Proteus*, and while they possess certain structural characteristics typical for other amphibians, some features are unique and could result from adaptation to the subterranean environment. KW: *Proteus anguinus*, Ovary, Oogenesis, Previtellogenesis, Oocyte, Ultrastructure.

**MANCHI (S. S.) & SANKARAN (R.), 2010.** Foraging Habits and Habitat Use by Edible-nest and Glossy Swiftlets in the Andaman Islands, India. *The Wilson Journal of Ornithology* 122(2, June):259-272. **DOI:**  
<http://dx.doi.org/10.1676/09-144.1>. ABS: Foraging habits and habitats of exclusive aerial insectivores, the Edible-nest Swiftlet (*Aerodramus fuciphagus inexpectatus*) and Glossy Swiftlet (*Collocalia esculenta affinis*), were studied in Andaman Islands, India. Observations were made during January to June 2004 between 0500 and 1800 hrs at four locations in the forest and on open paddy land. Edible-nest and Glossy swiftlets, respectively, spent ( $\bar{x} \pm SD$ ) 17.2 ± 11.4% and 25.8 ± 15.6% of their time foraging with significant temporal variations. Glossy Swiftlets had spatial variations in twist, flutter, and tail-wing-open foraging maneuvers. This species also had diurnal variations in flock size, which were positively correlated with feeding attempts. Both swiftlets shared all microhabitats except Inside Forest Canopy and Inside Stream Bank Canopy. Microhabitat use did not vary significantly in Below Stream Bank Canopy, >10 m Above Forest Canopy, >30 m Above Ground, and Above Forest Canopy for Edible-nest Swiftlets. Inside Forest Canopy and Inside Stream Bank Canopy categories for Glossy Swiftlets were relatively important in descending order. Deforestation near and distant from caves used by swiftlets for breeding in the islands can severely affect the wild population of both species.

**MANCINA (C. A.), 2010.** *Phyllonycteris poeyi* (Chiroptera: Phyllostomidae). *Mammalian Species* (March):41-48. **DOI:** <http://dx.doi.org/10.1644/852.1>. ABS: *Phyllonycteris poeyi* Gundlach, 1861, a medium-sized bat, is a phyllostomid commonly called the Cuban flower bat or Poey's flower bat. *Phyllonycteris* is endemic to the Greater Antilles and *P. poeyi* is endemic to Cuba and Hispaniola. *P. poeyi* is characterized by a rudimentary nose leaf, median groove on lower lip ridged with papillae, and ears that are moderately large and separate. *P. poeyi* shows marked sexual dimorphism in size, with males being larger than females in some cranial and body dimensions. It is a gregarious and obligate cave dweller that usually inhabits the innermost parts of blind galleries. *P. poeyi* has been captured in evergreen forest, secondary forest, and ravines. *P. poeyi* is listed as Least Concern by the International Union for Conservation of Nature and Natural Resources. KW: Antilles, bat, Cuba, Cuban flower bat, Hispaniola, Phyllonycterinae, phyllostomid, Poey's flower bat, West Indies.

**MANCONI (R.), CAEDDU (B.), STOCCHINO (G. A.), PANSINI (M.), PRONZATO (R.) & LEDDA (F. D.), 2010.** Porifera checklist and database of Mediterranean marine caves:86, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Conservation measures and protection planning of marine caves are promoted by the EU Habitat Directive. Porifera represent one of the main taxa in cavedwelling sessile benthic assemblages. In this framework we report on a preliminary biodiversity inventory of sponges from Italian caves, based on the literature review. New data from recent faunistic surveys carried out in some submerged karstic caves of southern Italy (Sardinia and Sicily) are also reported. This contribution is the starting point for the creation of a Porifera database for Mediterranean marine caves. The work was supported by Italian MATM and PRIN-MIUR, EU project Interreg III Sardinia-Corsica-Tuscany, Fondazione Banco di Sardegna and Regione Autonoma Sardegna. <http://www.icsb2010.net/>

**MANCONI (R.), LEDDA (F. D.), STOCCHINO (G. A.), CASALE (A.) & GRAFITTI (G.), 2010.** Working for the candidate Orosei Marine Protected Area (central-east Sardinia): On a benthic community from a subterranean estuary in a karstic coastal cave:87, poster presentation. In:

20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The Orosei Gulf is presently candidate for the establishment of a new Marine Protected Area. Along the coastal karst, the Bue Marino Cave represents one of the most attractive units of natural heritage needing particular regard in terms of biodiversity conservation for its diversified endemic fauna (mainly Arthropoda) from both the terrestrial and freshwater habitats. The cave is characterised by the presence of a subterranean river flowing along a necklace of large subaerial freshwater/brackish water pools up to the cave entrance. Here we report on the discovery of a conspicuous sessile filter-feeders assemblage in a totally dark myxohaline pool. The community structure seems to be based on taxa displaying adaptive strategies (cryptobiosis by resting bodies; euryhalinity) to survive in extreme environmental conditions (intermittent freshwater aquifer activity/marine ingress). The research was supported by Italian Ministero dell'Ambiente (MATM, Studio degli ambienti di grotte marine sommerse (Codice Habitat 8330) nelle Aree Marine Protette di Pelagie, Plemmirio e Capo Caccia), Ministero dell'Universit   e della Ricerca Scientifica e Tecnologica (MIUR-PRIN), EU Interreg III Sardinia-Corsica-Tuscany, Fondazione Banco di Sardegna and Regione Autonoma Sardegna. <http://www.icsb2010.net/>

**MANCONI (R.), LEDDA (F. D.), STOCCHINO (G. A.) & GRAFITTI (G.), 2010.** Biogeographic patterns of lithistids (Demospongiae) from Mediterranean marine caves:136, poster presentation. In: 20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Lithistid sponges recorded from marine dark karstic caves of the Mediterranean Sea are typically skiophilous and stygophilic/bathyphilic. They belong to the genera *Aciculites*, *Microscleroderma*, *Neophrissospongia*, *Neoschrammeniella*, *Discodermia* and *Gastrophanella* (families Scleritodermidae, Corallistidae, Theonellidae, Siphonidiidae). Geographic ranges of these ancient relic taxa show a peculiar spot-like pattern in the subtropical-tropical oceans from the Caribbean to New Caledonia. Worldwide records are reported on maps to highlight that Mediterranean lithistids belong to genera all characterised by a disjointed Tethyan distribution along the ancient margins of the Mesozoic Sea. The research was supported by Italian Ministero dell'Ambiente (MATM, Studio degli ambienti di grotte marine sommerse (Codice Habitat 8330) nelle Aree Marine Protette di Pelagie, Plemmirio e Capo Caccia), Ministero dell'Universit   e della Ricerca Scientifica e Tecnologica (MIUR-PRIN), EU Interreg III Sardinia-Corsica-Tuscany, Fondazione Banco di Sardegna and Regione Autonoma Sardegna. <http://www.icsb2010.net/>

**MANCONI (R.), LEDDA (F. D.), STOCCHINO (G. A.) & GRAFITTI (G.), 2010.** Is the geographic range of the palaeoendemic sponge *Petrobiona massiliana* (Porifera: Calcarea) restricted to the central-northwestern Mediterranean Sea?:136-137, poster presentation. In: 20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: *Petrobiona massiliana* living in dark marine caves is the single species of a monotypic genus belonging to the monotypic family Petrobionidae. It is a small skiophilous sponge (2-3 cm max size) peculiar for the ice-white colour and stony consistency (*petra* means rock in Latin). Rarely recorded, *P. massiliana* is a Mediterranean palaeoendemics apparently restricted to the central-northwestern basin. Despite several investigations it was never recorded in Spanish caves nor in the Adriatic Sea, but it is known as fossil from Crete. Here we report on a recent census carried out in some insular karstic caves of southern Italy (Sardinia Sea, Ionian Sea, Sicily Channel) to evaluate the status of this protected species, its abundance and geographic range. The present contribution is focused also on the need to investigate the presence of this stygophilous sponge in caves of the northern Adriatic Sea and the eastern Mediterranean basin. The research was supported by Italian Ministero dell'Ambiente (MATM, Studio degli ambienti di grotte marine sommerse (Codice Habitat 8330) nelle Aree Marine Protette di Pelagie, Plemmirio e Capo

Caccia), Ministero dell'Universit   e della Ricerca Scientifica e Tecnologica (MIUR-PRIN), EU Interreg III Sardinia-Corsica-Tuscany, Fondazione Banco di Sardegna and Regione Autonoma Sardegna. <http://www.icsb2010.net/>

**MANTILLA-MELUK (H.) & BAKER (R. J.), 2010.** New Species of *Anoura* (Chiroptera: Phyllostomidae) from Colombia, with Systematic Remarks and Notes on the Distribution of the *A. geoffroyi* Complex. *Occasional Papers*, Museum of Texas Tech University, 292(May 19):19 p. ABS: A new species of nectar-feeding tailless bat in the genus *Anoura* (Chiroptera: Phyllostomidae) is described from the highlands of the Colombian Andes and the independent mountain system of the Sierra Nevada de Santa Marta. Complete zygomatic arches, a relatively wide uropatagium, and wide first upper molars with poorly developed paracones are proposed as synapomorphies of the new species and *A. geoffroyi geoffroyi*. However, the two taxa are allopatrically distributed, and the new species is morphologically distinguished from *A. g. geoffroyi* by a smaller skull and body size, more massive and squared molars with wider hypoconal basins, smaller P4 that are not laterally compressed, reduced anterobasal cusps, and medial internal cusps that are enlarged. Based on morphological analysis the distributional ranges of *A. geoffroyi* subspecies were interpreted as follows: *A. g. lasiopyga* is restricted to Central America from Costa Rica north to Mexico; *A. g. peruana* is restricted to the mid to high elevations of the Andean system from Bolivia to Colombia; and *A. g. geoffroyi* is restricted to the mid and low elevations of eastern versant of the Andes from Brazil to northern South America, including the island of Trinidad. Further, the morphological affinities between *A. g. apolinari* and members of the *A. geoffroyi* complex support its current recognition as a junior synonym of *A. g. peruana*. Based on the morphological distinction observed between *A. g. peruana* and *A. g. geoffroyi*, including the absence of complete zygomatic arches, a more delicate rostrum, less massive molars, and overall darker coat coloration, as well as the ecological differentiation of the areas inhabited by these two taxa, we recommend the elevation of *A. peruana* to specific level. KW: *Anoura*, bats, Colombia, new species. RES: Se describe una nueva especie de murci  lago nectar  voros sin cola del g  nero *Anoura* (Chiroptera: Phyllostomidae) proveniente de los Andes y el sistema monta  oso independiente de la Sierra Nevada de Santa Marta en Colombia. La presencia de arcos zigom  ticos completos, un uropatagio relativamente amplio y molares superiores amplios, son propuestos como sinapomorf  as para la nueva especie y *A. geoffroyi geoffroyi*. Sin embargo, estos dos taxa se encuentran alopatricamente distribuidos y la nueva especie se distingue morfol  gicamente de *A. g. geoffroyi* por tener un menor tama  o de cr  neo y menor tama  o corporal, molares m  s masivos y cuadrados, con las fosas de los hipoconos m  s amplias, los P4 de un tama  o menor, no lateralmente comprimidos y c  spides anterobasales de mayor tama  o. Basados en an  lisis morfol  gicos interpretamos la distribuci  n de las subespecies de *A. geoffroyi* como sigue: *A. g. lasiopyga* es restringida a las elevaciones medias y altas de Centro Am  rica desde Costa Rica hasta M  xico; *A. g. peruana* es restringida a las elevaciones medias y altas del sistema Andino desde Bolivia hasta Colombia; y *A. g. geoffroyi* es restringida a las tierras medias y bajas de la vertiente oriental de los Andes desde Brasil hasta el norte de Sur Am  rica, incluyendo la isla de Trinidad. Adicionalmente, las afinidades morfol  gicas entre *A. g. apolinari* y los miembros del complejo *A. geoffroyi* apoyan su actual reconocimiento como s  n  nimo menor de *A. g. peruana*. Basados en las diferencias morfol  gicas observadas entre *A. g. peruana* y *A. g. geoffroyi*, incluyendo la ausencia de arcos zigom  ticos completos, rostro m  s delicado, molares menos masivos y una coloraci  n del pelaje m  s oscura, as   como tambi  n la diferenciaci  n ecol  gica entre las   reas habitadas por estos dos taxa recomendamos la elevaci  n de *A. peruana* a estado espec  fico. PC: *Anoura*, Colombia, murci  lagos, nueva especie. <http://www.nsrlltu.edu/publications/opapers.htm>

**MARACI (  .), BILGIN (R.), LUĆAN (R. K.), BARTONIĆKA (T.), HULVA (P.) & HOR  ĆEK (I.), 2010.** The sympatry of *Miniopterus schreibersii schreibersii* and *Miniopterus schreibersii pallidus* in three caves: The smoking gun for their elevation to full species Status. Poster 27:68. In: 15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants, edited



- by: Ivan HOR  CEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p.
- MARACI (  .), BILGIN (R.), LU  AN (R. K.), BARTONI  KA (T.), HULVA (P.) & HOR  CEK (I.), 2010.** The sympatry of *Miniopterus schreibersii* and *Miniopterus s. pallidus* in three caves: The smoking gun for their elevation to full species status:220-221. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR  CEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: *Miniopterus schreibersii* is a complex, polytypic group with a wide natural distribution ranging from Southern Europe to Asia, Northern Africa, the Solomon Islands and Northern Australia. In Turkey, two cave-dwelling subspecies have been recognized, *M. s. schreibersii* and *M. s. pallidus*. Research in the last decade within Anatolia showed that the populations of *M. s. schreibersii* and *M. s. pallidus* were differentiated from each other in nuclear and mitochondrial DNA, and morphology. These results suggested that the subspecies could represent different taxa, possibly species. However, as their distribution has been found to be primarily allopatric, and individuals of *M. s. schreibersii* and *M. s. pallidus* were never found in the same cave in sympatry, it has not been possible to elevate taxonomic levels of these subspecies to species. Here we present discovery of three caves, on the eastern Mediterranean coast of Turkey, where the two subspecies have been discovered in sympatry for the first time. These findings provide the final line of evidence, the smoking gun, for designation of *M. s. schreibersii* and *M. s. pallidus* as two separate species, *M. schreibersii* and *M. pallidus*.
- MARMONIER (P.), LUCZYSZYN (H.), CREUZ   DES CH  ATELLIERS (M.), LANDON (N.), CLARET (C.) & DOLE-OLIVIER (M.-J.), 2010.** Hyporheic flowpaths and interstitial invertebrates associated with stable and eroded river sections: interactions between micro- and mesoscales. *Fundamental and Applied Limnology - Archiv f  r Hydrobiologie* 176(4):303-317.
- MARMONIER (P.), NAVEL (S.), PISCART (C.) & CHAUVET (  .), 2010.** Particulate organic matter breakdown in shallow interstitial habitat of a rural stream:26-27. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Particulate organic matter is the major source of energy for most low-order streams, but a large part of this litter is buried within bed sediment during floods and thus become poorly available for benthic food webs. The fate of this buried litter is little studied. We tested two methods to study litter breakdown: large litter bags (15 x 15 cm) filled with *Alnus glutinosa* leaves buried with a shovel at 20 cm deep and metallic cylinders (1.5 x 8 cm) pushed at 20 cm deep inside the river sediment using a mobile mini-piezometer. Bags and cylinders were retired of the sediment after 7, 14, 28, 53 days. We tested these two methods in six stations within different land-use contexts (from forest to intensive agriculture) and with different sediment grain sizes. Breakdown rates were slightly different between the two methods. In the large bags, k varied between 0.0011 and 0.0188 d<sup>-1</sup> (i. e. 32% to 62% of biodegradation). In the cylinders, k varied from 0.0015 and 0.0049 d<sup>-1</sup> (i. e. 24% to 42%). Breakdown rates measured with large litter bags were negatively correlated with a decrease in oxygen concentrations between surface and buried bags and positively correlated with both the percentage of coarse particles (20-40 mm) in the sediment and benthic macroinvertebrate richness. Breakdown rates measured in the cylinders were correlated with the land-use around the station and the concentrations in nutrient in the river. In conclusion, (i) the cylinder method integrates large scale ecological characteristics of the river rather than local feature of the sediments and (ii) the vertical exchanges between surface and hyporheic water play a crucial role in litter breakdown and organic matter recycling. <http://www.icsb2010.net/>
- MARSHALL HATHAWAY (J. J.), 2010.** Molecular phylogenetic investigation of microbial diversity and nitrogen cycling in lava tubes. Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Masters of Science Biology, The University of New Mexico, Albuquerque, New Mexico May, 2010, 77 p.
- MARTIN (P.), MART  NEZ-ANSEMIL (E.) & SAMBUGAR (B.), 2010.** The Baikalian genus *Rhyacodriloides* in Europe: phylogenetic assessment of Rhyacodriloidinae subfam. n. within the Naididae (Annelida). *Zoologica Scripta* 39(5, September):462-482. DOI: <http://dx.doi.org/10.1111/j.1463-6409.2010.00434.x>. ABS: Two new species of the oligochaete genus *Rhyacodriloides* Chekanovskaya, *Rhyacodriloides aeternorum* sp. n. and *Rhyacodriloides latinus* sp. n., are described from subterranean water bodies of Italy and Slovenia. A comparison with the known species of this genus, *Rhyacodriloides abyssalis* Chekanovskaya, 1975 and *Rhyacodriloides gladiiseta* Martin & Brinkhurst, 1998, both from Lake Baikal, shows that the enigmatic "cellular masses" of the latter two species must be interpreted as different, not homologous structures. As a result, *R. gladiiseta* is to be ascribed to the Phallodrilinae, a primarily marine naeid subfamily, mentioned for the first time in Lake Baikal, and placed in its own genus, *Phallobaikalus* gen. n. The two new species are morphologically very similar, but their penial setae differ slightly. The phylogenetic relationships of *R. latinus* sp. n. and *R. abyssalis* within the Naididae (formerly the Tubificidae) were investigated using a combination of three genes, one nuclear (18S rDNA) and two mitochondrial (12S rDNA and 16S rDNA). A fragment of the mitochondrial COI gene, used as a barcode, also genetically characterized all *Rhyacodriloides* species. Sequences of 34 Naididae were obtained from EMBL, representative of five naeid subfamilies, and including five oligochaete outgroups. The data were analysed by parsimony, maximum likelihood and Bayesian inference. Taken in combination, the three genes investigated confirm that the two *Rhyacodriloides* species analysed are closer to each other than to any other naeid species. However, they are separated by 16S and COI distances that amount to 18.5% and 27.2%, respectively, suggesting an ancient separation between species, in good accordance with their present biogeographic distribution. *Rhyacodriloides* cannot be considered as a rhyacodriline, as assumed so far, as they never appeared related to this subfamily in any analysis considered. In contrast, they appear at the base of a naeid group, including the Tubificinae, the Phallodrilinae, the Limnodrilinae, as well as *Branchiura sowerbyi*, a species whose phylogenetic association with the rhyacodrilines has been questioned for a long time. Despite a lack of phylogenetic support, this position is congruent with a morphological reassessment of the Rhyacodrilinae, and strongly supports the erection of a new naeid subfamily to accommodate *Rhyacodriloides*.
- MARTIN  I   (A.), 2010.** Mahovna flora fitogeografskega podobmo  ja Dravski Kozjak (Slovenija) [The bryophyte flora of phytogeographic subregion Dravski Kozjak (Slovenia)]. *Hladnikia* 25:13-30.
- MART  NEZ (A.) & ASENSIO (A. D.), 2010.** Distribution of cyanobacteria at the Gelada Cave (Spain) by physical parameters. *Journal of Cave and Karst Studies* 72(1, April):11-20. DOI: <http://dx.doi.org/10.4311/jcks2009isc0082>. ABS: As part of an extensive study of the caves in the Province of Alicante (SE Spain), the distribution of cyanobacteria and physical data for the Gelada Cave are presented. This cave is 9.4 m deep, 0.9 to 5.0 m high, 1.2 m wide, and is located in a karst region. Photon flux density, relative humidity, and temperature were measured, and the environmental ranges of conditions where growth occurred fluctuated between 0.0008-0.06  $\mu\text{E}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ , 55.0-95.0% and 5.4-18.0  C, respectively. All the microorganisms determined from the Gelada Cave were cyanobacteria. Other frequently observed groups in caves, such as Bacillariophyta and Chlorophyta, were not detected because the cave was too weakly illuminated and dry. Cyanobacteria were found to be grouped as blue, brown, green, or gray patina according to the sampling sites and their constituent organisms. The primary common stress factor on the distribution of algal communities in the Gelada Cave is light shortage, followed by humidity, lack of nutrients, and temperature. Twenty-two epilithic cyanobacteria were identified, ten of which have not been previously reported in caves. The species studied are included in the Chroococcales order (77.30%), followed by the Oscillatoriales order (13.60%) and by the Nostocales

(4.55%) and Stigonematales (4.55%) orders. The extreme values of the environmental parameters are presented for each taxon in this cave.

**MART  NEZ GARC  A (A.), KVINDEBJERG (K.) & WORSAAE (K.), 2010.** Annelid diversity in anchialine systems: unique adaptations and functional morphology of *Protodrilus* n. sp. to the cave environment of La Corona lava tube (Canary Islands, Lanzarote):76. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: After crustaceans, annelids are the second most diverse animal group in anchialine caves. Despite little attention paid to this group in early studies, the evidences of its high diversity has been recorded from several anchialine environments during the last 20 years, especially regarding interstitial species. Many of these records correspond to offshore forms inhabiting offshore habitats resembling caves, but stygobiotic species have also been described. Although all endemic, these stygobiotic taxa show in fact very diverse morphological adaptations. They range from typical interstitial species, morphologically similar to their offshore relatives, to highly modified meiofauna taxa with unique adaptation to drifting life style in the still anchialine water column at the caves. This holds also for several animals belonging to otherwise predominantly interstitial annelid families, such as Nerillidae and Protodrilidae. We here explore the unique functional morphology of *Protodrilus* n. sp., an endemic species from La Corona lava tube (Lanzarote, Canary Islands). Musculature, nervous system, adhesive glands and ciliation were investigated by immunostaining and CLSM, SEM, TEM and LM. Motility, feeding activity and behavior are described from in situ and laboratory observations on live specimens (including video recording). These observations are compared to similar studies conducted in other species of the genus from coastal interstitial habitats with adaptations to the turbulent upper zone of the seafloor. The habitat of each species was characterized by measuring organic matter content, chlorophyll, salinity and sediment structure. Other cave species of interstitial annelids were compared to *Protodrilus* n. sp., emphasizing adaptive convergences among different lineages. These convergences are discussed in terms of the habitat of the species and compared to offshore relatives, in order to test the applicability of the current concept of troglomorphisms in Annelida. The role of historical and ecological processes on the origin of these taxa is briefly discussed. <http://www.icsb2010.net/>

**MART  NEZ S  NCHEZ-DEHESA (J.) & ZARAGOZA (J. A.), 2010.** Sima Krubera-Voronja, C  ucaso Occidental, nueva cita del pseudoscorpion troglobio *Neobisium (Blothrus) birsteini* Lapschoff, 1940 (Arachnida: Pseudoscorpiones: Neobisiidae). *Monografias Biospeol  gicas* 5:22-25 RES: Por primera vez, se cita al pseudoescorpion *Neobisium (Blothrus) birsteini* Lapschoff de la famosa sima Krubera-Voronya, Abjasia. Se ofrece una breve descripci  n del   nico ejemplar localizado de esa especie y se discute su varibilidad morfol  gica.

**MART  NEZ-ANSEMIL (E.) & SAMBUGAR (B.), 2010.** Annelida, an often neglected component of groundwater ecosystems:77. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: About 350 species and 100 genera represent the presently known contribution of the annelids to the groundwater fauna. Stygobionts account for about 1/3 of these species. The bulk of groundwater annelids are oligochaetes, and only a few hirudineans and polychaetes are found. Despite their frequency and richness, annelids are often ignored in the studies of groundwater diversity. This is partly due to their size, often quite small - so that they might be overlooked in the researches, and partly to the fact that their identification is difficult. We present a synthesis of the current state of knowledge about annelids, on their diversity, patchwork of endemism and regional differences, and we underline their contribution to the diversity of the subterranean aquatic fauna. In the last decade, investigations of the groundwater fauna led to the discovery of a fauna with characteristic elements (such as the naides of marine lineage and the stygobiont family Parvidrilidae), and of freshwater taxa showing an adaptive radiation in subterranean

environments (such as *Rhyacodrilus* and *Trichodrilus*), or relicts of an ancient fauna (such as *Rhyacodriloides*). Extensive studies like the European PASCALIS Project allowed to prove the high species richness of subterranean annelid fauna of some European regions (namely Italy and Spain) and to examine the environmental gradients driving the distribution patterns of stygobiotic annelid assemblages. Habitat structure, water chemistry, anthropogenic pressure and historical factors are shown to influence the biodiversity patterns. In annelids, adaptations to the subterranean environments can be attempted by several different mechanisms, such as the body size reduction, the shifting or the asymmetrical bending of some genital organs, or the cyst formation in order to survive to habitat constraints. <http://www.icsb2010.net/>

**MART  NKOV   (N.), BA  KOR (P.), BARTON  CKA (T.), BLA  KOV   (P.),   RVEN   (J.), FALTEISEK (L.), GAISLER (J.), HANZAL (V.), HOR   EK (D.), HUB  LEK (Z.), JAHELKOV   (H.), KOLA  K (M.), KORYT  R (LU.), KUB  TOV   (A.), LEHOTSK   (B.), LEHOTSK   (R.), LU  AN (R. K.), M  JEK (O.), MAT  J   (J.),   EH  K (Z.),   AF  R (J.), T  JEK (P.), TKADLEC (E.), UHRIN (M.), WAGNER (J.), WEINFURTOV   (D.), ZIMA (J.), ZUKAL (J.) & HOR   EK (I.), 2010.** Increasing Incidence of *Geomyces destructans* Fungus in Bats from the Czech Republic and Slovakia. *PLoS ONE* 5(11):e13853. **DOI:** <http://dx.doi.org/10.1371/journal.pone.0013853>.

ABS: Background: White-nose syndrome is a disease of hibernating insectivorous bats associated with the fungus *Geomyces destructans*. It first appeared in North America in 2006, where over a million bats died since then. In Europe, *G. destructans* was first identified in France in 2009. Its distribution, infection dynamics, and effects on hibernating bats in Europe are largely unknown. Methodology/Principal Findings: We screened hibernacula in the Czech Republic and Slovakia for the presence of the fungus during the winter seasons of 2008/2009 and 2009/2010. In winter 2009/2010, we found infected bats in 76 out of 98 surveyed sites, in which the majority had been previously negative. A photographic record of over 6000 hibernating bats, taken since 1994, revealed bats with fungal growths since 1995; however, the incidence of such bats increased in *Myotis myotis* from 2% in 2007 to 14% by 2010. Microscopic, cultivation and molecular genetic evaluations confirmed the identity of the recently sampled fungus as *G. destructans*, and demonstrated its continuous distribution in the studied area. At the end of the hibernation season we recorded pathologic changes in the skin of the affected bats, from which the fungus was isolated. We registered no mass mortality caused by the fungus, and the recorded population decline in the last two years of the most affected species, *M. myotis*, is within the population trend prediction interval. Conclusions/Significance: *G. destructans* was found to be widespread in the Czech Republic and Slovakia, with an epizootic incidence in bats during the most recent years. Further development of the situation urgently requires a detailed pan-European monitoring scheme.

**MARTINSEN (L.), JOHNSEN (A.), VENANZETTI (F.) & BACHMANN (L.), 2010.** Phylogenetic footprinting of non-coding RNA: hammerhead ribozyme sequences in a satellite DNA family of *Dolichopoda* cave crickets (Orthoptera, Rhaphidophoridae). *BMC Evolutionary Biology* 10:3. **DOI:** <http://dx.doi.org/10.1186/1471-2148-10-3>. <http://www.biomedcentral.com/1471-2148/10/3>.

ABS: Background: The great variety in sequence, length, complexity, and abundance of satellite DNA has made it difficult to ascribe any function to this genome component. Recent studies have shown that satellite DNA can be transcribed and be involved in regulation of chromatin structure and gene expression. Some satellite DNAs, such as the pDo500 sequence family in *Dolichopoda* cave crickets, have a catalytic hammerhead (HH) ribozyme structure and activity embedded within each repeat. Results: We assessed the phylogenetic footprints of the HH ribozyme within the pDo500 sequences from 38 different populations representing 12 species of *Dolichopoda*. The HH region was significantly more conserved than the non-hammerhead (NHH) region of the pDo500 repeat. In addition, stems were more conserved than loops. In stems, several compensatory mutations were detected that maintain base pairing. The core region of the HH ribozyme was affected by very few nucleotide substitutions and the cleavage position was altered only once among 198 sequences. RNA

folding of the HH sequences revealed that a potentially active HH ribozyme can be found in most of the *Dolichopoda* populations and species. Conclusions: The phylogenetic footprints suggest that the HH region of the pDo500 sequence family is selected for function in *Dolichopoda* cave crickets. However, the functional role of HH ribozymes in eukaryotic organisms is unclear. The possible functions have been related to trans cleavage of an RNA target by a ribonucleoprotein and regulation of gene expression. Whether the HH ribozyme in *Dolichopoda* is involved in similar functions remains to be investigated. Future studies need to demonstrate how the observed nucleotide changes and evolutionary constraint have affected the catalytic efficiency of the hammerhead.

**MATHESON (A. L.), CAMPBELL (K. L.) & WILLIS (C. K. R.), 2010.** Feasting, fasting and freezing: energetic effects of meal size and temperature on torpor expression by little brown bats *Myotis lucifugus*. *The Journal of Experimental Biology* 213:2165-2173. **DOI:** <http://dx.doi.org/10.1242/jeb.040188>.

**MATSUMURA (S.), 2010.** Development of vocalization and social communication in a free-ranging nursing colony of *Hipposideros turpis*:223-224. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR  CEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. **ABS:** *Hipposideros turpis* is the only hipposiderid bat native to Japan. A long-term mark-recapture study in a nursing colony of this species has been conducted since 1983 on Iriomotejima Island, Okinawa Prefecture, Japan. There is great individual variation in the vocal signature of the attractive calls of new-born infants, which consist of one- or two-note syllables. The fundamental frequency of each note ranges 15~20 kHz and consists of 4 harmonic components with a maximum frequency of up to 80 kHz. Each infant repetitively emits its attractive call and, during growth, the fundamental frequency of each call increases, especially at the second note of two-note call of the Frequency Modulation (FM) type. Every night after foraging, the mother comes home and collects her own infant which has been left on the ceiling of the cave. Before the reunion for nursing, the mother touches the infant making it bark; this confirms by voice whether it is her own baby. At each reunion, the infant emits attractive calls and the mother emits intensive echolocation type calls. By the age of three weeks, infants developed to emit pure-tone type calls of 75~77 kHz, but the fundamental harmonic, which is a feature of the immature type of call, remains. The social call of adults recorded in the nursing roost are mostly warning calls, which consist of a series of graded signals reflecting different degree of warriness. Clear differences were found in vocal character of these calls; (1) a harsh bark of low frequency (8~24 kHz) appears to be an urgent warning; (2) an FM type of call of long duration appeared to denote the need for caution; and (3) a rhythmic FM type call (trill or chirrup) appeared to denote a middle range of warning. These findings demonstrate that the vocal activity of this species is high and that vocalization is closely related to different phases of social contexts.

**MAURICE (L.), ROBERTSON (A.), BLOOMFIELD (J.) & ALLEN (D.), 2010.** Spatial variations in stygobiont distributions in the English Chalk:45. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. **ABS:** New groundwater ecology studies are underway in the UK to sample the many geologies and areas in which the groundwater ecology is largely unknown. More detailed studies are also being carried out to investigate the local geological and hydrogeological controls on the distribution of groundwater fauna. One area of focus is the English Chalk. Stygobites have been known in Chalk groundwaters from sporadic records for more than 150 years, but there have been no systematic investigations of their distribution, and the spatial variability of stygobites in the English Chalk is largely unknown. New studies have been carried out in recent years in the Chalk of Southern England. In Berkshire 19 boreholes in two catchments (total ~400 km<sup>2</sup>) were sampled at maximum and minimum water level conditions. The hydrogeology of these boreholes is well known (the detailed chalk stratigraphy, the location of inflowing fractures to the boreholes, whether the boreholes

contain upward or downward vertical flow, and the nature and size of the voids through which the water flows from borehole imaging data). The boreholes are in a range of topographical situations (valley and interfluvium) with variable depths to the water table, and they are at varying distances from surface karst features. Results from these boreholes are used to investigate whether there are local geological and hydrogeological controls on the distribution of groundwater fauna, and whether there are variations between low and high water table sampling. In addition sampling at different depths in the boreholes was carried out to investigate whether stygobionts live on the bottom or in the water column. Results from the Berkshire study are compared to those from other areas to investigate any regional differences in groundwater fauna in the Chalk. <http://www.icsb2010.net/>

**McCRACKEN (G. F.) GILLAM (E. H.), WESTBROOK (J. K.), LEE (Y.-F.), JENSEN (M. L.) & BALSLEY (B. B.), 2010.** Brazilian free-tailed bats (*Tadarida brasiliensis*: Molossidae, Chiroptera) at high altitude: links to migratory insect populations. *Integrative and Comparative Biology* 48(1):107-118. **DOI:** <http://dx.doi.org/10.1093/icb/icn033>.

**McFARLANE (D. A.) & LUNDBERG (J.), 2010.** A note on the thermal ecology and foraging behaviour of the Egyptian fruit bat, *Rousettus aegyptiacus*, at Mt. Elgon, Kenya. *African Journal of Ecology* 48(3, September):816-818. **DOI:** <http://dx.doi.org/10.1111/j.1365-2028.2009.01146.x>.

**MELEG (I. N.), FIERS (F.), KELEMEN (B.), POPESCU (O.) & MOLDOVAN (O. T.), 2010.** Heterogeneous copepod distribution in different groundwater habitats from northwestern Romania:27-28. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. **ABS:** The mixture of soil, epikarstic and hypogean fauna, as inputs and outputs of the vadose zone offers the possibility to understand the complex structure of this heterogeneous ecosystem, by studying the structure of its populations from two different habitats: fissures network and pools. Relationships between the copepod assemblages and the habitat characteristics from the vadose zone in caves from the P  durea Craiului Mountains (northwestern Romania) are emphasized based on nine environmental parameters. The aims of the present research are to: 1. identify the dissimilarities between copepod communities from the vadose zone within and between caves and in the two different habitats: voids and pools; 2. depict spatial and temporal trends in heterogeneous copepod distribution in drips and pools along a vertical gradient in the vadose zone, in relationship to the environmental features at small spatial scale. Canonical Correspondence Analysis was used to explore the relationship between the copepod species and the environmental features. Vegetation cover was the most important factor influencing copepod diversity and abundance. Precipitation and the amount of drips were related to epigean species, while the electrical conductivity seemed to be related indirectly to hypogean species. Pools on limestone harbored a more diverse and abundant fauna than those on clay; the hypogean species prefer mainly the pools on limestone. Genetic analyses are in progress, extraction and PCR protocols are optimized for harpacticoid populations. <http://www.icsb2010.net/>

**MERRITT (D. J.) & CLARKE (A. K.), 2010.** Non Glowing Sticky Worms And Glowing Centipedes. *AKMA Journal* 79(June):?

**MERZOUG (D.), KHIARI (A.), A  T BOUGHROUS (A.) & BOUTIN (C.), 2010.** Faune aquatique et qualit   de l'eau des puits et sources de la r  gion d'Oum-El-Bouaghi (Nord-Est alg  rien) [Aquatic fauna and water quality from wells and springs in the region of Oum-El-Bouaghi (North-East of Algeria)]. *Hydro  cologie Appliqu  e* 17:77-97. **DOI:** <http://dx.doi.org/10.1051/hydro/2010001>. **R  S:** Une   tude r  cente r  alis  e dans la r  gion d'Oum-El-Bouaghi, dans le Nord-Est de l'Alg  rie, avait comme objectif de rechercher et de pr  ciser la relation pouvant exister entre la qualit   de l'eau des puits et des sources et la diversit   de la faune aquatique pr  sente dans ces habitats. Pour cela une quinzaine de stations (16 puits et 2 sources) ont fait l'objet,

périodiquement, d'une étude de la qualité de l'eau et d'un échantillonnage de la faune. Les stations retenues ont été choisies en raison de la diversité de leur faune mais aussi et surtout parce qu'elles présentaient entre elles certaines différences évidentes (profondeur de la nappe, nature du substratum, protection des puits et utilisation de l'eau par la population locale), qui pouvaient laisser espérer une certaine diversité. Les principales composantes physico-chimiques de la qualité de l'eau ont donc été mesurées puis une analyse en composantes principales (ACP) a été réalisée à partir des valeurs moyennes de chaque paramètre; on a pu révéler ainsi l'existence d'une variation spatiale relativement marquée de ces descripteurs, faisant apparaître quatre groupes de stations très inégaux et bien différenciés: un premier groupe de 11 puits situés à l'aval hydraulique de la zone d'étude, où l'eau présente des teneurs élevées en ions azotés et phosphorés indicateurs de pollution; à l'opposé un autre groupe de 5 puits, situés plus en amont, où l'eau présente au contraire de faibles concentrations de substances azotées et d'ions phosphorés, donc des stations peu ou pas polluées; enfin deux autres groupes bien séparés, chacun correspondant à une source, dont l'eau est aussi de qualité relativement bonne. La faune aquatique de ces puits et sources a également été échantillonnée de façon périodique. La richesse faunistique globale des stations apparaît faiblement corrélée avec la qualité de l'eau, mais en revanche la richesse spécifique de la faune stygobie (celle qui vit dans la nappe phréatique) et plus encore l'abondance de ces espèces stygobies, diminuent de façon significative avec la pollution. La faune stygobie dans son ensemble, et particulièrement le groupe des Crustacés pécaricides, apparaît ainsi comme un très bon indicateur de la qualité de l'eau de ces puits et des sources. MC: Biodiversité, puits, faune stygobie, espèces indicatrices, qualité des eaux souterraines. ABS: A recent study, performed in the region of Oum-El-Bouaghi, North-Eastern Algeria, aimed at showing the possible relationships between the water quality of wells and springs and the diversity of the aquatic fauna which occurs in these habitats. To this end, the water quality and the fauna were regularly investigated in several stations (16 wells and 2 springs) selected in the region. The stations were chosen considering visible differences related to both their fauna and also some evident characteristics i. e. water table depth, nature of geological substratum, protection and human use, so that it was possible to expect certain diversity. The main physicochemical characteristics of water were measured and a Principal Component Analysis (PCA) was performed with the mean values of each variable. The PCA indicated an appreciable spatial variation of water quality related to the values of some hydrological variables and clearly showed four groups of stations: a first group of 11 wells located in the downstream part of the study area, where water exhibited a high level of nitrogenous and phosphoric ions revealing water pollution. In contrast, another group of 5 wells located more upstream and where the water, containing only very low concentrations of nitrogenous and phosphoric ions, is of good quality. Finally two other groups are well separated and include only one spring each, where water is also of good quality. Likewise, the fauna of each station was regularly sampled. The total faunal richness of stations was poorly correlated with water quality but, in contrast, the specific richness of the stygobiotic fauna (the subterranean species living in groundwater), and moreover the abundance of these stygobiotic species decreased significantly in case of water pollution. Thus the stygobiotic fauna and especially the peracarid crustaceans appear to be good indicators of water quality in the studied wells and springs. KW: Biodiversity, wells, stygobiotic fauna, indicator species, groundwater quality.

**MESCHÉDE (A.), HAMMER (M.), ZAHN (A.) & RUDOLPH (B.-U.), 2010.** 25 years of bat monitoring in Bavaria, Germany: Population trends and future tasks:229-230. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Bats of Bavaria (Germany) have been intensively investigated since 1985 when two centers for bat conservation (Koordinationstellen für Fledermausschutz) were first installed. After 25 years of research and monitoring, the state-wide database provides for solid material for population trend analyses. Overall the database encompasses more than 103000 records from almost 25000 locations and 24 species. Monitoring data from 204 underground hibernacula (ca. 10% of all known underground sites; controlled at least 8x/24 winters) and from 257 colonies of *Myotis myotis* were analysed using the modelling programme TRIM (vers. 3.53). Winter censuses of 14 species regularly hibernating underground show an overall strong increase averaging 6%

per year with the strongest growth in natural caves. Trends for six bat species occurring in bigger numbers are positive: *Barbastella barbastellus*, *Myotis daubentonii*, *M. myotis*, *M. mystacinus/brandtii*, *M. nattereri*, *Plecotus auritus*. The winter population of *Pipistrellus pipistrellus/pygmaeus* has grown strongly (11%) due to an increase in a few sites. Winter numbers of *Rhinolophus ferrumequinum* have been rising as have the numbers in the only known nursery colony. Likewise the three colonies of *Rhinolophus hipposideros* are growing whereas the summer population of *Myotis emarginatus* stagnates after an increase until 2003. Summer counts of *Myotis myotis* increased until the early/mid 1990s remaining stable since. However, trends in the biogeographical regions reveal an overall moderate increase in only six of the 14 regions inhabited by *Myotis myotis* colonies. This might be due to food availability and presence/absence of suitable foraging habitats (predominantly deciduous-rich forests) remaining to be investigated. For the other species trends can neither be specified for summer nor for winter populations due to small sample sizes or lack of monitoring data. An urgent future task is to shed more light on hibernation sites and behaviour of the species occurring in low numbers.

**MESIBOV (R. E.), 2010.** The millipede genus *Tasmaniosoma* Verhoeff, 1936 (Diplopoda, Polydesmida, Dalodesmidae) from Tasmania, Australia, with descriptions of 18 new species. *ZooKeys* 41(March 26):31-80. DOI: <http://dx.doi.org/10.3897/zookeys.41.420>. ABS: *Tasmaniosoma armatum* Verhoeff, 1936 is redescribed from topotypical specimens and the following congeners are described from Tasmania: *T. alces* sp. n., *T. aureorivum* sp. n., *T. australe* sp. n., *T. barbatulum* sp. n., *T. brunense* sp. n., *T. cacophonix* sp. n., *T. clarksonorum* sp. n., *T. compitale* sp. n., *T. decussatum* sp. n., *T. fasciculum* sp. n., *T. fragile* sp. n., *T. gerdiorivum* sp. n., *T. hesperium* sp. n., *T. hickmanorum* sp. n., *T. laccobium* sp. n., *T. maria* sp. n., *T. orientale* sp. n. and *T. warra* sp. n.

**MESIBOV (R. E.), 2010.** Two new millipede genera from northwest Tasmania, Australia (Diplopoda: Polydesmida: Dalodesmidae). *Zootaxa* 2571(August 19):53-61, 5 pl., 4 réf. ABS: *Setoisenoton pallidus* n. gen., n. sp. and *Dysmicodesmus jeekeli* n. gen., n. sp. occupy small ranges (<5000 km<sup>2</sup>) in the forests of northwest Tasmania. Both have a head + 19 rings, metatergites lacking posterior corner extensions, and long, rigid gonopod telopodites reaching at least to legpair 4 when retracted. *S. pallidus* resembles *Notonesiotes aucklandensis* Johns, 1970 from the subantarctic Auckland Islands, but differs in gonopod details. *D. jeekeli* is unusual in the Tasmanian dalodesmid fauna in having basally fused telopodites. KW: Diplopoda, Polydesmida, Dalodesmidae, Australia, Tasmania. <http://www.mapress.com/zootaxa/list/2010/2571.html>

**MEYER-ROCHOW (V. B.), 2010.** Bioluminescence in Focus - A Collection of Illuminating Essays, Victor Benno Meyer-Rochow. Sections about Bioluminescence in animals. Special attention is paid to glow worms in chapters 16 - 18, from caves in New Zealand and Australia.

**MICHAT (M. C.), ALARIE (Y.) & WATTS (C. H. S.), 2010.** Descriptions of the first-instar larva of the hypogaecic species *Neobidessodes limestoneensis* (Watts & Humphreys) and of the third-instar larva of *Hydroglyphus balkei* Hendrich (Coleoptera: Dytiscidae: Bidessini) with phylogenetic considerations. *Zootaxa* 2658(October 27):38-50, 3 pl., 28 réf. ABS: The first-instar larva of *Neobidessodes* Hendrich & Balke (through the hypogaecic species *N. limestoneensis* (Watts & Humphreys)) and the third-instar larva of *Hydroglyphus* Motschulsky (through *H. balkei* Hendrich) (Dytiscidae: Bidessini) are described and illustrated in detail for the first time, including detailed morphometric and chaetotaxic analyses of the cephalic capsule, head appendages, legs, last abdominal segment and urogomphi. A cladistic analysis including 51 characters and 32 hydroporine taxa is performed, which supports the inclusion of both genera in the tribe Bidessini based on the absence of the primary pore ABC on the last abdominal segment. The third instar of *H. balkei* is characterized by the absence of secondary setae on the urogomphi and anterior secondary setae on the coxa, and the presence of 8-9 secondary setae on the mesofemur. On the other hand, the first instar of *N. limestoneensis* bears 14 lamellae clypeales on the anteroventral margin of the nasale. This species has evolved several morphological characters that are probably

associated with its hypogaecic existence, including a lightly sclerotized body, relatively longer cephalic capsule and mandibles, a strongly reduced occipital foramen, absence of stemmata, and short claws. However, primary chaetotaxy apparently has remained as a very conservative expression of the phenotype. KW: Diving beetles, larva, epigaecic, hypogaecic, morphometry, chaetotaxy, phylogenetic relationships. <http://www.mapress.com/zootaxa/list/2010/2658.html>

**MIHEVC (A.), PAUL-ISTRATE (V.), MOLDOVAN (O. T.) & CONSTANTIN (S.), 2010.** First results on subfossils in cave sediments from Slovenia and Romania:46, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Cave sediments preserve unaltered a broad range of proxies that can be used for past climate change reconstruction. Subfossil remains from cave sediments can give indications on sediments origin, conditions for deposition and paleoenvironment. Samples of suspended sediments from six caves (one unroofed) were taken from Slovenia and Romania. Fragments of aquatic (oligochetes, watermites, copepods, cladocerans) and terrestrial (insects) invertebrates were identified at group level. Paleomagnetic properties of sediments, vertebrate fossils and invertebrate subfossils were used as proxies in an integrated study about cave sediments. The presence of the subfossils is explained in the frame of the paleoenvironmental and paleoclimatic context and is supporting the proposed hypotheses about time and conditions for sediment deposition and paleogeographic evolution. <http://www.icsb2010.net/>

**Ministère de l'Écologie, de l'Énergie, du Développement durable et de la Mer, 2010.** *Circulaire du 13 août 2010 relative aux déclinaisons régionales de la stratégie nationale de création des aires protégées terrestres métropolitaines. Bulletin officiel, fascicule spécial n° 2010-1, 275 p.*

**Ministère de l'Écologie, de l'Énergie, du Développement durable et de la Mer, 2010.** *Réserve Naturelle Nationale des Gorges de l'Ardèche. Dossier d'Enquête Publique et de Consultations. Déclassement, Classement.* Mars 2010:92 p. BL: Cf p. 47, Le milieu souterrain.

**Ministère de l'Écologie, de l'Énergie, du Développement durable et de la Mer, 2010.** *Réserve Naturelle Nationale des Gorges de l'Ardèche. Dossier d'Enquête Publique et de Consultations. Déclassement, Classement.* Dossier scientifique. Annexe D. Mars 2010:94 p.

**Ministry of Spatial Planning and Environment, 2010.** *Fourth National Report of Montenegro to the Convention on Biological Diversity.* Vasilije Buskovic & Milena Kapa, Eds. Podgorica, September 2010.

**Missouri Department of Conservation, 2010.** White-nose Syndrome Action Plan. Missouri Department of Conservation, Jefferson City, Missouri.

**Missouri Natural Heritage Program, 2010.** *Missouri Species and Communities\* of Conservation Concern. Checklist January 2010.* 53 p., \* = Terrestrial Natural Communities. Does not include aquatic, geologic or cave communities.

**MITOV (P. G.), 2010.** A new anophthalmous species of the genus *Paranemastoma* Redikorzev, 1936 from Bulgaria (Opiliones: Nemastomatidae):299. In: *18<sup>th</sup> International Congress of Arachnology, University of Podlasie & International Society of Arachnology, Siedlce, Poland, 11-17 July 2010, Book of Abstracts*, editor: Marek ŻABKA, ISBN: 978-83-7051-575-1, 507 p. ABS: In this paper a new eyeless representative of *Paranemastoma*, collected from the Stojkova Dupka 1 cave in the Slavyanka Mountains (SW Bulgaria) is described and illustrated based on a single male specimen and two juveniles. The penis, chelicerae and form of the pedipalp, as well as the absence of

scutum armament, clearly separates this new species from any other nemastomatid. The closest species morphologically, and the only other eyeless example, is the trogllobiont *Paranemastoma (Buresiola) bureschi*, which is known from numerous caves in the Balkan mountain range (Stara Planina Mts.).

**MLINAR (C.) - Cic, 2010.** The aquatic life of the Postojna-Planina Cave System:177. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The movie shows some of the characteristic cave animals from the deep phreatic waters of the Postojna-Planina Cave System. Known to harbor the most diverse subterranean fauna in the world, this place awakes in us both delight and a sense of responsibility as to its conservation. Not only the animals, also we humans depend critically on the quality of the karstic groundwater. The message the movie tries to convey is that the wonderful but fragile subterranean life depends on the same resources as the survival of our own species, and that these resources need to be conserved and protected. All scenes were filmed in natural underwater habitats. A special feature of the movie is a pregnant *Proteus* female - for the first time observed in the wild and for the first time caught on film. <http://www.icsb2010.net/>

**MOCK (A.), 2010.** Terrestrial isopods and millipedes in Slovak caves: results of long-term exploration:137-138. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Mountainous area of the Slovak Republic (Slovakia) in Central Europe (Western and partly Eastern Carpathians) is strewn with rather huge Mesozoic karst regions (more than 5000 caves). Terrestrial arthropods in the area were investigated from the second half of the 19<sup>th</sup> Century, including isopods and millipedes, but with limited successes for a long time. Up to the end of the 20<sup>th</sup> Century, the postulate of absence of local cavernicolous millipedes and terrestrial isopods was generally accepted, with exception of two eutroglophiles, *Mesoniscus graniger* (Isopoda) and *Allorhiscosoma sphinx* (Diplopoda). Nevertheless one trogllobiotic millipede, *Typhloius polypodus*, was described from the Buekk Mountains in Hungary, as the most southern and rather isolated foreland of the W. Carpathians. Few years before the start of new millennium, other generation of biospeleologists started to investigate local caves (also in non-calcareous bedrock) and to co-operate in field with entomologists, specialized narrowly on beetles before. It has brought fruits, inter alia, 9 other cavernicolous millipedes and two isopods were found. They represent also higher taxa new for the region (e. g. millipede families Trichopolydesmidae, Anthroleucosomatidae and Brachychaeteumidae). One millipede was described as a new species (*Mecogonopodium carpathicum*). Description of two others from the families Haaseidae and Blaniulidae is in preparation. The taxonomy in some other cases is unclear at the moment. Biogeography and ecology of these arthropods are being studied on the fly. All of them are relicts but with various history and origin (probably from Miocene to Pleistocene) with relations to fauna of Southern Carpathians or SE Alps and Dinarides or Atlantic Europe. The highest biodiversity of cavernicolous species is concentrated to karst areas of plain type in SE karst units of the W. Carpathians (Slovak/Aggtelek Karst, Muranska Plateau), obligate cave dwellers occur exclusively here. It seems their distribution is limited to old fluvial caves with allochthonous watercourses, transported organic material from surface. The bulk of specimens were found at/on wood material. Present state of knowledge of particular species will be discussed. The study was supported by the grant Vega 1/0139/09. <http://www.icsb2010.net/>

**MOESCHLER (P.), ROUÉ (S.) & ZBINDEN (K.), 2010.** Protection des colonies de Miniophtères (chauves-souris) par fermeture des grottes: une démarche inadéquate? *Le Rhinolophe* 18:113-128. <http://www.ville-ge.ch/mhng/ccco/page/rhino.htm#2010>

**MOLDOVAN (O. T.), MELEG (I. N.) & PERȘOIU (A.), 2010.** Habitat fragmentation and its effects on groundwater populations:46. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by:

Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The subterranean unsaturated zone of the karstic areas is a fragmented landscape. The maze of more or less connected voids harbors simple communities of mixed surface and subterranean species. The hypogean crustaceans are dominant in almost all communities of eight stations sampled monthly in a cave from northwestern Romania. Water stable isotopes and flow rates were used to understand the morphological organization of the subterranean habitats. Community structure, synchrony, temporal and spatial structures and variation at different geographical levels are discussed in evolutionary and conservation terms. <http://www.icsb2010.net/>

**MORADMAND (M.) & JÄGER (P.), 2010.** On three new species of the genus *Spariolenus* Simon, 1880 (Sparassidae: Heteropodinae) from Iran, with comments on taxonomy and zoogeography:304. In: *18<sup>th</sup> International Congress of Arachnology, University of Podlasie & International Society of Arachnology, Siedlce, Poland, 11-17 July 2010, Book of Abstracts*, editor: Marek ŽABKA, ISBN: 978-83-7051-575-1, 507 p. ABS: *Spariolenus* Simon, 1880 is one of the rarest genera of the spider family Sparassidae with just few species described so far. Currently, six nominal species of the genus are reported from Asia. Sparassids of Iran have been poorly investigated with just three recorded species. During surveys in semiarid parts of Iran (caves as well as river banks), three morphologically different specimens of the genus were encountered. Results from investigations of somatical and copulatory characters as well as analyzing CO-I sequences will be presented as well as a discussion about the species status of the new forms. The cave-dwelling species, *Spariolenus* sp. 1, are impressive giant spiders and have leg spans up to 15 cm. The other two species were caught from crevices in rocks near river banks. In this study, the subfamily Heteropodinae is recorded for the first time from Iran. Representatives of Heteropodinae are common inhabitants of subtropical and tropical forests of Africa (*Barylestis*), Asia (*Barylestis*, *Bhutaniella*, *Heteropoda*, *Martensopoda*, *Pandercetes*, *Pseudopoda*, *Sinopoda*, *Spariolenus*) and Australia (*Heteropoda*, *Pandercetes*, *Yinithi*). Occurrence of the members of Heteropodinae in the current arid and semiarid areas suggests that the region used to be humid in former times. After vanishing of the ancient tropical forest in the territory of the today's Iran, the relict populations retreated into places like caves as remaining suitable (=humid) habitats. Taxonomy and zoogeography of the current species in relation to other species of the genus are discussed.

**MORANO HERNÁNDEZ (E.) & SÁNCHEZ CORRAL (D.), 2010.** Contribución al conocimiento de los Araneidae Latreille, 1806 y Tetragnathidae Menge, 1866 (Arachnida, Araneae) del Parque Natural de las Sierras de Cazorla, Segura y Las Villas (Jaén, España). *Boletín de la Sociedad Entomológica Aragonesa* 46:245-254. RES: Se hace un inventario de arácnidos de dicho Parque, citando algunas especies capturadas en cuevas.

**MORI (N.), MEISCH (C.) & BRANCELJ (A.), 2010.** Biodiversity of ostracods (Ostracoda, Crustacea) in groundwater habitats of Slovenia:138, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The extensive sampling campaigns in the past few years in Slovenia provided new information about distributional patterns of many groundwater ostracod species. Many species known until now only from a single site or the type locality showed wider geographical distributions. The biodiversity and species composition of ostracods from different groundwater habitats and different geographical regions is compared and the updated checklist of recent Ostracoda is presented. <http://www.icsb2010.net/>

**MORVAN (C.), KONECNY (L.), MALARD (F.) & DOUADY (C. J.), 2010.** Is stygobiont diversification a consequence of extrinsic factors?:170. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter

TRONTELJ, ISBN 978-961-269-286-5. ABS: The striking features of groundwater biodiversity resulted in intensive debates about the origin and distribution of species. The prevalence of relicts naturally led to the idea that the great age and stability of many subterranean habitats protected species from the vicissitudes of climate through geological time whereas their epigean ancestors went extinct due to extreme climatic change. This paradigm undoubtedly influenced one of the most widely accepted models known as the "Glacial Relict" model (or Climatic Relict Hypothesis; CRH) and its derivatives (the regression model, the biphasic model of evolution, the two-step model and the three-step model). In all these conceptual models, specific events such as cold Pleistocene climate, marine regression, stream capture, and spring failure resulted in the ablation of surface populations, thereby unequivocally interrupting gene flow between epigean and hypogean populations. In these models, speciation is allopatric and diversification in groundwater is driven by extrinsic factors. In the seventies, the discovery of stygobionts in tropical regions where closely related species were still extant led to the proposal of an alternative model: the adaptive shift hypothesis (ASH). This model postulates that epigean and hypogean populations parapatrically diverge because of different selective pressures in surface and subterranean habitats. The ASH differs fundamentally from the CRH in that diversification in groundwater is a mostly continuous process depending on intrinsic factors linked to ecological adaptation in groundwater. Paleontology is the main method to evaluate diversification and its variation over geological times. However, fossil records of stygobionts are extremely scarce and morphological convergence is believed to be rampant. In this context, methods based on molecular data are promising alternatives for detecting temporal shifts in diversification rates, thereby enabling to tease apart the contribution of the CRH and ASH models. Using two of the most diverse genera of stygobiont, the isopods *Proasellus* and the amphipods *Niphargus*, we tested whether the speciation rate of stygobiotic taxa changed over time and if so, when and how did the changes occur. This work was developed within the framework of the DEEP and Biofresh research programs. <http://www.icsb2010.net/>

**MORVAN (J.), 2010.** *Fièvres hémorragiques virales*. 04/02/2010, 71 diapositives.

**MOŠKRIČ (A.), TRONTELJ (P.) & FIŠER (C.), 2010.** A bioinformatic quest for phylogenetic resolution: adding new genes to the *Niphargus* supermatrix:171. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The subject of our study is the genus *Niphargus* Schiodte (Amphipoda: Niphargidae) which is the largest genus of freshwater amphipods. It also represents one of the most diversified and well-studied group of aquatic troglobionts. Recent phylogenetic studies based on molecular (one nuclear and one mitochondrial locus) and morphological data of approximately one-third of all nominal *Niphargus* taxa revealed a number of smaller and geographically defined clades although relationships between them remain unsolved. In order to obtain the much needed, robust framework for the study of more fundamental problems of evolution, adaptation and adaptive radiation of this group we searched for novel, more informative and robust molecular markers. We used a bioinformatic approach combined with conventional PCR techniques. Our first step was a review of published alternative nuclear protein-coding regions that resolved other difficult phylogenies where standard universal markers had failed. We selected thirty-two potential nuclear regions and tried to amplify them using primers reported elsewhere. With genomic DNA as a template we successfully amplified four nuclear regions (glutamyl- and prolyl- tRNA synthetase, elongation factor 1- $\alpha$ , phosphoenolpyruvate carboxykinase and glucose phosphate isomerase). We also constructed several primers by scanning sequence databases and using bioinformatic tools and amplified two additional nuclear regions (glyceraldehyde-3-phosphate dehydrogenase and arginine kinase). Using DNA sequence data of these markers, a phylogeny of a subset of *Niphargus* species was constructed. Together with two mitochondrial genes, COI and ATP synthetase subunit  $\beta$ , our supermatrix currently contains approximately 5000 base pairs. With the growing number of included gene sequences, both overall phylogenetic resolution and individual node support are increasing. The results of this preliminary study already show the potential of resolving power of nuclear protein-coding genes. <http://www.icsb2010.net/>

**MOURET (C.), VACQUIÉ (J.-F.), COLLIGNON (B.), ROLIN (J.) & STEINER (H.), 2010.** La rivière souterraine géante de Tham Xé Bang Fai et le réseau karstique associé, Aire nationale protégée\* de Hin Namno, Khammouane, Laos central. *Spelunca* 119(Septembre, 3<sup>e</sup> trimestre):35-45, \* = Espace national pour la Conservation de la biodiversité ou NBCA (National Biodiversity Conservation Area).

**MUGUE (N. S.), 2010.** Caucasus and vicinity: comparative phylogeography of Ponto-Caspian and subterranean crustaceans:62-63. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: We will present our data on molecular phylogenetics of large Ponto-Caspian groups of crustaceans (pontogammarids, corophiids and mysids), and subterranean genera *Niphargus* and *Troglocaris* from caves and springs of the Caucasus. High ecological plasticity of the modern Ponto-Caspian taxa, its extraordinary success in dispersion in the European fresh waters and in colonization of new environments may give a clue for understanding of peculiar and enigmatic distribution of European subterranean crustaceans. A freshwater lake on the Caucasus coast of the Black Sea (lake Abrau) and several lakes along the Turkish coast of the Marmara Sea contain relic ponto-caspian fauna and provide examples of successful invasion of both potamophilous and limnetic taxa in the water bodies elevated above the sea level. The hypothesis of paleo-Pontocaspian origin of some subterranean genera has testable conclusion: the genetic diversity of (mostly unexplored) niphargid fauna from the Caucasus and the Turkish coast of the Black Sea should be higher than in the rest of the area of the genus distribution. <http://www.icsb2010.net/>

**MULEC (J.) & KUBEŠOVÁ (S.), 2010.** Diversity of bryophytes in show caves in Slovenia and relation to light intensities. *Acta Carsologica* 39(3):587-596. ABS: In subterranean environments phototrophic organisms can grow only in the proximity of light sources. In a study from eight Slovenian show caves: Črna jama, Kostanjeviška jama, Krška jama, Pekel pri Zalogu, Pivka jama, Postojnska jama, Škocjanske jame, Županova jama and two mines, Idrja mercury mine and Mežica lead and zinc mine, equipped for tourist visits, 37 taxa of Bryophyta and Pteridophyta were identified. The most frequent organisms were mosses *Amblystegium serpens*, *Brachythecium* sp., *Eucladium verticillatum* and *Fissidens taxifolius*. The highest diversity of bryophytes was recorded in Mežica mine with 16 identified taxa where lamps are on continuously. Bryophytes were collected at wide range of photosynthetic photon flux densities (PPFD) from 0.2 to 530.0  $\mu\text{mol photons/m}^2/\text{s}$ . *Eucladium verticillatum* had the highest span of PPFDs, ranging from 1.4 to 530.0  $\mu\text{mol photons/m}^2/\text{s}$ . Bryophytes compensate for low PPFD with longer exposure to light irradiance. *Cratoneuron filicinum* identified in Mežica mine developed sporophytes at 2.1 and 2.4  $\mu\text{mol photons/m}^2/\text{s}$ , in Postojnska jama *Brachythecium salebrosum* developed sporophytes at 4.7  $\mu\text{mol photons/m}^2/\text{s}$ . Recolonization of lampenflora in show caves where bleach is applied to prevent its growth is still successful at sites that are exposed to long periods of irradiance and high PPFD. <http://carsologica.zrc-sazu.si/?stran=issue&volume=39&issue=3>

**MULEC (J.) & WALOCHNIK (J.), 2010.** Airborne microorganisms and relation to atmospheric parameters in big cave systems (Postojnska jama, Slovenia):102-103. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Air represents an important habitat and intermediate stage in propagation of microorganisms. Airborne microbes and influences of atmospheric parameters to their distribution, seasonal variability and counts were studied in the Postojnska jama cave system. The study included measurement of temperature, relative humidity, CO<sub>2</sub>, air pressure, total dust concentration, DNA concentration, and cultivation of airborne microbes on group specific media (bacteria, fungi, algae, amoebae) and subsequent identification of free-living amoebae (FLA). In the cave atmosphere, the highest variations of atmospheric parameters were

attributed to CO<sub>2</sub> and dust concentrations, 3-times or 2-times higher in the summer period. Similarly, using a depositional sampling method, higher DNA concentrations were detected in summer compared to winter e. g. 68 ng DNA/cm<sup>2</sup> and 42 ng DNA/cm<sup>2</sup>, respectively. Airborne microorganisms were sampled using an Air Sampler Mas-100 (Merck). Inside the cave system bacterial viable counts were more stable throughout the year (34-41 cfu/m<sup>3</sup>) compared to airborne fungi (40-195 cfu/m<sup>3</sup>). Air flow from cave exteriority brings inside the cave viable algal propagules, as expected the highest number was detected in the cave entrance (1-4 cfu/m<sup>3</sup>). R squared statistics was applied to explain the proportion of variability in microbial count vs. atmospheric parameters. Each atmospheric parameter individually did not contribute significantly (max<0.54) to the global trend of microbial counts. Air in huge cave systems like Postojnska jama is subjected to mixing due to natural air and river flow, and tourist activities caused by tourist trains and various walking tours in the cave. However, bioaerosol analyses out of the main cave passage revealed existence of more stable atmospheric conditions and microbial counts throughout the year. Sampling with the impactor of maximum 1 m<sup>3</sup> of air revealed no FLA, but when depositional sampling of open Petri plates was adopted, similar dynamics of airborne FLA was observed compared to other microbial groups; with the peak in the summer period. The most prevalent FLA were acanthamoebae, hartmannellids and vahlkampfiiids. All acanthamoebae were genotyped and almost all isolates belonged to genotype T4. Other amoebozoans found very frequently were mycetozoans, mostly dictyostelids. <http://www.icsb2010.net/>

**MUNKWITZ (N.), REDELL (D.), CRAIN (E.), SCHURMAN (G.), RYAN (T.) & PALOSKI (R.), 2010.** Environmental Assessment on Rules to Protect Wisconsin Cave Bats and Manage *Geomyces destructans*, the Fungus Associated with White-Nose Syndrome.

**MUNSHI-SOUTH (J.) & WILKINSON (G. S.), 2010.** Bats and birds: Exceptional longevity despite high metabolic rates. *Ageing Research Reviews* 9:12-19. **DOI:** <http://dx.doi.org/10.1016/j.arr.2009.07.006>.

**MURACCIOLE (M.), DELAUGERRE (M.) & PAVON (D.), 2010.** *Asplenium marinum* L., une fougère nouvelle pour la flore de Tunisie [*Asplenium marinum* L., a new fern for the Tunisian flora]. *Poiretia* 2:7-11. RÉ: Les auteurs signalent une observation d'*Asplenium marinum* L. dans l'archipel de La Galite sur l'îlot de la Fauchelle. La découverte de cette nouvelle fougère pour la flore de Tunisie permet de faire le point sur sa répartition en Méditerranée. ABS: Authors describe an observation of *Asplenium marinum* L. in the Galite archipelago on the Fauchelle islet. Discovery of this new fern for the Tunisian flora allow us to highlight its distribution in the Mediterranean. <http://poiretia.maghreb.free.fr/publications.html>

**MURARIU (D.) & GHEORGHIU (V.), 2010.** Şura Mare cave (Romania) - the most important known hibernating roost for *Pipistrellus pygmaeus* Leach, 1825 (Chiroptera: Vespertilionidae). *Travaux du Muséum national d'Histoire naturelle "Grigore Antipa"* 53(Décembre):329-338. **DOI:** <http://dx.doi.org/10.2478/v10191-010-0023-6>. ABS: The Şura Mare cave from Romania is one of the largest roost for hibernating colonies of bats with more than 40000 individuals. *Pipistrellus pipistrellus* and *P. pygmaeus* are prevalent species with more than 34000 individuals in mixed colonies. Other 6 bat species are less represented (e. g. *Rhinolophus ferrumequinum* only 500 individuals) but *Miniopterus schreibersii*'s colony counts 3500 individuals. From the total of 8 identified bat species, 5 are a priority according to the European Union legislation: *Rhinolophus ferrumequinum*, *Myotis myotis*, *M. oxygnathus*, *Barbastella barbastellus* and *Miniopterus schreibersii*. RÉ: On a investigué, du point de vue chiroptérologique, seulement les premiers 850 m, en partant de l'entrée principale, de la Grotte Şura Mare, longue de 11123 m. Les auteurs font une analogie avec la grotte Huda lui Paparã, car elles se ressemblent par la hauteur et la largeur du porche, mais aussi parce qu'elles abritent plus de 76000 chauve-souris (cf. Coroiu & al., 2006), avec la mention que cette dernière a été investiguée sur toute sa longueur. Dans la Grotte Şura Mare, *Pipistrellus pipistrellus* est l'espèce dominante (avec environ 30600 individus), tandis que *P. pygmaeus* a été estimé à environ 3400 individus. La seconde espèce de cet abri (avec 3500 individus) a été *Miniopterus schreibersii*, qui a connu un déclin drastique de sa population au cours des dernières 50 années et mérite l'inclusion dans le programme national de monitoring. D'autres espèces

prioritaires (conformément à la législation européenne) sont: *Rhinolopus ferrumequinum*, *Myotis myotis*, *M. oxygnathus*, *Barbastella barbastellus*. Pour cette raison, les auteurs proposent que la Grotte Şura Mare soit déclarée aire protégée. KW: Bat hibernation colony, important roost in Europe, *Pipistrellus pygmaeus*.

**MURIEL-CUNHA (J.), CARDOSO (N. A.), FILHO (J. E. M.), GUTEMBERGUE (G.) & ALBINO (U.), 2010.** Biospeological research in the Amazon: the case of Planaltina cave in the ecoregion Xingu-Tapajós, Brazil:87-88. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: There are more than 1000 not yet systematically studied caves in the Northern region in Brazil. The Pará State has at least 467 caves registered by the National Center for Study, Protection and Management of caves (CECAV). Two decades ago five caves from Speleological Sandstone Province Altamira-Itaituba were studied by Trajano's group and among them the Planaltina cave appears to be the biggest sandstone cave in Brasil (1500 m of length) and is characterized by high populational densities if compared with the other Brazilian caves. Planaltina shows a great production of guano dispersed by massive bat colonies which depends upon the neighborhood Amazon forest resources. We carry out several expeditions in order to evaluate the biodiversity status and populational aspects of the Planaltina cave fauna. Samples were also collected for microbiological analyses from guano/soil/river bed/wall from cave; ph, temperature were registered. The population of some macroinvertebrates was counted along seven transects. The average pH and average temperature were 4 and 26°C, respectively. The number of colonies formed by microorganism per gram was from 104 to 107, the highest density from guano and lowest from riverbed. Among vertebrates, characiform fish (*Erythrinus erythrinus*, Erythrinidae) showed various levels of pigmentation. The size of cricket population was estimated at 11264 individuals with an average density of 1.37 ind./m<sup>2</sup>, and the size of cockroach population at 3075 with 0.37 ind./m<sup>2</sup>. These numbers were lower than 22 years ago. The great level of actual deforestation in the regioned by the construction of the Rodovia Transamazônica could be considered a source of great environmental impact to the caves in the area. Therefore, the biodiversity conservation of those subterranean habitats is in a fragile equilibrium with the integrity of the Amazon forest; its equilibrium is been threatened by the deforestation front and now by projects of construction of several dams in the Ecoregion Xingu-Tapajós. <http://www.icsb2010.net/>

**MURPHY (N. P.), GUZIK (M. T.) & WILMER (J. W.), 2010.** The influence of landscape on population structure of four invertebrates in groundwater springs. *Freshwater Biology* 55(12, December):2499-2509. DOI: <http://dx.doi.org/10.1111/j.1365-2427.2010.02479.x>. SUM: 1. The unique aquatic fauna of the island-like groundwater springs of arid inland Australia raises important questions as to how aquatic species persist in very isolated and fragmented habitats and the role that dispersal may play in mitigating/mediating the influence of landscape structure and determining population structure. By determining the relationship between genetics and geography (i. e. phylogeography), the historical processes responsible for population structure can be determined. 2. We undertook comparative phylogeographic studies of invertebrates from springs south of Lake Eyre. Clusters of springs lying within and between surface drainage catchments (which provide a potential connection between springs) were sampled, and the phylogeographic structure of four coexisting species, an ostracod *Ngarwa dirga*, a snail *Fonscochlea accepta*, an isopod *Phreatomerus latipes* and an amphipod *Wangiannachiltonia guzikae*, was examined. 3. Clear differences in the geographic patterns of genetic structure were found amongst the four species. No discernable genetic structure was found in ostracod and snail populations, even amongst springs lying 20 km apart in separate surface catchments; isopod populations were highly genetically structured amongst springs located in separate catchments, but not within catchments, whilst amphipod populations were highly genetically structured amongst springs both within and between catchments. 4. The results suggest that differences in dispersal ability of each species, and not the overall fragmented nature of the springs, may have led to large differences in phylogeographic history. Interestingly, the relative dispersal ability of these species may be related to their vulnerability to and recovery from large-scale flood events. Therefore, despite the highly

isolated and fragmented nature of the springs, the landscape has not strongly influenced the population structure of the aquatic invertebrate community as a whole nor has it led to the evolution of common life histories. KW: Aquatic invertebrate, comparative phylogeography, dispersal, landscape structure.

**Muséum d'Histoire naturelle de Bourges, 2010.** *Bibliographie française sur les Chauves-souris*. 11/2010, 16 p.

**NAE (A.), 2010.** *Improphantes improbulus* (Simon, 1929) (Araneae, Linyphiidae) new record for the Roumanian fauna. *Travaux de l'Institut de Spéologie "Émile Racovitza"* 49:81-85. ABS: In this paper *Improphantes improbulus* (Simon, 1929) is presented for the first time in the literature about the Roumanian fauna. The new illustrations contribute to a better knowledge about morphological characterization of the species. The currently known distribution of this species in Roumania is also given. KW: *Improphantes improbulus*, new record, Roumania. <http://speotravaux.iser.ro/10.html>

**NAGY (Z. L.) & POSTAWA (T.), 2010.** Seasonal and geographical distribution of cave-dwelling bats in Romania: implications for conservation. *Animal Conservation*, Article first published online: 12.X.2010. DOI: <http://dx.doi.org/10.1111/j.1469-1795.2010.00392.x>. ABS: Caves offer bats refuges for hibernation, breeding and other social events. Their quality is important for species distribution. The role of cave microclimate as well as other environmental factors influencing the distribution of cave-dwelling species, is poorly known. We tested the significance of cave variables (length, temperature, elevation, occurrence of water) and geographical location for the presence of bats during hibernation and the breeding season in five regions in Romania. To detect species' environmental relationships, we used canonical correspondence analyses for winter bat aggregations and principal components analysis for maternity colonies. We analysed the factors influencing the distribution of bats by using two sets of explanatory variables reflecting cave characteristics and geographical locations. Winter aggregation was divided into three groups: (1) bat species that prefer high temperatures (*Rhinolophus euryale*, *Myotis cappacini*) and hibernate at a low altitude; (2) species ranging from mid- to high elevation and low temperature (*Myotis myotis/oxygnathus* group); (3) species that hibernate in large, cold cave systems with a constant flow of the water (*Pipistrellus pipistrellus*, *Nyctalus noctula*, *Barbastella barbastellus*). Maternity colonies were divided into those that select either high (rhinolophids) or low temperatures (*My. myotis/oxygnathus* and *Miniopterus schreibersii*). The most important factors influencing the distribution of bats are the temperature in caves and their geographical location. This information was combined with IUCN's Red List data as well as with the number of individuals occurring in caves with the aim of identifying the key sites for conservation. The majority of these sites, which also constitute the refuges for vulnerable species, are located in west and south-western Romania. Seven caves provide shelter throughout the year for 122000 individuals of 14 species. KW: Bats, caves, conservation, Carpathians, Dobrogea, species-environment relationship.

**NĂPĂRUȘ (M.), ALJANČIČ (G.) & OŠTIR (K.), 2010.** Design of a GIS database to monitor possible threats to the habitat of *Proteus anguinus* (Amphibia: Proteidae). A case study of a highly vulnerable population of *P. a. parkelj* in Bela krajina, Slovenia:88-89, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The population of pigmented, black *Proteus* (*Proteus anguinus parkelj* Sket & Arntzen, 1994) is, by no doubt, the most distinguished of all *Proteus* populations. Due to its most limited habitat in the karst hinterland, namely only three springs in Bela krajina, SE Slovenia (less than 50 km<sup>2</sup>), even a local pollution could have a devastating impact on the whole population. Since it was discovered in 1986, a considerable amount of data on geology, hydrology and geomorphology has been gathered; also, the presence and accumulation of heavy metals and other pollutants, from agriculture and industries, has been well documented. All this data should be put together in a coherent database, based on the local hydrogeological conditions where *P. a. parkelj* lives, as well as on the identification of those areas of natural and anthropogenic conditions, affecting its habitat. The goal of



- this study is to produce a customized GIS data model in order to examine and organize the physical aspects of the hydrogeological system of the habitat. It will comprise the existing processes and objects in the karst landscape, leading to the accurate mapping of the area where *P. a. parkelj* is present. This model is designed first in a conceptual scheme, developed with the help of UML (Unified Modeling Language) - having a high flexibility to be further integrated within the GIS software (ArcGIS 9.3.1 will be used in our case). The model will provide a useful analytical tool to better understand the habitat of *P. a. parkelj* and to provide the framework to model surface and subsurface events that could influence its population. This could guide nature conservation actions against arising threats in the future. <http://www.icsb2010.net/>
- NARANJO (M.) & OROMÍ (P.), 2010.** La cueva de Montaña Blanca: nuevo tubo volcánico de la isla de Fuerteventura. *Vulcania* 9:?  
[http://www.vulcania.org/index.php?option=com\\_content&view=article&id=61&Itemid=22](http://www.vulcania.org/index.php?option=com_content&view=article&id=61&Itemid=22)
- NARANJO (M.), OROMÍ (P.), PÉREZ (A. J.), GONZÁLEZ (C.), FERNÁNDEZ (O.), LÓPEZ (H. D.) & MARTÍN (S.), 2010.** *Fauna cavernícola de Gran Canaria - Secretos del mundo subterráneo*. Ed. Sociedad Entomológica Canaria Melansis, ISBN: 978-84-96296-89-3, 106 p.  
[http://www.fedespeleo.com/web/paginas/Publicaciones/revistas/canarias\\_2010.htm](http://www.fedespeleo.com/web/paginas/Publicaciones/revistas/canarias_2010.htm)
- NAVA (S.), VENZAL (J. M.), TERASSINI (F. A.), MANGOLD (A. J.), CAMARGO (L. M. A.) & LABRUNA (M. B.), 2010.** Description of a New Argasid Tick (Acari: Ixodida) from Bat Caves in Brazilian Amazon. *Journal of Parasitology* 96(6, December):1089-1101. **DOI:** <http://dx.doi.org/10.1645/GE-2539.1>. ABS: *Nothoaspis amazoniensis* n. sp. (Acari: Ixodida: Argasidae) is described from adult and immature ticks (nymph II, nymph I, larva) collected from bat caves in the Brazilian Amazon. Also, 16S rDNA sequences are provided. The diagnostic characters for adults are the presence of false shield or nothoaspis, an anteriorly projecting hood covering the capitulum, a medial extension of palpal article I (flaps), genital plate extending from coxa I to IV, absence of 2 setae on the internal margin of the flaps, a minute hypostome without denticles, presence of a central pore in the base of hypostome, and a reticulate surface pattern on the posterior half of the nothoaspis in males. The nymph II stage is characterized by a hood that is small in relation to the capitulum, short coxal setae, palpal flaps lacking setae on the internal margin, long hypostome, pointed with dentition 4/4 apically, and the anterior half of the body is covered by a cell-like configuration. Nymph I stage is characterized by a hood, small in relation to the capitulum, dorsum of the body covered by a cell-like configuration, venter integument covered by a cell-like configuration, and hypostome dentition 4/4 with apices that are "V"-shaped. Diagnostic characters of the larvae are the number and size of dorsal setae, and the shape of scutum and hypostome. The new species appears to have a life cycle with a larva that feeds on bats, a non-feeding nymphal stage (nymph I), a feeding nymphal stage (nymph II), and adults that probably represent non-feeding stages.
- NAVES (F.), 2010.** Bióloga de Aveiro descobre espécies novas. *Diário de Notícias* 02 Dezembro 2010, Para mais detalhes consulte:  
[http://www.dn.pt/inicio/ciencia/interior.aspx?content\\_id=1725060&seccao=Biosfera](http://www.dn.pt/inicio/ciencia/interior.aspx?content_id=1725060&seccao=Biosfera),  
[http://dn.sapo.pt/inicio/ciencia/interior.aspx?content\\_id=1725060&seccao=Biosfera](http://dn.sapo.pt/inicio/ciencia/interior.aspx?content_id=1725060&seccao=Biosfera)
- NECKÁŘOVÁ (J.), 2010.** Nález netopýra brvitého (*Myotis emarginatus*) v Praze [Record of the Geoffroy's bat (*Myotis emarginatus*) in Prague (Czech Republic)]. *Vespertilio* 13/14:151-152. ABS: A roosting female of the Geoffroy's bat (*Myotis emarginatus*) was found in a mine at Řeporyje, at the south-western edge of the capital of Prague on 17 October 2010 (cadastre of Praha-Řeporyje, 300 m a. s. l., mapping square 5951). This is the first confirmed record of the species in the territory of Prague. KW: *Myotis emarginatus*, distribution, Bohemia.  
<http://www.ceson.org/publikace.php?p=13>
- NEGREA (Ș.), 2010.** On the specimens of *Eupolybothrus (Leptopolybothrus) tridentinus* (Fanzago, 1874) (Chilopoda: Lithobiidae) from the "Z. MATIC" and "Ș. Negrea" collections (Romania). *Travaux du Muséum national d'Histoire naturelle "Grigore Antipa"* 53(Décembre):139-147. **DOI:** <http://dx.doi.org/10.2478/v10191-010-0010-y>.
- NEHM (R. H.) & SCHONFELD (I. S.), 2010.** The future of natural selection knowledge measurement: A reply to Anderson & al., 2009. *Journal of Research in Science Teaching* 47(3, March):358-362. **DOI:** <http://dx.doi.org/10.1002/tea.20330>.
- NELSON (Daniel), 2010.** Food web structure of cave streams in southwestern Illinois and the survival and growth of the stygophilic *Gammarus troglophilus* (Crustacea: Amphipoda) under laboratory conditions. Master's Thesis University of Idaho.
- NÉMOZ (M.), 2010.** Final report of the LIFE-Nature program "Conservation of three cave-dwelling bats in southern France". *Bat Research News* 51(1):40-41.
- NÉMOZ (M.), 2010.** Bilan du programme LIFE "Conservation de trois Chiroptères cavernicoles dans le sud de la France" 2004-2008. *Symbioses*, n. s., 25(Mars, Actes des 12<sup>e</sup> rencontres nationales "chauves-souris" de la SFPEM (Société Française pour l'Étude et la Protection des Mammifères), Bourges, Mars 2008):13-14. <http://samnel.museum.pagesperso-orange.fr/Symbioses.htm>
- NERI (F.), 2010.** Histoires tarnaises... bien mystérieuses. *Kawa Sorix* 9(Novembre):2.
- NEVRLÝ (M.), 2010.** Sedmdesát pět let Jiřího Gaislera. *Vespertilio* 13/14:157-163. <http://www.ceson.org/publikace.php?p=13>
- NGO (van T.) & PAUWELS (O. S. G.), 2010.** A new cave-dwelling species of *Cyrtodactylus* Gray, 1827 (Squamata: Gekkonidae) from Khammouane Province, southern Laos. *Zootaxa* 2730(December 24):44-56, 2 pl., 58 réf. ABS: A new cave-dwelling bent-toed gecko, *Cyrtodactylus lomyenensis* sp. nov. is described from a karst forest in Gnommalath District, Khammouane Province, southern Laos. It differs from all other species of Indochinese-Thai *Cyrtodactylus* in the following combination of characters: maximum SVL of at least 71.2 mm; head dorsum yellowish with irregular brown blotches; presence of a brown nuchal loop reaching the posterior edge of the orbit; four narrow yellowish-cream transversal bands with irregular anterior and posterior black edges on a brown background between limb insertions; no preloacal groove; 39-40 preloacal-femoral pores in males, arranged in a continuous row; females with 32 preloacal-femoral pores in a continuous row, smaller than those of males; five postanal tubercles on each side; 16-18 subdigital lamellae on first toe; 19-23 subdigital lamellae on fourth toe; no tubercles on tail dorsum; and a median row of enlarged subcaudal scales. KW: *Cyrtodactylus*, Gekkonidae, description, new species, Khammouane, Laos, cave-dwelling. <http://www.mapress.com/zootaxa/list/2010/2730.html>
- NIEMILLER (M. L.), NOSIL (P.) & FITZPATRICK (B. M.), 2010.** Corrigendum. *Molecular Ecology* 19(7, April):1513-1514. **DOI:** <http://dx.doi.org/10.1111/j.1365-294X.2010.04564.x>. ABS: This article corrects: Recent divergence with gene flow in Tennessee cave salamanders (Plethodontidae: *Gyrinophilus*) inferred from gene genealogies. Vol. 17(9):2258-2275, article first published online: 10 April 2008.
- NIEMILLER (M. L.) & POULSON (T. L.), 2010.** Chapter 7. Subterranean Fishes of North America: Amblyopsidae:169-280. **DOI:** <http://dx.doi.org/10.1201/EBK1578086702-c7>. In: TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.), *Biology of Subterranean Fishes*. Edited by TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.). ISBN:

- 978-1-57808-670-2. eBook ISBN: 978-1-4398-4048-1. Science Publishers 2010. 460 p.
- NILSSON (A. N.), 2010.** All diving beetle specific and subspecific names explained. *Skórvnópparn*, Supplement 1:1-42.
- NIRLANE DA COSTA (P.), GONÇALVES DE MELO (A.), ROBERTO BATISTA (L.), TAYLOR (E. L. S.), LOPES FERREIRA (R.) & GOMES CARDOSO (P.), 2010.** Identification of tannase producing fungi species in Brazilian caves:100, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Caves are environments that might favor the development of microorganisms due to their environmental characteristics. However, cave microbiology is still poorly studied in Brazil. The biodiversity of subterranean microbiota is still unknown, as well as the biotechnological importance of such organisms. Understanding the importance of preserving cave microbiota, as well as its potential use, may function as an important tool for cave conservation. Tannase (tanino acil) hidrolase EC 3. 1. 1.20 is an extracellular inducible enzyme of great biotechnological interest. It hydrolyses ester and depside bonds present in gallotannins, complex tannins and gallic acid esters. It is mainly used in beverage, tea, fruit juice and food processing. This enzyme is also of environmental importance since it acts as a hydrolyzing agent in cleaning up the highly polluting tannin from the effluent of leather industry. Microorganisms are important source of tannase, such as species from the *Aspergillus* and *Penicillium* genus. The objective of this study was to search for isolates of biotechnological interest (tannase producers) present in caves located in the Brazilian biome named Caatinga (Brazilian xeric shrubland). With this information it is possible to provide new tools that might be used for conservational purposes. The enzymatic production (tannase) by filamentous fungi was tested in specific media. The tannase producers were identified up to the species level. They were isolated in specific media, incubated for seven days and then identified according to their macroscopic and microscopic morphological characteristics. From all the isolates tested, nine tannase producing species were identified: six *Aspergillus* species (*A. tubingensis*, *A. pumiceus*, *A. japonicus*, *A. tamarii*, *A. foetidus* and *Aspergillus* sp.) and three *Penicillium* species (*P. oxalicum*, *P. corylophilum* and *P. sclerotiorum*). Only few of these species have already been reported as Tannase producers. This result provides important information pointing caves as environments holding species of biotechnological potential. The identification of these species highlights the need of more studies concerning cave microbiota and the importance of preserving these environments. <http://www.icsb2010.net/>
- NITZU (E.), NAE (A.), GIURGINCA (A.) & POPA (I.), 2010.** Invertebrate communities from the mesovoid shallow substratum of the Carpatho-Euxinic area. *Travaux de l'Institut de Spéologie "Émile Racovitza"* 49:41-79. ABS: Between 1998 and 2008, the authors analyzed from a faunistic and zoogeographic point of view, 5 sites with different types of mesovoid shallow substratum (MSS) from the karst areas of Dobrogea and the Carpathians. These sites are: the cleitic MSS from the Movile area (South Dobrogea) - from the karst of Dobrogea and the nude and covered colluvial MSS from the Vârghişului Gorges (600-660 m.), the colluvial and cleitic MSS from the Motru Basin (370-407 m.), the nude (Marele Grohotiş - 1650 m., Cerdacul Stanciului 1571 m.) and covered colluvial (Valea Seacă - 1000m.) MSS from Piatra Craiului - from the karst areas of the Carpathians. On the whole, the authors have identified 265 invertebrate species frequently found in the various MSS types (19 species of Isopoda, 13 species of Diplopoda, 71 species of Collembola, 38 of Araneae and 124 species of Coleoptera), all presented in a comparative way. Among them, 25 species are endemic for the Carpatho-Euxinic space. The specific diversity, the degree of endemism, the preferential and characteristic species are highlighted. The role of the MSS from the analyzed sites in the edaphic - subterranean transfer at a faunal level and in the conservation of the local populations is discussed. KW: M. S. S., mesovoid shallow substratum/superficial subterranean environment, sampling methodology, Araneae, Coleoptera, Collembola, Diplopoda, Oniscidea, Carpatho-Euxinic area, characteristic species, zoogeography. <http://speotravaux.iser.ro/10.html>
- NJUNJIĆ (I.) & PAVIĆEVIĆ (D.), 2010.** Diversity of troglotic beetles (Insecta, Coleoptera) of Krivošije area (Orjen Mt, Montenegro) in the scope of the recent biospeological investigations:156, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Krivošije area (Orjen Mt.) belongs to the Dinarides karstic massif and represents one of the most important diversity hot spots of troglotic arthropod fauna. Despite the fact that Krivošije area is very well biospeologically investigated, some very important new records of the troglotic beetles, including new species and genera, have been noticed in recent years. The overview of all troglotic beetles of the mentioned area is given. <http://www.icsb2010.net/>
- NOËL (P.), SÉRET (B.) & DORÉ (A.), 2010.** *Fiches descriptives des espèces marines de France métropolitaine (invertébrés et poissons) dont la protection est envisagée.* Muséum d'Histoire naturelle (MNHN), Service du Patrimoine Naturel (SPN), Rapport SPN 2010-10, Novembre 2010, version du 4 Novembre 2010, 95 p.
- NOGARO (G.), DATRY (T.), MERMILLOD-BLONDIN (F.), DESCLOUX (S.) & MONTUELLE (B.), 2010.** Influence of streambed sediment clogging on microbial processes in the hyporheic zone. *Freshwater Biology* 55(6, June):1288-1302. DOI: <http://dx.doi.org/10.1111/j.1365-2427.2009.02352.x>. SUM: 1. The hyporheic zone plays a key role in hydrological exchange and biogeochemical processes in streambed sediments. The clogging of sediments caused by the deposition of particles in the bed of streams and rivers can decrease sediment permeability and hence greatly affect hyporheic microbial processes. 2. The main objective of this study was to determine the influence of sediment clogging on hyporheic microbial processes in three French rivers (the Usse, Drôme and Isère). In each river, microbial abundance and activity were studied at three depths (10, 30 and 50 cm) in the sediment at one unclogged (high porosity) and one clogged site (low porosity). 3. The results showed that the sediment clogging had inconsistent effects on microbial processes in the three rivers. Increases (Usse) or decreases (Drôme and Isère) in both aerobic and anaerobic processes were detected at the clogged sites compared to unclogged sites. These results suggest that microbial changes because of the sediment clogging are mainly mediated by the residence time of water within the hyporheic sediments. 4. A single model predicting the effect of clogging on hyporheic microbial processes cannot be applied generally to all rivers because the degree of clogging creates heterogeneous effects on flow rates between surface and interstitial waters. As a consequence, the influence of heterogeneous clogging on surface water-hyporheic exchanges needs to be evaluated by water tracing and hydraulic modelling to determine the links between microbial processes and hydraulic heterogeneity induced by clogging in hyporheic sediments. KW: Clogging, fine sediment, hyporheic zone, water-sediment exchanges.
- NOTHIAS (J.-L.), 2010.** Les chauves-souris décimées par un champignon tueur. *Le Figaro - Sciences et Technologies* 06/08/2010. MC: *Geomyces destructans*, champignon, chauves-souris. <http://www.lefigaro.fr/sciences-technologies/2010/08/06/01030-20100806ARTFIG00513-les-chauves-souris-decimees-par-un-champignon-tueur.php>
- NOVÁK (J.) & DÁNYI (L.), 2010.** Faunistic and biogeographical survey of the centipede fauna in the Aggtelek National Park, Northeast Hungary. *Opuscula Zoologica* 41(2):215-229. BL: Cf Kossuth (48.487°N; 20.550°E): Jósavfő, mouth of Kossuth Cave.
- NOVAK (T.), PERC (M.) & JANŽEKOVIČ (F.), 2010.** Candidates for superficial subterranean habitats and epikarst among terrestrial cave inhabiting species:28-29. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Since

1977, sixty-two (62) caves and artificial tunnels, mostly in central and northern Slovenia, have been systematically investigated for their environmental characteristics and terrestrial faunas. Among more than 450 species found, two species groups stand out for their disagreement with the general statement that, in accordance with their adaptation to the hypogean environments, organisms progressively exhibit troglomorphy from shallow towards deep habitats. The first such group is represented by a dozen of troglomorphic species which are rare in caves, thus these are not their preferable habitats. The second one consists of a few troglophilic species with a moderate troglomorphic appearance, which found stable and relatively abundant populations also in some places deep inside caves. Both groups are assumed to enter caves either from stone and gravel accumulations, like the superficial subterranean habitats (SSH) or from the epikarst. In this contribution we present the way of detecting the two origins of such species with respect to their distributional pattern within caves. For this purpose we used the following three groups of data collected in the field and in the laboratory. 1) The distances from the entrance and from the surface, respectively, indicating the general distribution pattern within the upper few tens of meter within the subterranean domain. 2) The presence of populations deep inside some larger caves providing evidence of the ability of a species to live in these habitats and/or, in case of inhabiting various cave sections, its relatively euryecious response within the range of various hypogean habitats. 3) A moderate cold-hardiness to temperatures below -3  C serving as a measure of estimating either a temporary contact of a species with freezing habitats or its incomplete adaptation to deep, meteorologically stable hypogean habitats with temperatures constantly above 0  C. We first analyze the general types of distribution of 18 dominant species within the investigated caves addressing to the interpretation of their preferred habitats. We comment on the presence of troglomorphic and some other species in the caves.

<http://www.icsb2010.net/>

**NOVAK (T.), THIRION (C.) & JAN  KOVIC   (F.), 2010.**

Hypogean ecophase of three hymenopteran species in Central European caves. *Italian Journal of Zoology* 77(4, December):469-475. **DOI:**

<http://dx.doi.org/10.1080/11250000903451809>.

**ABS:** Three hymenopteran species - the ichneumonids *Amblyteles armatorius* and *Diphyus quadripunctorius*, and the proctotrupid *Exallonyx longicornis* - are most frequently cited from all over Europe as executing their inactive hypogean ecophase in caves. Yet, little is known about their environmental requirements during their summer quiescence and/or winter diapause; only limited data are known from Western and Eastern Europe. In this investigation, the sojourn of hymenopterans in hypogean environments is ecologically evaluated on the basis of data obtained from 63 systematically investigated caves and artificial tunnels in central and northern Slovenia, as being representative of the Central European countries. Nine environmental parameters measured at the resting sites of individuals were subjected to Principal Component Analysis (PCA). The species differ significantly from each other on ecological parameters: the euryecious *A. armatorius* occupies a narrow central position with respect to environmental requirements in caves; the montane *D. quadripunctorius* exhibits the best, and the lowland *E. longicornis* the feeblest adaptation to hypogean environments. In contrast to Western and Eastern Europe, in the central countries, the three hymenopteran species prefer dormancy habitats other than caves. These regional differences deserve more attention in future investigations of European hypogean fauna. **KW:** Dormancy, hypogean environments, *Amblyteles armatorius*, *Diphyus quadripunctorius*, *Exallonyx longicornis*.

**NOVAK (T.), TKAVC (T.), KUNTNER (M.), ARNETT (A. E.), LIPOV  EK DELAKORDA (S.), PERC (M.) & JAN  KOVIC   (F.), 2010.** Niche partitioning in orb-weaving spiders *Meta menardi* and *Metellina merianae* (Tetragnathidae). *Acta Oecologica* 36(6, November/December):522-529. **DOI:**

<http://dx.doi.org/10.1016/j.actao.2010.07.005>.

**ABS:** Hypogean habitats are relatively simple exhibiting low diversity, low production and relative constancy of environmental factors, and are therefore appropriate for studying species coexistence in situ. We investigated the coexistence of two closely related, similarly sized orb-weaving spider species, *Meta menardi* and *Metellina merianae*, living syntopically in a Slovenian cave. We studied the annual dynamics of both species within a mixed population, and the impact of the ambient temperature, relative humidity, airflow and illumination, and compared

their trophic niches to legacy data on prey of both species from 55 caves in Slovenia. We predicted a large overlap in their spatial niches and substantial differences in their temporal and trophic niches. We found that their spatial niches overlap greatly with few exceptions, mostly on the dates of notable meteorological changes in the cave but that their temporal niches differ significantly with r-strategy resembling epigeal annual dynamic in *M. merianae* and a steady low abundance course in *M. menardi* within the cave. We also found that different predatory strategies significantly segregate their trophic niches: *M. merianae* uses a typical orb-weaving hunting strategy, while *M. menardi* combines web hunting with off-web hunting. Our findings suggest that both the diverse dynamics and trophic niches enable the coexistence of *M. menardi* and *M. merianae* despite their similar spatial niches, and that *M. menardi*, in particular, is optimally adapted to the epigeal/hypogean ecotone. **KW:** Coexistence, Spatial niche, Trophic niche, Nutritional ecology, Speleobiology.

**NOV  KOV   (A.), 2010.** Cave microscopic fungi as food

source for caves inhabiting springtails and some microfungus records:103-104. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. **ABS:** Records of saprotrophic microfungi are reported from a number of Czech, Slovak, Romanian and Spanish caves. Of them, several species represent coprophilous fungi occurring on various types of animal excreta such as bat guano and bat droppings, marten or dormouse excrements or isopod and diplopod faeces (*Penicillium glandicola*, *P. vulpinum*, *Chrysosporium speluncarum*, *Chaetomium brefeldii*, and *Phycomyces nitens*). Additional coprophilous species, *Coemansia aciculifera*, was isolated from cave sediments. *Botryosporium longibrachiatum* was isolated from the frog carcass in the Domica Cave system (Slovakia). Rarely reported microfungus species *Dimargaris bacillisporea* was found repeatedly in collembolan rearings on the cave sediment from the Domica Cave system and the Punkva Caves (Czech Republic), but also on dead isopod *Mesoniscus graniger* in laboratory rearing and from *C. aciculifera* growth after one month exposition of agar disc with *C. aciculifera* colony on the cave sediment in the Domica Cave. Sixteen microfungus species isolated from cave sediment of the Domica Cave (*Paecilium lilacinum*, *Clonostachys rosea* f. *rosea*, *Cladosporium herbarum*, *Mucor dimorphosporus*, *Asidia glauca*, *Coemansia aciculifera*, *Talaromyces flavus*, *Myxotrichum deflexum*, *Mortierella* sp., *Isaria farinosa*, *Doratomyces stemonitis*, *Oidiodendron cerealis*, *Fusarium solani*, *Trichosporon* cf. *pullulans*, and *T. dulcitum*) were used in food preference test with four collembolans, *Folsomia candida*, *Heteromurus nitidus*, *Hypogastrura aequipilosa* and *Orthonychiurus rectopapillatus*. The test was carried out in 20 cm Petri dishes covered with damp layer of Plaster of Paris. The food was offered in form of agar discs cut from 7 days old microfungus colonies, each disc having been put into a separate sector. Twenty individuals of each collembolan species were then placed into the central part of Petri dish. The presence of springtails on the food and their grazing activity were recorded daily for a period of 10 days. At the beginning of the experiment, some fungi (e. g. *T. dulcitum*, *T. cf. pullulans* and *C. aciculifera*) were significantly preferred, while several species were ignored completely (*D. stemonitis*, *T. flavus*, and *C. rosea* f. *rosea* by *O. rectopapillatus*; *T. polysporum* and *C. herbarum* by *F. candida*; and *Mortierella* sp. by *H. nitidus*). *D. stemonitis*, *O. cerealis* and *I. farinosa* were preferred by some springtails only in advanced stages of the experiment. Nevertheless, there were strong differences in food preferences among individual collembolan species.

<http://www.icsb2010.net/>

**NOV  KOV   (A.), BRAD (T.), MOLDOVAN (O. T.) &**

**HILLEBRAND (A.), 2010.** Microscopic fungi isolated from several caves in Romania:104, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. **ABS:** Saprotrophic micromycetes were investigated in several caves located in the Bihor Mountains, the Padurea Craiului Mountains, and in the Dobrogea region. Airborne microfungi from outdoor and cave air were studied from the point view of colony-forming unit (CFU) numbers and species diversity. In addition, samples of cave sediment and other substrates such as bat guano, animal excreta, and visible microfungus

colonies were collected from all visited caves. There were marked differences in CFU numbers among individual caves, the highest CFU numbers having been estimated in the Fanače Cave, probably due to the extensive bat colonization. In the Uršilor Cave, differences in CFU numbers were found between of airborne microfungi isolated during the day (tourist time) and those isolated during the night.  
<http://www.icsb2010.net/>

**NSW Government (Environment, Climate Change & Water) & NSW National Parks and Wildlife Service, 2010.** NSW Native Animal Keepers' Species List 2010 (also available at: [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)).

**OARGA (A.), SCHILLER (E.), PERȘOIU (A.), ȘEBELA (S.) & MULEC (J.), 2010.** Contribution to the ecology of Copepoda in sulphidic karst springs (Žveplenica - Dolenja Trebuša, Slovenia):138-139, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: For many groups of animals sulphidic habitats represent an inhospitable environment. Žveplenica (46°5'38.21"N 13°50'20.04"E) sulphidic spring (Dolenja Trebuša, Slovenia) was investigated for faunal diversity and for environmental conditions. The sulphidic spring is situated only some 10 meters south of Dinaric oriented (NW-SE) Kobarid fault and 2.3 km south of regionally important Idrija fault in coarse-grained massive Upper Triassic dolomite with tectonic situation typical for External Dinarides. The spring discharge was rather constant in the 2- year monitoring period ~1.8 l/min. Water temperature was 10.5 ± 0.2°C, with pH of 7.56 ± 0.12, and specific conductance of 419 ± 9 μS/cm. Measurements at the spring orifice showed low concentrations of dissolved oxygen (0.13 mg/l). Dissolved sulphide concentration was 7.8 mg/l, sulphate 9.9 mg/l, and nitrate and ammonium was 0.0 mg/l. At the spring orifice filaments of microbial mat were attached in variable quantity. Dry weight of filtered water at the orifice was 2.7 mg/l. Water samples for stable isotope analysis were collected on a monthly basis. The constant δ<sup>18</sup>O and δ<sup>2</sup>H values in Žveplenica spring indicate long residence times of water in the underground. Invertebrate diversity was screened in different seasons. Seven different taxonomic groups were identified in the spring: Gastropoda, Oligochaeta, Aranea, Acarina, Cladocera, Copepoda and insects larvae. The most abundant group were copepods. In the sulphidic water *Bryocamptus echinatus luenensis*, *Bryocamptus zschokkei*, and *Paracyclops fimbriatus* were identified. Among the identified copepods ovigerous females and different copepodit stages were present. These species are known to have wide ecological distribution, but little data exists on their presence in sulphidic habitats. Long residence time of water in the underground (>5 months) and stability of physicochemical parameters in Žveplenica spring suggest that these copepods which were found in every season were able to tolerate low oxygen and high sulphide concentrations. The results give us an interesting insight into copepod diversity and their ecology with respect to sulphidic karst habitats.  
<http://www.icsb2010.net/>

**OBRIST (M. K.), BONTADINA (F.), BOHNENSTENGEL (T.), MOESCHLER (P.) & KRÄTTLI (H.), 2010.** From revision of red list to bat biodiversity monitoring: Procedures, first results, and projections:239. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Red Lists are generally accepted instruments for the appreciation of the protection needs of organismic groups. In Switzerland, all 30 species of bats were red-listed as late as 1994, strongly suggesting for a revision. To comply with the requirements of the IUCN for reproducible and quantifiable measures for red list status assessments, we first clarified combined occupancy and detectability rates of endemic species using data of a pilot study and previous habitat monitoring studies. Results were used to model different sampling schemes regarding to their ability to sense changes in occupancy rates. The models led us to devise a five stage procedure for censusing Swiss bats: (1) assess habitat use with bioacoustic methods using a newly developed automatic recording unit ([www.batlogger.ch](http://www.batlogger.ch)), (2) assess habitat use with mist-netting captures, (3) assess roost occupancy by monitoring selected species in man-made

roosts (attics), (4) monitor swarming and hibernating bats at and in winter roosts (caves), (5) evaluate occupancy estimations resulting from the above assessments with habitat suitability models. Model evaluations resulted in an optimal sampling strategy using 100 squares of 1 km<sup>2</sup>. At each site 10 locations were sampled for 15 minutes each. Sampling of a site is repeated four times, spread over two seasons, by two different observers. Two independent acoustic methods are applied: expert's appreciation of bats heard real-time, and simultaneous automated recording and later machine-analysis of echolocation calls. Additionally, at each square kilometre, one mist-netting night takes place to complement species' diversity. While the above surveys reveal data on distribution and ultimately occupancy of some species, abundance for species, which are challenging to detect acoustically, may be concealed. For these, we consult data from roost monitoring programs (e. g. *Myotis* spp., Rhinolophidae) for information on population changes. Time-series of catches at swarming sites (caves) and counts at hibernacula complete the assessment of the red list status of all Swiss bat species. We detail the study's design, present first results of some completed samplings and elaborate on the possible inclusion of the automated acoustic sampling into the established biodiversity monitoring scheme in Switzerland.

**OCHOA (J. A.), BOTERO-TRUJILLO (R.) & PRENDINI (L.), 2010.** On the troglomorphic scorpion *Troglotayosicus humiculum* (Scorpiones, Troglotayosicidae), with first description of the adults. *American Museum Novitates* 3691:1-19. ABS: The endemic Colombian troglomorphic scorpion, *Troglotayosicus humiculum* Botero-Trujillo & Francke, 2009, previously known only from the juvenile holotype, is redescribed based on newly collected adults of both sexes. New data on basitarsal spination, telotarsal setation, and carination of the metasoma and pedipalps, together with the first description of the hemispermatophore and a revised interpretation of the trichobothria, are provided, along with brief discussions of the ecology and distribution of the species.  
<http://digitallibrary.amnh.org/dspace/handle/2246/6075>

**OLIVIER (M.-J.), MARMONIER (P.), COINEAU (N.), CULVER (D. C.), DANIELOPOL (D. L.), DEHARVENG (L.) & ROSTANG (J.-C.), 2010.** Janine GIBERT. A passion for groundwater ecology (August 29, 1945 - April 14, 2009). *Subterranean Biology* 7(2009, December):97-109.

**OLSON (C.), 2010.** Updates by region. Alberta. 25-years of survey data at the Cadomkin Cave hibernaculum in Alberta. *Western Canadian Bat Network Newsletter* 17(Autumn):4.

**ONAC (B. P.), RACOVITĂ (G.) & BRAD (T.), 2010.** *Atlasul peșterilor din Munții Apuseni. Munții Bihor. 1. Bazinul Arieșului Mare*. University of South Florida Libraries, 90 p., ONAC (B. P.), RACOVITĂ (G.) & BRAD (T.), eds.

**ONETO (F.), OTTONELLO (D.), PASTORINO (M. V.) & SALVIDIO (S.), 2010.** Posthatching Parental Care in Salamanders Revealed by Infrared Video Surveillance. *Journal of Herpetology* 44(4, December):649-653. **DOI:** <http://dx.doi.org/10.1670/09-181.1>. ABS: Posthatching parental care is known in amphibians for frogs and caecilians but, thus far, has never been reported for salamanders. Here, we describe the parental behavior of a female Northwest Italian Cave Salamander, *Speleomantes strinatii*, from egg deposition to nest site abandonment. The female was kept in seminatural conditions and filmed in complete darkness by an infrared video camera. In November 2007, the female laid nine eggs in a small depression of the terrarium floor, displaced the clutch with hind limbs, and showed antipredator behaviors toward a conspecific female and an intruding Roof Rat (*Rattus rattus*). During egg brooding, the female remained in contact with the clutch for about 98% of the time. In September 2008, two young hatched and shared the nesting site for six weeks with the female, which attended the nesting site for 87% of the time. Hatchlings repeatedly climbed over the female's body, lying on her for hours. The female walked out of the nesting site with a young on its back twice. These prolonged skin contacts between parent and offspring should be considered as the first certain case of young attendance in salamanders. This behavior may be related to increased survival of hatchlings during their first weeks of life, when young are particularly vulnerable to predation, skin infection, and dehydration.

**ORGHIDAN (T.) (1917-1985), 2010.** A new habitat of subsurface waters: the hyporheic biotope. *Fundamental and Applied Limnology - Archiv f  r Hydrobiologie* 176(4, April):291-302, 4 fig., translated original article. DOI: <http://dx.doi.org/10.1127/1863-9135/2010/0176-0291>.

ABS: Originally published in 1955 in the *Buletin Stiintific sectia de Biologie si stiinte Agricole si sectia de Geologie si Geografie* [Romania, Academy of Sciences], 7(3):657-676, Un nou domeniu de viata acvatica subterana "Biotopul hiporeic". Translated by Daniel K  SER from the German version published in 1959 in *Archiv f  r Hydrobiologie* 55(3):392-414, Ein neuer Lebensraum des unterirdischen Wassers, der hyporheische Biotop. Translator's notes are marked [TN].

**ORLOV (O. L.) & ORLOVA (M. V.), 2010.** Occurrence of bat ectoparasites in the Urals:240-241. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR  CEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Fauna of the ectoparasites of the chiroptera in Central Russia, Volga region, Caucasus, Ural and Siberia is insufficiently studied. Our investigation aimed to describe the species of ectoparasites of bat of the Ural region. Bats were captured in the five localities in 2004-2010: Dvurechensk, Ekaterinburg, and in the Divia, Smolinskaya and Arakaevskaya caves. Altogether 71 bats of six species (*Myotis brandtii*, *M. dasycneme*, *M. daubentonii*, *Eptesicus nilssonii*, *Vespertilio murinus*, *Plecotus auritus*) were investigated for parasites. In total, 891 parasites (insects and mites) of 12 species belonging to eight families were found. Eight mite species were identified; *Spinturnix myoti* (Spinturnicidae) was collected from *M. brandtii*, *M. dasycneme* and *M. daubentonii*. *Spinturnix plecotinis* (Spinturnicidae) were found on *P. auritus* only. *Spinturnix kolenatii* (Spinturnicidae) was collected from *E. nilssonii*. The following species of the family Macronyssidae were found: *Macronyssus corethroproctus* on *M. dasycneme*; *Macronyssus ellipticus*, *M. granulosis*, *M. charusnurensis*, and *Steatonyssus* sp. on *M. brandtii*; *Macronyssus flavus* and *M. kolenatii* on *Eptesicus nilssonii*; *Macronyssus diversipilis* and *M. cyclaspis* on *M. daubentonii*. The larva of an acarian mite belonging to the family Trombiculidae was found on the long-eared bat. *Argas vesperilionis* (Argasidae) was collected from *Vesperilto murinus*. *Acantophthirus* sp. (Myobiidae) was found on *M. brandtii*. Two species of bat flies (Nycteribiidae) were collected. *Penicillidia monoceros* was found on *M. dasycneme*. *Nycteribia kolenatii* was collected from *M. daubentonii*. Three bat fleas (Ischnopsyllidae): *Ischnopsyllus hexactenus*, *I. obscurus* and *Myodopsylla trisellis* were recorded. *I. hexactenus* and *I. obscurus* were found on *Eptesicus nilssonii*, but *Myodopsylla trisellison*, *M. brandtii*, *M. dasycneme* and *M. daubentonii*. The single specimen of *Cimex pipistrelli* was collected from *V. murinus*. The Ural fauna of bat ectoparasites consists of 14 species of mites, 3 of bat fleas, 2 of two bat flies and 1 species of bat bug.

**OROM   (P.), L  PEZ (H. D.) & MANHERT (V.), 2010.** Diversity and allopatric distribution in the Canarian MSS: a case study in an old island:29. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The terrestrial hypogean fauna in the Canary Islands had been studied mainly in the four western islands, with relevant results on its high diversity and island speciation. Conversely, in the eastern islands this subject had been hardly accomplished because of the apparent worse conditions of their caves, either very dry (Lanzarote and Fuerteventura) or very scarce (Gran Canaria). Indeed, only 5 among the 124 adapted species so far known in the archipelago were described from the eastern islands, three of them from Gran Canaria. Our current sampling in the MSS of Gran Canaria has shown that the absence of caves does not imply an extremely poor fauna. A special type of pitfall traps has been designed for sampling the MSS continuously for a long time, with minimal disturbance of the habitat once the system is stabilized. 12 traps distributed in 6 different locations have been working during the last five years with some intervals, and have shown an unexpected diversity of subterranean arthropods. Pseudoscorpions have resulted particularly diverse in the MSS with 18 species, six of them new to science and five of them being more or less troglomorphic. These species have an allopatric distribution within the island, probably due to geological boundaries that have favoured local speciation. A similar but

less strict allopatric distribution has been found in different species of the genera *Oromia* (Col., Curculionidae) and *Symploce* (Blat., Blattellidae). As a whole, the subterranean species from Gran Canaria have a lesser degree of troglomorphy than their vicariants in the younger island of Tenerife, either belonging to the same or to closely related genera. <http://www.icsb2010.net/>

**ORTU  O (V. M.) & ARRIBAS (O.), 2010.** Clarification of the Status of *Trechus comasi* Hernando (Coleoptera: Carabidae: Trechini) from the Iberian Peninsula and Its Taxonomic Position. *The Coleopterists Bulletin* 64(1, March):73-74. DOI: <http://dx.doi.org/10.1649/0010-065X-64.1.73>.

**ORTU  O (V. M.), GILGADO (J. D.) & SENDRA (A.), 2010.** Update of the knowledge of the Ibero-Balearic hypogean Carabidae (Insecta: Coleoptera): faunistics, biology and distribution:157, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The Iberian Peninsula, because of its special location in southern Europe and its abundance and diversity of karst, has a large number of hypogean arthropods, among which, there is a notable presence of Carabidae. Often, new discoveries of exclusive subterranean taxa are added, which are listed in the very briefly discussed catalogues of the Ibero-balearic fauna. This procedure, that is correct with regard to general catalogues of Carabidae, seems to be insufficient for the hypogean species. This work updates all faunistic, biological and chorological information available on the Ibero-balearic hypogean Carabidae. Finally, according to the distribution of the lineages of the most representative of them, a regionalization of the Iberian Peninsula in biospeleologic districts is proposed. This biogeographic proposal is compared with others already known, which have been elaborated with the study of other groups of Arthropoda. <http://www.icsb2010.net/>

**ORTU  O (V. M.) & REBOLEIRA (A. S. P. S.), 2010.** Description of the third instar larva of a hypogean ground beetle, *Trechus alicantinus* (Coleoptera: Carabidae: Trechinae). *Entomologica Fennica* 21(1):33-42. ABS: Description and illustrations are provided for the third instar larva of *Trechus alicantinus* Espa  ol, 1971 obtained from a laboratory breeding. This paper aims to contribute to increase the general knowledge about microendemic hypogean species of the east of the Iberian Peninsula. Besides, it expands the existing knowledge about the preimaginal stages of the genus *Trechus* and the whole tribe Trechini (Coleoptera, Carabidae). Larvae can give additional information about the life style of the species. Larvae can also express, even more than the imagos, some apomorphic characters, traditionally considered a result of adaptation to the hypogean habitat, such as the regression of ocular structures. The characteristic lack of stemmata is discussed. This type of event, which also appears in other Trechini larvae, is probably more related to phylogenetic lineages than with an adaptive response to hypogean environment. [http://www.entomologicafennica.org/Volume21/abstracts21\\_33.htm](http://www.entomologicafennica.org/Volume21/abstracts21_33.htm)

**ORTU  O (V. M.) & SENDRA (A.), 2010.** Description of *Microtyphlus (Speleotyphlus) infernalis* n. sp. from Valencia (eastern Iberian Peninsula), and review of the present state of knowledge of this hypogean subgenus (Coleoptera: Carabidae: Anillini). *Revue suisse de Zoologie* 117(1, Mars):169-183. ABS: A new species of cave-dwelling Anillini carabid *Microtyphlus (Speleotyphlus) infernalis* n. sp. found in a single cave ("Cova Soterranya", in Serra Calderona's Natural Park, a protected area belonging to the Valencian Autonomous Community) is described. In this cave, the populations are located in the aphotic zone, being subject to rather buffered variations of the abiotic factors and living in a biocoenosis with opportunistic elements and a low number of troglodytic forms, thus possessing a greater degree of biodiversity than the deeper zone of the cave. *M. infernalis* n. sp. is the most southern species of the subgenus *Speleotyphlus*. A total of six species belong to this subgenus. Three of them (*M. (S.) comasi*, *M. (S.) fadriquei*, and *M. (S.) virgillii*) are poorly known; the existing descriptions provide insufficient details and are largely inaccurate.

Although its slenderness makes it look like *M. (S.) auroxi*, some features in the aedeagus of the new species show similarities with the most troglobiomorphic species of the tribe Anillini in the Iberian Peninsula, *Aphaenotyphlus alegrei*. A comparison of the main morphological characteristics of the species belonging to the *Speleotyphlus* subgenus reveals the need for a thorough revision of the whole group, which could be paraphyletic. KW: Coleoptera, Anillini, taxonomy, new species, cave fauna, troglobiomorphism. [http://www.ville-ge.ch/mhng/publication03\\_01.php](http://www.ville-ge.ch/mhng/publication03_01.php)

**OSLISLY (R.) & TESTA (O.), 2010.** Un hôte inattendu. *Sciences au Sud* 57(Novembre-Décembre):12.

**Outback Ecology, 2010.** Reed Resources Ltd, Barrambie Vanadium Project. Barrambie Borefield, Stygofauna Assessment. March 2010. Outback Ecology Services, 1/71 Troy Terrace, Jolimont WA 6014.

**OUVARD (É.), 2010.** Bilan 2009 des captures de chiroptères en Vendée. *La Lettre des Naturalistes Vendéens* 45(1<sup>er</sup> trimestre):188.

**OZIMEC (R.), 2010.** Arachnid cave-dwelling fauna on Biokovo Mt., Central Dalmatia, Croatia:324. In: *18<sup>th</sup> International Congress of Arachnology, University of Podlasie & International Society of Arachnology, Siedlce, Poland, 11-17 July 2010, Book of Abstracts*, editor: Marek ŻABKA, ISBN: 978-83-7051-575-1, 507 p. ABS: Biokovo Mt. (1762 m), with relatively small surface of 200 km<sup>2</sup>, is situated in Central Dalmatia (Croatia) and belongs to the Dinaride Mountains. Very similar to Velebit Mt. and Orjen Mt., Biokovo was under continental glacial and Mediterranean influence. Due to extremely karstification, unique geomorphologic features, biodiversity and endemicity, Biokovo was declared as Nature Park in 1981. Biospeological research in region began in the first decades of 20<sup>th</sup> century but most intensive systematic research was performed between 2002-2006 with cooperation of Biokovo Nature Park and Croatian Biospeological Society. During that period 115 speleological objects have been researched through 192 visits. Five biogeographical zones are recognized on Biokovo Mt., with many different cave habitats. A total of 186 different taxa have been recorded that show some cave-dwelling affinities. Endemism of cave-dwelling fauna is extremely high, even 65 taxa are endemic for Biokovo Mt. and further 47 taxa are endemic for Dinarides. Until now, 44 taxa new for science have been recognized. Among them, 57 cave-dwelling taxa belong to Arachnids: Acari (7), Palpigradi (1), Pseudoscorpiones (23), Opiliones (4) and Araneae (22). All cavedwelling arachnid taxa are endemic for Dinarides, 23 taxa are endemic for Biokovo Mt. with at least 20 new for science. Most representative genus are: *Rhagidia*, *Opilioacaris*, *Eukoenaia*, *Chthonius* (*Chthonius*), *Chthonius* (*Globochthonius*), *Chthonius* (n. subg.), *Troglochthonius*, *Protoneobisium*, *Neobisium* (*Neobisium*), *Neobisium* (*Blothrus*), *Neobisium* (*Ommatoblothrus*), *Roncus*, *Cyphophthalmus*, *Folkia*, *Stalagia*, *Mesostalita*, *Barusia*, *Sulcia*, *Stygopholcus*, *Centromerus*, *Typhloniphia*, *Histopona*. It seems that Biokovo Mt. is a hot spot of arachnid cave-dwelling fauna, but also development centre for some phyletic lines of families Chthoniidae and Neobisiidae (Pseudoscorpiones), same as Dysderidae and Leptonetidae (Araneae). Further systematic research on Biokovo Mt. will continue on cavedwelling, but also on soil and surface arachnid fauna.

**OZIMEC (R.), KARAMAN (I. M.), TULIĆ (U.), PAVIČEVIĆ (M.) & LUKIĆ-BILELA (L.), 2010.** Biospeological research of Pećina na Vrelu Mokranjske Miljacke Cave in Bosnia and Herzegovina:139-140, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Pećina na Vrelu Mokranjske Miljacke Cave with a length over 6800 meters is almost the longest cave in Bosnia and Herzegovina, measured thus far. The cave is located in the Romanija Mountain (near Mokro) on north edge of Dinarides, some 30 km east from capital Sarajevo. It is a hydrologically active complex cave, with one active channel, the main channel and lot of smaller lateral channels. There are a few fossil channels with the largest one, near to the entrance of the cave. Very interesting findings of archaeological artifacts but also

Pleistocene fauna were discovered: almost complete cranial skeleton of an adult male cave bear (*Ursus spelaeus* Rosenmuller & Heinroth, 1794) and cranial skeleton of beaver (*Castor fiber* Linnaeus, 1758). During recent research at the International speleological camp in 2009, systematical biospeological researches have been performed, including the use of water and terrestrial traps. A rich cave-dwelling fauna have been discovered for several groups: water and terrestrial snails (Gastropoda), spiders (Araneae), spring tails (Collembola), beetles (Coleoptera), but also very interesting taxa of trichiladids (Trichiladida), false spiders (Opiliones) and cicadas (Cicadomorpha), same as some parasitic fungi taxa. Among them, some taxa are considered to be a new species for science, most interesting new false spider genus, closely related to genus *Hadzinia* (Opiliones, Nemastomatidae). In future, research will proceed with further speleological but also biospeological research combined with molecular genetic analyses. <http://www.icsb2010.net/>

**OZIMEC (R.), POLAK (S.), BEDEK (J.) & ZAKŠEK (V.), 2010.** Biospeological component of the project KUP (Karst Underground Protection) in Istra Peninsula:89-90. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Nearly 70% of the Istra Peninsula, belonging to Croatia, Slovenia and Italy, is situated on limestone rocks, showing typical Karst character with underground water flow and many Karst phenomena. More than 2000 caves are known in the karstic parts of Istra. Caves are inhabited by many endemic, rare, endangered and protected animal species, as: *Istriana mirnae*, *Niphargus echion*, *Thaumatonicellus speluncae*, *Eupolybothrus obrovensis*, *Verhoeffodesmus fragilipes*, *Troglochthonius doratodactylus*, *Leptodirus hohenwartii*, *Croatodirus bozicevici*, *Prospelaebates vrezeci*, *Pauperobythus globuliventris*, *Proteus anguinus* ssp. n. still not systematically explored and evaluated. Unfortunately, due to many reasons, caves and, especially water cave habitats together with their fauna are endangered. Within the project KUP, financed by OP IPA Slovenia-Croatia programme, lead by the Region of Istria with the Natura Histrica as Croatian and ZRC SAZU - Karst Research Institute, Postojna, as Slovenian partner, adequate protection of Istrian Karst with biospeological research and accompanied activities is envisaged. The goal is to evaluate the diversity and core populations of troglonites; to recognize and register potentially new underground species; to define and evaluate ecological conditions of selected habitats, 6 in Slovenia and 6 in Croatia; to educate local population on the importance of underground fauna and its protection together with their environment; to educate speleologists about cave fauna in a way of popular science and to publish scientific and popular articles about cave fauna in Istra. The overall objective of the two year project, started in 2010, is protection and improvement of the caves as a phenomenon in the border area of Istra region between Slovenia and Croatia. The implementation of the project will provide cross-border cooperation of institutions responsible for Karst research and monitoring, as well as its improvement. The greatest value of project is the establishment of a joint supervision of the Karst area, which extends to the territory of both countries, and also establishing a biospeological data base for the Istra region. <http://www.icsb2010.net/>

**PALANDAČIĆ (A.), ZUPANČIĆ (P.), MATSCHINER (M.) & SNOJ (A.), 2010.** Genetic evidence of subterranean migration of imotska gaovica *Delminichthys adpersus* (Pisces: Cyprinidae):63-64. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Several springs and accompanying subterranean waters of Dinaric karst are populated by endemic small-sized leuciscinae fishes vernacularly called "gaovice". On the basis of morphological and ecological characters, they used to be classified into a single genus *Phoxinellus* Heckel (1843); however, according to recent molecular investigations four of them have been reclassified into a new genus *Delminichthys*: *D. adpersus*, *D. ghetaldii*, *D. jadovensis* and *D. krbavensis*. *D. adpersus*, inhabiting Imotska polje, occupies the most fragmented habitat and forms several apparently separated populations without obvious surface connections. As "gaovice" sustain long-term subterranean life, a question emerges whether they could maintain species gene flow via subterranean migrations. To answer this question, genetic structure of several geographically separated populations of *D. adpersus* have been studied using mitochondrial and

microsatellite DNA analysis. By applying several population genetic programs, we determined at least three main groups of *D. adspersus*, which turned out as genetically unified with only slight gene flow between the western and southeastern group, while the third group appeared as completely isolated population. On the other hand, gene flow was detected among several subpopulations within each group, e. g. Red Lake population and other nearby subpopulations in the western group. Taking into account spatial distribution of *D. adspersus* and known facts about hydrological network of Imotsko polje, the observed genetic outcome can only be explained by subterranean communication between geographically separated populations of *D. adspersus*. According to our knowledge, this is the first proven evidence of subterranean migration of surface fishes. <http://www.icsb2010.net/>

**PAN (Y.), HOU (Z.) & LI (S. Q.), 2010.** Description of a new *Macrobrachium* species (Crustacea: Decapoda: Caridea: Palaemonidae) from a cave in Guangxi, with a synopsis of the stygobiotic Decapoda in China. *Journal of Cave and Karst Studies* 72(2, August):86-93. **DOI:** <http://dx.doi.org/10.4311/jcks2009lsc0087>.

ABS: *Macrobrachium elegantum* is a new species of stygobiotic shrimp discovered in Guangxi, China. The new species is characterized by a transparent body and degenerated eyes and is morphologically similar to *M. linyunense*. This is an addition to the list of fifteen stygobiotic shrimp previously known from throughout the karst of China.

**PANITVONG (N.), SUMONTHA (M.), KONLEK (K.) & KUNYA (K.), 2010.** *Gekko lauhachindai* sp. nov., a new cave-dwelling gecko (Reptilia: Gekkonidae) from central Thailand. *Zootaxa* 2671(November 9):40-52, 7 pl., 36 réf. ABS: A new species, *Gekko lauhachindai* sp. nov. is described from Saraburi Province in central Thailand. It is a member of the mid-sized *Gekko petricolus* group and within this group it is probably most closely related to *G. grossmanni* Günther, 1994, *G. scientiaventura* Röslér & al., 2005, *G. russellraini* Ngo & al., 2009, and *G. takouensis* Ngo & Gamble, 2010 with which it shares a similar dorsal pattern. The new species is distinguished from its congeners by its moderate size (SVL at least to 98 mm) and slender body, rostral participation in the nostril border, prelocoar pores 12-14, femoral pores absent, dorsal tubercle rows 14, snout less than 1.5 times eye diameter, presence of "I" shaped rostral groove, interorbital scale rows 36-40, digit I and IV of pes with 13 and 13-15 enlarged subdigital scensors, respectively, and dorsal pattern of large bright spots dorsally that may be expanded to 5-6 whitish narrow cross bars intersected by a bright mid-dorsal dotted line from nape to sacrum. The new species is one of many recently described Southeast Asian geckos that appear to be restricted to limestone caves. It is the seventh species of *Gekko* known from Thailand and the third *Gekko* occurring in sympatry in the karst forests of Chalermphrakiat District, Saraburi Province, central Thailand. KW: *Gekko lauhachindai*, Gekkonidae, Thailand, description, *Gekko petricolus*, limestone. <http://www.mapress.com/zootaxa/list/2010/2671.html>

**PAOLETTI (M. G.), BEGGIO (M.), DREON (A. L.), PAMIO (A.), GOMIERO (T.), BRILLI (M.), TONIELLO (V.), CONCINA (G.), DORIGO (L.), CONCHERI (G.), SQUARTINI (A.) & ENGEL (A. S.), 2010.** A newly discovered cave foodweb: the *Cansiliella* story:105. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: *Cansiliella* is a troglobitic beetle of the Bathysciinae (now Leptodirinae), endemic in a few hydrologically active carbonate caves of the Prealps in the regions Veneto and Friuli in northeastern Italy. It has a modified feeding apparatus with hoeshaped mandibles, spoon-shaped galeas, and the third article of labial palps small and bearing short sensillae. This beetle is not attracted by conventional baits such as meat, cheese, carrion or excrements as the majority of Leptodirinae. It has been mostly observed deambulating under a thin layer of percolating water on walls covered by moonmilk (a carbonate speleothem of marzipan-like consistency). We have studied *Cansiliella*'s behavior and its foodweb in Bus de la Foos cave for three years. It spends most of its time underwater on moonmilk formations; self-cleaning behavior also takes a considerable amount of time and is possibly associated to feeding. The beetle is also feeding directly underwater on the moonmilk surface. Bacteria from the

water, the moonmilk, the gut of the beetle, and from its body surface have been identified. Carbon and Nitrogen isotope analyses and other nutrient profiles suggested that the nutrition of the beetles could be, for the most, composed of hindgut-borne heterotrophic bacteria subsisting on dissolved organic carbon and dissolved inorganic nitrogen. Additional intakes of nutrients can be related to the browsing of matter from the moonmilk surface and from the self-preening activities. <http://www.icsb2010.net/>

**PAPÁČ (V.), 2010.** Collembolan communities (Hexapoda, Collembola) in karst and basalt caves of central Slovakia (Western Carpathians):140-141, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Distribution pattern of cave springtails within three geomorphological units in central Slovakia were investigated during the period 2005-2009: karst caves of the Muranska planina Plateau (MP) and Drienčanský Karst Region (DK), and nonkarstic basalt caves in Cerova vrchovina Highland (CH). The study provides the first data on Collembola of volcanic caves in the Western Carpathians. More than 50 caves were examined and springtails were the predominating group of cavernicolous invertebrates. In total 88 species of Collembola were identified. The most diverse communities were detected in 31 monitored caves of the MP (64 species), followed by 15 caves of the DK (45 species) and 7 caves of the CH (21 species). Seven species are common in caves in all three studied units. Nine obligate cave species (troglobites) occurred limited to karst caves of MP (7 troglobites) and DK (4 troglobites). Other 13 taxa (e. g. *Mesogastrura ojcoviensis*, *Pygmarrhopalites pygmaeus*, *P. bifidus*, *Oncopodura reyersdorfensis*) were closely associated with cave environment. Four obligate cave species are new to science (*Pseudosinella* sp. 1, sp. 2, sp. 3 and *Megalothorax* sp. 1), probably endemic species of the Western Carpathians. *Pseudosinella* sp. 1 is known only from 5 caves of central MP exhibiting obvious troglobiomorphisms (e. g. extremely elongated claws). *Megalothorax* sp. 1 is known only from one cave in marginal part of MP. Pronounced morphological adaptations are missing in *Pseudosinella* sp. 2 and 3 recorded in 2 caves of DK. Two psychrophilous species new to science were discovered in entrance parts of abysses in MP: *Plutomurus* sp. and *Supraphorura* sp. In the contrary, subterranean environment of CH supports diverse cave communities with absence of troglobites. Crevice basalt caves of this volcanic area are rather densely inhabited by troglophilous species such as *Heteromurus nitidus*, *Protaphorura armata* and *Pseudosinella thibaudi*. Moreover, *Pygmarrhopalites pseudoappendices* occurred in these caves representing eutroglophilous species occurring in Central Europe in: (1) mountains where it inhabits epigeal habitats, and in (2) lower altitudes as cave-dweller. Other Collembola recorded in caves under study may be classified as epigeal or edaphic, common in surface habitats and occasionally colonizing cave entrances. <http://www.icsb2010.net/>

**PAPI (F.), PIPAN (T.) & CULVER (D. C.), 2010.** Ecological studies of an epikarst community in Alpine cave Snežna jama na planini Arto: preliminary results:30. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The subterranean fauna in Alpine and Pre-Alpine caves has been little studied. Therefore we investigated the epikarst fauna from caves which are found in higher elevations in the Slovenian Alps and in the Italian Prealps and we compared these results with findings from Slovenian Dinaric karst. In the Alpine ice cave, Snežna jama na planini Arto, in north central Slovenia, five sampling sites were monitored for fauna and physical and chemical parameters in percolating water in a period of one year. Temperature, conductivity, discharge and pH in water were measured in monthly sampling. DOC, total hardness and concentration of various ions (calcium, chloride, nitrite, sulphate and phosphate) were determined at less frequent intervals. The entrance of the cave is covered by ice and the temperature inside the cave never exceeds 4°C due to alpine climate and high elevation. These environmental conditions are reflected in the fauna. Sampling sites chosen in the permanent ice, were without fauna. Striking results were from the sampling site in the area with well developed moonmilk, where we would expect more diverse fauna due to the microbial communities of moonmilk. However, the fauna was impoverished. In other sampling sites invertebrates from seven different

taxonomic groups were found, including abundant Copepoda and Amphipoda. <http://www.icsb2010.net/>

**PAQUIN (P.), BUCKLE (D. J.), DUPÉRRÉ (N.) & DONDALE (C. D.), 2010.** Checklist of the spiders (Aranea) of Canada and Alaska. *Zootaxa* 2461(May 14):1-170, 1 pl., 977 réf. ABS: This checklist records the occurrence of 1413 species of spiders (Araneae) in 43 families in Canada and Alaska. Distributions of species are given by state, territory and province. Each species name is presented in its original combination, followed by primary synonyms, if any. The list is dominated by members of the family Linyphiidae (39.5% of total species). Highest numbers of species are recorded for Ontario (746), British Columbia (700) and Québec (677). We record 69 species that are thought to be introduced from elsewhere and 321 that are known in the Palaearctic. KW: Canada, Alaska, spiders, fauna, checklist. <http://www.mapress.com/zootaxa/list/2010/2461.html>

**Parc naturel régional du Luberon, 2010.** Site Natura 2000 dit "de Vachères" FR9302008 - Document d'Objectifs - Tome 1: Diagnostic, enjeux et objectifs de conservation hiérarchisés - Note de synthèse. Parc naturel régional du Luberon, Apt, 2009, 37 p.

**PARDESHI (M.), KUMAR (V. V.) & DAS (S. K.), 2010.** Additional records of the Keeled Rock Gecko *Cyrtopodion scabrum* (Heyden, 1827) from Kachchh District, Gujarat, India. *Reptile Rap* 10(June):9-10.

**PARRAVICINI (V.), GUIDETTI (P.), MORRI (C.), MONTEFALCONE (M.), DONATO (M.) & BIANCHI (C. N.), 2010.** Consequences of sea water temperature anomalies on a Mediterranean submarine cave ecosystem. *Estuarine, Coastal and Shelf Science* 86(2, January 20):276-282. **DOI:**

<http://dx.doi.org/10.1016/j.ecss.2009.11.004>. ABS: Thermal anomalies up to 4°C above the climatological mean caused dramatic mass mortalities in benthic ecosystems of the NW Mediterranean during the summer heat waves of 1999 and 2003. Information on the sessile communities of the submarine cave of Bergeggi (Ligurian Sea) was taken in 1986 and 2004, i. e. before and after the two thermal events, using wire-frame photography in four sectors of the cave ecosystem with different morphologies and environmental features. Percent cover data of growth forms (as descriptors of the structural aspects of cave ecosystem) and feeding guilds (functional aspects) were analysed by multivariate and univariate techniques. Differences in trophic organisation and total biotic cover in the four sectors were significant and consistent in the two years. Thus, food web constraints (such as water confinement and trophic depletion), that are mostly dependent on topography, underwent no major change following the thermal events. On the contrary, structural aspects changed across time, 3-dimensional growth forms being replaced by 2-dimensional ones, leading to a general homogenisation of the cave communities. Positive thermal anomalies are thought to have selectively killed erect and massive organisms, their replacement by encrusting organisms possibly representing a phase in cave recolonisation. Submarine caves are poorly resilient ecosystems, and understanding their capacity of recovery after major disturbances is mandatory for their management and conservation. KW: Submarine caves, mass mortality, growth forms, feeding guilds, recovery, Ligurian Sea.

**PÂRVU (C.), 2010.** Dr. Dumitru T. MURARIU at his 70<sup>th</sup> Anniversary. *Travaux du Muséum national d'Histoire naturelle "Grigore Antipa"* 53(Décembre):499-501. <http://www.travaux.ro/volum.php?id=51>

**PÂRVU (C.), 2010.** Comptes rendus: PETCULESCU (A.) & MURARIU (D. T.), 2009, *The first ecological reconstruction of underground environment from Romania. Cioclovina Uscată Cave [Prima reconstrucție ecologică a unui mediu subteran din România - Peștera Cioclovina Uscată]*. Edit. Universitară, București, 136 p., 23 maps, 50 ph., tab., graphs, PETCULESCU (A.) & MURARIU (D. T.), eds. *Travaux du Muséum national d'Histoire naturelle "Grigore Antipa"* 53(Décembre):515-517. ABS: 14 scientists present a factual, but more than that, a symptomatic event for the years to come, i. e. the protection of the cave

fauna is successfully implemented. In Sebeș Mountains, at 16 km far from the patriarchal little town Hăbeș, there is Cioclovina Uscată cave, well-known after the discovering of a brain pan of one of the oldest modern man (*Homo sapiens*) from Europe, dated at 29000 years old. A few people know that, besides this incontestable palaeoanthropologic value, the cave has also a major importance, that of a proper natural roost for some bat colonies (Chiroptera), which, unfortunately were seriously disturbed along time, because of the industrial exploitation of guano. This cave, which had a lot to offer to bats and man (and still has!), has an interesting history, as it results from the Chapter II, signed by D. Murariu, Al. Petculescu and C. Petrea. Because the cave accumulated one of the largest ardealite deposits (80000 tons), as a result of the catabolism of some huge chiropteran colonies, and which it is a very good fertilizer, special exploitation works have been done: forest road, railway, an 8 km funicular, and especially a tunnel of 142 m, drilled under the natural entrance level. Between 1912-1918 and then between 1924-1941, guano was put in bags and transported by train. The tunnel became the most injurious element to the environment, which became changeable, resembling enough with the exterior one, leading to its destruction, both for the bat colonies and nurseries, and for the cave invertebrates, bound to the trophic source of guano. As it is written in the pivot chapter of the book (both due to the page number and, especially, due to the rich documented information of the entire research and activity of ecological reconstruction), signed by V. Gheorghiu, D. Murariu, D. Borda, A. Farcaș and O. Chachula, the humidity loss and the cave vandalizing cave by the tourists and improvised speleologists, who picnicked in the Bivouac Hall, ceased in 2004 and 2005, when the tunnel was blocked by a concrete diaphragm wall and a metallic door, and the natural entrance was blocked by an iron railing, with transversal bars, through which the bats could pass easily. Interdisciplinary studies were developed by projects financed by the Romanian Academy, by the international project "Cave Bear Project, Romania, 2004", speleological association "Proteus" from Hunedoara and "Focul Viu" ("Living Fire") from Bucharest and implemented by "Emil Racoviță" Institute of Speleology of Bucharest. The results of five year studies successfully materialized by the creation and implementation of the first project of an ecological reconstruction of an underground habitat for chiropterans from our country. From 2004, since the anthropic tunnel was blocked, to 2008 when the programme finished, the number of bat increased 100 times, from about 10 individuals reaching 800 individuals of the genera *Myotis*, *Rhinolophus* and *Miniopterus*. The 8 chapters, edited in English, with substantial abstracts in Romanian, are interesting, even exciting, for the biologists, speleologists, anthropologists, nature protectors, or for those who have this noble hobby, the amateur speleologists. The book includes tens of maps, photos, tables, sketches, generously presented in a A4 format, proper to a scientific book. The photo represents the installations, equipments and snapshots made during the specialist working and original images of chiropterans in their natural environment. The article which presents the modern perspective of the brain pan of *Homo sapiens*, not hybridized with *H. neanderthalienensis*, as those from the western Europe are, offer convincing information that here, in the Southern Carpathians, the species *Homo sapiens sapiens* strongly developed, and spread westwards. The articles on the biometry and fossilization conditions of the thanatogenesis from Cioclovina Uscată cave, of the species *Ursus spelaeus*, basing on almost 4000 bones, on the rock magnetism, mineralogical structure and the reconstruction of the Palaeoclimatic profile, completed with the presentation of the management plan of the "Grădiștea Muncelului - Cioclovina" Natural Park (plan which clearly presents what must not happen, for preserving the biotope mosaic where the entomofauna eaten by bats develops) show that, in fact, we are in front of an academic monograph paper, of a site, of a history and of a social phenomenon. The book which we recommend to the researchers and readers with noble and elevated hobbies show the evolution of the protection idea in Romania, and we hope it will be auspicious by its scientific and factual example. <http://www.travaux.ro/volum.php?id=51>

**PARZEFALL (J.) & TRAJANO (E.), 2010.** Chapter 4. Behavioral Patterns in Subterranean Fishes:81-114. **DOI:** <http://dx.doi.org/10.1201/EBK1578086702-c4>. In: TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.), *Biology of Subterranean Fishes*. Edited by TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.). ISBN: 978-1-57808-670-2. eBook ISBN: 978-1-4398-4048-1. Science Publishers 2010. 460 p. <http://www.crcnetbase.com/doi/abs/10.1201/EBK1578086702-c4>



**PAŠIĆ (L.), KOVČE (B.), SKET (B.), HERZOG-VELIKONJA (B.), PORCA (E.), JURADO (V.) & SAIZ-JIMENEZ (C.), 2010.** Diversity of microbial communities colonizing the walls of a karstic cave in Slovenia:106. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIĆ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Some karstic cave systems host microbial communities that consist of distinct, small, white, pink, yellow and gray colonies. Visible to the naked eye, these colonies cover cave walls and are strewn with light-reflecting water droplets. Recently, we have assessed the total diversity of prokaryotes in these multicolored colonizations by establishing small subunit rRNA diversity in samples from Pajsarjeva jama, Slovenia. Furthermore, we have determined the major components of microbial communities constituting yellow and gray cave colonizations by studying environmental samples obtained in caves in Slovenia, Spain and Czech Republic in a comparative manner. These communities studied were diverse, with members of eight bacterial phyla detected in samples, while members of *Archaea* were not recovered. The abundant phylotypes belonged to *Proteobacteria*, *Actinobacteria* and *Nitrospira*. The high number of clones most closely related to environmental 16S rRNA gene clones showed the broad spectrum of unknown and yet to be cultivated microorganisms inhabiting these cave systems. <http://www.icsb2010.net/>

**PATI (A. K.) & PARGANIHA (A.), 2010.** Chapter 12. Subterranean Fishes of India:415-440. **DOI:** <http://dx.doi.org/10.1201/EBK1578086702-c12>. In: TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.), *Biology of Subterranean Fishes*. Edited by TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.). ISBN: 978-1-57808-670-2. eBook ISBN: 978-1-4398-4048-1. Science Publishers 2010. 460 p. <http://www.crcnetbase.com/doi/abs/10.1201/EBK1578086702-c12>

**PAUGY (D.), 2010.** Un inventaire inachev  : historique de l'ichtyologie africaine. *Cybium* 34(1):131-134.

**PAVIĆEVIĆ (D.) & OZIMEC (R.), 2010.** First finding of the troglobitic genus *Seracamaurops* (Coleoptera, Staphylinidae, Pselaphinae) for Croatia:157, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIĆ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: During recent biospeleological research of Sniježnica Mt. (1234 m) in Konavle region near Dubrovnik, most south part of Croatia, performed by members of Croatian biospeleological Society (CBSS), new taxa of the genus *Seracamaurops* (Coleoptera, Staphylinidae, Pselaphinae) have been found. The new species was found in two caves, regularly in deep and cold cave habitat, under stones. The genus *Seracamaurops* is widespread in the southeastern part of the Dinaric region, till the reported finding known only for Bosnia and Herzegovina and for Montenegro. The genus *Seracamaurops* is divided into the subgenera *Seracamaurops* s.str. and *Cordiamaurops*. Including the new species, it counts altogether 13 species. <http://www.icsb2010.net/>

**PECELJ (Milovan), MANDIĆ (D.), PECELJ (J.), PECELJ (Milica), STAMENKOVIĆ (S.) & DJORDJEVIĆ (D.), 2010.** Eco-climatic Conditions and Biodiversity of Orlovača Cave:40-45. In: *Proceedings of the 9<sup>th</sup> WSEAS International Conference on Telecommunications and Informatics, (TELE-INFO '10), Catania, Italy, May 29-31, 2010*. ISSN: 1790-5117. ISBN: 978-954-92600-2-1. ABS: Within specific ecological condition of Orlovača cave existed living world failing rich and large in number. They are adapted on absentia light as well as the other characteristic ecology parameter. On an occasion of researching and organizing Orlovača cave, several representative organisms were discovered. They have been convalescent at the Faculty of Biology in Belgrade. Climate parameters like air temperature and air humidity have been measured in some parts of the cave system which has provided a better understanding of

microclimatic characteristics of the Orlovača cave as a habitat of troglobites as a specific cave fauna. In addition, Orlovača cave is a paleontological locality of the cave bear. In this research we created web oriented data base for presenting results and teaching students. KW: Orlovača cave, software, data base, cave ecosystems, cave biodiversity, cave microclimate, troglobionts.

**PEDLEY (H. M.) & ROGERSON (M.), 2010.** *Tufas and Speleothems: Unravelling the Microbial and Physical Controls*. Edited by PEDLEY (H. M.) & ROGERSON (M.), University of Hull, UK. *Geological Society, London, Special Publications*, 336. **DOI:**

<http://dx.doi.org/10.1144/SP336.0>. Voir: PEDLEY (H. M.) & ROGERSON (M.), About this title: *Tufas and Speleothems: Unravelling the Microbial and Physical Controls*:np.; PEDLEY (H. M.) & ROGERSON (M.), Introduction to tufas and speleothems:1-5; JONES (B.), Microbes in caves: agents of calcite corrosion and precipitation:7-30.

**PEDLEY (H. M.) & ROGERSON (M.), 2010.** About this title: *Tufas and Speleothems: Unravelling the Microbial and Physical Controls*:np. In: PEDLEY (H. M.) & ROGERSON (M.), *Tufas and Speleothems: Unravelling the Microbial and Physical Controls*, Edited by PEDLEY (H. M.) & ROGERSON (M.), University of Hull, UK. *Geological Society, London, Special Publications*, 336. **DOI:** <http://dx.doi.org/10.1144/SP336.0>.

**PEDLEY (H. M.) & ROGERSON (M.), 2010.** Introduction to tufas and speleothems:1-5. **DOI:** <http://dx.doi.org/10.1144/SP336.1>. In: PEDLEY (H. M.) & ROGERSON (M.), *Tufas and Speleothems: Unravelling the Microbial and Physical Controls*, Edited by PEDLEY (H. M.) & ROGERSON (M.), University of Hull, UK. *Geological Society, London, Special Publications*, 336.

**P  NICAUD (P.), 2010.** *Conna  tre et prot  ger les Chauves-souris en Bourgogne*. Plaquette, 5 p. [http://www.bourgogne-nature.fr/index.php?option=com\\_content&view=article&id=4&Itemid=34](http://www.bourgogne-nature.fr/index.php?option=com_content&view=article&id=4&Itemid=34)

**PENTECOST (A.), 2010.** The distribution of plants in Scoska cave and controlling factors:67. In: British Cave Research Association, Abstracts from the BCRA Summer Cave Biology Field Meeting, 8 September 2010, Arncliffe Village Hall and Scoska Cave, Littondale, Yorkshire, UK. *Cave and Karst Science* 37(2, this issue has a cover date of August 2010 and was published in December 2010). ABS: The flora of Scoska cave was investigated. A total of 59 species was recorded (4 algae, 3 lichens, 47 bryophytes, 4 ferns and 1 angiosperm) making it bryologically the richest cave in Britain and one of the richest in Europe. All but nine of the species had been recorded from other European caves. Species-richness declined irregularly from the entrance (relative irradiance (RI) with respect to open sky 12%) to 34m depth (RI 0.004%). Bryophytes were found at 0 - 16 m depth, where RI declined to 0.2%. Only algae were encountered at 34 m depth. Whereas irradiance, which declined exponentially, was the major factor controlling plant distribution, substratum characteristics and surface moisture were also important. <http://bcra.org.uk/pub/candks/index.html?j=110>

**P  REZ (T.) & FELGUERA (B.), 2010.** El karst de Gobantes-Meliones (I Testing Subterr  neo). *BV news* 2:6-9. RES: Se presentan los primeros resultados del I Testing Subterr  neo, proponiendo algunas ideas para la conservaci  n y la gesti  n de la Cueva de Yeso III en Antequera (M  laga).

**P  REZ (T.) & L  PEZ-COL  N (J. I.), 2010.** *Misolampus subglaber* Rosenhauer, 1856 (Coleoptera, Tenebrionidae) capturado en una cueva de Ja  n (Andaluc  a). *Archivos Entomol  gicos* 4(31 de Diciembre):39-41. RES: Se notifica la captura de *Misolampus subglaber* Rosenhauer, 1856 en una cueva de la Sierra del Pozo, en la provincia andaluza de Ja  n. [http://www.aegaweb.com/archivos\\_entomologicos/vol\\_04\\_2010.htm](http://www.aegaweb.com/archivos_entomologicos/vol_04_2010.htm)

**P  REZ (T.) & L  PEZ-COL  N (J. I.), 2010.** *Thorectes (Thorectes) lusitanicus* (Jekel, 1866) (Coleoptera,

Geotrupidae) capturado en la Cueva Secreta del Sagreo (La Iruela, Ja  n, Andaluc  a). *Arquivos Entomol  gicos* 4(31 de Diciembre):75-79. RES: Se notifica la captura de *Thorectes (Thorectes) lusitanicus* (Jekel, 1866) en una cueva de La Iruela, en la provincia de Ja  n (Andaluc  a). [http://www.aegaweb.com/arquivos\\_entomoloxicos/vol\\_04\\_2010.htm](http://www.aegaweb.com/arquivos_entomoloxicos/vol_04_2010.htm)

**P  REZ (T.) & ZARAGOZA (J. A.), 2010.** Sobre *Chthonius (Ephippiochthonius) cazorlensis* Carabajal M  rquez, Garc  a Carrillo & Rodr  guez Fern  ndez, 2001, stat. nov. (Arachnida: Pseudoscorpiones: Chthoniidae), endemismo de la Cueva Secreta del Sagreo, La Iruela, Ja  n, Espa  a. *Monograf  as Bioespeol  gicas* 5:17-22. RES: Se cita y se describe por primera vez la hembra de *Chthonius (Ephippiochthonius) ventalloi cazorlensis* de la localidad tipo, Cueva Secreta del Sagreo. Se discuten las diferencias entre las subespecies de *C. (E.) ventalloi* y se propone la elevaci  n a categor  a de especie de *Chthonius (Ephippiochthonius) cazorlensis*, stat. nov.

**PERREAU (M.), 2010.** What does palaeontology reveal on the radiation of Leiodontidae, Cholevinae and their colonisation of the subterranean biotopes?:158. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The chronology of the radiation of zoological groups can be inferred at least by three main methods: paleogeography, molecular genetics linked to a molecular clock hypothesis and palaeontology. For Leiodontidae Cholevinae, and especially their subterranean adapted phyla, palaeogeography has been emphasised by Jeannel in several renown, but ancient contributions, and later by Giachino & al. (1993). Molecular genetics have been approached recently for Pyrenean Leptodirini species (Ribera & al., 2010), leading to evidences of monophyly, a reconstruction of the phylogeny, and an estimation of the chronology of radiations since the Eocene. The purpose of our presentation is to give an overview on recent investigations in the newly explored third way: palaeontology. Specimens of Cholevinae from several amber deposits of various ages are presented (Oligocene: Dominican Republic; Eocene: Baltic; Cretaceous: Myanmar...). The morphological investigations are enlightened using propagation phase contrast Xray microtomography which allows a non invasive virtual dissection of specimen and a full comparison of external and internal structures (when preserved) with the extant fauna. The wide range of geological periods scanned, from lower Cretaceous to Oligocene, allows an investigation of the morphological changes compared with the extant fauna. These preliminary results will be confronted to the other approaches, emphasising the special instance of the Pyrenean subterranean fauna, which is so far the best known from other methods. <http://www.icsb2010.net/>

**PERREAU (M.) & FAILLE (A.), 2010.** Advances in the knowledge of subterranean Staphylinidae of Morocco: the genus *Apteranillus* Fairmaire (Staphylinidae, Aleocharinae, Lomechusini):141-142, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The genus *Apteranillus* Fairmaire was introduced for an endogean species collected in the region of Tanger (Morocco): *Apteranillus dohrni* Fairmaire, 1854. Several species were subsequently described from North Africa, all endogean or cavernicolous, except one myrmecophilous. The genus *Antrosemnotes* was described by Scheerpeltz in 1935 for the troglobitic species *rotroui*, later downgraded to a subgenus of *Apteranillus*, then synonymized with it. Jeannel (1960) separated seven species living in Algeria and Tunisia in the genus *Apteranopsis*. Later, *Apteranopsis* increased of six endogean and cavernicolous species from Canary islands which were subsequently transferred to Athethini and *Apteranopsis* was downgraded to a subgenus of *Drusilla*. Finally, before the present work, the genus *Apteranillus* contained eight species, five endogean ones: *dohrni* Fairmaire, 1854; *pueli* Peyerimhoff, 1907; *tressensi* Peyerimhoff, 1949; *championi* Bernauer, 1936; *peyerimhoffi* Fagel, 1954, and three troglobitic ones: *rotroui* Scheerpeltz, 1935; *ruei* Espanol, 1969; *minosianus* Lecoq & Queinnec, 2005. One new species:

*Apteranillus bichaini* in litt. has been discovered in Morocco during the Win-Timdouine 2008 speleological and biospeological expedition. Win-Timdouine is the longest subterranean river known in Africa. It is located under the Tasroukht Plateau, in the most oriental part of the Atlas chain, 60 kilometers north-east of Agadir. Its subterranean course is seven kilometers long (13 km including affluents and ramifications). From this cave was already known the cave adapted Paederinae *Domene cantonsi* Espanol. During this expedition, other speleological objects were explored in the vicinity of the Taskroukht Plateau. In the cave Imi Ougoug (=Ifri Ouadou 1=grotte du vent) in Aksri, in the Aksri-Ankhou hydrogeological basin, 7 specimens of *A. bichaini* in litt. have been discovered. On this occasion, we redescribe the species of this genus and discuss their phylogenetic relationships. <http://www.icsb2010.net/>

**PERRY (R. W.), CARTER (S. A.) & THILL (R. E.), 2010.**

Temporal Patterns in Capture Rate and Sex Ratio of Forest Bats in Arkansas. *The American Midland Naturalist* 164(2, October):270-282. ABS: We quantified changes in capture rates and sex ratios from May to Sept. for eight species of bats, derived from 8 y of extensive mist netting in forests of the Ouachita Mountains, Arkansas. Our primary goal was to determine patterns of relative abundance for each species of bat captured over forest streams and to determine if these patterns were similar to patterns of abundance found in other types of studies, including studies of bat mortality at wind turbines. We also wanted to discern regional patterns in sex ratios that have implications for seasonal distributions and migration. Capture rates for eastern red bats (*Lasiurus borealis*) were up to 25 times greater in Aug. and Sept. than in spring or early summer. Although not significant (P = 0.063), capture rates of hoary bats (*L. cinereus*) peaked in both late spring and late summer. Silver-haired bats (*Lasionycteris noctivagans*) were abundant in late spring and late summer but were absent during mid summer, suggesting they migrated from the area. Sex ratios of red bats were predominately male in late spring and late summer but were dominated by females in mid summer, possibly because of increased activity of lactating females during mid summer. Female Seminole bats (*L. seminolus*) were only captured after Aug. 1, suggesting a seasonal geographic separation of sexes. Our results suggest that patterns of bat abundance derived from mist netting over forest streams may be similar to patterns of bat fatalities at wind turbines, communication towers, aircraft strikes, roads and patterns derived from trapping at cave entrances for many species, but it is unclear why this pattern appears ubiquitous. <http://www.bioone.org/doi/abs/10.1674/0003-0031-164.2.270?prevSearch=%5Bfulltext%3A+cave%5D&searchHistoryKey=&queryHash=b2f47304a5945646b93b77f5b3dce2da>

**PFEIFFER (B.), SCHWARZENBERGER (F.) & MAYER**

**(F.), 2010.** Mating system, swarming behavior and testosterone levels in a hibernating bat (*Myotis myotis*) from the temperate zone:246. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR   EK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Reproduction in hibernating bats from the temperate zones bears unique features in several aspects. In many species females copulate with more than one male and store inseminated sperm in their genital tract over the hibernal period. Ovulation and fertilization occurs in spring. Some species display distinctive swarming behavior at caves in late summer to fall. These swarming sites may serve as rendezvous points where sexes meet for reproduction. In order to investigate the male reproductive cycle and mating activity, we mist-netted bats during their active season at a cave over three consecutive years. We inferred the male reproductive condition of the greater mouse-eared bat (*Myotis myotis*) from measuring testes sizes and enlargements of caudae epididymes. We additionally analyzed circulating testosterone levels from blood samples. Although spermatogenesis had already ceased at the peak of swarming activity, testosterone levels increased to high levels. We argue that these hormone concentrations are induced by intense sexual competition among males and through female choice. They also provide further evidence that swarming behavior has a reproductive function.

**HELPS (K. L.), OLIVAL (K. J.) & KINGSTON (T.),**

**2010.** Influence of anthropogenic disturbance on cave-roosting bats and the potential emergence of associated zoonotic diseases. Poster 103:74. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the*

conference manual: Programme, abstracts, list of participants, edited by: Ivan HOR  CEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p.

**PHELPS (K. L.), OLIVAL (K. J.) & KINGSTON (T.), 2010.** Influence of anthropogenic disturbance on cave-roosting bats and the potential emergence of associated zoonotic diseases:246-247. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR  CEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Bats (Order Chiroptera) have long been recognized as natural reservoir hosts for viruses, but more recently, bats have been implicated as hosts for numerous emerging infectious diseases (EIDs) that have impacted other wildlife species, domestic livestock, and human populations. Bats exhibit life history characteristics that make them ideal reservoir hosts, particularly high species diversity, ability to travel long distances via powered flight, long life spans, and the formation of dense roosting aggregations. Within tropical caves, high colony densities coupled with high diversity of cave-roosting bat species, present ideal conditions for virus transmission between individuals and among species. In peninsular Malaysia, numerous bat species are dependent upon solution caves formed within limestone outcrop formations, known as karsts, which provide stable microclimates suitable for roosting and rearing young, as well as, shelter from climatic events and predators. Threats to karst formations, particularly commercial quarrying and logging operations, result in the direct loss of roosting and foraging sites. Such threats have detrimental effects on the viability of cave-roosting bat populations, and present a potential source of stress that may lead to a spillover event. Therefore, documenting ecological characteristics and infection rates of cave-roosting bat species across a landscape experiencing anthropogenic modification is crucial to understanding the relationship between human activities and the emergence of zoonotic diseases. Previous initiatives have acted retroactively, attempting to control or eradicate host populations after a spillover event has occurred. My objective is to document the host-virus relationship, specifically virus and bat diversity, across a spectrum of landscape modification in order to facilitate in a proactive approach to preventing potential spillover events.

**PIERCE (B. A.), CHRISTIANSEN (J. L.), RITZER (A. L.) & JONES (T. A.), 2010.** Ecology of Georgetown Salamanders (*Eurycea naufragia*) Within the Flow of a Spring. *The Southwestern Naturalist* 55(2, June):291-297. DOI: <http://dx.doi.org/10.1894/WL-30.1>. ABS: The Georgetown salamander, *Eurycea naufragia*, is a permanently neotenic salamander known only from about a dozen surface springs and caves in Williamson County, Texas. Rapid urbanization places all known populations at risk and conservation strategies are hindered by a lack of information on the ecology of the species. To better understand requirements of microhabitat and spatial distribution of *E. naufragia* within flows of surface springs, we conducted counts of salamanders on the surface at one locality over a 12-month period. Numbers of salamanders and percentage of cover objects occupied by salamanders varied among months, with a general trend of higher abundance in spring and summer. Few juveniles were observed, and there was no strong seasonal trend in distribution of size of salamanders. Within the flow of the spring, abundance of salamanders decreased linearly with distance from origin of the spring. Salamanders were more likely to be under rocks than under other types of cover objects and they selected larger rocks. Larger salamanders occupied larger cover objects; rocks covering multiple salamanders were larger than those covering single salamanders. RES: La salamandra *Eurycea naufragia* es una salamandra permanentemente neot  nica conocida solamente de una docena de manantiales superficiales y cuevas en el condado de Williamson de Texas. La r  pida urbanizaci  n que ocurre en las   reas donde habita la especie pone a todas las poblaciones conocidas en riesgo, pero las estrategias de conservaci  n son impedidas por falta de informaci  n b  sica sobre su ecolog  a. Para entender mejor las necesidades del microh  bitat y la distribuci  n espacial de *E. naufragia* dentro de los flujos de los manantiales superficiales, contamos el n  mero de salamandras en la superficie de una localidad por un per  odo de doce meses. La cantidad de salamandras y el porcentaje de objetos de cubierta utilizados por las salamandras variaron de mes en mes, con una tendencia general de m  s abundancia durante los meses de la primavera y del verano. Observamos

muy pocos juveniles, y no hubo ninguna fuerte tendencia estacional en las distribuciones del tama  o de las salamandras. Dentro del flujo del manantial, la abundancia de las salamandras disminuy   linealmente con la distancia del nacimiento del manantial. Fue m  s probable encontrar salamandras debajo de piedras que debajo de otros tipos de objetos de cubierta y las salamandras eligieron piedras m  s grandes. Las salamandras m  s grandes ocuparon objetos de cubierta m  s grandes; las piedras cubriendo m  ltiples salamandras fueron m  s grandes que las que cubrieron salamandras individuales.

**PIERRE (J.-F.), 2010.** Les femmes du XX<sup>e</sup> si  cle et l'Acad  mie des Sciences. 13 p. BL: Cf T  TRY Andr  e.

**PIKSA (K.), BOJAR (A.) & NIEDO  PIA  L (K.), 2010.** Prevalence of Spinturnicidae, Ixodidae and Argasidae in bats during spring and fall swarming in Southern Poland:249. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR  CEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: The aim of the study was to determine the parameters for parasitisation by Ixodidae, Argasidae and Spinturnicidae in bats during the autumn and spring swarming. The research was conducted in 2008-2009 at the cave opening of the Zb  jeckie Cave in   pocie  n (Beskid Wyspowy Mountain, Southern Poland). From 16 bat species the following parasites were collected: *Carios vespertilionis*, *Ixodes vespertilionis*, *I. ricinus*, *Spinturnix myotis*, *S. bechsteinii*, *S. emarginatus*, *S. kolenatii*, *S. andegavinus*, *S. plecotinus*, and *S. punctata*. In the case of the Spinturnicidae there were no differences confirmed in the parasitic invasion indicators for bats in the autumn and spring swarms. During the spring, a clear increase in the *Ixodes vespertilionis* parasitic infestation value was observed.

**PIKSA (K.) & NOWAK (J.), 2010.** Distribution pattern of hibernating bats in caves along Carpathians elevation gradient (Poland). Poster 58:71. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR  CEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p.

**PIKSA (K.) & NOWAK (J.), 2010.** Distribution pattern of hibernating bats in caves along Carpathians elevation gradient (Poland):248-249. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR  CEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: The aim of the project was to determine the changes in the structure of bats assemblages wintering in caves at a variety of altitudes. The research was conducted in the Polish Carpathians in over 70 caves situated between 300 and 1930 m above sea level. Field surveys were carried out during consecutive hibernation periods between seasons 2003 and 2009. Around 14000 hibernating bats from 14 species were recorded. The most numerous species were *Rhinolophus hipposideros* and *Myotis mystacinus* complex. Relatively large numbers of greater mouse-eared bats *Myotis myotis* and northern bats *Eptesicus nilssonii* were recorded. The remaining species were observed in small numbers. Alongside the increase in altitude, there were clear changes in: species diversity, vertical spectrums, the structures of bats assemblages, the similarity between dominant structures, and so on. The variation in coenotic parameters for the assemblages of wintering bats allowed us to distinguish four levels in the hypsometric gradient. The fundamental causative factor in the similarity of dominant structures within a level and their distinction between levels is the thermal regime of the hibernacula. The differences in thermal conditions within the hibernacula are caused by the structure's height above sea level, the area's geological make-up, and the chimney effect.

**PINDER (A. M.), HALSE (S. A.), SHIEL (R. J.) & McRAE (J. M.), 2010.** An arid zone awash with diversity: patterns in the distribution of aquatic invertebrates in the Pilbara region of Western Australia:205-246. In: GEORGE (A. S.), McKENZIE (N. L.) & DOUGHTY (P.), *A Biodiversity Survey of the Pilbara Region of Western*

*Australia, 2002-2007*. Edited by GEORGE (A. S.), McKENZIE (N. L.) & DOUGHTY (P.), *Records of the Western Australian Museum*, Supplement 78. <http://www.museum.wa.gov.au/research/records-supplements/#supplement-78>

**PIPAN (T.), CULVER (D. C.) & SIMON (K. S.), 2010.**

Organic carbon in aquatic shallow subterranean habitats:30-31. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Organic carbon is likely to be an important limiting factor in shallow subterranean habitats (SSHs). Data on dissolved organic carbon (DOC) for interstitial, epikarst, and hypotelminorheic habitats are reviewed. The best studied of these is the epikarst. In Organ Cave, West Virginia (U. S. A.), DOC in epikarst drips averaged 1.10 + 0.15 mg C/L over the course of the year. In Postojna Planina Cave System, Slovenia, DOC in epikarst drips averaged 0.70 + 0.04 mg C/L over the course of the year. While this is at least five times lower in concentration than water entering the caves through sinking streams, it plays a vital role because it is more ubiquitous in the caves and forms the basis for the biofilm. Specific UV absorbance (SUVA) at 254 nm, an estimate of aromatic C content and an indicator of dissolved organic matter composition, was significantly lower in drips than in sinking streams and cave streams. In studies of the Rh  ne and its tributaries, Marmonier et al. report DOC values averaging between 1.9 and 3.5 mg C/L. Lower values were reported for smaller streams, increased depth, and increased lateral distance from the river. For the first time, we report on values for hypotelminorheic habitats, which average 3 mg C/L. <http://www.icsb2010.net/>

**PIPAN (T.), HOLT (N.) & CULVER (D. C.), 2010.** How to

protect a diverse, poorly known, inaccessible fauna: identification and protection of source and sink habitats in the epikarst. *Aquatic Conservation: Marine and Freshwater Ecosystems* 20(7, November/December):748-755. DOI: <http://dx.doi.org/10.1002/aqc.1148>. ABS: 1. Aquatic subterranean species are often geographically and numerically scarce. Many of these species are denizens of epikarst, the uppermost zone of karst with semi-isolated solutional openings and channels, and are only known from drip pools in caves where they accumulate as a result of animals dripping out of the epikarst. 2. The question of whether these pool communities adequately reflected the epikarst community was addressed by directly collecting animals from drips in a continuous collecting device. 3. The study area was six caves in Slovenia, where a total of 35 drips and associated pools were sampled for copepods for a period of approximately one year. A total of 37 copepod species were found, 25 of them stygobionts and 16 epikarst specialists. 4. Overall, the frequency of stygobionts was 1.5 times higher in drips compared with pools and the frequency of epikarst specialists was three times higher in drips compared with pools, and the frequency of immature individuals was higher in drips compared with pools, with the exception of one artificially enlarged pool in Škocjanske jame. The cause of this difference is probably increased juvenile mortality in pools and reduced reproduction, indicating that pools are not source populations. 5. The results of this research suggest that epikarst per se, not just the sampling sites (including pools) in caves, needs to be the focus of conservation planning. KW: Cave fauna, Copepoda, epikarst, rare species, stygobionts.

**PLATH (M.), HERMANN (B.), SCHR  DER (C.), RIESCH (R.), TOBLER (M.), GARC  A DE LE  N (F. J.), SCHLUPP (I.) & TIEDEMANN (R.), 2010.** Locally adapted fish populations maintain small-scale genetic differentiation despite perturbation by a catastrophic flood event. *BMC Evolutionary Biology* 10:256. DOI: <http://dx.doi.org/10.1186/1471-2148-10-256>.

ABS: Background: Local adaptation to divergent environmental conditions can promote population genetic differentiation even in the absence of geographic barriers and hence, lead to speciation. Perturbations by catastrophic events, however, can distort such parapatric ecological speciation processes. Here, we asked whether an exceptionally strong flood led to homogenization of gene pools among locally adapted populations of the Atlantic molly (*Poecilia mexicana*, Poeciliidae) in the Cueva del Azufre system in southern Mexico, where two strong

environmental selection factors (darkness within caves and/or presence of toxic H<sub>2</sub>S in sulfidic springs) drive the diversification of *P. mexicana*. Nine nuclear microsatellites as well as heritable female life history traits (both as a proxy for quantitative genetics and for trait divergence) were used as markers to compare genetic differentiation, genetic diversity, and especially population mixing (immigration and emigration) before and after the flood. Results: Habitat type (i. e., non-sulfidic surface, sulfidic surface, or sulfidic cave), but not geographic distance was the major predictor of genetic differentiation. Before and after the flood, each habitat type harbored a genetically distinct population. Only a weak signal of individual dislocation among ecologically divergent habitat types was uncovered (with the exception of slightly increased dislocation from the Cueva del Azufre into the sulfidic creek, El Azufre). By contrast, several lines of evidence are indicative of increased flood-induced dislocation within the same habitat type, e. g., between different cave chambers of the Cueva del Azufre. Conclusions: The virtual absence of individual dislocation among ecologically different habitat types indicates strong natural selection against migrants. Thus, our current study exemplifies that ecological speciation in this and other systems, in which extreme environmental factors drive speciation, may be little affected by temporary perturbations, as adaptations to physico-chemical stressors may directly affect the survival probability in divergent habitat types.

**PLATH (M.) & TOBLER (M.), 2010.** Chapter 8. Subterranean Fishes of Mexico (*Poecilia mexicana*, Poeciliidae):281-330. DOI: <http://dx.doi.org/10.1201/EBK1578086702-c8>.

In: TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.), *Biology of Subterranean Fishes*. Edited by TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.). ISBN: 978-1-57808-670-2. eBook ISBN: 978-1-4398-4048-1. Science Publishers 2010. 460 p.

**POHL (G. R.), ANWEILER (G. G.), SCHMIDT (B. C.) & KONDLA (N. G.), 2010.** An annotated list of the Lepidoptera of Alberta, Canada. *ZooKeys* 38(March 5):1-549. DOI: <http://dx.doi.org/10.3897/zookeys.38.383>.

**POLAK (S.) & TRONTELJ (P.), 2010.** Suprageneric systematics of leptodirine beetles (Leiodidae, Cholevinae): molecular versus morphological characters:158-159. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Past attempts to understand the evolution and establish a phylogenetic system of the Leptodirini (Leiodidae, Cholevinae) were based on morphological characters. None of these attempts could satisfactorily explain the resulting morphological and biogeographical patterns. Most authors concluded that modern molecular approaches are the only possible and legible way to solve the enigmatic Leptodirine phylogeny in the future. In the last years, we conducted a molecular phylogenetic study of 54 different genera of Leptodirini. We sequenced about 3.3 kbp from two mitochondrial (COI and 16S) and three nuclear gene segments (two pieces of 28S rDNA, Histone H3), and analyzed them using standard phylogenetic procedures. External and internal morphological characters used so far in the higher suprageneric classifications of leptodirines were cladistically analyzed in combination with molecular data. Phylogenetic trees from different loci recovered a monophyletic origin of the studied leptodirines. Our results and those recently obtained by other authors suggest that most subterranean Leptodirini are geographically grouped. The most important and consistent result of the molecular phylogenetic reconstruction was the resolution of major lineages differing significantly from those recognized at present based on morphological characters only. The traditional suprageneric subdivision of leptodirines into Anthroherponini (Anthroherpona) and Bathysciini (Bathysciinae) as well as subtribes Anthroherponina, Spelaebatina, Bathysciina, Bathysciotina, Leptodirina and Pholeuonina are polyphyletic groups and have to be redefined or rejected. Since not all of the genera or genera-groups were molecularly tested, a more precise new systematics of the Leptodirini is not yet possible. <http://www.icsb2010.net/>

**POOLE (G. C.), 2010.** Stream hydrogeomorphology as a physical science basis for advances in stream ecology.

*Journal of the North American Benthological Society*  
29(1):12-25. DOI: <http://dx.doi.org/10.1899/08-070.1>.

**POPA (I.), 2010.** First records and rare species of Collembola in the Roumanian Fauna - The Piatra Craiului Massif (The Carpathians). *Travaux de l'Institut de Spéologie "Émile Racovitza"* 49:87-96. ABS: The author presents new data about the collembolan species collected from the Piatra Craiului Massif. Sixty-five species were identified from the material sampled from soil and mesovoid shallow substratum (M. S. S.) Three species (*Arrhopalites ornatus* Stach, 1945, *Microgastrura duodecimoculata* Stach, 1922 and *Xenylla mucronata* Axelson, 1903) are for the first time recorded in the Romanian fauna. KW: Mesovoid Shallow Substratum, Collembola, Piatra Craiului Massif, Romania, first records. <http://speotravaux.iser.ro/10.html>

**POPA (I.), 2010.** First record of *Orchesella pannonica* Stach, 1960 (Hexapoda, Collembola) in Romania. *Travaux de l'Institut de Spéologie "Émile Racovitza"* 49:185-187. BL: Cf p. 185: Collembolans represent a major component of terrestrial ecosystems (and particularly significant members of the soil communities)... They may be found in moss, under stones, in caves, in ant nests and termite nests but also on the surfaces of lakes and ponds or under snow fields. <http://speotravaux.iser.ro/10.html>

**PORCA (E.), JURADO (V.), NOVÁKOVÁ (A.) & SÁIZ-JIMÉNEZ (C.), 2010.** Origin and development of a fungal outbreak in Castañar de Ibor Cave, Spain:106-107, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Caves are extremely prone to deterioration from human-induced energy perturbations. It has been demonstrated that uncontrolled or mass visits is one of the factors most detrimental in the conservation of cave art. The mere presence of a group of visitors for some minutes before a panel of rock paintings can cause temperature and humidity in the cave to vary more than during the whole annual cycle under natural conditions. These disturbances, together with those derived from organic matter generated by the visitors, plus that coming in from outside, lead to a progressive alteration of the microenvironment and of the cave ecology. A little-studied aspect is the impact of organic matter on the ecosystem of a cave. Recently we have had the opportunity to study the effects of an accidental release of organic matter in the Cave of Castanar de Ibor, the activation of the microorganisms present, and the production of a fungal outbreak, similar to that originated nine years ago in the Lascaux Cave, and to suggest the means of tackling and controlling this invasion. The closure of the cave, together with environment-friendly measures, including the use of products that (unlike commercial biocides) did not leave residues in the cave, has minimized the fungal outbreak. The studies made in the cave throughout one year of closure, and the struggle against the fungal colonization, are described. <http://www.icsb2010.net/>

**PORTER (M. L.) & CULVER (D. C.), 2010.** Tethyan distribution of stygobionts: fact or fiction:47. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The Tethyan Seaway was a circumtropical sea that closed with the closing of the Mediterranean about 15 million years ago and is commonly invoked as an explanation for the distribution of stygobionts. In order to test this hypothesis, we examined the distribution of 72 stygobiotic genera of Crustacea, exclusive of Isopoda and Amphipoda. Using Paleomap<sup>TM</sup> for ArcGISTM, we plotted distributions by tectonic plate. We divided the resulting distributions into three categories: (1) Single region distributions which are consistent with but not necessarily evidence for a role for the Tethyan Seaway; (2) Tethyan Seaway distributions, consisting of a least two regions; and (3) distributions not consistent with the Tethyan Seaway. A total of 29 genera were in the first category and 41 were in the third. Surprisingly, only three genera were in the second category. Of the 29 distributions from a single Tethyan region, 9 were Mediterranean, 16 were Caribbean, three were Australian, and one was Indian. There were a variety of 41 non-Tethyan distributions, including Pacific Islands. There may be several explanations for the apparent lack of importance of the Tethyan Seaway. It may have closed before many species colonized

subterranean habitats, or dispersal may be important. Our study suggests that a new paradigm for the historical biogeography of subterranean organisms is in order. <http://www.icsb2010.net/>

**PORTER (M. L.), CULVER (D. C.) & PIPAN (T.), 2010.** Molecular diversity of epikarst copepods from John Friends Cave, Maryland, USA:31, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Epikarst habitats are ecologically important reservoirs of stygobiotic fauna. While a number of studies have investigated the biodiversity of these habitats, few have employed molecular tools. In this study, we investigated the molecular diversity of epikarst copepods from John Friends Cave, Maryland USA. Previous studies of epikarst copepod biodiversity from this cave identified eight species. Copepods from dripwaters in 6 different locations throughout the cave were collected in September 2008 and preserved in 100% ethanol. In order to investigate the molecular diversity found in the epikarst habitat of this cave, individual copepods were used to PCR amplify a ~650bp region of the mitochondrial gene cytochrome oxidase I (COI). Sequences were obtained from 37 individuals, representing five different drips within the cave. Based on sequence similarity, the individuals analyzed represent three different species. In all cases, sequences from a single species were >98% similar, while sequence similarities among the three species ranged from 66-78%. Based on sequences available in public databases (e. g. GenBank), two of the species are most closely related to harpacticoids from the family Cletopsyllidae (86%), while the third species is represented by a single sequence that is most closely related to cyclopoids from the family Cyclopidae (88%). Among the harpacticoids sampled so far, one of the species was found in 4 of the 5 drips and the second in 2 of 5 drips. The ability to use molecular tools to identify the copepod diversity within a drip offers the potential for long term monitoring of epikarst fauna and the tools for investigating the connectivity of the epikarst habitat. <http://www.icsb2010.net/>

**PORTILLO (M. C.) & GONZALEZ (J. M.), 2010.** Moonmilk Deposits Originate from Specific Bacterial Communities in Altamira Cave (Spain). *Microbial Ecology Online First<sup>TM</sup>*, 17 August 2010. DOI: <http://dx.doi.org/10.1007/s00248-010-9731-5>. ABS: The influence of bacterial communities on the formation of carbonate deposits such as moonmilk was investigated in Altamira Cave (Spain). The study focuses on the relationship between the bacterial communities at moonmilk deposits and those forming white colonizations, which develop sporadically throughout the cave. Using molecular fingerprinting of the metabolically active bacterial communities detected through RNA analyses, the development of white colonizations and moonmilk deposits showed similar bacterial profiles. White colonizations were able to raise the pH as a result of their metabolism (reaching in situ pH values above 8.5), which was proportional to the nutrient supply. Bacterial activity was analyzed by nanorespirometry showing higher metabolic activity from bacterial colonizations than uncolonized areas. Once carbonate deposits were formed, bacterial activity decreased drastically (down to 5.7% of the white colonization activity). This study reports on a specific type of bacterial community leading to moonmilk deposit formation in a cave environment as a result of bacterial metabolism. The consequence of this process is a macroscopic phenomenon of visible carbonate depositions and accumulation in cave environments.

**POSTAWA (T.), FURMAN (A.) OZTUNC (T.) & ÇORAMAN (E.), 2010.** Patterns of ectoparasite abundance infecting distinct populations of *Miniopterus* species in their contact zone in Asia Minor:251. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Closely related hosts species are similarly susceptible to infestations of parasites. However, even small differences in morphology or in feeding behavior may also result in differences in parasites infestation. *M. schreibersii* in Asia Minor forms a cryptic species complex: *Miniopterus pallidus* and *M. schreibersii*. We analysed abundance of 2 species of nycteribiid flies (Diptera, Nycteribiidae) and one wing mite

(Mesostigmata: Spinturmicidae) infecting distinct population of *Miniopterus schreibersii* complex in their putative contact zone in Asia Minor (Central Anatolia). Studies were conducted during the maternity period, in cave colonies two genetically different/distinct lineages/haplotypes/haplogroups of *Miniopterus schreibersii* (3 caves vs one cave) and *M. pallidus* (3 caves). Only adult bats: males and females were investigated; all maternity aggregations were more numerous than a few hundred individuals. Between two main hosts: *M. schreibersii* and *M. pallidus*, we find no differences in flies abundance (without effect of host sex), and significant differences in wing mite abundance (with effect of host sex). Unexpectedly, the largest differences we find between two distinct population of *M. schreibersii*: in cave colony from Hatay there's complete lack of wing mites, and almost threefold largest abundance of flies than other bent-wing bat colonies. Because bats from this colony have a unique haplotype suggesting a relatively recent migration and isolation from the other *M. schreibersii* colonies, it is possible that during this episode had "lost" mites, and in their place, flies increased the number.

**POULSON (T. L.), 2010.** Chapter 1. Cavefish: Retrospective and Prospective:1-40. **DOI:**

<http://dx.doi.org/10.1201/EBK1578086702-c1>. In:

TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.), *Biology of Subterranean Fishes*. Edited by TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.). ISBN: 978-1-57808-670-2. eBook ISBN: 978-1-4398-4048-1. Science Publishers 2010. 460 p.

**POUPIN (J.), 2010.** *Biodiversit   de l'Indo-Pacifique tropical fran  ais: 2514 esp  ces de Crustac  s D  capodes et Stomatopodes*. Rapport scientifique, Institut de Recherche de l'  cole Navale, Brest, France, 76 p.

**POUPIN (J.) & JUNCKER (M.), 2010.** Guide des crustac  s d  capodes du Pacifique Sud [A guide to the decapod crustaceans of the South Pacific]. Noum  a, Nouvelle-Cal  donie: Coral Reef InitiativeS for the Pacific et Secr  tariat g  n  ral de la Communaut   du Pacifique, 320 p. URL: <http://www.crisponline.net>; <http://www.oeil.nc>.

**Pr  fecture de l'Orne & DREAL Basse-Bormandie, 2010.** R  seau europ  en NATURA 2000 - Directive "Habitats". Site d'importance communautaire. Ancienne champignonni  re des Petites Hayes:2 p.

**PRENDERGAST (J. A.), JENSEN (W. E.) & ROTH (S. D.), 2010.** Trends in Abundance of Hibernating Bats in a Karst Region of the Southern Great Plains. *The Southwestern Naturalist* 55(3):331-339. **DOI:**

<http://dx.doi.org/10.1894/MRD-10.1>. ABS: We analyzed

temporal variation in abundance of hibernating bats from long-term records (1965-2004) in gypsum caves of the Red Hills of Kansas and Oklahoma, a region lying at peripheries of geographic ranges of four species of bats. Nonparametric correlation analyses were used to evaluate variation in abundances of five species among 12 hibernacula. Townsend's big-eared bat (*Corynorhinus townsendii*) showed no significant change in abundance among most of its hibernacula, but exhibited one increase and one decrease in abundance in two hibernacula. The cave myotis (*Myotis velifer*) displayed increasing abundance in some hibernacula (27% of hibernacula, n = 3) and one decrease (9% of hibernacula, n = 1). The tri-colored bat (*Perimyotis subflavus*) exhibited increasing abundance in 60% (n = 6) of its hibernacula. The pallid bat (*Antrozous pallidus*) and big brown bat (*Eptesicus fuscus*) exhibited no statistically significant change in size of population in any hibernaculum, although the pallid bat occurred infrequently and in low numbers (  11 individuals) in the hibernaculum where it was detected. The changes in abundance we detected may reflect range expansions of some species (e. g., tri-colored bat) or changes in qualities of hibernacula or other aspects of habitats, but underlying mechanisms are unknown. ABS: Analizamos la variaci  n temporal en abundancia de murci  lagos en invernaderos por medio de registros de largo plazo (1965-2004) en cavernas de yeso de las Red Hills de Kansas y Oklahoma, una regi  n que se encuentra en los l  mites de las distribuciones geogr  ficas de cuatro especies de murci  lagos. Se us   el an  lisis de correlaci  n no param  trica para evaluar la variaci  n en abundancia de cinco especies entre 12 invernaderos. El murci  lago orejas de mula (*Corynorhinus townsendii*) no mostr   cambios

significativos en abundancia en la mayor  a de sus invernaderos, pero exhibi   un aumento y una reducci  n en abundancia en dos invernaderos. El murci  lago de la cueva (*Myotis velifer*) mostr   aumento en algunos invernaderos (27% de los invernaderos, n = 3) y en un sitio una reducci  n (9% de los invernaderos, n = 1). El murci  lago *Perimyotis subflavus* exhibi   un aumento en abundancia en 60% (n = 6) en sus invernaderos. El murci  lago p  lido (*Antrozous pallidus*) y el gran murci  lago marr  n (*Eptesicus fuscus*) no exhibieron cambios significativos con respecto al tama  o poblacional en ning  n invernadero, aunque el murci  lago p  lido apareci   en baja frecuencia y en bajos n  meros (  11 individuos) en el invernadero donde fue detectado. Los cambios en abundancia que detectamos pueden reflejar expansiones en la distribuci  n geogr  fica de algunas especies (por ejemplo, el murci  lago *P. subflavus*) o cambios en la calidad de invernadero u otros aspectos de h  bitat, pero se desconocen los mecanismos subyacentes.

**PRESETNIK (P.) & PODGORELEC (M.), 2010.**

*Miniopterus schreibersii* - what is this cave-roosts flagship species doing in church attics? Poster 117:76. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR   EK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p.

**PRESETNIK (P.) & PODGORELEC (M.), 2010.**

*Miniopterus schreibersii* - what is this cave-roosts flagship species doing in church attics?:251-252. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR   EK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS:

Bent-winged bats (Miniopteridae) are medium sized cave dwelling insectivorous bats of the Old World. The only species in Europe, *Miniopterus schreibersii*, is distributed in southern Europe from Iberia to the Caucasus, south of the 48   parallel. It is predominately found in the relatively warm karst regions and almost exclusively roosts in large caves. Usually large colonies of several (even as much as ten) thousand animals can use specific underground shelters as nursery, hibernation, transitional or all year round roosts. It is no wonder that *M. schreibersii* has become a flagship species for the conservation of cave habitats for bats. However, at the northern edge of its range in Central Europe there had been sporadic reports of smaller nursery colonies also inhabiting attics. Unfortunately, these reports either referred to roosts that no longer existed, or no details were given. The intensive survey of church attics, which has occurred over the last decade in Slovenia and neighbouring Austria, has revealed that *M. schreibersii* forms nursery roosts in three attics: in the Slovenian village churches of Pu  cava and Zavr  e; and in the priest's house in Kl  sch, Austria. These buildings share remarkably similar conditions in that all: (i) have large windows in the attic or adjacent rooms; (ii) have relatively large attic spaces; (iii) but also have a more sheltered space free of draughts, and; (iv) importantly, all roosts were shared with large colonies of *Myotis myotis*. *M. schreibersii* were usually hidden in clusters of the larger species or formed small groups just beside the groups of *M. myotis*. In the summer of 2009 we counted in Pu  cava, Zavr  e and Kl  sch approximately 60, 230 and 15 adult *M. schreibersii* and 460, 850 and 620 adult *M. myotis* respectively. Banding data shows that probably all the *M. schreibersii* from the above-mentioned attics hibernate in one cave. This could mean that these *M. schreibersii* are accustomed to using attics as nursery roosts and therefore more could be expected in similar buildings. The building descriptions given could also be used as practical guidelines for the restoration of former roost sites destroyed in previous decades.

**PREVOR  NIK (S.), TRONTELJ (P.) & SKET (B.), 2010.**

Rapid re-invasion and evolution following the mysterious disappearance of Racovitza's *Asellus aquaticus cavernicolus* (Crustacea: Isopoda: Asellidae):172. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The completely depigmented *Asellus aquaticus cavernicolus* was first described by Racovitza (1925) from the cave   rna jama - a part of the Postojna Planina Cave System (PPCS, Slovenia). As Racovitza's description was rather deficient, a more detailed one was provided by Sket (1965). In the 1960s,

however, the population found at the exact type locality (Črna jama) was highly heterogeneous in pigmentation. Therefore, Sket used specimens from the homogeneous, totally depigmented (sub)population from the adjacent downstream cave Planinska jama, also part of the PPCS. Four decades later, molecular population genetic and phylogeographic analyses revealed that the PPCS is inhabited by at least two distinct troglomorphic populations with very restricted, if any, recent gene flow: the upstream Črna jama and the downstream Planinska jama population. In a wider phylogeographic framework that included surface populations, it was shown that both populations result from independent invasions, the Črna jama being the younger one. Furthermore, extensive multivariate statistical analyses of morphometric characters revealed significant differences among recent (sub)populations from the PPCS, raising the question about the true identity of the "original" *A. a. cavernicolus*. According to our newest morphometric analyses of Racovitza's type material, no recent (sub)population of the PPCS is identical to the type sample. So what could have happened to *A. a. cavernicolus* in an 80-years period? We propose two possible scenarios for morphological changes. The first one represents the traditional view of linear progression under directional selection. It implies that Racovitza's taxon has retained its identity but has undergone rapid phenotypic changes. The second corresponds to a more dynamic model of cave invasion considering the possibility of multiple successive and parallel events, as well as competitive interactions between old cave populations and new invaders. According to the second scenario, Racovitza's taxon was ultimately replaced by a population that has invaded the upstream parts of the PPCS somewhere in the time between Racovitza's (1925) description and Sket's (1965) re-description. The morphological evidence speaks in favour of the second scenario, implying that a few decades are sufficient for a new cave invasion and the corresponding troglomorphic changes to happen. <http://www.icsb2010.net/>

**PRIÉ (V.), KIRSCH (R.) & BICHAIN (J.-M.), 2010.** Richesse spécifique et gîtes profonds des chauves-souris (Mammalia, Chiroptera) dans le Gouffre de Padirac (Lot, France). *Le Rhinolophe* 18:7-16. <http://www.ville-ge.ch/mhng/cco/page/rhino.htm#2010>

**PROUDLOVE (G. S.), 2010.** British subterranean biology, the Hazelton database and the future:67. In: British Cave Research Association, Abstracts from the BCRA Summer Cave Biology Field Meeting, 8 September 2010, Arncliffe Village Hall and Scoska Cave, Littondale, Yorkshire, UK. *Cave and Karst Science* 37(2), this issue has a cover date of August 2010 and was published in December 2010). ABS: The study of subterranean biology in Great Britain began in 1938 when Aubrey Glennie and Mary Hazelton formed the core of a group of cavers who collected animals from caves. All animals collected were sent to Hazelton, the Biological Recorder of the Cave Research Group of Great Britain, who sent them to experts for identification. She then published all of the data in the Biological Records, a series of 16 publications from 1955 to 1978. This was a huge and crucially important job. All data are now entered into an Excel database named Hazelton in honour its main architect. There are 5573 records of animals from 1785 samples from 596 subterranean sites. This dataset is currently under analysis. Future studies are required and should be targeted at taxa (= animal groups), sites, habitats and projects. <http://bcra.org.uk/pub/candks/index.html?j=110>

**PROUDLOVE (G. S.), 2010.** Chapter 2. Biodiversity and Distribution of the Subterranean Fishes of the World:41-64. DOI: <http://dx.doi.org/10.1201/EBK1578086702-c2>. In: TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.), *Biology of Subterranean Fishes*. Edited by TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.). ISBN: 978-1-57808-670-2. eBook ISBN: 978-1-4398-4048-1. Science Publishers 2010. 460 p.

**PROUDLOVE (G. S.), WOOD (P. J.) & KNIGHT (L. R. F. D.), 2010.** Janine GIBERT 29 August 1945 - 14 April 2009. ? :68.

**PRUD'HOMME (F.), 2010.** La Grotte des Tignahustes, 70 ans après Norbert CASTERET. *Symbioses*, n. s., 25(Mars, Actes des 12<sup>e</sup> rencontres nationales "chauves-souris" de la SFPEM (Société Française pour l'Étude et la Protection

*des Mammifères*), Bourges, Mars 2008):9-12. <http://samnel.museum.pagesperso-orange.fr/Symbioses.htm>

**PUECHMAILLE (S. J.), VERDEYROUX (P.), FULLER (H.), GOULH (M. A.), BEKAERT (M.) & TEELING (E. C.), 2010.** L'évènement. Dordogne. Alerte au White Nose Syndrome en France. *Spelunca* 117(Mars, 1<sup>er</sup> trimestre):3.

**PUECHMAILLE (S. J.) & WIBBELT (G.), 2010.** Protocol sheet for Investigations of Bats in Hibernacula With Suspect of "White Nose-Syndrome" - like Lesions. *IZW* February:3 p.

**PYBUS (M.), 2010.** White-Nose Syndrome. *Western Canadian Bat Network Newsletter* 17(Autumn):18.

**QAUMMEN (D.), 2010.** Bat Crash. Bats are crucial to ecosystems-devouring insects, dispersing seeds, and pollinating flowers. But in the U. S. an insidious new enemy is causing massive die-offs. *National Geographic Magazine* - *NGM.com*, December, 4 p. <http://ngm.nationalgeographic.com/print/2010/12/bat-crash/quammen-text>

**RACOVIȚĂ (G.), 2010.** Révision systématique des Leptodirinae souterrains des Monts Apuseni. 7. Le sous-genre *Pholeuon* (s. str.) du bassin de Crisul Negru (Monts du Bihor). *Travaux de l'Institut de Spéologie "Émile Racovitza"* 49:3-27. RÉSUMÉ: Dans cette septième et dernière étude régionale faisant partie de la révision systématique que nous avons initiée treize ans auparavant, on a disposé de neuf échantillons faunistiques totalisant 1297 individus (579 mâles et 718 femelles). Les résultats fournis par le traitement statistique des données biométriques montrent, dans ce cas de manière encore plus nette que d'habitude, qu'une différenciation des taxons infra-spécifiques n'est pratiquement possible qu'en tenant compte non seulement de la similitude morphologique, mais aussi du facteur biogéographique. Sans que ce dernier soit pourtant utilisé en tant qu'élément de diagnose proprement-dit, cinq sous-espèces nouvelles de *Pholeuon* (s. str.) leptodirum ont pu être identifiées: *P. l. problematicus*, *P. l. jeanneli*, *P. l. moldovani*, *P. l. fagensis* et *P. l. nanus*. Par ailleurs, certaines modifications ont dûes être opérées dans la classification proposée par Jeannel (1923) et acceptée jusque de nos jours. <http://www.speotravaux.iser.ro/10.html>

**RAGHURAM (H.) & MARIMUTNU (G.), 2010.** Food transfer by mother to pup in *Megaderma lyra*:255-256. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: The Indian false vampire bat, *Megaderma lyra* lives in caves, unused buildings and temples. It feeds upon frogs, mice, geckos, etc. In order to detect and capture prey on ground *M. lyra* uses a combination of passively listening to prey-generated sound, echolocation and possibly vision also. But to capture prey (frog) at water surface, the bat uses echolocation. *M. lyra* gives birth to a single young from March to May. In a study under captive conditions, four out of eight young (Group 1) at 60-63 days of age began to capture dead frogs that we pulled with a long thread on the sandy floor of the flight room. However, the mothers continued to suckle until their young became 85 days old. The mothers of the remaining four young (Group 2) stopped suckling when their young attained the age of 60 days. Nevertheless, these mothers transferred either entire or partly consumed frogs (bodies with no head, half bodies, paired hind limbs and single hind limbs) to their young solicitors. Such food transfers occurred based on the body lengths of frogs. Mothers transferred small frogs entirely, but as the body length of frogs increased, mothers transferred smaller body parts to their young. Occasionally, audible vocalizations of mother and young were associated with food transfers. When these young bats became 74 days old, their mothers stopped food transfers. It appears that lactating females of *M. lyra* take care of their young by supplementing milk with solid food, similar to other megadermatid bats.

**RAHMADI (C.), HARVEY (M. S.) & KOJIMA (J.-I.), 2010.** Does the whip spider genus *Stygophrynus* (Amblypygi: Charontidae) extend its distribution eastward

to the Solomon Islands?:359-360. In: *18<sup>th</sup> International Congress of Arachnology, University of Podlasie & International Society of Arachnology, Siedlce, Poland, 11-17 July 2010, Book of Abstracts*, editor: Marek ŻABKA, ISBN: 978-83-7051-575-1, 507 p.

**RAHMADI (C.), HARVEY (M. S.) & KOJIMA (J.-I.), 2010.** Whip spiders of the genus *Sarax* Simon, 1892 (Amblypygi: Charinidae) from Borneo Island. *Zootaxa* 2612(September 15):1-21, 8 pl., 33 réf. ABS: Five species of the whip spider genus *Sarax* are recognized from Borneo, with the following four species newly described: *Sarax yayukae* sp. nov. from Sabah (Malaysia), West and Central Kalimantan (Indonesia), and three species from East Kalimantan, *S. cavernicola* sp. nov., *S. sangkulirangensis* sp. nov., and *S. mardua* sp. nov. *Sarax mardua* and *S. cavernicola* have pale coloration, reduced eyes and elongate legs suggesting troglomorphic adaptations to cave environments. The characters diagnosing the family Charinidae and the genus *Sarax* are discussed and revised. The distribution patterns of *Sarax* species in Southeast Asia, especially in Borneo Island, are discussed in relation to their habitat preferences. The generic status of *Stygophrynus moultoni* Gravelly, 1915 (Charontidae) is briefly discussed. KW: Caves, troglomorphic species, taxonomy, new species, *Stygophrynus*. <http://www.mapress.com/zootaxa/list/2010/2612.html>

**RAHMADI (C.) & KOJIMA (J.-I.), 2010.** Whip spiders of the genus *Sarax* in the Papuan region, with description of two new species (Amblypygi: Charinidae). *Journal of Arachnology* 38(3):475-484. [http://www.americanarachnology.org/JoA\\_tocs/JOA\\_contents\\_v38n3.htm](http://www.americanarachnology.org/JoA_tocs/JOA_contents_v38n3.htm)

**RAINHO (A.), MEYER (C. F. J.), THORSTEINDÓTTIR (S.) & PALMEIRIM (J. M.), 2010.** Conservation status of bats of the island of São Tomé, Gulf of Guinea:256-257. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: The bat fauna of São Tomé is characterized by a remarkably high degree of endemism; four out of the ten species known to occur on this small oceanic island and one subspecies are endemic. However, while many bat species on the island are considered threatened, little is known about their distribution, population status and how they may be affected by human activities. Here, we report on the results of a survey that was conducted between September and November 2009. Our ultimate goal was to identify potential threats and priority areas for species protection such as important roosting sites - knowledge that can aid in the planning and implementation of appropriate conservation measures. The study revealed the presence of a bat species not previously known to occur on the island, *Myotis tricolor*. Our findings suggest that the disturbance or destruction of roosts constitutes a threat to many of the bat species on São Tomé, especially cave-roosting ones, calling for legal protection of those species and monitoring of key roosting sites. Although the flying fox species *Eidolon helvum* and *Rousettus aegyptiacus* are seemingly abundant on the island and appear to be able to sustain current levels of exploitation, hunting may be a problem for the island endemic *Myonycteris brachycephala*, whose population size seems to be greatly reduced. To avoid overexploitation of these species, awareness campaigns among hunters are necessary, alongside legal protection measures such as the establishment of a closed season during the bats' period of reproduction and prohibition of capturing bats in colonies. Finally, lack of knowledge about the general biology, ecology, and population status is a serious obstacle to the conservation of some of the bat species of São Tomé and there is a dire need for future research into little-known species such as the island endemic *Tadarida tomensis*.

**RAINHO (A.) & PALMEIRIM (J. M.), 2010.** The importance of distance variables in the modelling of bat foraging habitat:256. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Bats are colonial central-place foragers that usually return daily to their colony roosts, but thanks to their flying

capacity they can reach distant high quality foraging sites, where they can maximise their food intake. However, flying is energetically expensive, so reaching these sites and other key resources, such as drinking water, may be costly. As a consequence, distance variables are likely to be critical determinants in bat habitat suitability. In order to evaluate how essential these distance variables are in modelling bat habitat suitability, we analysed habitat selection by two cave-dwelling species (*Rhinolophus mehelyi* and *Miniopterus schreibersii*), both of global conservation concern and among the least known bats in Europe. Habitat use was determined by radio tracking the two species during the spring, around a nursing colony located in Mediterranean southern Portugal. The role of various habitat and distance variables was tested using logistic regression modelling. The results confirmed the great importance of distance variables. Habitat suitability models that did not include distance variables had much lower performance and discrimination ability than those that included them. In fact, two of the distance variables analysed - distance to roost and to water - could alone explain as much as 86 and 73% of the habitat suitability for *Miniopterus schreibersii* and *Rhinolophus mehelyi* respectively. We also generated habitat suitability maps for both species in a GIS environment using models with and without distance variables. The resulting maps differed substantially, confirming the poor spatial performance of the models that did not include distance variables. We conclude that the inclusion of distance variables in habitat suitability modelling will not only allow a better understanding of the way bats select their foraging habitats, but also increase the quality of the maps used to plan the conservation and management of their habitat.

**RAMPINI (M.), DI RUSSO (C.) & COBOLLI (M.), 2010.**

The cave crickets of the Eastern Mediterranean area: a contribution to the study of Balkan and Anatolian Rhaphidophoridae diversity:47-48, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Two genera of Rhaphidophoridae cave crickets are widespread in the Southern Europe and Asia minor, inhabiting caves of the Mediterranean area. At the end of the last century 22 species belonging to the genus *Dolichopoda* Bolívar, 1880 and 12 species belonging to the genus *Troglophilus* Krauss, 1879 were reported in literature for the caves of the Eastern Mediterranean area. Both genera are components of the parietal community, and important vectors of trophic energy within the caves. Morphologically these two genera differ in the number of spines on the hind tibiae and in the shape of genitalia. On the basis of their ecology and of some morphological traits, i. e. appendages elongation and body coloration, *Dolichopoda* species show an higher degree of cave adaptation than *Troglophilus*. Most of the oriental *Dolichopoda* species are concentrated in continental and insular Greece; the other species are limited to the Balkans, Anatolia and Caucasus. The number of *Troglophilus* species is significantly lower: 7 species from Balkans, 3 from Anatolia and 2 from Aegean islands. Our recent researches carried out in these areas allowed us to identify and to describe 11 new species of *Dolichopoda* and 3 new species of *Troglophilus*. Other new taxa are still uncertain, needing further investigations. These are the cases of *Dolichopoda* specimens from Diktaion Antron (Crete) and from Korician Antron (Beotia) and the *Troglophilus* specimens collected in two Albanian caves and on Mljet island (Dalmatia). The results of our work point out the richness of species of both genera in these regions, 48 out the 65 total species, supporting the hypothesis of a common oriental origin for both genera, whose centre of dispersal was placed on the former Aegean plate. The preliminary analysis based on some morphological traits (e. g. epiphallus in *Dolichopoda* and X tergite in *Troglophilus*) suggest a clear divergence of the Caucasian-Anatolian species from the Balkanic-Hellenic taxa. The separation of these two groups of species in both genera could be interpreted as the result of some important geological events that occurred in this area during the late Miocene (e. g. rising of Anatolian plateau and formation of Mid-Aegean Trench). <http://www.icsb2010.net/>

**RANGA REDDY (Y.) & TOTAKURA (V. R.), 2010.** A taxonomic revision of the genus *Habrobathynella* Schminke, 1973, with the description of four new species from southeastern India (Crustacea, Malacostraca, Bathynellacea). *Zootaxa* 2532(July 12):1-54, 32 pl., 66 réf. ABS: The genus *Habrobathynella* Schminke, 1973, presently contains six species. Four new species of the genus *Habrobathynella*, viz. *H. krishna*



- n. sp., *H. vaiatarini* n. sp., *H. savitri* n. sp. and *H. vidua* n. sp. are described and illustrated herein and their taxonomic position in the genus *Habrobathynella* discussed. Inhabiting certain rivers and borewells in the State of Andhra Pradesh, southeastern India, these new species introduce several morphologic features that are unique to either the genus or the family Parabathynellidae. The spine row on the uropodal sympod now displays five character states, and high diversity is also seen in the male thoracopod VIII. The salient morphologic characters and their various states in all the habrobathynellid species are reviewed and the original generic diagnosis revised. The palpless mandible with somewhat pyriform pars molaris, bearing 5-6 teeth, is recognised as a signal synapomorphy of *Habrobathynella*. Two more synapomorphies based on the male thoracopod VIII and caudal furca are added. Considering its special importance in taxonomy, the male thoracopod VIII of the four already known Indian species, viz. *H. nagarjunai* Ranga Reddy, 2002; *H. schminkei* Ranga Reddy, 2004; *H. indica* Ranga Reddy & Schminke, 2005 and *H. plenituda* Ranga Reddy & Schminke, 2009, has been reexamined based on topotypes and freshly illustrated with line drawings and digital images, and errors in the original accounts are corrected. Also, the ecology, biogeography and conservation of *Habrobathynella* species are briefly discussed. KW: Stygofauna, Syncarida, Parabathynellidae, distribution. <http://www.mapress.com/zootaxa/list/2010/2532.html>
- RASPLUS (J.-Y.) & ROQUES (A.), 2010.** Dictyoptera (Blattodea, Isoptera), Orthoptera, Phasmatodea and Dermaptera. Chapter 13.3. In: Roques A et al. (Eds) Alien terrestrial arthropods of Europe. *BioRisk* 4(2):807-831. DOI: <http://dx.doi.org/10.3897/biorisk.4.68>.
- RAVICHANDRAN (B.) & SILIWAL (M.), 2010.** Snakes of Rameshwaram. *Reptile Rap* 9(January):2-4. BL: Cf p. 4, Common Wolf Snake (*Lycodon aulicus*): *Lycodon* one of the most widespread Asiatic snakes. Over 25 species have been reported to date, and 11 of them occur within Indian subcontinent (MUKHERJEE & BHUPATHY, 2007). Strictly nocturnal. Found in and around caves, wells, stone piles, hollow trees and often in houses.
- REBOLEIRA (A. S. P. S.), 2010.** Fauna cavernícola e Biospeleologia. Bioalmoço. Instituto Superior de Agronomia. 18.III.2010. Convidada. Presentation in scientific event.
- REBOLEIRA (A. S. P. S.), GONÇALVES (F.) & OROMÍ (P.), 2010.** Subterranean biology of mainland Portugal: historical review and new insights:90-91. In: 20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: In Portugal more than 3000 caves and several types of subterranean habitats are known, but until today the subject of biological studies have been mostly the caves and the freshwater aquifers. A historical review of the Portuguese hypogean fauna since the first written record in 1870 until today has been carried out, concluding that 19 troglobionts and 62 stygobionts are known. The knowledge of the subterranean fauna in the karstic areas was scarce and mainly based on studies made during the last century. Though this subterranean fauna has been considered moderately poor, there are several highly interesting hypogean species considered as relicts. Since 2006, a new biological prospection has been accomplished in more than 30 caves of 13 different karstic regions, which revealed an interesting cave fauna and the existence of new hypogean species of high scientific value. During 2009 the cave fauna and environmental parameters were monitored seasonally in 15 caves distributed along 500 km and comprising 9 different karstic regions. The present communication provides the interim results on their biodiversity and seasonal activity, reporting the discovery of 17 new troglobionts and a clear bloom in troglobiont abundance during the spring. Our results confirm that the terrestrial hypogean fauna on karstic regions is ascribed to two subterranean main biogeographic districts: the Lusitanic covering the major part of Portugal, and the Baetic whose greatest extent is in Spanish Andalusia but also includes the Portuguese Algarve to the west. Severe problems of reduction of the subterranean habitat as a result of limestone quarries and the impact of human pollution can lead to the extinction of this important biodiversity. The protection measures for subterranean species are clearly insufficient and there is an urgent need to set rank priorities for conservation, since the resources are not enough to protect hypogean spaces in karstic regions. <http://www.icsb2010.net/>
- REBOLEIRA (A. S. P. S.), ORTUÑO (V. M.), GONÇALVES (F.) & OROMÍ (P.), 2010.** A hypogean new species of *Trechus* Clairville, 1806 (Coleoptera, Carabidae) from Portugal and considerations about the *T. fulvus* species group. *Zootaxa* 2689(November 26):15-26, 7 pl., 18 réf. ABS: A new hypogean ground beetle species, *Trechus tatai* n. sp. from the Montejunto karstic massif in Portugal is described. Morphological diagnostic characters of the imago are provided and the new species is included in the *Trechus fulvus*-group. Comments on the biogeography of hypogean carabid beetles in karstic areas of Portugal and an illustrated key to the males of the *T. fulvus*-group in the Iberian Peninsula are also included. KW: Trechinae, *T. fulvus*-lineage, hypogean, cave, Montejunto, Portugal. <http://www.mapress.com/zootaxa/list/2010/2689.html>
- REBOLEIRA (A. S. P. S.), SENDRA (A.), GONÇALVES (F.) & OROMÍ (P.), 2010.** The first hypogean dipluran from Portugal: description of a new species of the genus *Litocampa* (Diplura: Campodeidae). *Zootaxa* 2728(December, 22):50-56, 3 pl., 36 réf. <http://www.mapress.com/zootaxa/list/2010/2728.html>
- REBOLEIRA (A. S. P. S.), ZARAGOZA (J. A.), GONÇALVES (F.) & OROMÍ (P.), 2010.** *Titanobochica*, surprising discovery of a new cave-dwelling genus from southern Portugal (Arachnida: Pseudoscorpiones: Bochicidae). *Zootaxa* 2681(November 19):1-19, 7 pl., 44 réf. ABS: The new genus *Titanobochica* is described for *Titanobochica magna* sp. nov. from caves of the Algarve karstic massif, in Portugal. The new genus is assigned to the family Bochicidae and its particular characteristics and geographical isolation suggest a relictual condition. A key to the genera of Bochicidae is provided. The composition of the cave-dwelling fauna of the Algarve province is also discussed. KW: Pseudoscorpiones, Bochicidae, relict, cave, Algarve, Portugal, Iberian Peninsula. RES: O novo género *Titanobochica* é descrito para incluir *Titanobochica magna* n. sp., do meio hipógeo do maciço calcário Algarvio, no Sudoeste da Península Ibérica. O novo género é incluído na família Bochicidae e as suas peculiares características, associadas ao isolamento geográfico, revelam a sua condição de relíquia, atestando a sua antiguidade no território. É fornecida uma chave genérica para a família Bochicidae e são efectuadas considerações sobre a composição da fauna cavernícola do Algarve. <http://www.mapress.com/zootaxa/list/2010/2681.html>
- REEB (V.) & BHATTACHARYA (D.), 2010.** The Thermo-Acidophilic Cyanidiophyceae (Cyanidiales):411-426. In: SECKBACH (J.) & CHAPMAN (D. J.), *Red Algae in the Genomic Age. Cellular Origin, Life in Extreme Habitats and Astrobiology. 13.* ISBN 978-90-481-3794-7. e-ISBN 978-90-481-3795-4. DOI: <http://dx.doi.org/10.1007/978-90-481-3795-4>. Springer, Dordrecht, Heidelberg, London, New York. 498 p.
- ŘEHÁK (Z.), 2010.** Some faunistic data on the bats of Italy. *Vespertilio* 13/14:113-119. <http://www.ceson.org/publikace.php?p=13>
- REICHARD (J. D.), PRAJAPATI (S. I.), AUSTAD (S. N.), KELLER (C.) & KUNZ (T. H.), 2010.** Thermal Windows on Brazilian Free-tailed Bats Facilitate Thermoregulation during Prolonged Flight. *Integrative and Comparative Biology* 50(3, September 27):358-370. DOI: <http://dx.doi.org/10.1093/icb/icq033>. ABS: The Brazilian free-tailed bat (*Tadarida brasiliensis*) experiences challenging thermal conditions while roosting in hot caves, flying during warm daylight conditions, and foraging at cool high altitudes. Using thermal infrared cameras, we identified hot spots along the flanks of free-ranging Brazilian free-tailed bats, ventral to the extended wings. These hot spots are absent in syntopic cave myotis (*Myotis velifer*), a species that forages over relatively short distances, and does not engage in long-distance migration. We hypothesized that the hot spots, or radiators, on Brazilian free-tailed bats may be adaptations for migration, particularly in this long-distance, high-flying species. We examined the vasculature of radiators on Brazilian free-tailed bats with transillumination to

- characterize the unique arrangements of arteries and veins that are positioned perpendicular to the body in the proximal region of the wing. We hypothesized that these radiators aid in maintaining heat balance by flushing the uninsulated thermal window with warm blood, thereby dissipating heat while bats are flying under warm conditions, but shunting blood away and conserving heat when they are flying in cooler air at high altitudes. We also examined fluid-preserved specimens representing 122 species from 15 of 18 chiropteran families and radiators appeared present only in species in the family Molossidae, including both sedentary and migratory species and subspecies. Thus, the radiator appears to be a unique trait that may facilitate energy balance and water balance during sustained dispersal, foraging, and long-distance migration.
- REID (A.), HILL (T.), CLARKE (R.), GWILLIAM (J.) & KREBS (J.), 2010.** Roosting Ecology of Female Townsend's Big-Eared Bats (*Corynorhinus townsendii*) in South-Eastern British Columbia: Implications for Conservation Management. *Northwestern Naturalist* 91(2):215-218. DOI: <http://dx.doi.org/10.1898/NWN09-08.1>. KW: British Columbia, cave, *Corynorhinus townsendii*, maternity roost, Townsend's Big-eared Bat.
- REIMER (J. D.), HIROSE (M.) & WIRTZ (P.), 2010.** Zoanths of the Cape Verde Islands and their symbionts: previously unexamined diversity in the Northeastern Atlantic. *Contributions to Zoology* 79(4):147-163. <http://dpc.uba.uva.nl/cgi/t/text/text-idx?op4=and:c=ctz:cc=ctz:sid=2e4c162cfcd3fc6c3b96c9386a8876:q1=cave:op2=and:op3=and:rgn=view:text:idno=m7904a02>
- REITER (G.), GEBHARDT (O.) & KUGELSCHAFTER (K.), 2010.** A picture of bat activity at a cave entrance in Austria. Poster 110:75. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p.
- REITER (G.), GEBHARDT (O.) & KUGELSCHAFTER (K.), 2010.** A picture of bat activity at a cave entrance in Austria:263. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: We studied the activity of bats at a cave entrance in Styria, Austria from 13<sup>th</sup> of July until 28<sup>th</sup> of December 2009. Thus, we included the period for the autumnal swarming followed by the winter activity. The species assemblage of the cave includes species that are hard to capture like *Rhinolophus hipposideros* and species that are difficult/impossible to distinguish by their ultrasound calls like e. g. *Myotis mystacinus* and *Myotis brandtii*. Therefore we used infrared light beams and automatic photographing of bats to get reliable results for species which are poorly understood in terms of swarming and winter activity, respectively. More than 109900 flights into the cave and 101240 flights out of the cave were recorded during our study period, with 50% of the recordings between mid of August and mid of September. Subsequently the activity at the cave was continuously decreasing. However, we found bat activity on every single day of the study period, even at very low ambient temperatures. We were able to take 67769 pictures of bats flying into the cave (=62% of all flights into the cave). The pictures were assigned to 11 bat species or species groups. By far the most numerous or active bat at the cave was *Rhinolophus hipposideros* (87.9% of all pictures). Other active species were *Myotis emarginatus* (4.4%), *Pipistrellus* spp. (3.3%), *Barbastella barbastellus* (1.6%) and *Rhinolophus ferrumequinum* (1.5%). The following species were photographed in much smaller numbers: *Myotis daubentonii*, *M. mystacinus* or *M. brandtii*, *Eptesicus serotinus*, *Plecotus* spp., *Myotis myotis* or *M. oxygnathus* and *M. nattereri*. For five bat species we present species specific activity patterns and we use the results of the activity recording for comparison with the visually counted bats during the hibernation count.
- REITER (G.), PÖHACKER (J.), WEGLEITNER (S.) & HÜTTMEIR (U.), 2010.** Recent records of *Myotis dasycneme* in Austria. *Vespertilio* 13/14:127-132. <http://www.ceson.org/publikace.php?p=13>
- REN (H.), MA (G.), ZHANG (Q.), GUO (Q.), WANG (J.) & WANG (Z.), 2010.** Moss is a key nurse plant for reintroduction of the endangered herb, *Primulina tabacum* Hance. *Plant Ecology* 209(2, Août):313-320. DOI: <http://dx.doi.org/10.1007/s11258-010-9754-5>. ABS: The rare and endangered plant *Primulina tabacum* is a calciphilous perennial herb found only at the entrances of a small number of karst cave drainages in southern China. In a conservation effort, we identified potentially suitable habitats and reintroduced *P. tabacum* plantlets (propagated in vitro) to one historical and two new cave entrances. The transplanted seedlings survived (10%) at only one new location where a moss, *Gymnostomiella longinervis* Broth, existed. Our field observations indicate that it is probably impossible for this rare plant to naturally recolonize the places where it went extinct because the habitats have changed. Transplanted *P. tabacum* grew slower than wild *P. tabacum*. The transplanted *P. tabacum* performed especially well under the cover of the nursing moss. Positive interactions between species, i. e., nurse plant effects, are important for reintroduction of success. Although light and soil conditions also appeared to be critical for transplantation success, the presence of moss should be considered as a useful and convenient indicator of suitable habitat for *P. tabacum*. This study case suggests that the use of new propagation methods and nurse plants can facilitate the reintroduction of rare and endangered herbs. KW: Conservation, Moss, Nurse plant, *Primulina tabacum*, Reintroduction, Survival rate.
- RENDOŠ (M.), MIKOVÁ (E.), PJENČÁK (P.) & MOCK (A.), 2010.** Zimoviská netopierov v Čiernej hore (východné Slovensko) [Bat hibernacula in the Čierna hora Mts (eastern Slovakia)]. *Vespertilio* 13/14:133-138. ABS: Winter bat survey was carried out in the Čierna hora Mts., eastern Slovakia, in 2007-2010. In total, 24 sites considered suitable for bat hibernation (caves, mine adit, road tunnel) were checked. We found 10 bat species (*Rhinolophus ferrumequinum*, *R. hipposideros*, *Myotis myotis*, *M. bechsteini*, *M. emarginatus*, *M. daubentonii*, *Eptesicus serotinus*, *Barbastella barbastellus*, *Plecotus auritus*, and *P. austriacus*) and two species groups (*Myotis mystacinus* complex and *Myotis* sp.) to hibernate in the area. *Barbastella barbastellus*, *Rhinolophus hipposideros*, *R. ferrumequinum*, *Myotis myotis*, and *M. daubentonii* were the most frequently found species. Mass aggregations were observed only at one site; *Barbastella barbastellus* created groups of up to 180 individuals in the Margeciansky tunnel. Numbers of bats in these aggregations showed an increasing trend during the period 2008-2010. KW: Hibernation, winter roosts, eastern Slovakia, Čierna hora Mts. <http://www.ceson.org/publikace.php?p=13>
- RENDOŠ (M.) & MOCK (A.), 2010.** Aktivita viacnôžok (Myriapoda) a rovnakonôžok (Isopoda) v podzemí zalesneného su'ového svahu NPR Sivec (Čierna hora, Slovensko) [Activity of Myriapoda and Isopoda under the surface of the stony debris slope covered by lime-maple forest in the NNR Sivec (Čierna hora Mts., Slovakia)]:9-10, in Slovak. In: TAJOVSKÝ (K.), 7. česko - slovenský myriapodologický seminár, České Budějovice, Česká republika, 8.-9.4.2010, sborník abstraktů [7<sup>th</sup> Czech and Slovak workshop on myriapodology, Ceske Budejovice, Czech Republic, April 8-9, 2010, abstract book], Karel TAJOVSKÝ, ed., ISBN 978-80-86525-18-1.
- RENDOŠ (M.), MOCK (A.) & LUPTÁČIK (P.), 2010.** First observation of terrestrial arthropods in superficial subterranean habitats in Slovakia: vertical distribution, seasonal dynamics and temperature:32, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: After some studies aimed on the ecology of superficial subterranean habitats (MSS) realised in other parts of Europe we used series of pitfall traps plugged in 110 cm plastic tubes for investigation of subterranean invertebrate communities in the Čierna hora Mts., Western Carpathians. The study plot was situated in steep limestone

scree slopes covered by linden-maple forest in the valley Mal   Ru  nok (NNR Sivec) about 500 m a. s. l. Three tubes with 10 traps each placed in the depth from 5 to 95 cm (every 10 cm) under the surface were installed here during one year (Sept. 2008-Nov. 2009). The traps with 4% formalin were checked monthly. Temperature was recorded continually by dataloggers along all tubes. Sampled fauna was counted and identified on the species or on the higher taxa levels. More than 26000 individuals were found: arthropods and a few specimens of gastropods and earthworms. Eudominant Collembola (67.5%) were followed by Acarina (15.5%), insect larvae (7.5%), Diptera (5.1%) and Coleoptera (1.2%), all the groups were captured along the entire depth gradient. Opiliones (3 spp.), Oniscidea (5 spp.), Diplopoda (9 spp.), Chilopoda (6 spp.) and Formicoidea (3 spp.) were studied in detail. The majority of the representatives live on or closely under the surface here. But we found also rare subterranean taxa (isopod *Mesoniscus graniger*, millipede *Mecogonopodium carpathicum*). The arthropods from other groups were infrequent and mostly at the surface, but some of them were living also deeper (e. g. Aphidinea or Hymenoptera) feeding on tree roots or as carnivores. A high degree of similarity of arthropod communities in caves and MSS promises good possibilities to collect rare cavernicoles in MSS. Such type of MSS is important as refugium for relic fauna. Animals with large body, or those more sensitive to gently unstable microclimate, or those with low competition ability are not dwelling in MSS. The depth of the trap is not crucial, the habitat has specific climate regime almost up to the surface here. Activity of invertebrates is forced by seasonal climate changes and for faunistic studies the end of spring time is the most convenient period. But it is not interrupted during winter or summer. Dynamic microclimate without extremes of the above surface atmosphere is more stable deeper in the debris. The study was supported by the grant Vega 1/0139/09. <http://www.icsb2010.net/>

**Republic of Serbia, Ministry of Environment and spatial planning, 2010.** First National Report of the Republic of Serbia to the United Nations Convention on Biological Diversity.

**RIBERA (I.) & FAILLE (A.), 2010.** A new microphthalmic stygobitic *Graptodytes* Seidlitz from Morocco, with a molecular phylogeny of the genus (Coleoptera, Dytiscidae). *Zootaxa* 2641(October 11):1-14, 6 pl., 29 r  f. ABS: We describe *Graptodytes eremitus* n. sp. (Coleoptera, Dytiscidae), a depigmented, microphthalmic stygobitic species found in a pool in the deep area of a cave in the High Atlas of Morocco. To establish its phylogenetic position we inferred a molecular phylogeny of the genus *Graptodytes* Seidlitz, using ca. 1.7 Kb of four mitochondrial genes for 18 of the 23 previously known species and subspecies of the genus. *Graptodytes* can be separated in three well supported main lineages, 1) the *G. flavipes* lineage (apex of median lobe narrow in ventral view), 2) the *G. granularis* lineage (apex of median lobe expanded and strongly asymmetrical in ventral view), and 3) the *G. varius* lineage (apex of median lobe expanded but symmetrical in ventral view). The *G. varius* lineage includes the *G. aequalis* and *G. varius* groups, the latter including *G. eremitus* n. sp. as sister to *G. delectus* Wollaston (Canary Islands) plus the *G. varius* complex. A molecular clock approach, using a calibration rate of 2.3% divergence/MY for the combined mitochondrial sequence, estimated the origin of the diversification within the genus at ca. 7MY (late Miocene), and the origin of *G. eremitus* n. sp. at ca. 2 MY (Pliocene-Pleistocene boundary). KW: Coleoptera, Dytiscidae, *Graptodytes*, subterranean medium, new species, diving beetle, molecular phylogeny. <http://www.mapress.com/zootaxa/list/2010/2641.html>

**RIDGEWAY (P.), 2010.** 2009 Report: "Silent Night" Community Bat Study. The Hills Shire Council 29 March 2010, 29 p.

**RIERA, RODRIGO, JORGE N  NEZ & MAR  A DEL CARMEN BRITO, 2010.** Check-list of interstitial polychaetes from intertidal and shallow subtidal soft bottoms of Tenerife, Canary Islands. *Arquip  lago - Life and Marine Sciences* 27(Mai 21):?-?.

**RIESCH (R. W.), ORANTH (A.), DZIENKO (J.), KARAU (N.), SCHIEBL (A.), STADLER (S.), WIGH (A.), ZIMMER (C.), ARIAS-RODRIGUEZ (L.), SCHLUPP (I.) & PLATH (M.), 2010.** Extreme habitats are not refuges: poeciliids suffer from increased aerial predation risk in sulphidic southern Mexican habitats. *Biological*

*Journal of the Linnean Society* 101(2, October):417-426. DOI: <http://dx.doi.org/10.1111/j.1095-8312.2010.01522.x>.

ABS: Extreme environments are often considered a predation refuge for organisms living in them. In southern Mexico several species of poeciliid fishes are undergoing incipient speciation in a variety of extreme (i. e. permanently dark and/or sulphidic) freshwater systems, and previous research has demonstrated reproductive isolation between populations from sulphidic and adjacent benign habitats. In the present study, we investigated bird predation rates (measured as successful captures per minute) in two sulphidic surface and several benign surface habitats, to test the hypothesis that extreme habitats are predation refuges. We found capture rates to be approximately 20 times higher in sulphidic environments: probably facilitated by extremophile poeciliids spending most of their time at the water surface, where they engage in aquatic surface respiration as a direct response to hypoxia. Even birds that are usually not considered major fish predators regularly engage in fish predation in the toxic habitats of southern Mexico. Our results demonstrate that extreme environments do not necessarily represent a refuge from predation, and we discuss the general importance of predation in driving incipient speciation in these systems. Finally, we hypothesize that natural selection via avian predation may play an important role in maintaining reproductive isolation between divergent poeciliid populations. KW: Avian predation, divergent natural selection, ecological speciation, *Egretta thula*, extremophile fish, hydrogen sulphide, refuge hypothesis.

**RIESCH (R. W.), PLATH (M.), SCHLUPP (I.) & MARSH-MATTHEWS (E.), 2010.** Matrotrophy in the cave molly: an unexpected provisioning strategy in an extreme environment. *Revue Evolutionary Ecology* 24(4):789-801. DOI: <http://dx.doi.org/10.1007/s10682-009-9335-z>.

ABS: Maternal provisioning of animal embryos may be entirely through yolk deposited in the unfertilized egg (lecithotrophy) or may include post-fertilization nutrient transfer (matrotrophy) in varying degrees. Current theory suggests that the extent of post-fertilization provisioning is resource-dependent, with higher levels of matrotrophy being advantageous in more productive environments. In this study, we investigated post-fertilization embryo provisioning in a livebearing fish, *Poecilia mexicana*, from two different habitats (a toxic cave and a non-toxic surface habitat) that impose different energetic demands and therefore differ in resources available for reproduction. We predicted that fish in the benign habitat would be more matrotrophic than those from the toxic cave. We used two different techniques for this assay: (1) the matrotrophy-index analysis (MI) for field-collected fish and (2) both MI and radio-tracer assay for laboratory-reared females. According to the interpretation of the matrotrophy index, both populations are purely lecithotrophic, while the radio-tracer assay found females from both populations to actively transfer nutrients to developing embryos at approximately the same rate. Our results suggest that *P. mexicana*, which was traditionally classified as lecithotrophic, is capable of incipient matrotrophy, and that matrotrophy can contribute to embryo provisioning even in populations from resource-limited environments. Furthermore, the analysis of laboratory-reared animals provides evidence for a genetic component to the large offspring size in cave mollies, which had so far only been described from the field. Specifically, our results suggest matrotrophy occurs in species interpreted as lecithotrophic using the MI approach. Hence, to avoid misclassification, both techniques should ideally be employed in concert, rather than individually. Finally, our results provide further insights into the possible evolutionary pathway from lecithotrophic oviparity to matrotrophic viviparity. KW: Incipient matrotrophy, Matrotrophy index, *Poecilia mexicana*, Poeciliidae, Radio-tracer assay, Viviparity.

**RIMER (R. L.) & BRIGGLER (J. T.), 2010.** Occurrence of the amphibian chytrid fungus (*Batrachochytrium dendrobatidis*) in Ozark caves, Missouri, USA. *Herpetological Review* 41(2):175-177.

**RITT (B.), 2010.**   cologie de la faune associ  e aux   missions de fluides froids de M  diterran  e orientale profonde - Ecology of the fauna associated with cold-seeps in the deep eastern Mediterranean Sea. PhD Thesis, Universit   de Bretagne Occidentale. <http://archimer.ifremer.fr/doc/00020/13138/>

**RIVALTA (G.), 2010.** CNSS-SSI: 48   corso di III   livello di Biospeologia, a Pertosa (SA). *SottoTerra*, anno 49,

130(Gennaio/Giugno):102.

- RIZZO (V.), COMAS (J.), FADRIQUE (F.), FRESNEDA (J.) & RIBERA (I.), 2010.** Evolution and phylogeny of the subterranean genus *Troglocharinus* (Coleoptera, Leiodidae, Leptodirini):159-160, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Among Coleoptera, the tribe Leptodirini (Leiodidae, Cholevinae) includes some 240 genera and 1800 exclusively subterranean species that present morphologic and physiological characters related to the endogean habitat: blindness, depigmentation, typical "pholeunoid" or "baticoid" morphologies, size reduction, or changes in physiology and life cycle. They are mainly distributed in the north side of the Mediterranean area, from the Iberian peninsula to the Middle East. Despite continuous attention from entomologists for the last two centuries, their phylogenetic relationships and evolutionary origin remain controversial. In this work we study the phylogeny and diversification of the genus *Troglocharinus*, a member of the recently identified monophyletic Pyrenean clade of Leptodirini, largely corresponding to the traditional *Speonomus* series. The genus *Troglocharinus* presents a disjunct distribution, with twenty species distributed in the coastal ranges of Catalonia (Garraf, San Llorenç del Munt i Obac and Montserrat), and twelve in the pre-Pyrenees (Serra del Montsec de Rubies, Serra del Boumort, Alt Urgell and Serra de Lleras), with a single isolated species in Alto Aragón. Due to the strong convergence of external morphological characters and the abundance and intraspecific variability of some taxa the taxonomy of the genus has been very unstable. We aim to establish a robust phylogeny to study the evolution of this extensive subterranean species radiation, and to provide a temporal framework for the diversification of various lineages and the colonization of the geographical areas in which they occur. For that purpose we use molecular phylogenies of six mitochondrial (cox1, cob, rml, trnL and nad1) and two nuclear (SSU and LSU) genes. Preliminary results using eleven species and seven subspecies show the respective monophyly of the Pyrenean and the coastal clades with a strong geographical structuring within each of them, suggesting the existence of multiple independent evolutionary lineages and the need of a deep taxonomic reordination of the genus. <http://www.icsb2010.net/>
- RODHOUSE (T. J.) & WRIGHT (R. G.), 2010.** Study of bat roosts in John Day Fossil Beds National Monument 2003: Upper Columbia Basin Network. Natural Resource Technical Report NPS/UCBN/NRTR-2010/305. National Park Service, Fort Collins, Colorado.
- RODRÍGUEZ-DURÁN (A.), PÉREZ (J.), MONTALBÁN (M. A.) & SANDOVAL (J. M.), 2010.** Predation by Free-Roaming Cats on an Insular Population of Bats. *Acta Chiropterologica* 12(2, December):359-362. DOI: <http://dx.doi.org/10.3161/150811010X537945>. ABS: Free-roaming cats are known to adversely impact native faunas in the areas where they have been introduced, an impact that is even greater on islands. We examine the predation of bats by cats at Culebrones cave, Puerto Rico, West Indies. Culebrones cave is a hot cave located in the karst region of northern Puerto Rico. The temperature gradient inside the cave sustains a multi-species assemblage of bats consisting of approximately 300000 individuals of six species, namely: *Brachyphylla cavernarum*, *Erophylla bombifrons*, *Monophyllus redmani*, *Mormoops blainvillei*, *Pteronotus quadridens* and *Pteronotus parnellii*. Even though rats are often their primary prey, cats will use alternative prey, which enables them to maintain their abundance when one prey is not available. In Puerto Rico, birds and reptiles are known to be preyed upon by cats. Although cats are commonly observed in or around bat caves in Puerto Rico, this is the first systematic attempt to evaluate their role as bat predators. We made observations of the hunting strategy of cats using an infrared camera and recorded the number of wings left as remains of these hunting bouts. Wings were identified to species. Cat scats were also recovered and examined to identify prey species. Our results suggest that captures of different species of bats is not a function of their abundance in the cave. While *M. blainvillei* (11 g) and *P. quadridens* (5 g) are the most abundant species in the cave, *B. cavernarum* (50 g) and *M. redmani* (11 g) are captured in greater numbers by the cats. KW: Islands, tropical bats, predation, cats, foraging behavior.

- ROLET (A.), 2010.** *Protée en trompe-l'œil*. Presses universitaires de Rennes, [www.pur-editions.fr](http://www.pur-editions.fr).
- ROLLAND (C.), 2010.** Bibliographie sur les micromammifères de Rhône-alpes. Nos réseaux - Micromammifères. Extrait du CORA Faune Sauvage, <http://coraregion.free.fr>. Date de mise en ligne: Lundi 2 Mars 2009, Copyright © CORA Faune Sauvage, 20 p.
- ROMERO (A.), CONNER (M. S.) & VAUGHAN (G. L.), 2010.** Population Status of the Southern Cavefish, *Typhlichthys subterraneus* in Arkansas. *Journal of the Arkansas Academy of Science* 64:106-110. ABS: We summarize the results of our study on the status of the southern cavefish (*Typhlichthys subterraneus*) in Arkansas. Its presence in the state represents the western-southern limits of its distribution. Four localities have been confirmed that contain individuals of this species: Richardson Cave (Fulton County), Alexander Cave/Clark Spring (Stone County), Ennis Cave (Stone County), and Lake Norfolk (Baxter County). A fifth locality has been cited as a well in Randolph County, but because the exact location is unknown, its presence has not been confirmed. A number of unconfirmed localities for "cavefishes" in the region has not been included in this report. Populations of this species in Arkansas seem to be small (less than 100 individuals) which is common among populations of hypogean amblyopsids elsewhere. All the confirmed localities are in areas either under controlled access by the private owners or by the federal government. No immediate threat to these populations was found by either overcollecting or other anthropogenic causes. Yet long-term monitoring of the recharge zones is recommended.
- ROONEY (D. C.), HUTCHENS (E.), CLIPSON (N.), BALDINI (J.) & McDERMOTT (F.), 2010.** Microbial Community Diversity of Moonmilk Deposits at Ballynamindra Cave, Co. Waterford, Ireland. *Microbial Ecology* 60(4):753-761. DOI: <http://dx.doi.org/10.1007/s00248-010-9693-7>. ABS: Caves are extreme and specialised habitats for terrestrial life that sometimes contain moonmilk, a fine-grained paste-like secondary mineral deposit that is found in subterranean systems worldwide. While previous studies have investigated the possible role of microorganisms in moonmilk precipitation, the microbial community ecology of moonmilk deposits is poorly understood. Bacterial and fungal community structure associated with four spatially isolated microcrystalline, acicular calcite moonmilk deposits at Ballynamindra Cave (S. Ireland) was investigated during this study. Statistical analyses revealed significant differences in microbial activity, number of bacterial species, bacterial richness and diversity, and fungal diversity (Shannon's diversity) among the moonmilk sites over an area of approximately 2.5 m<sup>2</sup>. However, the number of fungal species and fungal community richness were unaffected by sampling location. SIMPER analysis revealed significant differences in bacterial and fungal community composition among the sampling sites. These data suggest that a rich assemblage of microorganisms exists associated with moonmilk, with some spatial diversity, which may reflect small-scale spatial differences in cave biogeochemistry.
- ROQUES (A.), 2010.** Dictyoptera (Blattodea, Isoptera), Orthoptera, Phasmatodea and Dermaptera. Chapter 13.3. In: ROQUES (A.) & al., *Alien terrestrial arthropods of Europe*. *BioRisk* 4(2):807-831. DOI: <http://dx.doi.org/10.3897/biorisk.4.68>.
- ROTHER (B. H.) & SCHMIDT-RHAESA (A.), 2010.** Structure of the nervous system in *Tubiluchus troglodytes* (Priapulida). *Invertebrate Biology* 129(1, Winter):39-58. DOI: <http://dx.doi.org/10.1111/j.1744-7410.2010.00185.x>. ABS: The nervous system of the meiobenthic priapulid species *Tubiluchus troglodytes* is described by immunohistochemistry and confocal laser scanning microscopy. The brain is circumpharyngeal, consisting of a central ring of neuropil and both anterior and posterior somata. From the brain emerges a ventral nerve cord, which shows ganglion-like swellings in the neck and caudal region. The introvert includes longitudinal neurite bundles running below and between the rows of scalds, with a small cluster of sensory cells under each scald. In the body wall of the neck and trunk region, longitudinal and circular neurite bundles are present in an orthogonal pattern. The tail is innervated from the caudal swelling of the ventral nerve cord; it also includes

longitudinal and circular bundles in an orthogonal pattern. The pharynx has a reticulated system of neurite bundles running between the pharyngeal teeth and fimbriae. Below each tooth and fimbria is a ganglion-like cluster of somata. The intestine is surrounded by a nerve net. The data on the nervous system are compared with other priapulids and with other species of Scalidophora (Kinorhyncha and Loricifera). ADK: Priapulida, brain, immunohistochemistry, Scalidophora.

**RUŽIČKA (V.), 2010.** Central European spiders adapted to life in subterranean habitats:33. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Many species of macroarthropods have colonized various types of subterranean habitats. These are, for example, voids in soil layers, clastic river and slope sediments, stony accumulations, young volcanic deposits, old sedimentary and metamorphic bedrock, lava tubes in consolidated lava flows, and typical pseudokarst and karst caves. Morphological adaptations of arthropods to life in subterranean habitats can be subdivided into edaphomorphisms and troglomorphisms. Edaphomorphisms, i. e., adaptations to life in subsurface interior voids in soil are usually manifested as body diminishing and sometimes also vermiform elongation, shortening of appendages, reduction or rearrangement of chaetotaxy and sensory organs. In contrast, troglomorphisms, i. e., adaptations to life in relatively large spaces, are characteristic by elongation of appendages, and hypertrophy of chaetotaxy and sensory organs. Depigmentation, desclerotization, and reduction of eyes are common for both these groups of adaptations. In Central Europe, we register some of these adaptations in eighteen species of spiders, and eight of them are representatives of the genus *Porrhomma*. They inhabit leaf litter, ant's nests, deep soil layers, void systems under soil surface, scree voids, and caves. Some of them are specialised to only one exclusive type of subterranean habitat, in contrast some others were recorded in several types of subterranean habitats. *Bathyphantes eumenis buchari* inhabits exclusively deep scree layers. *Porrhomma profundum* was recorded exclusively in caves. *Porrhomma microps* was recorded in leaf litter, deep soil layers and caves. *Porrhomma myops* has edaphomorphic populations in voids of deep soil layers, and troglomorphic populations in scree voids and caves. Hotspots of subterranean biodiversity, such as Postojna-Planina Cave System, harbour highly specialized, fascinating creatures that we can encounter at the end of their long-term subterranean evolution. On the contrary, temperate latitudes of the northern hemisphere lying in the former Pleistocene periglacial zone harbour invertebrates at the very beginning of their underground evolution. These subterranean habitats are natural laboratories in which we can study early phases of underground evolution of troglonbionts. <http://www.icsb2010.net/>

**RUŽIČKA (V.), LAŠKA (V.), MIKULA (J.) & TUF (I. H.), 2010.** Soil spiders?:386-387. In: *18<sup>th</sup> International Congress of Arachnology, University of Podlasie & International Society of Arachnology, Siedlce, Poland, 11-17 July 2010, Book of Abstracts*, editor: Marek ŻABKA, ISBN: 978-83-7051-575-1, 507 p.

**SAFDIE (G.), FARRAH (I. Y.), YAHIA (R.), MARVA (E.), WILAMOWSKI (A.), SAWALHA (S. S.), WALD (N.), SCHMIEDEL (J.), MOTER (A.), GÖBEL (U. B.), BERCOVIER (H.), ABDEEN (Z.), ASSOUS (M. V.) & FISHMAN (Y.), 2010.** Molecular Characterization of *Borrelia persica*, the Agent of Tick Borne Relapsing Fever in Israel and the Palestinian Authority. *PLoS One* 5(11, November 24):e14105. **DOI:** <http://dx.doi.org/10.1371/journal.pone.0014105>.

**SALGADO (J. M.) & FRESNEDA (J.), 2010.** Un nuevo troglobio de la regi  n Cant  brica: *Quaestus (Speogeus) jubilationis* n. sp. (Coleoptera: Leiodidae: Cholevinae: Leptodirini). *Heteropterus Revista de Entomolog  a* 10(2):99-106. RES: Se describe una nueva especie perteneciente al subg  nero *Speogeus* Salgado, 1986, *Quaestus (Speogeus) jubilationis* s. sp. Se discute su posici  n taxon  mica, tomando como base de diferenciaci  n los caracteres morfol  gicos, el deago y el complejo espermatecal. Se propone una nueva clave para las especies de este subg  nero.

**SAMBUGAR (B.), FERRARESE (U.), MART  NEZ-ANSEMIL (E.) (E.), STOCH (F.), TOMASIN (G.) & ZULLINI (A.), 2010.** La fauna acquatica delle grotte del Complesso dei Piani Eterni e Isabella nel Parco Nazionale Dolomiti Bellunesi:7-32. In: AA.VV., *Fauna acquatica ipogea, Ortoteri e Chiroterri del Parco Nazionale Dolomiti Bellunesi*. Parco Nazionale Dolomiti Bellunesi.

**SANDOVAL (J. M.) & RODR  GUEZ-DUR  N (A.), 2010.** Metabolic rates, nutritional state, and thermoregulatory behavior of *Molossus*:275. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR   EK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Preliminary data is presented on metabolic rates and thermoregulatory behavior for two species of bats in the neotropical island of Puerto Rico in the West Indies, *Molossus molossus* (Molossidae) and *Brachyphylla cavernarum* (Phyllostomidae). *Molossus molossus* roosts predominantly in antropogenic structures where it is exposed to wide variations in ambient temperature. *Brachyphylla cavernarum* is a cave dwelling species roosting in microclimatically stable environments. Body temperature was measured at the beginning and end of each experiment and, in the case of *M. molossus*, upon departure and return to the roost. Oxygen consumption experiments began eight to ten hours following capture and were terminated before the beginning of the next foraging period. All *B. cavernarum* were allowed to feed the night before the experiment. Half of all *M. molossus* were deprived of food the night before the experiments. Resting metabolic rate for *M. molossus* is 1.17 ml O<sub>2</sub> g<sup>-1</sup> hr<sup>-1</sup>, and 1.01 ml O<sub>2</sub> g<sup>-1</sup> hr<sup>-1</sup> for *B. cavernarum*. Both species closely regulate body temperature. We found differences in oxygen consumption based on the nutritional state of bats.

**SANZ MU  OZ (S.), 2010.** Analysis of nuclear markers in two species with highly divergent mtDNA lineages in Iceland. ITS in *Crangonyx islandicus*, EF alpha in *Apatania zonella*. L  F016M Research project in biology for foreign students Teacher: Sn  bj  rn P  lsson University of Iceland Life and Environmental Sciences. 51 p. ABS: This project is a study of variation in two nuclear markers in two arthropods (*Crangonyx islandicus* and *Apatania zonella*). Both species have been found to have highly divergent mtDNA lineages within Iceland. *Crangonyx islandicus* is an endemic groundwater amphipod species recently discovered in Iceland. Based on variation in mtDNA genes, COI and 16S RNA, Kornobis & al., 2010 concluded that this species had survived glaciations periods in sub-glacial refugia. The mtDNA variation defined several monophyletic groups, restricted to different geographic regions in Iceland and which have diverged in Iceland for up to 4-5 Million years. This was supported by a correlation between genetic and geographic distances among species. In this study we look at the internal transcribed spacer (ITS) gene, a piece of non-functional RNA situated between structural ribosomal RNAs (rRNA). The results show different patterns from the mtDNA results in Kornobis & al., 2010, with a major split between two populations, between north and southern Iceland, and different partition among samples in southern populations. The main difference is characterized by a large size difference of the ITS1 region due to insertion or deletion, a highly variable microsatellite was found within this region. The second part of the project is based in the study of *Apatania zonella*, a caddisfly (Trichoptera), a circumpolar species which lives at high latitudes, in cold-clear water, streams, lakes and marshes. This study is a continuation of a previous study "Mitochondrial variation of the caddisflies *Apatania zonella* and *Potamphylax cingulatus* (Sanz, 2010). The former study showed that Iceland acts as a zone of admixture, where two populations of *A. zonella* with distinct mtDNA types have arrived, from both ends of its range distribution, one from North America and the other from Europe. In this study we use a nuclear marker, EF alpha, in order to know whether the structure obtained by mtDNA in North America and Europe, is reflected in a nuclear marker and also to verify whether individuals in Iceland of different geographic origin as defined by mtDNA have interbred in Iceland. The results show less clear structure with EF alpha than found in mtDNA. Populations could be sexual or asexual depending on the country. Moreover, results show the rate of evolution of EF alpha is slower than COI's rate.

**SARELL (M.), 2010.** Lillooet Bat Inventory. *Western Canadian Bat Network Newsletter* 17(Autumn):8.

**SCHEPETOV (D. M.), MUGUE (N. S.) & LJOVUSHKIN (S. I.), 2010.** On molecular phylogeny of *Niphargus* from the West Transcaucasus:66, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Of all European subterranean invertebrates, the genus *Niphargus* Schiödte, 1849 (Crustacea, Amphipoda) had traditionally attracted the attention of most researchers, being the largest one among freshwater amphipods, with over 300 described species and subspecies. The majority of species were described in the middle of the 20<sup>th</sup> century, but much was left undiscovered. Further problems occurred to interrelation of ongoing studies on Caucasus and Crimea, due to the lack of material and information exchange between Soviet and European scientific community. Many species from Transcaucasus were described as closely related to European ones, yet the validity of these may be doubted, as traits used for description were not completely overlapping. In-region taxonomic relations were not clear, too. In our research we try to understand the formation of the genus *Niphargus* on the Caucasus by using of molecular phylogenetic analyses. Samples from nine locations along Transcaucasian shoreline were taken and identified by morphological means and processed for further research. We used H3 and 28S nuclear and COI mitochondrial molecular markers for our study to get reliable data on different taxonomic resolution. As a result we succeeded in resolving existing uncertainties the taxonomic relations of *Niphargus smirnovi* Birstein, 1952 and *Niphargus stygius* Schiödte, 1847 (*Niphargus stygius latimanus* Birstein, 1952, *Niphargus stygius pseudolatimanus* Birstein, 1952 and *Niphargus stygius longidactylus* Birstein, 1952). What has been referred to as *N. stygius* subspecies should be treated as subspecies of *N. smirnovi*, and appears to be completely separate from the real *N. stygius*. Furthermore, not yet having samples of all species known to inhabit the Caucasus we can already be sure that niphargids inhabiting this region are polyphyletic and their invasion to the territory and following speciation was of the step-by-step type. <http://www.icsb2010.net/>

**SCHMIDT (S. I.), KREFT (J. U.), AVRAMOV (M.), GRIEBLER (C.), HAHN (H. J.) & HUMPHREYS (W. F.), 2010.** Is there actually enough (import of) carbon in(to) the groundwater system to support the microbial and faunal numbers that we see?:34, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Groundwater fauna and microorganisms (both prokaryotic and eukaryotic) use organic material, dead or alive, as food source. The groundwater food web is most likely bottom-up regulated since resources are usually so low that they are probably limiting, and in many cases resources might be sparse enough to only support just the lowest trophic level, namely microorganisms. This might be part of the explanation why fauna occurs in such a patchy pattern. The system being probably bottom up-regulated also raises other questions, such as: how much resource is needed to cover at least the maintenance energy in microbes, then how much resource is needed for microbial growth, and how much microbial growth is needed for protists and for sediment fauna to establish populations? And how much resource leads to which complexity of the food web? We tackle these questions first by testing whether our data contradict or support the hypothesis of the 10% energy efficiency ratio between subsequent trophic levels in groundwater. We chose one of the very few field sites from which detailed faunal and microbiological data are available, the Rur/Erft site described recently by Stein et al. in 2010, to test this hypothesis. <http://www.icsb2010.net/>

**SCHULDT (A.), DREES (C.), DRESCHER (N.), SCHÄFER (K.) & ASSMANN (T.), 2010.** What determines subterranean ground beetle diversity in the West Palaearctic? A macroecological approach using country-based distribution data (Coleoptera: Carabidae):160-161. In: *20<sup>th</sup> International Conference on*

*Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Potential impacts of historical and contemporary environmental conditions on the distribution of subterranean carabids in the western Palaearctic have been studied using species richness and environmental data on a country level. Regression models and variation partitioning showed a strong relationship between species richness and range in elevation. Potential effects of climatic variables, mainly those related to ambient energy input, were much weaker. These results are in contrast to conclusions from other studies regarding the determinants of distribution patterns of subterranean biodiversity. Historical climatic events (e. g. the distribution of permafrost grounds in Europe during the glacial periods) seem to have strong influence on present-day distribution patterns (especially on the northern limit of subterranean species) as already suggested (but not tested) by Holdhaus some decades ago. The (significant) decrease of subterranean diversity towards the southern Mediterranean region and the Sahara-Arabian desert belt is doubtlessly more difficult to explain. Especially the new findings from the Middle East reveal the possibility of a bulk of not yet described species and indicate the need of further studies for a better understanding of distribution patterns of subterranean ground beetles. <http://www.icsb2010.net/>

**SCHULZ-MIRBACH (T.), LADICH (F.), RIESCH (R.) & PLATH (M.), 2010.** Otolith morphology and hearing abilities in cave- and surface-dwelling ecotypes of the Atlantic molly, *Poecilia mexicana* (Teleostei: Poeciliidae). *Hearing Research* 267(1/2, August 1):137-148. [DOI: http://dx.doi.org/10.1016/j.heares.2010.04.001](http://dx.doi.org/10.1016/j.heares.2010.04.001). ABS: Cave fish have rarely been investigated with regard to their inner ear morphology, hearing abilities, and acoustic communication. Based on a previous study that revealed morphological differences in the saccular otolith between a cave and two surface populations of *Poecilia mexicana*, we checked for additional differences in utricular and lagenar otoliths and tested whether different populations have similar hearing sensitivities. We found pronounced differences in the shape of all three otoliths. Otoliths of the saccule and lagena from cave fish differed from those of surface fish in the features of the face oriented towards the sensory epithelium. In addition, otoliths of the utricle and lagena were significantly heavier in cave fish. Auditory sensitivities were measured between 100 and 1500 Hz, utilizing the auditory evoked potential recording technique. We found similar hearing abilities in cave and surface fish, with greatest sensitivity between 200 and 300 Hz. An acoustic survey revealed that neither ecotype produced species-specific sounds. Our data indicate that cave dwelling altered the otolith morphology in Atlantic mollies, probably due to metabolic differences. Different otolith morphology, however, did not affect general auditory sensitivity or acoustic behavior.

**SÉCHET (E.) & NOËL (F.), 2010.** Liste des espèces de Cloportes (Crustacea, Isopoda, Oniscidea) présentes dans le département de Maine-et-Loire. Données historiques et contemporaines. Fiche de Novembre 2007, mise à jour en Février 2010, 4 p.

**SECKBACH (J.) & CHAPMAN (D. J.), 2010.** *Red Algae in the Genomic Age. Cellular Origin, Life in Extreme Habitats and Astrobiology. 13.* ISBN 978-90-481-3794-7. e-ISBN 978-90-481-3795-4. [DOI: http://dx.doi.org/10.1007/978-90-481-3795-4](http://dx.doi.org/10.1007/978-90-481-3795-4). Springer, Dordrecht, Heidelberg, London, New York. 498 p. Voir: REEB (V.) & BHATTACHARYA (D.), *The Thermo-Acidophilic Cyanidiophyceae (Cyanidiales)*:411-426. ABS: This volume covers the modern biology and the speciation of the red algae (Rhodophyta) from unicellular *Cyanidia* up to macrocellular sea weeds. A team of peer reviewers has reviewed all chapters. The chapters describe a range of topics from cave algae from Atacama, Chile, to genomes of red algae. Some chapters deal with the carbohydrates, physiological mechanisms, and relationship between red algae and neurodegenerative disease. Other chapters deal with organellar - nuclear genes and taxonomic revision. Emphasis is placed upon the rhodophycean chloroplast, its origin, evolution, division machinery and pigmentation. The reader will find in this book lots of new information on the red algae.

**SEMENCHENKO (K. A.), 2010.** Water mites (Hydrachnidia) from interstitial habitats of the Russian Far East and their relationship with faunas of adjacent lands:143. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Recently only four species of water mites in the genus *Wandesia* were known from the interstitial waters of the Russian Far East. During subsequent investigations of interstitial fauna some interesting new records were obtained. The genera *Amerothyasella*, *Stygomomonina* and *Uchidastygacarus* were reported from Russia for the first time and three new species in these genera were described. Two taxa of the genus *Feltria* (*F. aculeata* and *F. cornuta rossica*), found in superficial waters, are presumably also interstitial, as are the remaining representatives of the species-groups (*denticulata* and *cornuta*-group respectively), to which they belong. Two undescribed species in the genera *Chappuisides* and *Nudomideopsis* collected from river sediments at a depth of about 1 m are being investigated. It is the first report of these genera from Russia. The fauna of interstitial water mites from the Russian Far East is more closely related to those of Japan and North America. One of the above mentioned genera (*Amerothyasella*) is known only from the present territory and North America, the other one (*Uchidastygacarus*) is also widely distributed on the Japanese Archipelago. Two genera inhabiting exclusively interstitial waters (*Stygomomonina* and *Chappuisides*) have a Holarctic distribution. However, a majority of species belonging to these genera is known from Japan and North America, and a few from Europe. The other genera (*Feltria*, *Nudomideopsis* and *Wandesia*) are cosmopolitan. The first of these genera contains mainly superficial species, whereas the second and third contain interstitial species. Supported by: Russian Foundation for Basic Research grant 09-04-98544 and Far Eastern Branch of Russian Academy of Sciences grant 10-III-B-06-104. <http://www.icsb2010.net/>

**SEMIKOLENNYKH (A. A.), RAKHLEEVA (A.) & POPUTNIKOVA (T.), 2010.** An environmental impact assessment of spent calcium carbide disposal in caves and mines:91. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: We studied the environmental impact of wastes derived from calcium carbide, which is widely used for generating acetylene in industry and speleology. It was shown that spent carbide is toxic for biota and harmful to cave ecosystems and the surrounding environment. The toxic components of spent carbide waste were found to include calcium hydroxide, strontium and polycyclic aromatic hydrocarbons. The toxicity of spent carbide declined only slowly over time, with toxicity still present in 13-year-old samples. Spent carbide should be disposed of with great care to ensure that it cannot be disseminated into natural water systems. <http://www.icsb2010.net/>

**SEMIKOLENNYKH (A. A.) & TARGULIAN (V. O.), 2010.** Soil-like bodies of autochemolithotrophic ecosystems in the caves of the Kugitangtau Ridge, eastern Turkmenistan. *Pochvovedenie* 6:658-672. <http://www.maikonline.com/maik/showArticle.do?auid=VAGAKJEO6G>

**SEMIKOLENNYKH (A. A.) & TARGULIAN (V. O.), 2010.** Soil-like bodies of autochemolithotrophic ecosystems in the caves of the Kugitangtau Ridge, eastern Turkmenistan. *Eurasian Soil Science* 43(6, Juin):614-627. DOI: <http://dx.doi.org/10.1134/S1064229310060025>. ABS: Ecosystems, in which the role of primary producers is played not by the photosynthetically active plants, but by the autochemolithotrophic microorganisms utilizing the chemical energy instead of the solar energy, have been described in the caves of eastern Turkmenistan. The zones of contact and interaction between the microorganisms and the mineral substrate perform the regulative, structuring, and bioaccumulative functions of surface soils. These zones have a vertically anisotropic profile forming in situ. Their functional and structural specificity makes it possible to consider them as bio-abiotic natural soil-like bodies and to apply the methods of pedology for their study. Original Russian Text   

SEMIKOLENNYKH (A. A.) & TARGULIAN (V. O.), 2010, published in *Pochvovedenie* 6:658-672.

**SENDRA (A.), MOLDOVAN (O. T.), BALLESTEROS (B. J.), DOM  NGUEZ-S  NCHEZ (J. A.), TERUEL (S.), URIOS (G.), JAUME (D.), REBOLEIRA (A. S. P. S.) & GILGADO (J. D.), 2010.** Discovery of stygobiotic crustaceans in boreholes at the Deep Jurassic aquifer of El Maestrazgo (S. E. Spain):144-145, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Random sampling of groundwaters through 100 to 350m-deep boreholes at the Deep Jurassic aquifer of El Maestrazgo, a region placed close to the Mediterranean coastline in the Spanish Levant, has rendered surprising results, including several stygobiotic crustacean species among Copepoda, Amphipoda, Isopoda and Decapoda. These discoveries have opened new perspectives to the biological study of deep karstic aquifers. More than ten years ago, the Spanish Geological Survey (IGME) at Valencia started to work on the delimitation, extension and connections of El Maestrazgo aquifer, and also on the hydrochemical characterization of the groundwater. This aquifer occupies more than 2400 km<sup>2</sup> of carbonate rocks ranging from Jurassic to lower Cretaceous in age in the northern half of the province of Castellon. The aquifer reaches between 450 to 800 m in depth, showing high permeability derived from fissuration and karstification. A year ago, a team of biologists belonging to different research institutions from Spain, Romania and Portugal joined IGME hydrogeologists to study the relationship between the groundwater fauna and the spatial and temporal variation observed in several hydrochemical parameters. This was carried out sampling periodically at several depths in deep boreholes, including the freshwater-saltwater interface. The aquifer has few natural openings enabling sampling of aquatic fauna (subterranean rivers or springs), thus the use of deep boreholes is almost compulsory. Ten out of 68 boreholes were considered for biological sampling, which was carried out with two Nytex nets of 140   m mesh size and 25 and 10 cm in diameter and 50 and 20 cm length, respectively, both provided with a collection bottle. Until now we have recorded several stygobiotic species of copepods, amphipods, isopods (*Thyphlocirolana* sp.) and decapods (*Thyphlatya miravetiensis*), also known to be present in several caves in the area. <http://www.icsb2010.net/>

**SERAFINO (G.), 2010.** Les   ponges. N1 bio-ASD12-2010/11.

**SERRANO (A. R. M.) & BORGES (P. A. V.), 2010.** The cave-adapted arthropod fauna from Madeira archipelago. *Arquip  lago. Arquip  lago - Life and Marine Sciences* 27(Mai 21):1-7. ABS: This work provides an overview of the hypogean fauna from the Madeira archipelago, presenting a list of obligated cave-dwelling species. A total of 6 troglobiont species in 5 orders have been described to date. The cave fauna in Madeira can be considered poor when compared with either the local epigeal fauna or the cave fauna of other Macaronesian archipelagos. Curious is the occurrence of one wood-louse cave species (*Trichoniscus bassoti*), which apparently is the only troglobite living in more than one Macaronesian archipelago (Canaries and Madeira). Major problems related to the conservation of cave fauna are discussed, but it is clear that the protection of this specialized fauna requires the adequate management of surface habitats. KW: Cavalum, Coleoptera, lava tubes, Machico, troglobiont species.

**ŠEV   IK (M.), BENDA (P.) & UHRIN (M.), 2010.** *Rhinolophus euryale* in Slovakia: Current status of a population living at the margin of the species distribution range:282. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HOR   EK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: *Rhinolophus euryale* reaches in the region between Western Carpathians and Pannonian Lowland northern margin of its distribution range. That population is isolated from the main range in the Mediterranean; it occurs in a geographically limited area of southern Slovakia and northeastern Hungary. Current data on its distribution (more than 600 records from almost 80 sites) including analysis of spatial and

temporal population changes are presented. Slovakian population is divided to 2-3 (isolated?) subpopulations occurring in separated roost systems (hibernacula - transient roosts - maternity roosts). Based on a revision of data from maternity colonies, the process of synanthropisation is discussed. Among 16 maternity roosts, majority are situated in attics (10, i. e. 62.5%), while 6 in underground (4 caves, 2 mines). A question remains, if the increasing number of colonies detected in man-made aboveground roosts is a function of population growth or a change of roost strategy in this species at its distribution margin.

**ŠEVČÍK (M.), KRIŠTOFÍK (J.), UHRIN (M.) & BENDA (P.), 2010.** New records of ticks (Acari: Ixodidae) parasitising on bats in Slovakia. *Vespertilio* 13/14:139-147. ABS: New records of ticks of the family Ixodidae (*Ixodes simplex* and *I. vespertilionis*), parasitising on bats in Slovakia, are presented. These records also include evidences of new bat host species for the respective parasites; i. e. *Ixodes simplex* found on *Rhinolophus hipposideros*, *Ixodes vespertilionis* on *Nyctalus noctula*, *Myotis mystacinus*, and *Pipistrellus cf. pygmaeus*. The first record of *Ixodes ricinus* parasitising on a bat (*Rhinolophus euryale*) in Slovakia is also reported. KW: Ectoparasites, Chiroptera, new records, new host, habitats. <http://www.ceson.org/publikace.php?p=13>

**SHEAR (W. A.), 2010.** *Hesperonemastoma smilax*, n. sp., a remarkable new harvestman from a cave in West Virginia, with comments on other reported cave-dwelling and *Hesperonemastoma* species (Opiliones, Ischyropsalidoidea, Sabaconidae). *Journal of Cave and Karst Studies* 72(2, August):105-110. DOI: <http://dx.doi.org/10.4311/jcks2009lsc0103>. ABS:

*Hesperonemastoma smilax*, n. sp., is a minute, highly troglomorphic harvestman described herein from a single male specimen collected in McClung's Cave, Greenbrier County, West Virginia. *Hesperonemastoma* species described previously from caves are briefly discussed. *H. packardi* (Roewer), first collected in a shallow cave in Utah, is a widely distributed surface-dwelling species found mostly in riparian canyon habitats in northern Utah; it shows no troglomorphic adaptations. *Hesperonemastoma inops* (Packard), described from a cave in Kentucky, is not a species of *Hesperonemastoma*, but most likely a juvenile of *Sabacon cavicolens* (Packard), which was described from the same small cave. *Hesperonemastoma pallidimaculosum* (Goodnight & Goodnight) is a moderately adapted troglomorphic known from two caves in Alabama.

**SHEAR (W. A.), 2010.** New species and records of ortholasmatine harvestmen from México, Honduras, and the western United States (Opiliones, Nemastomatidae, Ortholasmatinae). *ZooKeys* 52:9-45. DOI: <http://dx.doi.org/10.3897/zookeys.52.471>. ABS:

The genus *Trilasma* Goodnight & Goodnight, 1942 is reinstated for Mexican ortholasmatines, and *Cladolasma* Suzuki, 1963 is reinstated for two species from Japan and Thailand, *C. parvula* Suzuki, comb. n. and *C. angka* (Schwendinger & Gruber), comb. n. Eight new species in the subfamily Ortholasmatinae Shear & Gruber, 1983 are described, as follows: *Ortholasma colossus* sp. n. is from California, *Trilasma tempestado* sp. n., *T. hidalgo* sp. n., *T. trispinosum* sp. n., *T. ranchonuevo* sp. n., *T. petersprousei* sp. n. and *T. chipinquensis* sp. n. are from México, and *T. tropicum* sp. n. from Honduras, the farthest south for a dyspnoan harvestman in the New World. A new distribution record for *Martensolasma jocheni* Shear, 2006 is given. The recently described Upper Cretaceous amber fossil *Halitherses grimaldii* Giribet & Dunlop, 2005 is not a member of the Ortholasmatinae, but is likely a trogluloidean of an undiagnosed family. KW: *Ortholasma*, *Dendrolasma*, *Trilasma*, *Cladolasma*, *Halitherses*, amber, fossil, California, Sierra Nevada, Nuevo León, Tamaulipas, Hidalgo, Veracruz, Honduras, Japan, Thailand, new species, new combination.

**SHEPPARD (D.), 2010.** Insect life in caves and the biology of Tissue and Herald moths:67. In: British Cave Research Association, Abstracts from the BCRA Summer Cave Biology Field Meeting, 8 September 2010, Arncliffe Village Hall and Scoska Cave, Littondale, Yorkshire, UK. *Cave and Karst Science* 37(2, this issue has a cover date of August 2010 and was published in December 2010). ABS: The invertebrate faunas of caves have been studied throughout the world. Some species are strongly adapted to life in perpetual darkness whereas others are clearly adapted to life outside of caves. This presentation will

focus on the invertebrate cave faunas that are found in the British Isles. It will give a brief overview of the kinds of invertebrates that live in caves and those that use caves during part of their life cycles. It will examine what features of caves are important for invertebrates and how invertebrates are adapted to life in caves. <http://bcra.org.uk/pub/candks/index.html?j=110>

**SIDOROV (D. A.), 2010.** Pseudocrangonyctidae (Crustacea: Amphipoda) and its forming pathways:67. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: At present the subterranean amphipod fauna of the Far East remains insufficiently investigated. In this region a complex of stygobiont amphipods of the endemic family Pseudocrangonyctidae consists of two genera: *Pseudocrangonyx* and *Procrangonyx*. The subterranean freshwater amphipod genus *Pseudocrangonyx*, which includes 15 described and several undescribed species, is widespread in eastern China, the Korean Peninsula, the Japan Archipelago, the continental part of the far-eastern Russia and Sakhalin Island and Kamchatka Peninsula. The species of *Pseudocrangonyx* inhabit various subsurface streams, deep groundwater aquifers, and cave reservoirs connected with groundwater table; whereas species of *Procrangonyx*, as a rule, are confined to deep groundwater aquifers and are restricted to areas surrounding the semi-enclosed East Sea. Presently, three species are known in the genus *Procrangonyx*. The morphological and ecological differences between *Pseudocrangonyx* and *Procrangonyx* were studied, and a preliminary scenario of the evolutionary history of Pseudocrangonyctidae is proposed, based on phylogenetic and biogeographic considerations. Supported by: Russian Foundation for Basic Research grant 09-04-98544. <http://www.icsb2010.net/>

**SIDOROV (D. A.) & BARABANSCHIKOV (E. I.), 2010.** Находка стигобионтных и амфибионтных перакарид (Amphipoda) в подземных водах бассейна р. Самарга (Северное Приморье) и замечания о таксономическом положении "*Orchestia*" *solifuga* Iwasa [Findings of stygobiotic and amphibiotic Peracarida (Amphipoda) in subsurface waters of the Samarga R. basin (Northern Prymorye) and some considerations about the taxonomic position of "*Orchestia*" *solifuga* Iwasa]. *Вестник Свнц Дво Ран* 4 с.:70-75.

**SIDOROV (D. A.), PANKOV (N.) & KRASHENINNIKOV (A. B.), 2010.** A *Bactrurus*-like subterranean amphipod (Crangonyctidae) from the Ural Mountain karst region:145, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Recent biological inventory of caves and wells in the Ural Mountain karst region by N. N. Pankov and A. B. Krasheninnikov resulted in collections of crangonyctid amphipods from the cave lakes of Kungur Ice Cave, Babinogorskaya Cave, Ordinskaya Cave and driven wells in the Irgina River basin. The moderately stygomorphic animals are about 15-20 mm in length, white in color, and eyeless. Besides the above mentioned places amphipods were found in Metschka Cave that is the type locality of the poorly known *Crangonyx chlebnikovi*, which was described by E. W. Borutzky in 1928. The holotype was not designated properly but a syntype series was kept at the Zoological Museum of Moscow State University. Because the original description of the species was lacking several important details the correct generic assignment has remained problematic. Careful investigation of the recently collected materials leaves no doubt about the placement of this species in the family Crangonyctidae and a close morphological affinity with species of the genus *Bactrurus*. However, despite several similarities with *Bactrurus*, this species differs significantly in the shape of gnathopods and pleonal plates and an increasing number of pleopod retinaculi, and will therefore be designated as type-species of a new crangonyctid genus currently being described. The genus *Bactrurus* is endemic of the North American continent and widespread in subterranean groundwaters of the east-central United States. The finding of *Bactrurus*-like subterranean



amphipod at the Ural Mountain karst region is a significant aspect in the understanding of Crangonyctidae evolutionary. Supported by the Russian Foundation for Basic Research grant 09-04-98544.  
<http://www.icsb2010.net/>

**SILVER (P.), STEINMAN (A. D.) & POLLS (I.), 2010.**

The role of a discipline-specific journal in scientific discovery. *Journal of the North American Benthological Society* 29(1):1-11. DOI: <http://dx.doi.org/10.1899/09-156.1>.

**SIMON (K. S.), PIPAN (T.), OHNO (T.) & CULVER (D. C.), 2010.** Spatial and temporal patterns in abundance and character of dissolved organic matter in two karst aquifers. *Fundamental and Applied Limnology* 177(2, June):81-92, 7 fig. DOI: <http://dx.doi.org/10.1127/1863-9135/2010/0177-0081>.

ABS: The spatial and temporal patterns in concentration and character of dissolved organic matter (DOM) in karst basins in Slovenia and the United States were characterized. DOM in the shallow aquifer, or epikarst, waters was characterized by low, stable concentration and compounds of low aromaticity and humification. There was strong temporal coherence in DOM character, but not concentration, across locations within the epikarst. DOM in sinking streams, cave streams, and resurgence springs typically had higher DOM concentration and aromaticity. Fluorescence and parallel factor analysis of DOM revealed that humic or fulvic-like substances in soils, surface and cave streams, and springs were the dominant fluorophores. However, DOM extracted from soils was chemically different from that present in the stream and spring waters. Epikarst water contained humic-like and protein-like DOM, and had fluorescence characteristics indicative of microbial uptake and release of DOM in the epikarst. These data show that there are substantial basin-scale patterns in DOM concentration and character and that aquifer structure influences the spatial patterns of DOM in karst groundwater. KW: Karst, cave, PARAFAC, groundwater, fluorescence, unsaturated zone, DOM, SUVA.

**SIMON (L.), MERMILOD-BLONDIN (F.), MALARD (F.), L  CUYER (C.), FOUREL (F.) & DOUADY (C. J.), 2010.** Trophic niche of two subterranean isopod species along a parapatric boundary in pre-Alps and Jura Mountains (France): a preliminary field study using stable isotopes:122-123, poster presentation. In: 20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRI   and Peter TRONTELJ, ISBN 978-961-269-286-5.

ABS: The influence of abiotic and biotic interactions in shaping the present-day distribution ranges of stygobiotic species has attracted very little attention essentially because distributional patterns have historically been interpreted as palaeogeographical imprints of the geographic range of putative epigeal colonizers. Only very recently have some studies attempted to model species richness or distribution using abiotic predictors. In most groundwater studies, however, physical variables alone left a substantial amount of unexplained deviance. It is therefore necessary to investigate the role of biotic interactions in the distribution patterns of groundwater species. *Proasellus cavaticus* and *Proasellus valdensis* exhibit separate but contiguous distributions along the western margins of the Jura and pre-Alps mountains. The goal of this work is to determine whether these two parapatric species exhibit the same trophic niche in nearby groundwater systems, hence suggesting interspecific competition for food along the parapatric boundary. We thus determined the diet of both species in six caves located along the contact zone, using carbon and nitrogen stable isotopes. The contribution of the different food resources to *Proasellus* diet have been calculated using mixing model from their <sup>13</sup>C/<sup>12</sup>C and <sup>15</sup>N/<sup>14</sup>N ratios. In the six caves, *P. cavaticus* and *P. valdensis* exhibit a similar diet, mainly constituted of bacteria attached on sediments (> 70%), while particulate organic matter contributes with a maximum of 30% to both species diet. This result indicates that interspecific competition for food may be a structural factor of species distribution in groundwater ecosystems. Laboratory experiments are needed to test this hypothesis of competition by measuring the influence of the interactions between *P. cavaticus* and *P. valdensis* on their trophic efficiency. This work was developed within the framework of the DEEP research program. <http://www.icsb2010.net/>

**SIMON (T. P.), 2010.** Status of Crayfish in Indiana. In:

Abstracts that were not submitted as manuscripts, but were presented at the 2008 crayfish symposium, Southern Division American Fisheries Society meeting, Wheeling, WV. ABS: The number of crayfish inhabiting Indiana includes 23 species. Primary burrowers are represented by four species, secondary burrowers by eight species, and tertiary burrowers by eleven species. Six checklists have been historically compiled for crayfish within Indiana; however, little is known about species distributions. From the period between 1891 and 1955, only ten crayfish species were documented and significant confusion existed in our understanding of species distribution, identity, and biology. Most early studies (<1950) were focused on the "blind" cave crayfish of the *Orconectes inermis* complex. Descriptions of *O. inermis inermis*, *O. pellucidus*, and *O. inermis testii* have caused confusion over the status of *O. inermis testii*. *Orconectes indianensis* was studied and found to be stable, while conservation efforts are needed for two species. Significant efforts on species distribution have been accomplished. Prior to 1980, less than 150 sites were studied, with most done in caves and a few watersheds in northern Indiana. During 1980-1995, nearly 3000 collections were made statewide. Since 1995, intensive watershed surveys resulted in over 2000 sites. Another study included 675 sites that focused on the distribution and ecology of burrowing crayfish species, while additional intensive investigations collected 1080 sites in southern Indiana. Two new species have been described including *Cambarus (Tubericambarus) polychromatus* and *Orconectes (Procericambarus) theaphionensis*. Life-history studies have been initiated for all crayfish species, which will provide new information on preferred habitat, reproductive biology, age, growth, and diet. Additional species are pending formal description once distributions are known. A minimum of an additional eleven species will be added to the list of crayfish occurring in Indiana. Another two species are hypothetical in occurrence, while hypothetical species considered in the most recent checklist have all been confirmed statewide. It is possible that the actual number of crayfish occurring in Indiana may reach or exceed 36 species. <http://www.bioone.org/doi/abs/10.1656/058.009.s301>

**SINGH (N. S.) & PHILLIPS-SINGH (D.), 2010.** A study on genitalia of phlebotominae sand flies (Phlebotomidae: Diptera) in Northern India: A new tool for detection of species. *Journal of Entomology* 7(4):235-239. DOI: <http://dx.doi.org/10.3923/je.2010.235.239>. BL: Cf p. 236, "Sand flies were collected using sticky paper traps, CDC light traps and aspirators from outdoors (cow shelters, dog shelters and holes in rocks and caves) as well as indoors (stable and living rooms) from January to July 2009".

**S  RBU (I.), S  RBU (M.) & BENEDEK (A. M.), 2010.** The freshwater Mollusca fauna from Banat (Romania). *Travaux du Mus  um national d'Histoire naturelle "Grigore Antipa"* 53(D  cembre):21-43. DOI: <http://dx.doi.org/10.2478/v10191-010-0003-x>.

**SKELTON (C. E.), 2010.** History, Status, and Conservation of Georgia Crayfishes. *Southeastern Naturalist* 9(Special Issue 3: Conservation, Biology, and Natural History of Crayfishes from the Southern United States, June):127-138. DOI: <http://dx.doi.org/10.1656/058.009.s305>. BL: Cf Appendix I: C. (*J. cryptodytes* Hobbs (Dougherty Plain Cave Crayfish): 13C.

**SKET (B.), 2010.** Subterranean fauna of the wider Dinaric area - from first discoveries to a global hotspot, and its up-to-date biological evaluation:19-20. In: 20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: First troglobiotic animals were described from Slovenia (amphibian *Proteus*, Laurenti, 1768; beetle *Leptodirus*, Schmidt, 1832); freshwater interstitial fauna discovered in Macedonia (Karaman, 1932). Postojna-Planina Cave System remained an arena of research. Some important discoveries: repeated immigrations of a species; morphologically different populations of it within the system; fauna succession and clinal variability within some species along an allogenuous subterranean river; deeper invasion of epigeal species after organic pollution. Some interesting species will be presented according to

their distribution patterns. Interstitial fauna of Black Sea Drainage closely related to that of Adriatic drainage and both different of the Aegean drainage. European distribution. *Asellus aquaticus* (Isopoda) and *Synurella ambulans* (Amphipoda: Crangonyctidae) with some troglolobiotic races in Dinaric karst (DK). Genus *Niphargus* (Amphipoda: Niphargidae) with over 110 species in DK. Transdinaric distribution (from DK to E and W). *Troglocaris* (Decapoda: Atyidae) with members in Caucasus, *Sphaeromides* (Isopoda: Cirolanidae) with members in Bulgaria, French species of both not related to Dinaric ones. *Zospeum* (Gastropoda: Carychiidae) Dinarides - Pyrenees; *Delaya bureschi* (Oligochaeta: Haplotaxidae) Slovenia - Bulgaria; *Monolistra* (Isopoda: Sphaeromatidae), DK and Southern Calcareous Alps. Holodinaric pattern (between Kras-Carso and SE Hercegovina). Subgenus *Troglocaris* s. str., *Marifugia "cavaica"* (Polychaeta: Serpulidae), *Proteus "anguinus"*, genus *Titanethes* (Isopoda: Trichoniscidae), *Velkovrha enigmatica* (Cnidaria: Bougainvillidae). All molecularly studied elements exhibit splitting into races or species within the area. Complementary NW and SE merodinaric patterns best represented by geographically vicariant genera of Coleoptera, also of hydrobioid Gastropoda and others; leptodiroid habitus developed only in DK. Paratitral merodinaric pattern along NE Adriatic coast, but its elements absent in the Kvarner Golf, i. e. historically grounded. Here originated some of the first ecological data on anchihaline caves: presence of a disoxic layer; presence of troglolobionts in illuminated layers if surface competitors are absent; withdrawal of predators of tender *Thermosbaenacea* into the disoxic layer. Narrower endemic distribution patterns. Seldom species bound to recent river drainages, like *Microlistra* spp. (Isopoda: Sphaeromatidae); distribution of the related *Monolistra coeca* and most others supposed to be defined by paleodrainages. *Niphargobates orophobata* (Amphipoda: Niphargidae) known only from one point. Narrow areas also: the sponge *Eunapius subterraneus* (Porifera: Spongillidae), bizarre leech *Croatobranchus mestrovi* (Hirudinea: Erpobdellidae), an undescribed terrestrial planarian etc. Rich is the fauna of epizoic Turbellaria Temnocephalida. The troglolobiotic species density probably the highest in the world. Up to 21 terrestrial Coleoptera species in a 20 x 20 km area. For 20000 km<sup>2</sup> of Slovenia, 241 aquatic and 189 terrestrial troglolobionts registered. For Postojna-Planina Cave System altogether 99 species. New species are still being found; a non-troglolomorphic race of *Proteus* found only in 1990s; it is very instructive with its being troglolobiotic and by its position in the phylogenetic tree. The interstitial and karst underground fauna is endangered from the surface: by hydrotechnical works, by industrial, urbane, agrotechnical pollution. Extremely rich *Proteus* populations were destroyed by pollution, unique huge *Marifugia* and *Congerina* colonies by regulating the surface river beds. Protection is efficient only against innocuous researchers. <http://www.icsb2010.net/>

**SLAY (M. E.) & FONG (D. W.), 2010.** Preliminary estimates of species detection probabilities for North American troglolobionts:173. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Because many troglolobionts are considered rare, they may go undetected at sites even when present. Non-detection of present species introduces bias in state variables of interest, such as occupancy, habitat use, and reproductive success; therefore, it is necessary to use sampling methodologies that incorporate estimates of imperfect detection. Although this issue has been addressed for various surface fauna, few studies report detection probabilities for subterranean organisms. We surveyed 10 caves during the summer of 2008 (5 in Arkansas and 5 in West Virginia) for the presence of 19 troglolobionts (8 in Arkansas and 11 in West Virginia). A single location in each cave was baited and monitored daily for 5 consecutive days. Species-specific detection data were analyzed separately using single-season occupancy models in Program PRESENCE version 3.0. Two models incorporating time constant and linear time effects relative to probability of detection were fit to the data and ranked according to Akiake Information Criterion for small sample sizes. Detection probabilities were estimated for 14 troglolobionts (7 from each state), with estimates ranging from 0.24-1.0. Data was insufficient to model detection probabilities for 5 species. Only one species, the milliped *Pseudotremia fulgida*, was detected perfectly. For all species, time constant model had the greatest support (delta AICc values greater than 2) suggesting that detection probabilities did not vary across survey days. Due to small sample sizes, caution is needed for interpreting and extrapolating these results beyond the sampled caves. However, this study provides evidence that detection probabilities for

troglolobionts are less than perfect and supports the claim that estimating detection probabilities for troglolobiotic species is needed. <http://www.icsb2010.net/>

**SMIT (H.) & GERECKE (R.), 2010.** A checklist of the water mites of France (Acari: Hydrachnidia). *Acarologia* 50(1, August 20):21-91. DOI: <http://dx.doi.org/10.1051/acarologia/20101952>.

ABS: A review is given of all species reported from France. In total, 420 species and seven subspecies have been found in France. The following synonyms are established: *Atractides vandeli* Angelier, Decamps & Rey as a synonym of *A. phreaticus* Motař & Tanasachi, *Atractides fonticolus gallicus* Angelier, Decamps & Rey as a synonym of *A. spinipes* Koch and *Barbaxonella pilosa* Angelier, Decamps & Rey as a synonym of *B. angulata* (K. Viets). The following species are reported for the first time: *Atractides orghidani* Motař & Tanasachi, *Hydrachna goldfeldi* Thor, *Hydrodroma pilosa* Besseling, *Limnesia curvipalpis* Tuzovskij, *Limnesia undulatoidea* Davids, *Piona ambigua* (Piersig), *Forelia curvipalpis* K. Viets, *Mideopsis roztozcensis* Biesiadka & Kowalik, *Arrenurus octagonus* Halbert and *Arrenurus tubulator* (M  ller). Moreover, *Arrenurus affinis* Koenike is reported for the first time with certainty. For each species, all references are given which contain geographical information about their occurrence in France. Numerous new records are given, especially of species from standing waters. KW: Acari, Hydrachnidia, France, checklist, distribution.

**Smithsonian National Museum of Natural History, 2010.** *Biological Conservation Newsletter* 308, supplement(August):S8 p. Plant Conservation Unit - Department of Botany, PO Box 37017, NMNH, MRC-166, Washington DC 20013-7012. <http://botany.si.edu/pubs/bcn/>.

**SMITS (Q.), REMACLE (L.) & GERBER (V.), 2010.** Quelques conseils pratiques pour les recensements en milieu souterrain. *L'  cho des Rhinos* 58(D  cembre 2009-Janvier 2010):3-4.

**SOARES (D.), 2010.** P 11. Cavefishes as models for sensory adaptation:694. In: *9<sup>th</sup> International Congress of Neuroethology*, Salamanca (Spain), 2-7 August 2010. Sponsored by the International Society for Neuroethology (neuroethology.org). Abstracts. ABS: Adaptation is the context in which behaviors and underlying nervous systems evolve. A quick change of environments poses a challenge for adaptation and extreme environments pose harsh. Therefore such environment provides valuable insights in to the evolutionary malleability of nervous systems. The permanent darkness present in caves imposes harsh sensory constraints that offer a distinct opportunity to examine how sensory modules not only become transformed, but also how they influence each other's changes. Troglodytic animals are known to have specialized sensory systems as outcomes of both constructive and regressive traits. Of all cave dwelling vertebrates, cavefishes are an especially suitable animal model for comparative studies because of their diverse phylogeny and world distribution. Moreover, once fish have colonized a cave they rarely re-enter or leave the cave so the duration of adaptation can be more easily determined and less complicated to describe. Species of cavefishes have independently colonized caves all over the world. At a first glance all have lost eyesight but it is unclear what modalities if any have become hypertrophied as a response and rules are yet to be established. Here we examined two cavefishes *Ogilbia pearsei* (Yucatan, Mexico) and *Astroblepus pholeter* (Napo, Ecuador).

**SOISOOK (P.), NIYOMWAN (P.), SRIKRACHANG (M.), SRITHONGCHUAY (T.) & BATES (P. J. J.), 2010.** Discovery of *Rhinolophus beddomei* (Chiroptera: Rhinolophidae) from Thailand with a Brief Comparison to Other Related Taxa. *Tropical Natural History* 10(1, April):67-79.

**SOUZA (L. A.), SENNA (A. R.) & KURY (A. B.), 2010.** A new species and first record of *Gabunillo* Schmalzfuss & Ferrara, 1983 (Isopoda, Oniscidea, Armadillidae) from the Neotropics. *Zootaxa* 2677(November 16):1-14, 9 pl., 22 r  f. ABS: A new species of terrestrial isopod, *Gabunillo aridicola* sp. nov., is described from Cear   and Rio Grande do Norte States, in Karstic

formations in the Brazilian semi-arid (caatinga). This genus, hitherto monotypic, was known only from Gabon. This occurrence is remarkable because very few genera of Armadillidae are known from both Afrotropics and Neotropics, and because it offers evidence of a tropical Gondwana biogeographical component. KW: Malacostraca, terrestrial crustaceans, semi-arid, cave life, Karst, caatinga, Brazil. <http://www.mapress.com/zootaxa/list/2010/2677.html>

**SOUZA (M. F. V. R.) & FERREIRA (R. L.), 2010.** *Eukoenuia* (Palpigradi: Eukoenuiidae) in Brazilian caves with the first troglolobitic palpigrade from South America. *Journal of Arachnology* 38(3, December):415-424. DOI: <http://dx.doi.org/10.1636/Ha09-112.1>. ABS: Reports of Palpigradi from South American caves are rare, and no troglolobitic species have yet been described. This apparent deficiency, however, reflects merely a lack of reporting. Ten years of biospeological surveys of 603 caves in 16 of the 26 Brazilian states, in bedrocks including limestone, quartzite, iron ore, granite, and gneiss, have led to the capture of 494 palpigrades, and specimens with troglomorph characteristics have been found in Minas Gerais, Bahia, and Espirito Santo. Palpigrades have been found to be relatively more common in iron ore caves, and troglomorph species apparently occupy cave habitats different from those occupied by edaphomorph species. The description of the first troglolobitic species from South America is presented here. *Eukoenuia maquinensis*, new species, collected in the Maquiné Cave Minas Gerais, Brazil, has six blades in the lateral organs, seven pairs of setae on the propeltidium, six setae on the basitarsus IV (a single proximal sternal seta) and a singular chaetotaxy of opisthosomal sternites. KW: *Eukoenuia maquinensis*, Neotropics, troglomorph.

**SOUZA-SILVA (M.), MARTINS (R. P.) & FERREIRA (R. L.), 2010.** Conservation of cave invertebrates and study of impacts on caves located in the Brazilian Atlantic rain forest:91-92. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The Brazilian Atlantic rain forest extends over great extensions and includes discrete caves. Through historic (295 caves) and present data of 103 caves, the study is aimed to evaluate the knowledge on invertebrates cave fauna of the Atlantic Forest, to evaluate the main antropic changes, and propose a methodology to evaluate the biological relevance and vulnerability of caves. Historical data indicate presence of 208 troglomorph species, contrasting with 95 species found in this study. The similarity observed between the cave invertebrate communities was not higher than 30%. The anthropogenic changes were deforestation (40%), mining (15%), inorganic waste (13%), trample (12%), touristic usage (10%), constructions (10%), graffiti (8.5%), exotic species (8.5%) religious usage (7.5%). Vulnerability level was considered extreme for 7% of the caves, high for 38%, average for 26%, and low for 29%. Among the caves visited in this study, 47% need emergent conservation and management plans. The karst areas classified as richer in troglomorph species were considered to be of major priority for conservation actions. Such areas correspond to the limestone caves of the Chapada Diamantina (9 spp.), the limestone caves of the Serra do Ramalho (7 spp.), the limestone caves of the Parque Nacional Cavernas do Peruaçu (10 spp.), the limestone caves of the Rio Pardo karst (18 spp.), the quartzite caves of Parque Estadual Serra de Ibitipoca (9 spp.); the ferruginous caves of the quadrilátero ferrífero (68 spp.); the limestone caves of the south of São Paulo state and northeast of Paraná state (62 spp.) and the limestone caves of the Serra da Bodoquena (9 spp.). The caves sampled up to the present moment have presented heterogenous ecological conditions (trophic structure, endemism, number of invertebrate species, and impacts registered). Such heterogeneity justifies the necessity of urgent and more detailed studies, including as many caves as possible (located in the Atlantic Forest), for a better understanding of underground biodiversity, subsidize plans of use and actions of management and conservation. <http://www.icsb2010.net/>

**SOUZA-SILVA (M.), PARENTONI MARTINS (R.) & FERREIRA (R. L.), 2010.** Trophic dynamics of the coarse particulate organic matter (CPOM) in a tropical limestone cave:48-49, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB*

*2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The temporal budgets of the input, retention and use by invertebrates of the coarse organic matter were evaluated in a tropical limestone cave. These budgets are essential for the understanding of the trophic dynamics in this environment, which is poor regarding invertebrate species and food resources. Primary resources are roots that emerge from the bottom of the hypogean stream and provide shelter and food for numerous invertebrate species. In addition, these microhabitats are distinct from those provided by the sediment. Detritus penetrates only through the stream in lower quantities in the dry season, contrary to what happens in the rainy season. However, higher transport and leaching energies in the rainy season prevent detritus retention. During the rainy season, flood flows work as a force that destabilizes the processes of retention, biological colonization and detritus processing in the stream. In the terrestrial environment, bat feces was the main secondary resource available for the invertebrates; the constant production of this resource influences the structure and distribution of invertebrates. Unfavourable temperature conditions and, especially, low humidity in the soil promote low consumption rates of plant detritus. The cave functionality depends directly of the allochthonous food resources. Organic matter is transported in pulses by water flows and bats. Water can transport litter, while bats release feces. Both are extremely epigean-dependent processes of the dry season conditions and intact with the surrounding epigean vegetation. <http://www.icsb2010.net/>

**Spéléo-Club de Paris, 2010.** Le timbre du mois. *La lettre du Spéléo-Club de Paris* 282(Lundi 1<sup>er</sup> Février). RÉ: L'Oreillard roux (ou brun, septentrional ou commun selon les auteurs) sont des chauves-souris communes dans le Vexin. Il est très difficile de distinguer le *Plecotus auritus*, l'Oreillard, de l'autre espèce, *P. austriacus*, mais cet Oreillard gris ou méridional est inconnu en Île-de-France. <http://www.speleoclubdeparis.fr/spip.php?article89>

**Spéléo-Club de Paris, 2010.** Le timbre du mois. *La lettre du Spéléo-Club de Paris* 283(Mardi 9 Mars). RÉ: Ce timbre roumain de 1993 fait partie d'une série présentant 6 animaux cavernicoles de la grotte de Movilé. *Nepa anophthalma* Décu Gruia Keffer & Sarbu 1994 est une nêpe, un scorpion d'eau. Parmi les biologistes qui ont décrit cette nouvelle espèce, on trouve le nom de Serban Sarbu qui fut, le temps de son séjour en France, membre de notre club. Cet insecte carnassier est un animal stygobie "aquatique" totalement inféodé au monde souterrain et adapté aux eaux sulfureuses de cette étrange cavité du sud de la Roumanie. <http://www.speleoclubdeparis.fr/spip.php?article107>

**Spéléo-Club de Paris, 2010.** Portfolio (photo noir et blanc d'un *Aphaenops pluto*). *La lettre du Spéléo-Club de Paris* 283(Mardi 9 Mars). <http://www.speleoclubdeparis.fr/spip.php?article107>

**ŠTAMOL (V.), 2010.** A list of the land snails (Mollusca: Gastropoda) of Croatia, with recommendations for their Croatian names. *Natura Croatica* 19(1, June 30):1-76. ABS: By examination of extensive literature data, a list of the terrestrial snails of Croatia has been compiled. A list of Croatian names for each taxon is also provided for the first time. Croatian endemic species and subspecies are indicated. KW: Land snails, Croatia, Croatian names, common names, endemics. [http://hrcak.srce.hr/index.php?show=clanak&id\\_clanak\\_jezik=82825&lang=en](http://hrcak.srce.hr/index.php?show=clanak&id_clanak_jezik=82825&lang=en)

**STAN (A.-M.), 2010.** Un exemple de rayonnement universitaire occidental en Europe centrale et orientale: étude de cas sur les enseignants français embauchés à l'université roumaine de Cluj après 1919. *Les Cahiers de Framespa* 6. <http://framespa.revues.org/477>

**STANLEY (E. H.), POWERS (S. M.) & LOTTIG (N. R.), 2010.** The evolving legacy of disturbance in stream ecology: concepts, contributions, and coming challenges. *Journal of the North American Benthological Society* 29(1):67-83. DOI: <http://dx.doi.org/10.1899/08-027.1>.

**Station alpine Joseph Fourier, 2010.** Index seminum. Jardin botanique alpin du Lautaret (Hautes-Alpes, France). N° 56, année 2010, récolte 2009. <http://sajf.ujf-grenoble.fr/>. 32 p. BL: Cf p. 18, 142 *Asphodelus ramosus* L. Marseille, Grotte Rolland (France, 13), 30 m; p. 19, 319 *Cistus albidus* L. Marseille, Grotte Rolland

(France, 13), 30 m; p. 19, 323 *Cistus monspeliensis* L. Marseille, Grotte Rolland (France, 13), 30 m; p. 19, 749 *Osyris alba* L. Marseille, Grotte Rolland (France, 13), 30 m; p. 19, 884 *Quercus coccifera* L. Marseille, Grotte Rolland (France, 13), 50 m; p. 20, 1093 *Teucrium flavum* L. subsp. *flavum* Marseille, Grotte Rolland (France, 13), 50 m; p. 20, 1158 *Viburnum tinus* L. Marseille, Grotte Rolland (France, 13), 30 m.

**STEIN (H.), BERKHOFF (S. E.), MATZKE (D.) & HAHN (H. J.), 2010.** Spatial distribution patterns of faunal groundwater communities across Germany:49. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Faunal distribution patterns and community structure in groundwater ecosystems are shaped by certain key factors working on different spatial scales. 1) On a large scale the faunal assemblages differ according to the biogeographic region. 2) On a regional scale the community structure of faunal groundwater organisms is shaped by regional particularities, mainly the type of aquifer. 3) On a local scale the strength of groundwater-surface water interactions and consequently the allochthonous input of nutrients and oxygen into the aquifer shapes the subterranean communities. The reliability of this hierarchical concept was tested combining and analysing data that were obtained by several groundwater studies across Germany. In general, the first results fit well with that concept, although large scale distribution pattern were not always in accordance with the biogeographical regions. <http://www.icsb2010.net/>

**STEINER (H.), 2010.** Chapter 6: Biospeological observations:64-? In: DREYBRODT (J.) & LAUMANN (M.), *The Unknown North of Laos. Part 3 - 2009-2010: Karst and Caves of the Provinces Houaphan and Oudomxay. Berliner Höhlenkundliche Berichte* 38. 132 p., colour photo tables, many maps and surveys. ABS. <http://www.speleo-berlin.de/php/abstracts.php?volume=38&lan=EN#summary>

**STEINER (H.), 2010.** Chapter 7: Review of the biospeology of Myanmar:84-? In: LAUMANN (M.), *Karst and Caves of Myanmar. Berliner Höhlenkundliche Berichte* 39. 130 p., colour maps, many surveys, Michael LAUMANN, Editor. ABS. <http://www.speleo-berlin.de/gb/publikationen.php>

**STOCCHINO (G. A.), SLUYS (R.), MANCONI (R.), CASALE (A.), MARCIA (P.), GRAFITTI (G.), CAEDDU (B.), CORSO (G.) & PALA (M.), 2010.** Triclad from Italian groundwaters (Platyhelminthes, Tricladida):146, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Subterranean triclads from Italy include both stygobiotic and stygophilous species. The first record on triclads from Italian groundwaters is dated as far back as 1890 when Garbini reported the stygophilous species *Polycelis nigra* from two wells near Verona (north-eastern Italy). Up to now, among stygobiotic species, the genera *Dendrocoelum* (Dendrocoelidae), *Atrioplanaria*, *Phagocata* s. l. and *Polycelis* (Planariidae) are reported. Stygophilous species belong to the genera *Dugesia* (Dugesidae), *Dendrocoelum* (Dendrocoelidae), *Polycelis* and *Crenobia* (Planariidae). Data on both stygobiotic and stygophilous species are mainly restricted to centralnorthern Italy and Sardinia. This contribution provides an account on the subterranean triclads from Sardinia with new records and a taxonomic synopsis on Italian taxa. Funds were provided by PRIN-MIUR and the EU project Interreg III Sardinia-Corsica-Tuscany. G. Stocchino acknowledges financial support from SYNTHESYS, a programme of the European Commission under the 6<sup>th</sup> Research and Technological Development Framework Programme "Structuring the European Research Area", which enabled GS to work at the Zoological Museum Amsterdam in November and December 2008 (grant number: NL-TAF 4717). <http://www.icsb2010.net/>

**STOCH (F.), 2010.** Cyclopoida bentonici: Cyclopinidae, Smirnovipinidae, Schminkepinellidae, Cyclopidae. *Biologia Marina Mediterranea* 17, suppl. 1:435-437.

**STOCH (F.) & GALASSI (D. M. P.), 2010.** Stygobiotic crustacean species richness: a question of numbers, a matter of scale. *Hydrobiologia* 653(1, October):217-234. DOI: <http://dx.doi.org/10.1007/s10750-010-0356-y>. From the issue entitled "Fifty years after the "Homage to Santa Rosalia": Old and new paradigms on biodiversity in aquatic ecosystems, Guest Editors: L. Naselli-Flores & G. Rossetti". This paper is dedicated to the late Prof. Janine GIBERT (University of Lyon, France), who along her life, with great passion, highly promoted research in groundwater ecosystems, representing a key-reference scientist worldwide. ABS: Species richness in ground water is still largely underestimated, and this situation stems from two different impediments: the Linnaean (i. e. the taxonomic) and the Wallacean (i. e. the biogeographical) shortfalls. Within this fragmented frame of knowledge of subterranean biodiversity, this review was aimed at (i) assessing species richness in ground water at different spatial scales, and its contribution to overall freshwater species richness at the continental scale; (ii) analysing the contribution of historical and ecological determinants in shaping spatial patterns of stygobiotic species richness across multiple spatial scales; (iii) analysing the role of  $\beta$ -diversity in shaping patterns of species richness at each scale analysed. From data of the present study, a nested hierarchy of environmental factors appeared to determine stygobiotic species richness. At the broad European scale, historical factors were the major determinants in explaining species richness patterns in ground water. In particular, Quaternary glaciations have strongly affected stygobiotic species richness, leading to a marked latitudinal gradient across Europe, whereas little effects were observed in surface fresh water. Most surface-dwelling fauna is of recent origin, and colonized this realm by means of post-glacial dispersal. Historical factors seemed to have also operated at the smaller stygoregional and regional scales, where different karstic and porous aquifers showed different values of species richness. Species richness at the small, local scale was more difficult to be explained, because the analyses revealed that point-diversity in ground water was rather low, and at increasing values of regional species richness, reached a plateau. This observation supports the coarse-grained role of truncated food webs and oligotrophy, potentially reflected in competition for food resources among co-occurring species, in shaping groundwater species diversity at the local scale. Alpha-diversity resulted decoupled from  $\gamma$ -diversity, suggesting that  $\beta$ -diversity accounted for the highest values of total species richness at the spatial scales analysed. KW: Ground water, Species richness, Stygobionts, Crustacea, Spatial scale.

**STOCH (F.) & GASPARO (F.), 2010.** Regional species richness and diversity patterns of obligate cave-dwelling fauna in the Classic Karst in Italy:50. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Local and regional species richness of the obligate cave-dwelling fauna of the Classic Karst in Italy (about 200 square kilometers, over 3070 caves known up to now), a well-known subterranean biodiversity hotspot, was assessed using: (1) bibliographic data (about 410 papers published between 1819 and 2009); (2) unpublished data collected by the Authors during the last 30 years; (3) data collected during a monitoring program (carried out in 2008-2009) using standardized sampling techniques applied to 28 caves. A database including the distribution of 382 species in 223 caves was assembled; 121 species (32%) were classified as obligate subterranean (33 of them being terrestrial, 88 aquatic); 105 species were considered endemic or subendemic to the Classic Karst. Based on species accumulation curves and jackknife 1, Chao2, bootstrap, and incidencebased coverage (ICE) estimators, we concluded that 82% of all species inhabiting the karstic area have been recorded so far (94% of terrestrial troglotic species, 75% of stygobiotic species). During the recent monitoring program (based on 28 caves out of the 223 surveyed), 45% of the whole regional fauna was collected, including 8 stygobiotic species new to Science. Notwithstanding the difficulty in assessing species richness of obligate cave-dwelling fauna because of the highly localized distributions of

several species, results allowed (1) to assess the relative contribution to total species richness of terrestrial and groundwater (vadose and phreatic) fauna, dissecting regional diversity into alpha and beta components; (2) to analyze the contribution of historical and ecological determinants in shaping spatial patterns of subterranean biodiversity across the region; and (3) to assess the conservation value of species and caves, mapping priority areas for biodiversity conservation in the Karst. <http://www.icsb2010.net/>

**STOEV (P.), AKKARI (N.), ZAPPAROLI (M.), PORCO (D.), ENGHOFF (H.), EDGEcombe (G. D.), GEORGIEV (T.) & PENEV (L.), 2010.** The centipede genus *Eupolybothrus* Verhoeff, 1907 (Chilopoda: Lithobiomorpha: Lithobiidae) in North Africa, a cybertaxonomic revision, with a key to all species in the genus and the first use of DNA barcoding for the group. *ZooKeys* 50(June 30):29-77. **DOI:**

<http://dx.doi.org/10.3897/zookeys.50.504>. ABS: The centipede genus *Eupolybothrus* Verhoeff, 1907 in North Africa is revised. A new cavernicolous species, *E. kahfi* Stoev & Akkari, sp. n., is described from a cave in Jebel Zaghouan, northeast Tunisia. Morphologically, it is most closely related to *E. nudicornis* (Gervais, 1837) from North Africa and Southwest Europe but can be readily distinguished by the long antennae and leg-pair 15, a conical dorso-median protuberance emerging from the posterior part of prefemur 15, and the shape of the male first genital sternite. Molecular sequence data from the cytochrome c oxidase I gene (mtDNA-5' COI-barcoding fragment) exhibit 19.19% divergence between *E. kahfi* and *E. nudicornis*, an interspecific value comparable to those observed among four other species of *Eupolybothrus* which, combined with a low intraspecific divergence (0.3-1.14%), supports the morphological diagnosis of *E. kahfi* as a separate species. This is the first troglomorphic myriapod to be found in Tunisia, and the second troglomorph lithobiomorph centipede known from North Africa. *E. nudicornis* is re-described based on abundant material from Tunisia and its post-embryonic development, distribution and habitat preferences recorded. *E. cloudsley-thompsoni* Turk, 1955, a nominal species based on Tunisian type material, is placed in synonymy with *E. nudicornis*. To comply with the latest technological developments in publishing of biological information, the paper implements new approaches in cybertaxonomy, including database and interactive key publishing, georeferencing of all localities via Google Earth, and ZooBank, GenBank and MorphBank registration of datasets. An interactive key to all valid species of *Eupolybothrus* is made with DELTA software. KW: *Eupolybothrus kahfi* sp. n., *E. nudicornis*, North Africa, barcoding, cytochrome c oxidase I gene, troglomorphism, habitat preferences, interactive key, cybertaxonomy, semantic tagging, semantic enhancements.

**STOEV (P.), ZAPPAROLI (M.), GOLOVATCH (S.), ENGHOFF (H.), AKKARI (N.) & BARBER (A.), 2010.** Myriapods (Myriapoda). Chapter 7.2. *BioRisk* 4(1):97-130. **DOI:** <http://dx.doi.org/10.3897/biorisk.4.51>.

**STRECKER (U.) & WILKENS (H.), 2010.** Problems of taxonomy in Mexican *Astyanax*:67-68. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The neotropical characid fish *Astyanax*, which has colonized Middle and North America at the end of Pliocene, has gained considerable interest in evolutionary research. It occurs in all freshwater habitats providing sufficient temperature conditions like rivers, creeks, stagnant pools, cenotes, and lakes. Within two restricted karst areas in Mexico it has even developed eye and pigment reduced cave forms. The various surface populations show considerable meristic and morphometric variation. This is probably the reason why a large number of species and subspecies have been described in the past. However, they were very poorly defined and their taxonomy is still a matter of research. Molecular studies of the cave populations showed that they have descended from multiple invasions of surface *Astyanax* at different times being the cause of different phylogenetic age. It is assumed that this is due to climatic change during Pleistocene. It was furthermore found that genetic introgression is a relatively frequent event in the cave populations. We performed a molecular study using mtDNA sequences and microsatellite data of several surface and the cave populations. Based on these markers several

different haplotype lineages and microsatellite clusters could be discriminated. However, the clusters of the two markers were not congruent. Furthermore, the distribution of the clusters is mostly not correlated with geographic barriers. Such distribution pattern cannot be explained by deep vicariant events but rather reflects random colonization events. The taxonomic status of Mexican *Astyanax* populations is discussed. <http://www.icsb2010.net/>

**STRITIH (N.), 2010.** Auditory and Vibratory Sense of Crickets. The Origin of Sound-Processing Elements in Ensifera Using Laser Vibrometry. Polytec. Technical Papers. Advancing Measurements by Light. *InFocus*, Optical Measurement Solutions, 1:3 p., ISSN 1864-9203. [www.polytec.com](http://www.polytec.com). ABS: In the life of insects, vibrational signals mediate important information that is used in various contexts, from pair formation to detection of predators or finding prey. Therefore, insects are equipped with both extremely sensitive receptor organs in the legs for detection of substrate vibrations and the underlying neural network enabling recognition and localization of the signallers in a complex environment. Without the use of special equipment to detect those signals, the intriguing world of insect vibrations would remain hidden to humans, which mostly communicate by sight and sound.

**STRITIH (N.), 2010.** P 306. Vibrational signalling in the non-hearing cave cricket and corresponding responses of neurons in the ventral nerve chord and the brain:499. In: *9<sup>th</sup> International Congress of Neuroethology, Salamanca (Spain), 2-7 August 2010*. Sponsored by the International Society for Neuroethology ([neuroethology.org](http://neuroethology.org)). Abstracts. ABS: Cave crickets (Rhopidophoridae) represent an under investigated group of Ensifera with respect to mating behaviour and communication, since they neither hear nor emit sound. In this study we describe the complete process of courtship and mating together with the substrate-borne vibrational signalling in the mid-European cave cricket *Troglophilus neglectus*. Males produce substrate vibration signals with abdominal oscillations during the close range courtship. As detected by laser vibrometry, only one type of signals is produced with the mean duration of 566 ms and repetition time of 2.2 s. Most of the signals' spectral energy lies below 300 Hz with the dominant frequency between 80-90 Hz. At the point of measurements, 5-10 cm away from the signaller, the peak velocity of signals ranged between  $2.5 \cdot 10^{-5}$  -  $10^{-6}$  m/s. In the prothoracic nerve chord ganglion of *T. neglectus* six most highly sensitive vibratory interneurons that were previously identified respond to the respective range of frequencies and intensities; only one neuron, however, conveys this information directly towards the brain. To determine to what degree the vibrational system of *T. neglectus* may be adapted to detect intraspecific signals at further processing levels, we investigated spectral sensitivity and responses to play-backed male signals in the brain neurons using intracellular recording. So far two (groups of) local neurons have been identified in the lateral protocerebrum, with broadband excitatory "on" and "off" responses and inhibitory responses to vibration, respectively. In addition, three different types of physiological responses have been recorded, expressing low-, middle- and high-frequency sensitivity, respectively. Of these neurons, only one low-frequency tuned element responded to the signals of the male at the relevant intensity.

**ŠTURM (S.), SEDMAK (A.), ZORMAN (T.) & PERIC (B.), 2010.** Technical illustrations and application: Škocjan Caves, Velika Dolina cross section:94, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Škocjan Caves ranks among the most important karst phenomena not only in Slovenia's Karst region, but worldwide. Škocjan Caves is on the UNESCO list of natural and cultural world heritage sites. It is also featured on the Ramsar list of wetlands of international importance as the first registered underground wetland in Europe. In this regard, a very important task is raising visitors' awareness of the importance of protecting endangered and protected plant and animal species. We therefore need to properly interpret scientific data and findings, and adapt and present this information so that it can easily be understood by the general public. In our case, we decided to use technical illustrations to present some of the most important species, with an emphasis on the aboveground and subterranean karst world. So far, twenty-seven

stygobiotic and troglotic organisms have been discovered in   kocjan Caves. Epikarst fauna (i. e., Copepoda) is particularly abundant. Moreover, numerous troglaphiles make their home in   kocjan Caves. Of particular importance are the greater horseshoe bat, the long-fingered bat, and the common bent-wing bat (Natura 2000 protected species). A total of twentythree students and thirteen lecturers and mentors participated in our project; activities included workshops in   kocjan and at the Academy of Fine Arts and Design (University of Ljubljana), and the Kaverljag Workshop. Over fifty illustrations were produced, illustrating ten troglotic and three troglaphile organisms. These organisms have been incorporated into the illustration of the Velika Dolina cross-section with part of   kocjan Caves. The illustrations are accompanied by short texts explaining individual habitats, from karst forests, dry karst meadows, and steep cliffs to the bottom of dolines and the subterranean world. The illustrations are an attractive tool for interpreting the area's natural heritage and biodiversity. This manner of presenting natural heritage is attractive and technical enough for people of all ages. Younger visitors are introduced to the plant and animal species, and visitors seeking more information can read the names of interesting species, learn about their habitats and ecology. One of the main goals of the publication is to raise awareness about the wealth and diversity of flora and fauna, as well as their vulnerability. <http://www.icsb2010.net/>

**SU  REZ-MORALES (E.), MENDOZA (F.) & MERCADO-SALAS (N.), 2010.** A new *Allocyclops* (Crustacea, Copepoda, Cyclopoida) from bromeliads and records of freshwater copepods from Mexico. *Zoosystema* 32(3):393-407. BL: Cf p. 404, "The description of *A. botosaneanui* from a cave in Cuba (Ple  a, 1981) represented the first record of a species of *Allocyclops* from the Neotropical region"; p. 405, "Overall, the genus *Allocyclops* appears to have preference to interstitial and groundwater habitats, including caves (Karanovic, 2001, 2003); it has not been hitherto recorded from bromeliads". [http://www.mnhn.fr/museum/office/science/science/DocScientifique/publications/presentation/listeParution/ficheParution.xsp?PARUTION\\_ID=2426&PUBLICATION\\_ID=2&THEMPUB\\_ID=42&idx=30&nav=tableau1](http://www.mnhn.fr/museum/office/science/science/DocScientifique/publications/presentation/listeParution/ficheParution.xsp?PARUTION_ID=2426&PUBLICATION_ID=2&THEMPUB_ID=42&idx=30&nav=tableau1)

**SUBHASH BABU (K. K.) & SIVASANKARAN (B. N.), 2010.** The hypogean fauna of selected ecosystems of Kerala, India, with two new records:130. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Kerala is situated on the South West coast of India and is unique with the presence of several water bodies of varying size ranging from large lakes, backwaters, rivers, lagoons, inlets, reservoirs and ponds. In addition, there are also deep wells of varying kinds contributing to the water sources on the area. These wetlands and their associated ecotones on the south west coast India offer ideal habitats for the much undiscovered subterranean fauna of the region. In this context, it is also worth mentioning that no comprehensive scientific information is available on the hypogean fauna of Kerala. This paper attempts to give the status of selected hypogean fauna of Kerala and reports on two new records of fish from the area. The first report of a totally blind hypogean fish, *Horaglanis* was reported from India. Later in 1963, one Synbranchid eel was reported from Kottayam, Kerala and was named *Monopterus indicus*. In 1996, the Synbranchid eel, *Monopterus epeni* was reported from the same district of Kerala State. A cavernicole, Synbranchid eel called *Monopterus digressus* was also reported from the southern part of Kerala. In 2004, another Siluroid blind fish, *Horaglanis alikunhi* was reported from the central part of Kerala. All these observations on the subterranean fishes from Kerala were quite accidental and the information regarding their taxonomical and ecological details are still fragmentary. This contribution also describes two new species of fishes adapted to hypogean condition from central part of Kerala. They were collected from an old well at Irinjalakuda, Kerala. The species belong to the genus *Horaglanis* Menon and *Monopterus* Lacepede. The taxonomic descriptions of the two hypogean fishes have been discussed with that of the genus of the same species described earlier. <http://www.icsb2010.net/>

**Subterranean Ecology Pty Ltd, 2010.** Jurien Gypsum Mine phase 2 ML70/1161 stygofauna survey. Report 2010/010, prepared for CSR Gyprock, 24 p.

**Subterranean Ecology Pty Ltd, 2010.** Gold Fields, St Ives Gold Mines Stygofauna Desktop Assessment. Prepared for St Ives Gold Mines, March 2010. Project 2010/011, 23 June, 39 p.

**Subterranean Ecology Pty Ltd, 2010.** Gold Fields, St Ives Gold Mines Troglifauna Desktop Assessment. Prepared for St Ives Gold Mines, March 2010. Project 2010/012, 25 March, 27 p.

**SUNDETH (K.), 2010.** *Natura 2000 dans la r  gion continentale*.    Communaut  s europ  ennes, 12 p. ISBN 978-92-79-13169-1. DOI <http://dx.doi.org/10.2779/63232>.

**SUSAC (R. A. J.), ANDERSON (J.) & MOULDS (T. A.), 2010.** Comparisons of subterranean biodiversity from the West Kimberley Karst, Australia:92-93. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The Devonian Reef Complexes of the West Kimberley, in northern Australia, contain numerous endemic communities of relictal fauna including both troglomorphic and stygobitic representatives from several key groups. These fauna are contained within a diverse range of habitats, which have only recently begun to be systematically investigated for subterranean biology, mainly due to the remote nature of the karst. Several distinct limestone ranges which have been investigated include the Napier Range; and to successively lesser extents, the Oscar, Geikie, Lawford, Laidlaw, Hull and Pillara Ranges. Access to areas of the karst that maintain elevated humidity during the "Dry Season", when surveys can be safely performed, have been a limiting factor for representative sampling success. This paper will use the biological diversity and endemism from Tunnel Cave, which includes four endemic species to highlight the need for further collecting and research in this important Australian karst region. The endemic fauna of Tunnel Cave currently includes *Cherididae cheridium* (Pseudoscorpion), *Bamazomus hunti* (Schizomid), *Kimberleydillo waldockidae* (terrestrial isopod) and *Tainisopidea, Tainisopis* sp. (aquatic isopod). This cave is subject to high seasonal visitation during the Dry Season due to its large size and historical importance. As a result there are several cave management issues with regards to subterranean biodiversity. These include, trampling of habitat, rubbish and food being left in the cave, and disturbance to bat populations, which reside in the cave. These issues will also be discussed in relation to the cave's significant subterranean biodiversity values. The diversity of Tunnel Cave will also be compared at a broad scale with the subterranean ecology from other sites nearby in the Napier Range. The recent progress that has been made is hoped to further inspire continued investigation into this vastly unexplored region. <http://www.icsb2010.net/>

**SUSAC (R. A. J.) & ZAKRZEWSKA (B.), 2010.** Management of a declining watertable at Yanchep National Park, Western Australia; for the benefit of subterranean biology:93, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: In 1997 Jasinska documented the biodiversity and ecology of cave streams from Yanchep National Park (YNP); revealing an extremely rich root mat ecosystem, containing Short Range Endemic species and Gondwanan relicts. These cave streams of the Swan Coastal Plain, are driven by the hydraulic head of the Gngara Water Mound and are now severely depleted, as the watertable has dramatically lowered at a regional scale. This has been attributed to reduced rainfall, increased human abstraction rates and broad scale catchment interception from pine tree monocultures. These factors, being beyond the immediate control of managers at YNP, have resulted in various rescue strategies to be implemented over the course of this continuing water decline. The most recent and currently ongoing of these strategies, involves the mass pumping of water for the creation of localized artificial water mounds, to allow for cave stream recolonisation. This latest strategy has encountered a plethora of implementation problems and has been from the onset, a contentious subject regarding the sustainability of resource use towards this elusive goal. Despite this the project is progressing and will undoubtedly continue to inspire debate

regarding the value of our resources, both natural and anthropogenic into the future. We seek to highlight the ecological changes that have occurred in YNP in context of the water regime and the measures undertaken to preserve cave stream ecology. <http://www.icsb2010.net/>

**ŠUSTR (V.), NOVÁKOVÁ (A.), LUKEŠOVÁ (A.) & VOŠTA (O.), 2010.** Feeding biology of the cave isopod *Mesoniscus graniger* (food preference and digestive enzymes):123. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Terrestrial isopod *Mesoniscus graniger* (Isopoda, Oniscidea), morphologically adapted to cave life, is abundant in caves of the Carpathians. Food preference of this animal was studied using preference tests, presence of digestive enzymes and field observations. Nine cultures of algae, ten of microscopic fungi including two of yeasts and one species of cyanophytes isolated from caves were offered as a food to isopods in five replicates of three variants of multiple-choice feeding preference tests arranged on Petri dishes. Presence of animals inside the sector with particular food, directly on the food, and distribution of faecal pellets were monitored. Direct consumption of microbial cultures was evaluated from macro-photos using PC image analysis. Isopods clearly prefer algae cultures (mainly *Protosiphon botryoides*, *Spongiochloris irregularis*, *Botrydiopsis intercedens* and *Stichococcus bacillaris*) over other microorganisms in laboratory tests. Only algae were consumed. The sectors containing another kind of food were visited to a lesser extent. Amylase, maltase, saccharase and trehalase prevailed in the digestive enzyme spectrum of *M. graniger*. This species is attracted to organic deposits in the field but its occurrence is not restricted to bat guano. The investigation showed the contrast between visible preference of some type of living cultures of microorganisms in laboratory and the non-specific consumption of cave sediment and dead organic material in the field. The preliminary results from food preference tests and digestive enzymes presence in several species of cave springtails and mites are compared and the influence of restricted food sources on the biodiversity and food web structure in the cave is discussed. <http://www.icsb2010.net/>

**SUZÁN (G.), ÁVILA-FLORES (R.), CARRASCO (R.), RICO (O.), ZARZA (H.), MENCHACA (A.), LACY (G.), CORTÉS (B.), MANZANO-MARTÍNEZ (M. D.), LOZA-RUBIO (E.), ROJAS (E.), ARÉCHIGA-CEBALLOS (N.) & MEDELLÍN (R. A.), 2010.** Multi-spatial approach for monitoring and modeling bat rabies in Puebla México:292-293. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: It is difficult to assess the distribution of paralytic rabies because outbreaks occur locally and are not distributed evenly across time and space. We used a multi-spatial approach to understand distribution, feeding habits, and rabies prevalence in vampire bats (*Desmodus rotundus*) in Puebla, Mexico. We identified relations in three spatial scales: (1) locally, we compared rabies prevalence and reservoir relative abundance from different caves and analyzed surrounding vegetation in a 2-km radio; (2) at landscape level, we analyzed the influence of vegetation and land use patch configuration (patch number, size, isolation, edges, species diversity, fragmentation index); and (3) regionally, we related rabies occurrence in Puebla with environmental variables to produce a spatial model. We analyzed feeding habits using PCR techniques to identify feeding host and used different lab tests to identify rabies prevalence in bats. Locally, we found that large vampire bat colonies are related to higher rabies prevalence. At the landscape and regional scale, our results showed that *D. rotundus* and rabies prevalence are associated to edges in highly fragmented areas. Finally, *D. rotundus* feeds mostly in domestic animals, generally in cows followed by horses, pigs, donkeys, goats, and dogs. Presence of domestic animals is related to highly fragmented landscapes where contact rates between them and vampire bats occur. Changes in land-use, fragmentation, and cattle expansion in tropical areas have promoted vampire bat population growth, and rabies prevalence. This project is a model that can be extended to other areas in Mexico and represents a transdisciplinary and inter-institutional study that may help health authorities to prevent rabies outbreaks. Conservation and livestock

management programs should be considered in rabies outbreaks prevention.

**SZODORAY-PARÁDI (F.), SZODORAY-PARÁDI (A.), NAGY (Z.), JÉRE (C.) & BÜCS (S.), 2010.** Bat conservation programme in Padurea Craiului, Bihor, and Trascau Mountains, Romania:295. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: In the frame of the poster the authors will present a plan of the complex conservation work concerning seven bat species (*Myotis myotis*, *M. oxygnathus*, *Rhinolophus ferrumequinum*, *R. hipposideros*, *Miniopterus schreibersii*, *Barbastella barbastellus*, *Myotis bechsteini*) in the northwestern part of Romania. Data concerning all aspects of bat activity will be gathered. Will be checked roost sites used in different periods of the year, foraging habitats, connectivity structures used during flights between shelters and feeding areas, migration routes. In all cases, appropriate, cost-efficient methods will be used for data collection: visual observations and counts in roosts, evening emergence counts, capture of specimens near roosts, at foraging or drinking sites or along flight paths with mistnets, hand-nets and harp traps, use of ultrasound detectors and ringing. We expect that by the end of the project on the basis of collected data, knowledge will be acquired about existing relations between roosts used in different periods of the year and feeding habitats. Comprehensive management plans will be compiled for the bat species targeted concerning all important issues of bats' seasonal activity and these management plans will be advanced to administrators and custodians of Natura 2000 sites and other protected areas to include them in the overall management plans of these sites. Beside this, specific conservation actions will be carried out: closing of 15 caves in a bat-friendly way, to minimize the disturbance of bat colonies, control of tourism and modification of lighting conditions in tourism oriented caves, placing out of artificial bat boxes to supply available shelters for forest dwelling bat species and to compensate in some measure the decline of old woodlands, and stop the human disturbance by warning signs.

**TAJOVSKÝ (K.), 2010.** 7. česko - slovenský myriapodologický seminář, České Budějovice, Česká republika, 8.-9.4.2010, sborník abstraktů [7<sup>th</sup> Czech and Slovak workshop on myriapodology, Ceske Budejovice, Czech Republic, April 8-9, 2010, abstract book], Karel TAJOVSKÝ, ed., ISBN 978-80-86525-18-1. Voir: RENDOŠ (M.) & MOCK (A.), Aktivita viacnôžok (Myriapoda) a rovnakonôžok (Isopoda) v podzemí zalesneného suťového svahu NPR Sivec (Čierna hora, Slovensko) [Activity of Myriapoda and Isopoda under the surface of the stony debris slope covered by lime-maple forest in the NNR Sivec (Čierna hora Mts., Slovakia)]:9-10, in Slovak.

**TALMI-FRANK (D.), KEDEM-VAANUNU (N.), KING (R.), BAR-GAL (G. K.), EDERY (N.), JAFFE (C. L.) & BANETH (G.), 2010.** *Leishmania tropica* infection in golden jackals and red foxes, Israel. *Emerging Infectious Diseases* 16(12, December):1973-1975. <http://dx.doi.org/10.3201/eid1612.100953>. DOI: <https://doi.org/10.3201/eid1612.100953>.

**TAPIERO (A.), 2010.** Plan National d'Actions Chiroptères (2009-2013) - Bilan 2009. Fédération des Conservatoires d'Espaces Naturels.

**TAQUET (P.) & LÉNA (P.), 2010.** Les Académies des Sciences et l'enseignement de l'Évolution. <http://www.academie-sciences.fr/recherche.php>

**TAYLOR (E. L. S.), DA SILVA (D. M.), FERREIRA TERRA (M.), ROBERTO BATISTA (L.) & LOPES FERREIRA (R.), 2010.** Microbiologic study in a Brazilian cave: biodiversity, biotechnological potential and toxin production:108-109, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The hypogean environment is a peculiar system and the habitat of many organisms.

Microorganisms are an important part of this subterranean system. They may be associated with ecological and geological processes in this environment. These organisms may also produce many substances, such as enzymes and toxins. These substances may be of great biotechnological importance or offer risks. There are almost no studies on the microbiological biodiversity, their importance and potential in Brazilian caves. The objective of this study was to access the microbiological diversity in the aphotic zone of a cave located in northeastern Brazil. The toxigenic and biotechnological potentials of these microorganisms were tested with the objective of understanding better the potential and risks offered by cave microorganisms. The isolates were obtained through the exposure of Petri dishes containing Dychloran Glycerol (DG-18) Agar and DRBC (Dichloran Rose Bengal Chloramphenicol) media for 20 minutes in the cave. After this proceeding, the Petri dishes were incubated for 7 days at 25°C. The isolates were purified, identified and tested on their toxin (aflatoxins, ochratoxins) and enzymatic (amylase, protease, lipase and pectinase) production. The enzymatic activity was obtained through semi-quantitative analyses. The toxin production was analyzed through a Thin-layer Chromatography of Plugs from agar cultures. A total of 17 species were identified among the 58 isolates obtained in the cave: *Aspergillus* (13 spp.), *Penicillium* (2 spp.), *Mucor* (1 sp.), *Cladosporium* (1 sp.). Enzyme producing fungi were confirmed for lipase (21 isolates), amylase (22 isolates) and protease (16 isolates). Some species presented high biotechnological potential. A total of 6 isolates produced ochratoxin A (*A. ochraceus*, *A. sclerotiorum*, *A. niger*, *Aspergillus* sp. and *A. sulphureus*) and 1 isolate (*Aspergillus flavus*) produced aflatoxin (B1 and B2). It was also possible to identify a possible new species of *Aspergillus* (*Aspergillus* sp.). The results highlight the need of more microbiological studies in subterranean environments in order to know the subterranean microbiological biodiversity, the biotechnological potential of cave microorganisms and the risks they might be offering.  
<http://www.icsb2010.net/>

**TAYLOR (E. L. S.), LOPES FERREIRA (R.) & DE RESENDE STOIANOFF (M. A.), 2010.** Microbiological study for a management plan in a touristic cave in Brazil:109-110. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Caves are stable environments with characteristics favoring the development of microorganisms such as the filamentous fungi. However, there is a lack of studies on cave microbiology. *Histoplasma capsulatum* is one of the many fungi found in caves. This is a pathogenic species which may cause a lung disease named histoplasmosis. *H. capsulatum* is a great concern to cave visitors due to its association with bat guano. Brazilian caves have been historically used for ecological and religious tourism. The presence of pathogenic microorganisms may cause serious health problems. The development of studies associated with management plans before opening a cave for tourism is of great importance. The present study is part of a management plan already approved for a touristic cave in Brazil. The objectives of this study were to verify the presence of possibly pathogenic fungi in the cave, verify a possible influence of tourism on the microbiota, and elaborate a management plan including microbiological analyses for a touristic cave. For the isolation of *H. capsulatum*, Petri dishes containing Brain-Heart Agar and Sabouraud media were placed along the cave and then incubated at 37°C and 25°C respectively. Soil, guano and suspicious material were also sampled for direct inoculation and dilution methods in Brain-Heart Agar and Sabouraud (37°C and 25°C) media. Petri dishes containing DRBC (Dichloran Rose Bengal Chloramphenicol) and Sabouraud were also exposed along the cave for the isolation of other fungi and CFU (colony formation unit) analyses. No colonies of *H. capsulatum* were identified by any of the methods. A total of six possibly pathogenic, toxin producers and/or allergenic species were identified. These species belonged to the genera *Aspergillus* (*A. japonicus* and *A. ochraceus*), *Cladosporium* (*C. cladosporioides* and *C. herbarum*) and *Fusarium* (*F. oxysporum* and *F. solani*). It was also possible to observe a significant variation of CFU in some sampling points during the intense tourism transit. A new visiting route was also suggested at the end of this study. The present study highlights the importance of studies on the underground microbiota, its biodiversity and the inclusion of microbiological studies in the management plans of touristic caves.  
<http://www.icsb2010.net/>

**TAYLOR (M. S.), BLECHLE (B. E.) & POBST (B. S.), 2010.** Morphological divergence between cave and surface populations of the digger crayfish, *Fallicambarus fodiens* (Cottle, 1863) (Decapoda, Cambaridae). *Crustaceana* 83(11):1303-1313. **DOI:**

<http://dx.doi.org/10.1163/001121610X535555>.

ABS: *Fallicambarus fodiens* (Cottle, 1863), the digger crayfish, is widespread across lowland woods and other wetlands of the eastern United States. More recently, *F. fodiens* was discovered in two caves located in the Perryville Karst system in southeastern Missouri. We performed multivariate analyses to explore whether morphological divergence has occurred between cave and nearby surface populations of *F. fodiens*. Our results revealed that cave individuals had significantly longer antennae relative to surface individuals, and that cave females had longer abdomens relative to surface females. Sexual dimorphism, independent of habitat, was also found. Males had larger chelae and longer antennae, and females had larger tails. The presence of morphologically distinct *F. fodiens* in caves of the Perryville Karst further increases the already high biodiversity of this karst system. The Perryville Karst is associated with urban and agricultural areas, so the cave fauna should be closely monitored to guard against a potentially detrimental impact from urban and agricultural pollution sources. RÉSUMÉ: *Fallicambarus fodiens* (Cottle, 1863), l'écrevisse fouisseuse, est largement distribuée dans les bois de faible altitude et autres zones humides de l'est des États-Unis. Plus récemment *F. fodiens* a été découverte dans deux grottes localisées dans le système karstique de Perryville dans le sud-est du Missouri. Nous avons réalisé des analyses multifactorielles pour explorer si des divergences morphologiques sont apparues entre les populations proches de *F. fodiens* des grottes et celles de la surface. Nos résultats révèlent que les individus des grottes ont significativement des antennes plus longues par rapport aux individus de surface, et que les femelles des grottes ont des abdomens plus longs que les femelles de surface. Un dimorphisme sexuel, indépendant de l'habitat, a aussi été trouvé. Les mâles ont des pinces plus larges et de plus longues antennes, et les femelles ont un abdomen plus large. La présence de *F. fodiens* morphologiquement distinctes dans les grottes karstiques de Perryville augmente encore la, déjà grande, biodiversité de ce système karstique. Le karst de Perryville est associé à des zones urbaines et agricoles, donc la faune des grottes devrait être soigneusement contrôlée pour la protéger contre un impact destructeur potentiel à partir de sources de pollution urbaines ou agricoles.

**THIBAUD (J.-M.), 2010.** Les Collemboles, des Hexapodes vieux de 400 millions d'années, cousins des Insectes, si communs, mais si méconnus... *Les Amis du Muséum national d'Histoire naturelle* 242(Juin):21-23.

**THORP (J. H.) & COVICH (A. P.), 2010.** Chapter 2. An Overview of Inland Aquatic Habitats:25-47. In: *Ecology and Classification of North American Freshwater Invertebrates*. ISBN: 978-0-12-374855-3, third edition, edited by James H. THORP and Alan P. COVICH. **DOI:** <http://dx.doi.org/10.1016/B978-0-12-374855-3.00002-9>.

**THORP (J. H.) & COVICH (A. P.), 2010.** *Ecology and Classification of North American Freshwater Invertebrates*. ISBN: 978-0-12-374855-3, third edition, edited by James H. THORP and Alan P. COVICH. BL: Voir: THORP (J. H.) & COVICH (A. P.), Chapter 2. An Overview of Inland Aquatic Habitats:25-47.

**TIAN (M. Y.), 2010.** New records and new species of cave-dwelling trechine beetles from Mulun Nature Reserve, northern Guangxi, China (Insecta: Coleoptera: Carabidae: Trechinae). *Subterranean Biology* 7(2009, December):69-73.

**TIerno DE FIGUEROA (J. M.), LÓPEZ-RODRÍGUEZ (M. J.), BAENA (M.) & PÉREZ FERNÁNDEZ (T.), 2010.** Inventario de Fauna Cavernícola de la Cueva del Nacimiento del Arroyo de San Blas (Siles, Jaén, España). *Propuesta de Conservación y Gestión. Monografías Biospeológicas* 5:1-8. RES: Se realiza un inventario de de la fauna cavernícola de la Cueva del Arroyo de San Blas (Siles, Jaén) y se enfocan



- algunas ideas de conservaci  n y gesti  n de la cavidad, debido a su importancia bioespeleol  gica.
- TIERNO DE FIGUEROA (J. M.), L  PEZ-RODR  GUEZ (M. J.) & P  REZ FERN  NDEZ (T.), 2010.** Un plec  ptero end  mico de la Cueva del Nacimiento del Arroyo de San Blas: *Protonemura gevi*. *Bioespeleolog  a*:120-125. En Historia de las Exploraciones y Cat  logo de Cavidades del T  rmino Municipal de Siles. Grupo de Espeleolog  a de Villacarrillo (G.E.V.) (ed.). RES: Se cita el endemismo del plec  ptero descrito recientemente end  mico de una cavidad de Siles y con adaptaciones al medio subterr  neo.
- TIMMER (J.), 2010.** Extinction spreads like a fungus among North America's bats. *Science* ?. **DOI:** <http://dx.doi.org/10.1126/science.1188594>. BL: Cf WNS, *Geomyces destructans*.
- TIMPONE (J. C.), BOYLES (J. G.), MURRAY (K. L.), AUBREY (D. P.) & ROBBINS (L. W.), 2010.** Overlap in Roosting Habits of Indiana Bats (*Myotis sodalis*) and Northern Bats (*Myotis septentrionalis*). *American Midland Naturalist* 163(1), January):115-123. <http://nd.edu/~ammidnat/January2010.htm>
- TKAVC (R.), SONJAK (S.) & GUNDE-CIMERMAN (N.), 2010.** Entomopathogenic fungi associated with two troglomorphic moths *Scoliopteryx libatrix* L. and *Triphosa dubitata* L.:110. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Entomopathogenic fungi are very important ecological factors for they influence the insect population size, diversity and distribution and play an important role in nutrient cycling in hypogean environments. Imagos and imago cadavers of troglomorphic moths *Scoliopteryx libatrix* and *Triphosa dubitata* were sampled in 10 different limestone caves in Slovenian karst. From aseptically isolated intestine of sacrificed imagos we couldn't isolate any fungi. From imagos' cadavers entomopathogenic fungi were isolated and identified on the basis of macro- and micromorphology and on the basis of nucleotide sequence of the ITS1-5.8S rRNA-ITS2 region. From cadavers three different fungal species were isolated: *Beauveria bassiana*, *Isaria farinosa* and *Lecanicillium fusisporum*. Fungal species *Beauveria bassiana* was isolated most frequently, although it wasn't ever isolated from *Scoliopteryx libatrix* and *Triphosa dubitata* before. The population structure of isolated strains of the species was analysed by amplified fragment length polymorphism (AFLP). We found out that the majority of the strains had a low rate of polymorphism and that strains isolated from *Scoliopteryx libatrix* cadaver group together regarding sampling location, while strains isolated from *Triphosa dubitata* imago cadavers were in contrast very different. <http://www.icsb2010.net/>
- TOBLER (M.), CULUMBER (Z. W.), PLATH (M.), WINEMILLER (K. O.) & ROSENTHAL (G. G.), 2010.** An indigenous religious ritual selects for resistance to a toxicant in a livebearing fish. *Biology Letters*, published online before print September 8. **DOI:** <http://dx.doi.org/10.1098/rsbl.2010.0663>. ABS: Human-induced environmental change can affect the evolutionary trajectory of populations. In Mexico, indigenous Zoque people annually introduce barbasco, a fish toxicant, into the Cueva del Azufre to harvest fish during a religious ceremony. Here, we investigated tolerance to barbasco in fish from sites exposed and unexposed to the ritual. We found that barbasco tolerance increases with body size and differs between the sexes. Furthermore, fish from sites exposed to the ceremony had a significantly higher tolerance. Consequently, the annual ceremony may not only affect population structure and gene flow among habitat types, but the increased tolerance in exposed fish may indicate adaptation to human cultural practices in a natural population on a very small spatial scale. KW: Adaptation, anthropogenic disturbance, barbasco, cavefish, rotenone, *Poecilia mexicana*.
- TOMLINSON (M.) & BOULTON (A. J.), 2010.** Ecology and management of subsurface groundwater dependent ecosystems in Australia - a review. *Marine and Freshwater Research* 61(8):936-949. **DOI:** <http://dx.doi.org/10.1071/MF09267>. ABS: As demand for consumptive use of groundwater escalates, the need for careful management becomes more pressing. Water reforms in Australia require explicit recognition of environmental needs in water resource plans, but subsurface groundwater dependent ecosystems (SGDEs) are rarely provided for. The ecological values of these sequestered ecosystems are not well documented and are readily overlooked. We review the biodiversity, ecological processes and ecosystem services of Australian SGDEs and highlight the ecological relevance of their connectivity with other ecosystems. A lack of attention to SGDEs in groundwater plans risks inadequate provision for environmental water requirements with probable impacts on ecological values, water quality and ecosystem goods and services in SGDEs and connected ecosystems. We suggest an ecohydrogeological approach to understanding the implications of anthropogenic disturbance on SGDEs based on their connectivity to other ecosystems and aquifer permeability. As well as a template for comparative research on the biogeochemistry and ecology of SGDEs in Australia and overseas, this conceptual tool has potential application in conservation planning, water resource assessment and environmental impact assessment. KW: Aquatic conservation, aquifer permeability, ecohydrogeology, environmental water requirements, groundwater regime, stygofauna, water resources.
- TORRES-TALAMANTE (O.), 2010.** Food webs in Mexican Caribbean Caves:95, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Anchialine ecology is needed for both decision-making and conservation strategies establishment of these vulnerable ecosystems. The Mexican Caribbean coast requires special attention due to explosive urban expansion in response to tourism development. On the other hand anchialine research is young and quite challenging so food webs studies are scarce in anchialine systems and the lack of baseline make comparisons difficult. Stable isotopes are a powerful tool and an informative starting point to elucidate the origin of organic matter and diets in anchialine ecosystems. Along with stable isotopes, nutrients concentrations, pH and dissolved oxygen will help to elucidate trophic dynamics between pristine caves and those with an anthropogenic signal. Historic and recent stable isotope studies in Mexican Caribbean coast show variation within and among species, and between different areas, suggesting variation in the sources of organic matter input into the anchialine systems. Results from an anchialine cave in Mexico show huge variations. Attyid shrimp show variations of d13C >15‰ and d15N >10‰, amphipods show variation of d13C 9‰ and d15N >10‰. Diet assessment using gut content and mixing equations for stable isotopes, indicates that omnivory is a strategy in Remipedia. The same cave shows the world's highest abundances of Remipedia (Crustacea). Remipeds censuses have been conducted in 2001, 2007, 2009 and monthly during 2010. <http://www.icsb2010.net/>
- TOURNIER (T.), 2010.** *Explorations en Tha  lande*. C. R. E. I. (Commission Relations et Exp  ditions Internationales) de la F. F. S. (F  d  ration Fran  aise de Sp  l  ologie), 104 p.
- TOWNSEND (J. I.), 2010.** *Trechini (Insecta: Coleoptera: Carabidae: Trechinae). Fauna of New Zealand [Ko te Aitanga Pepeke o Aotearoa]* 62, 101 p. Lincoln, Canterbury, New Zealand.
- TRAJANO (E.), 2010.** Source versus sink populations concept applied to the Schiner-Racovitza classification of subterranean organisms:174. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MO  KRI   and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: One of the most interesting and useful recent concepts in speleobiology is the distinction between source and sink populations: a sink population, if cut off from all other migrants, eventually becomes extinct, whereas a source populations has excess production and continues to grow if isolated. Sink populations are habitatlevel phenomena, corresponding to stranded groups of individuals in habitats less than suitable (in terms of space, food and other resources necessary for selfsustained, source populations). Therefore, their presence

in such habitats is unpredictable. Cases of putative sink populations are known among stygobites observed in peripheral habitats such as intermittent pools fed by seeps in the vadose zone of caves (e. g., *Stygobromus emarginatus* amphipods in Organ Cave, USA; *Ituglanis epikarstikus* catfish in rimstone pools in Sao Mateus Cave, Brazil). Other examples include stygobitic *Trichomycterus* catfish in Lapa do Peixe, Brazil (source population is somewhere else in the cave system) and non-troglophoric *Aegla* decapods in Barra Bonita Cave, Brazil (source population in epigeal streams). When applied to the Schiner-Racovitza classification, this conceptualization leads to clearer and biologically meaningful definitions of the three categories classically recognized: 1. trogllobites (stygobites) correspond to exclusively subterranean source populations, with sink populations possibly found in surface habitats; 2. trogllophiles (stygophiles) include source populations both in hypogean and epigeal habitats, with individuals regularly commuting between these habitats, promoting the introgression of genes selected under epigeal regimes into subterranean populations (and vice-versa); 3. troglloxenes (stygoxenes) are instances of source populations in epigeal habitats, but using subterranean resources (in the so-called obligatory troglloxenes, all individuals are dependent on both surface and subterranean resources). Sink populations do not fit the Schiner-Racovitza scheme, unless one considers stranded trogllobitic or stygobitic individuals as part of the subterranean source population from which they originated (e. g., the above mentioned *Ituglanis* and *Trichomycterus* catfishes). <http://www.icsb2010.net/>

**TRAJANO (E.) & BICHUETTE (M. E.), 2010.** Chapter 9. Subterranean Fishes of Brazil:331-356. **DOI:** <http://dx.doi.org/10.1201/EBK1578086702-c9>. In:

TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.), *Biology of Subterranean Fishes*. Edited by TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.). ISBN: 978-1-57808-670-2. eBook ISBN: 978-1-4398-4048-1. Science Publishers 2010. 460 p.

**TRAJANO (E.) & BICHUETTE (M. E.), 2010.** Diversity of Brazilian subterranean invertebrates, with a list of troglomorphic taxa. *Subterranean Biology* 7(2009, December):1-16. ABS: The taxonomic diversity of invertebrates found in Brazilian caves and other subterranean habitats is presented, with a brief history of scientific investigations in the country and data on their distribution and biology. Similarities and differences in relation to other tropical and temperate regions are pointed to. An updated list of subterranean troglomorphic taxa is also presented. KW: Subterranean biodiversity, invertebrates, Brazil, troglomorphic taxa, distribution.

**TRAJANO (E.) & BICHUETTE (M. E.), 2010.** Preface:vi. **DOI:** <http://dx.doi.org/10.1201/EBK1578086702-f>. In: TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.), *Biology of Subterranean Fishes*. Edited by TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.). ISBN: 978-1-57808-670-2. eBook ISBN: 978-1-4398-4048-1. Science Publishers 2010. 460 p.

**TRAJANO (E.), HERRERO (J. C. H.) & MENNA-BARRETO (L.), 2010.** Chronobiological studies on Brazilian subterranean fishes: a summary and new data on locomotor activity rhythms under light-dark cycles:124. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The Brazilian subterranean ichthyofauna includes the largest number of species investigated with focus on rhythmicity. So far, 11 among 26 troglomorphic fishes have been studied under free-running conditions (DD) and light-dark cycles (LD 12:12 h): the characid *Stygichthys typhlops* and, among catfishes, the heptapterids *Pimelodella kronei*, *P. spelaea*, *Rhamdia enfulmada* and three *Rhamdiopsis* spp., the trichomycterids *Trichomycterus itacarambiensis* and two *Trichomycterus* spp., and the callichthyid *Aspidoras* sp. Regression of mechanisms of time control of the locomotor activity has been shown for all studied fishes, in a lower or higher degree paralleling that of reduction of eyes and pigmentation. Individuals of highly troglomorphic species, such as *S. typhlops* and *Rhamdiopsis* sp. from Campo Formoso, were arrhythmic under free-running conditions, whereas in less troglomorphic fishes (e. g.,

*R. enfulmada*, *P. spelaea*, *P. kronei*, *Rhamdiopsis* from Salitre Cave) part of the individuals retained significant circadian rhythms; interestingly, larger (probably older) individuals tend to present weaker rhythms. In general, the activity peaks were observed in the dark phases, indicating that these peaks correspond to a character state retained from the nocturnal ancestors. When submitted to LD cycles, locomotor activity was entrained in all studied individuals, except for *S. typhlops* fish (most specimens did not respond to this condition). Individual variation regarding the presence (or not) of residual oscillations when the fish returned to free-running conditions was observed in the studied species except for the highly specialized *S. typhlops* and *Rhamdiopsis* sp. The absence of such oscillations indicates a masking effect of LD cycles. Data on subterranean fishes provide good evidence for the hypothesis of evolutionary regression of time-control mechanisms involved in locomotor activity in trogllobitic organisms, either affecting the oscillator(s) itself or due to uncoupling of the oscillator and its related function(s), supporting the hypothesis of external, ecological selection of circadian rhythms. <http://www.icsb2010.net/>

**TRAJANO (E.) & PAVANI (M. P.), 2010.** Related and yet different: behavioral differences between trogllobitic heptapterid catfishes, *Pimelodella kronei* and *Rhamdia* spp.:125, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Species of *Pimelodella* and *Rhamdia* have adjacent placements within the Heptapteridae phylogeny, and are similar in general appearance, distribution and habitat preferences and food habitats - species of both genera are generalist carnivores, with *Rhamdia* tending to be more benthonic, reaching larger sizes and incorporating fish in their diet. Ecological studies on the Brazilian trogllobitic *P. kronei* and *R. enfulmada* did not reveal any differences which could not be attributed to habitat specificities. However, important behavioral differences were observed in laboratory. Chronobiological studies indicated that, in aquaria, *P. kronei* exhibits higher levels of spontaneous activity, with shorter intervals without detectable locomotor activity (less than 30 min.), whereas *R. enfulmada* may remain stationary for hours; this may reflect differences in the epigeal ancestors since large *Rhamdia* catfishes are sit-and-wait predators. *P. kronei* presents more organized and distinctive, therefore predictable, patterns of chemical communication at distance, more clearly related to size and sex (small individuals generally avoid water from conspecifics, larger males are usually attracted) than in *R. enfulmada*, in which reaction to conspecifics varied from indifference to attraction; when detected, such responses were delayed in relation to the observed for *P. kronei*, possibly as a correlate to the lower activity levels in *R. enfulmada*. A new troglomorphic *Rhamdia* species from Bodoquena karst area, NW Brazil, also studied, was intermediate in these aspects. Likewise, patterns of aggressiveness are distinct. Agonistic interactions are more frequent in *P. kronei* and include a richer behavioral repertoire, not leading directly to death, indicating a ritualized behavior. In opposition, such interactions, rarely observed in *R. enfulmada* kept in groups, are less defined but, when occurring (usually among larger individuals), they lead rapidly to casualties. <http://www.icsb2010.net/>

**TSCHERTER (C.) & CAILHOL (D.), 2010.** Courrier de la Fédération Française de Spéléologie, Commission Environnement et Scientifique, du 11 Août 2010. Objet: Stratégies de création d'aires protégées. 5 p.

**TSCHERTER (C.), CAILHOL (D.) & D'ANTONI-NOBÉCOURT (J.-C.), 2010.** Commissions environnement et scientifique. La spéléologie et les espaces protégés: une contrainte ou une opportunité pour l'avenir? *Spelunca* 119(Septembre, 3<sup>e</sup> trimestre):60-63.

**TSOAR (A.), NATHAN (R.), BARTAN (Y.), DELL'OMO (G.), VYSSOTSKI (A. L.) & ULANOVSKY (N.), 2010.** P 158. GPS tracking of Egyptian fruit bats: First evidence for large-scale navigational map in a mammal:589. In: *9<sup>th</sup> International Congress of Neuroethology, Salamanca (Spain), 2-7 August 2010*. Sponsored by the International Society for Neuroethology (neuroethology.org). Abstracts. ABS: The ability to navigate is crucial for animals, yet navigational

mechanisms are poorly understood, especially in mammals. Here we report the first high-resolution GPS-tracking of bats. When GPS-tagged bats were released near their cave, they exhibited high, fast and very straight commuting flights from their cave to remote fruit-trees, and bats returned to the same trees night-after-night. Bats displaced 44-km south homed directly to one of two goal locations familiar fruit-tree or cave ruling out beaconing, route-following, or path-integration navigational mechanisms. Bats released within a deep natural crater were initially severely disoriented but eventually left the crater towards the home direction and homed successfully, while bats released at the crater-edge top homed directly suggesting navigation guided primarily but not exclusively by distal visual landmarks. Overall, these results provide the first evidence for large-scale navigational map in mammals.

**TSOAR (A.), ULANOVSKY (N.), BARTAN (Y.), ALTSTEIN (O.), DELL'OMO (G.), VYSSOTSKI (A. L.) & NATHAN (R.), 2010.** Movement ecology of GPS-tracked *Rousettus aegyptiacus*: Unexpected foraging movements in a predictable heterogeneous landscape:300-301. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Optimal foraging theory asserts that an optimal forager should minimize energetic and risk costs associated with movement while maximizing the gain from food consumption during the foraging bout. Therefore, all else being equal, nearby food sources are expected to be favored by central place foragers over distant ones. Recent miniaturization and power reduction in GPS technology enables us, for the first time, to assess this basic prediction by monitoring bat movements over relatively large spatial scales with high spatiotemporal resolution. Using a miniature GPS datalogger (mass range 6.9-11.1 g), we collected high resolution, three-dimensional, location data of Egyptian fruit bats (*Rousettus aegyptiacus*). Bats were captured upon departure from their cave, equipped with a GPS data logger on their back, and released at the capture site (N=28). Tracked fruit bats exhibited long (14.6±3.7 km), straight (straightness index: 0.96±0.03) and fast (33.0±5.2 km/hr) continuous commuting flights in relatively high altitudes above ground level (108±52.6 m) upon departing from their roost after sunset and while flying back from the foraging site to the roost before sunrise. Bats exhibited high fidelity to their foraging tree, returning to the same fruit tree night after night (97.5% of the foraging bats flew repeatedly to the same location within 3 consecutive nights), often using the same flyway. In all but one case, bats did not select the closest fruit tree to forage from, but flew to large distances passing on their way many trees of the same species and ripeness state. Bats were also found to be loyal to their roost, yet occasionally switch to neighboring roosts. This roost switch might result from capture trauma or attributed to minimization of nightly foraging flights.

**TURJAK (M.) & TRONTELJ (P.), 2010.** A new tree-based method for the quantitative analysis of phylogenetic character patterns: a case study with *Niphargus* (Amphipoda; Crustacea):175. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: We have developed a new method for calculating the probabilities of a character being synapomorphic for particular clades. It is based on the pattern of character states distribution among taxa, using tree topology as a computational framework representing only the hierarchical structure of the clades. In this case study we explored the phylogenetic patterns of morphological variability in the subterranean amphipod genus *Niphargus*. Traditional systematics of the genus has relied on general body shape, size and some combination of morphological characters to group the 300 or more taxa into infrageneric groups. We used a recent molecular topology to map the characters of interest. As expected, and as has already been shown earlier, we could confirm that the same morphological types have evolved in different clades independently, pointing to extensive parallel evolution in subterranean aquatic environments. Our approach enables a wide range of analyses and comparisons as it measures the probability of a given character being synapomorphic in a given monophyletic group. What makes it new and different is that the probability is calculated directly from the phylogenetic pattern, without having to rely on a particular

model of evolutionary character transformation like a probabilistic substitution model or the parsimony principle. <http://www.icsb2010.net/>

**TURQUIN (M.-J.), 2010.** Le paradoxe de la biodiversité du milieu souterrain [The paradox of the biodiversity of the underground world]. *Bulletin mensuel de la Société linnéenne de Lyon*, hors-série n° 2: RÉS: Contrairement aux milieux de surface, l'écosystème cavernicole est si simple qu'il ne peut abriter que quelques espèces qui exhibent les mêmes exigences dans toutes les grottes du monde. Paradoxalement une diversité spécifique faible est donc un gage de qualité, et on peut même parler de climax depuis 15000 ans au minimum. De fait, 150 ans après la découverte d'une vie spécialisée dans les grottes, les inventaires des divers massifs calcaires sont achevés, avec rarement la découverte d'une espèce nouvelle. En revanche, lorsque le milieu souterrain devient eutrophe à cause d'une fréquentation excessive ou d'une pollution par la surface, des espèces allochtones à plus grande valence écologique, s'y installent. En soixante ans certaines grottes se sont dégradées, d'autres améliorées en fonction des aléas de leur utilisation. Mais les troglodytes survivent et se dispersent dans les mésocavernes, fissures, et drains qui constituent le Milieu Souterrain Superficiel. ABS: Contrary to the environment of surface, the cave ecosystem is so simple as to shelter only species which show the same requirements in all the caves of the world. Paradoxically a low specific variety is thus a quality index, and we can even speak about climax for 15000 years at least. Actually, 150 years after the discovery of a life specialized in caves, inventories of the diverse calcareous massifs are complete, with rarely the discovery of a new species. On the other hand, when the underground habitat becomes eutrophic because of an increase in visit frequency or a pollution from the surface, allochthonous species with wide ecological valency, settle down there. In sixty years certain caves degraded, the others were improved according to the consequence of their use. But cave-dwellers survive and scatter in lateral cavities, cracks, and drains which constitute the Superficial Underground Environment. [http://www.linneenne-lyon.org/rubrique.php3?id\\_rubrique=41](http://www.linneenne-lyon.org/rubrique.php3?id_rubrique=41)

**TURQUIN (M.-J.), 2010.** Progrès dans la connaissance de la métagenèse chez *Craspedacusta sowerbii* (= *sowerbyi*) (Limnoméduse, Olindiidae). *Bourgogne-Nature* 9/10:162-174

**TURQUIN (M.-J.), MARTIN (D.), COLSON (C.), GINET (R.), CREUZÉ DES CHÂTELLIERS (M.), MALARD (F.), HERVANT (F.), REYGROBELLET (J.-L.), PAPIN (A.), MERMILLOD-BLONDIN (F.), DOUADY (C.), PISCART (C.), SIMON (L.), FOULQUIER (A.) & NAVEL (S.), 2010.** Janine GIBERT, 29 August 1945 - 14 April 2009. *SIBIOS-ISSB Newsletter* 7(2006-2010):44-46.

**UHRIN (M.), KAŇUCH (P.), KRÍŠTOFÍK (J.) & PAULE (L.), 2010.** Phenotypic plasticity in the greater mouse-eared bat in extremely different roost conditions. *Acta Theriologica* 55(2, April):153-164. **DOI:** <http://dx.doi.org/10.4098/j.at.0001-7051.073.2009>.

ABS: Bats use various roost types with a wide spectrum of ecological features. The greater mouse-eared bat *Myotis myotis* (Borkhausen, 1797), creates nurseries in attics and caves in Central Europe. The stable low temperature and high humidity cave microclimate contrasts that of attics, which may alter species adaptations and life strategies. We analysed population characteristics (composition, body condition, parasite load, and immune response) and genetic relatedness of two proximal *M. myotis* populations. Age, sexual and parasite species composition were similar between the cave and attic sites. However, a significantly higher parasite load and body condition was detected in the post-partum females and juveniles of the cave colony (n = 263 bats from the cave, 231 from the attic), with the cave colony females having a significantly stronger immune response (n = 2 caves and 2 attics, 20 females per site). There was no evidence for genetic divergence between cave and attic populations (n = 3 caves and 3 attics, 24 females per site), indicating that different population characteristics are not genetically based and that *M. myotis* is an example of a species with rather unique phenotypic plasticity. KW: Chiroptera, Ecology, Immunity, Parasites, Population genetics.

**UJVÁRI (Z.), 2010.** First records of zerconid mites (Acari: Mesostigmata: Zerconidae) from Albania, with description

- of three new species. *Opuscula Zoologica* 41(1):57-75.  
[http://opuscula.elte.hu/opuscula41\\_1.htm](http://opuscula.elte.hu/opuscula41_1.htm)
- ULANOVSKY (N.), TSOAR (A.), BARTAN (Y.), ALTSTEIN (O.), DELL'OMO (G.), VYSSOTSKI (A. L.), YOVEL (Y.) & NATHAN (R.), 2010.** GPS tracking of *Rousettus aegyptiacus*: First evidence for large-scale navigational map in a mammal:302. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: The ability to navigate is crucial for animals, yet navigational mechanisms are poorly understood, especially in mammals. Here we report the first GPS-tracking of bats. Egyptian fruit bats commuted from their cave to a remote fruit-tree in high, fast and very straight flights, and returned to the same individual feeding-tree night after night. Bats that were displaced 44 km south homed to one of two goal locations - cave or feeding-tree - that allowed ruling out navigation based on beaconing, route-following, or path-integration mechanisms, and suggested instead map-based navigation. Bats released within a deep natural crater exhibited severe disorientation, while bats released atop crater-edge homed well - indicating navigation by the geometric configuration of distal visual landmarks. These results provide the first evidence for large-scale navigational map in mammals.
- ULMEN (K.), NEWZELLA (R.), HUBWEBER (L.), SCHMITT (M.), KLUG (T.) & AHRENS (D.) 2010.** Contribution to a catalogue of types preserved in the collection of Zoologisches Forschungsmuseum Alexander KOENIG (ZFMK): Coleoptera: 1. Checklist of taxa. *Bonn zoological Bulletin* 58(November):5-48.
- United States Department of Agriculture (USDA), 2010.** Environmental Assessment. Reducing Bird Damage Through an Integrated Wildlife Damage Management Program in the State of North Carolina. Prepared by: United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, September 2010, 159 p.
- United States Department of Agriculture Forest Service Southern Region, 2010.** Species Diversity Report. George Washington National Forest. March 2010. Draft, 61 p.
- United States Fish & Wildlife Service, 2010.** ? *Federal Register* 75(23, Thursday, February 4, 2010-Notices):?-5803.
- United States Fish & Wildlife Service, 2010.** Environmental Impact Statement and Habitat Conservation Plan for the Incidental Take of Seven Federally Listed Species by the Edwards Aquifer Recovery Implementation Program. *Federal Register* 75(43, Friday, March 5, 2010-Notices):10305-10307.
- URZÌ (C.), DE LEO (F.), BRUNO (L.) & ALBERTANO (P.), 2010.** Microbial Diversity in Paleolithic Caves: A Study Case on the Phototrophic Biofilms of the Cave of Bats (Zuheros, Spain). *Microbial Ecology* 60(1):116-129. DOI: <http://dx.doi.org/10.1007/s00248-010-9710-x>. ABS: The biological colonization of rocks in the Cave of Bats (Cueva de Los Murciélagos, Zuheros, Spain) was studied in order to reveal the diversity of microorganisms involved in the biofilm formation. The culturable, metabolically active fraction of biodeteriogens present on surfaces was investigated focusing on morphological, ultrastructural, and genetic features, and their presence related to the peculiar environmental conditions of the underground site. PCR-ITS analysis and 16S rDNA sequences were used to clusterize and characterize the isolated strains. The presence of bacterial taxa associated to the photosynthetic microflora and fungi within the biofilm contributed to clarify the relationships inside the microbial community and to explain the alteration observed at the different sites. These results will contribute to the application of more successful strategies for the preventive conservation of subterranean archaeological sites.
- VAN SOEST (R. W. M.) & BAKER (B. J.), 2010.** A new carnivorous shallow-water sponge from McMurdo Sound, Antarctica (Porifera, Poecilosclerida). *Marine Biodiversity, Online First*<sup>TM</sup>, 1 December 2010. DOI: <http://dx.doi.org/10.1007/s12526-010-0076-6>. ABS: A new shallow-water representative of the carnivorous sponge genus *Asbestopluma* is described from the southernmost Antarctic region of McMurdo Sound. *Asbestopluma (Asbestopluma) vacelleti* n. sp. is a white, thin, sparingly branched sponge fringed by filaments along its entire length, with a slight thickening at the top of the branches. It was collected at 30 m depth by SCUBA divers from under densely populated overhangs of rocky substrata. The new species stands out among Antarctic *Asbestopluma* by the possession of forceps microscleres, a feature shared with several species from Arctic-Boreal waters (bathyal to deep-sea) and one from the Kermadec Trench (deep sea), but not previously reported from Antarctic species. A unique trait of the new species distinguishing it from all forceps-bearing *Asbestopluma* is a second category of reduced anisochelae. The new species is most similar to *A. hypogea*, a shallow-water cave species from the Mediterranean, which differs in having a smooth stalk and a filament-bearing ovoid body. A comparison is made with descriptions of Antarctic *Asbestopluma* species and all species possessing forceps microscleres. KW: Antarctica, Carnivorous sponge, *Asbestopluma*, New species.
- VAN TRUMP (W. J.), COOMBS (S.), DUNCAN (K.) & McHENRY (M.), 2010.** P 317. Gentamicin disrupts both receptor classes in the lateral line system:643. In: *9<sup>th</sup> International Congress of Neuroethology, Salamanca (Spain), 2-7 August 2010*. Sponsored by the International Society for Neuroethology ([neuroethology.org](http://neuroethology.org)). Abstracts. ABS: Many behaviors exhibited by aquatic animals rely on the ability to sense water flow. In fish, flow sensation is mediated by hair cells within the lateral line system. This system is composed of two classes of receptors: superficial and canal neuromasts. Ethological investigations have sought to separate the roles of these two receptor classes using an aminoglycoside antibiotic, gentamicin. Gentamicin is believed to disrupt the function of canal, but not superficial, neuromasts. We tested this theory in vivo. In this study we used fluorescent vital dyes (DASPEI and FM1-43) following exposure to a solution of gentamicin. Contrary to the prevailing assumptions, we found that gentamicin disrupts the hair cells in both receptor classes. A significant effect was found for both the superficial and canal neuromasts of two different fish species (*Astyanax mexicanus* and *Danio rerio*). Furthermore, by labeling hair cells prior to gentamicin exposure, we observed that, in both classes, disrupted hair cell function is at least partially due to cell death. We conclude that gentamicin is not a reliably selective blocker of canal neuromasts. In light of this result, we have revisited the effect of gentamicin exposure on rheotaxis, an unconditioned orienting response to water flow. Prior studies have concluded that gentamicin exposure does not affect the rheotactic response, and that canal neuromasts are not important for rheotaxis. However, after carefully validating drug exposure with vital dye staining, we found that gentamicin exposure disrupted rheotaxis in the blind Mexican cave fish, *Astyanax mexicanus*. These results demand re-evaluation of many prior behavioral studies of the lateral line system.
- VANDEN BORRE (P.), 2010.** Journée spéciale spéléo à Han-sur-Lesse et grotte du Fayt à Jemelle. *L'Écho des Rhinos* 58(Décembre 2009-Janvier 2010):2-3.
- VAUGHAN (T. A.), RYAN (J. M.) & CZAPLEWSKI (N. J.), 2010.** *Mammalogy*. Fifth edition. Jones & Bartlett Learning, 750 p. ABS: Mammalogy is the study of mammals from the diverse biological viewpoints of structure, function, evolutionary history, behavior, ecology, classification, and economics. Newly revised and updated, the fifth edition of Mammalogy aims to explain and clarify the subject as a unified whole. In recent years we have witnessed significant changes in the taxonomy of mammals. The authors have kept pace with such changes in the field and have revised each chapter to reflect the most current data available. New pedagogical elements, including chapter outlines and further reading sections, help readers grasp key concepts and explore additional content on their own. Two new chapters on domestication and mammal diseases are available on the Mammalogy website.

<http://books.google.fr/books?id=LD1nDlzXYicC&printsec=frontcover#v=onepage&q&f=false>

**VEROVNIK (R.), STOCH (F) & SKET (B.), 2010.**

Phylogeny of the western taxa of the genus *Monolistra* (Crustacea: Isopoda: Sphaeromatidae):68-69. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The exclusively subterranean genus *Monolistra* is predominantly distributed in the Dinarides; however some species penetrate westwards along the Southern Limestone Alps in Italy, reaching western Lombardia and Ticino in Switzerland. In order to highlight the phylogenetic relationships of the westernmost taxa, combined sequences of 28S, 16S and 12S r-DNA fragments in total length of pruned sequences of 1832 bp were analysed using Bayesian inference. The phylogram is characterised by three main clades with all taxa inhabiting the Alpine region representing a well supported (93%) monophylum. The branching order within the Alpine clade in the phylogram indicates a stepwise differentiation of Alpine species mainly in direction from West towards East. This is well exemplified by the well supported (100%) sister species relationship of two westernmost taxa, *M. (T.) pavani* and *M. (T.) boldorii bergomas*. All but one taxon in this clade belongs to the subgenus *Typhlosphaeroma*. Namely, the *M. coeca julia*, which is nested within Alpine clade, is morphologically more similar to species of the supposed plesiomorphic subgenus *Monolistra*, characterized by developed uropods. Geographically *M. coeca julia* inhabits the transition area, including parts of the Alpine and the Dinaric karst. On the other hand, *M. (T.) racovitzi* is the only representative of the *Typhlosphaeroma* subgenus in the Dinaric clade, forming a well supported monophylum with the species of all the other subgenera also limited to the Dinarides. This species and the species of the subgenus *Microlistra* are the most recent invaders at the NW edge of the Dinarides, with very little or no genetic differentiation among populations; however their distribution area does not override the western border of the Carso/Kras in Italy. Given the surprisingly large genetic divergence observed, the taxonomic rank of some taxa needs to be revised. <http://www.icsb2010.net/>

**VIDAL (O.), 2010.** L'évènement. Europe. Groupe de travail sur le White Nose Syndrome (WNS). *Spelunca* 117(Mars, 1<sup>er</sup> trimestre):3.

**VINCENT (S.), 2010.** Pélogyte ponctué, *Pelodytes punctatus* (Daudin, 1803):36-37. In: Groupe Herpétologique Drômois & LPO Drôme, *Atlas préliminaire des Reptiles et des Amphibiens de la Drôme*. ISBN: 978-2-9534797-1-3, Septembre 2010, 107 p. BL: Cf p. 36: "Fait notable, le pélogyte est une espèce que l'on rencontre régulièrement en cavités souterraines, milieu qu'il utilise pour hiverner. Il a ainsi régulièrement été observé dans des grottes drômoises lors de recensements des chauves-souris (grotte de Baume Sourde par exemple)".

**VIŠŇOVSKÁ (Z.), 2010.** Species diversity and distribution of aquatic Crustacea in caves of Slovakia (Central Europe, Western Carpathians):146-147, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The paper summarises the data from all available published sources (mainly of O. Štěrba, S. Hrabě, M. Straškraba, V. Košel, I. Hudec) and the author's own stygobiological research realized during 2002-2009. Slovakia is rich in caves (more than 5500), but relatively poor in stygobiotic or endemic crustacean species in comparison with karstic areas of southern Europe (mainly Balkan Peninsula). In total, 27 Copepoda (belonging to families Cyclopidae, Canthocamptidae, Diaptomidae), 4 Amphipoda (Gammaridae, Niphargidae, Crangonyctidae), 1 Syncarida (Bathynellidae), 2 Ostracoda (Ilyocypridae, Candonidae) and 9 Cladocera (Daphniidae, Chydoridae) species have been recorded from water habitats inside the Slovak caves up to date. Among them, 23 species can be considered as stygobiotic or stygophilic. Of the subterranean crustaceans, *Niphargus tatrensis* and *Bathynella natans* are typical inhabitants of the cave waters, such as pools, hyporheic interstitial (mostly *B. natans*), as well as running waters or springs flowing out of caves (mostly *N. tatrensis*) in various parts of the country. The Dinaric-

Carpathian endemic amphipod *Synurella intermedia* is known from four Slovak caves, and another species, *Niphargus inopinatus*, only from the Bojnicka hradna Cave near the Prievidza town. The common epigeic *Gammarus fossarum* tends to move in the hypogean environment. Its permanent and numerous populations showing a certain degree of reduction in eyes and pigmentation, were recorded in several underground streams (e. g. Brestovska Cave, Drienovska Cave, Milada Cave). Harpacticoida are represented mostly by members of the genera *Elaphoidella* (*E. pseudophreatica*, *E. phreatica*, *E. proserpina*), *Bryocamptus* (*B. zschokkei*, *B. echinatus*, *B. typhlops*, *B. spinulosus*), in some cases also by *Maraenobiotus vej dovskyi*, *Paracamptus schmeili* and *Epactophanes richardi*. Of the 15 cyclopoid copepods, the most diversified genus is *Diacyclops* with its 6 taxa of languidoides-languidus group. Stygobiotic *Acanthocyclops venustus*, *Microcyclops rubellus* and stygophilic *Paracyclops fimbriatus* are also present. Ostracoda are known from several caves, but their taxonomic status is still unknown. Of all only two species have been identified: *Ilyocypris bradyi* from the Borova hora Cave within the Zvolenska kotlina geomorphologic unit and *Cryptocandona dudichi* from the Domica-Baradla cave system in the region of Hungary-Slovakia boundary zone. No stygobiotic Cladocera and Calanoida are known from Slovakia up to date. Findings of aquatic Isopoda from cave waters are absent. <http://www.icsb2010.net/>

**VITTORI (M.), ŽNIDARŠIČ (N.) & ŠTRUS (J.), 2010.**

The gland-piliferous organs of *Titanethes albus* (Crustacea: Isopoda):126. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Gland-piliferous organs, male-specific structures with numerous setae and pores, characterize many species in the family Trichoniscidae. These structures are found primarily in the cave-dwelling representatives of this terrestrial isopod family, most notably in the genera *Trichoniscus* and *Titanethes*. In different species, variously shaped organs can be found on the dorsal side of different body segments. Although these structures have been analyzed in some detail in the genus *Trichoniscus* by other authors, such an analysis in *Titanethes* is lacking, leaving many open questions concerning their function and origin. In *Titanethes albus*, a large troglotic trichoniscid inhabiting the caves of northern Dinaric Karst, the gland-piliferous organs appear as paired bulges on the dorsal surface of the fourth pleonite in males but are absent in females and juveniles. Their external shape and porous nature have been described by several authors and it has been suggested that they are glands involved in reproduction. They have, however, received little attention since the early twentieth century. The aim of our study is to provide a more detailed analysis of the organs' microscopic anatomy. We examined the pleons of several *Titanethes albus* males from Planina Cave (Slovenia). Histological inspection revealed a great diversity of cuticular structures forming the external part of the organ. Several types of scales and bristles are found on the dorsal bulges and in their proximity. Each of the numerous pores, approximately 3 micrometers in diameter, is surrounded by a cuticular veil. Aggregations of large cells filled with granules are connected to the surface pores by channels. These granular cells occupy much of the pleon's volume. The surface structures and gland units of the organs in *Titanethes albus* appear similar to those reported for *Trichoniscus alexandrae*. Additional ultrastructural characterization will help us draw further conclusions concerning the organs' structure and function. <http://www.icsb2010.net/>

**VIVES (E.), 2010.** Una nueva especie cavernícola del género *Domene* (s. str.) Fauvel, 1873, del sudeste español (Coleoptera: Staphylinidae, Paederinae). *Heteropterus Revista de Entomología* 10(1):15-18. RES: Se describe una nueva especie de estafilínido del género *Domene* en una cueva del Sudeste de España. [http://www.heteropterus.org/c\\_hetreventomol.html](http://www.heteropterus.org/c_hetreventomol.html)

**VON REUMONT (B. M.) & BURMESTER (T.), 2010.**

Remipedia and the Evolution of Hexapods. *Encyclopedia of Life Sciences*. DOI: <http://dx.doi.org/10.1002/9780470015902.a0022862>. ABS: With more than a million species that have already been described, the hexapods (insects and allies) constitute the largest animal group. Still their origin and phylogenetic affinities are matter of intense debate. Although previous morphological work generally considered the millipedes as sister taxon of the hexapods, molecular phylogenetic analyses agree that hexapods are actually closely related to crustaceans. Recent studies have provided evidence that the Remipedia, enigmatic

crustaceans that have been discovered only 30 years ago in anchialine cave systems, may be the closest living relatives of hexapods. Support for this hypothesis comes from similar brain architecture, presence of an insect-type respiratory haemocyanin in remipedes and phylogenomic studies. Thus hexapods may have evolved from a Remipedia-like marine crustacean. These data evokes doubt on the generally described hypotheses in textbooks that might present an outdated picture of arthropod phylogeny. Key Concepts: Hexapods are the most successful animal group, but their relationship to other arthropods and evolutionary origins are matter of debate for more than a century. Molecular phylogenetic studies have demonstrated that crustaceans are the closest living relatives of hexapods. Crustaceans are most likely paraphyletic in terms of hexapods, thus one crustacean taxon is more closely related to the hexapods than the other crustaceans. Brain morphology, haemocyanin structure and evolution, and phylogenomic studies suggest that the crustacean class Remipedia are the closest living relatives of hexapods. Remipedia live in anchialine caves, which connect the inland ground water body with the salt water from the ocean. Remipedia harbour a mixture of ancestral and derived morphological characters. First hexapods may have evolved from marine Remipedia. Remipedia thus occupy a key position for understanding hexapod evolution. KW: Crustacea, hexapoda, insecta, pancrustacea, remipedia.

**VON RINTELEN (K.), PAGE (T. J.), CAI (Y.), ROE (K.), KUHAJDA (B. R.), ILIFFE (T. M.), HUGHES (J. M.) & VON RINTELEN (T.), 2010.** Living in the dark: phylogeny of atyid freshwater shrimps reveals multiple cave invasions:65, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Freshwater caridean shrimps (Crustacea, Decapoda) occur in all biogeographic regions bar Antarctica, but are in general among the less well studied groups of decapod crustaceans. This might not be surprising regarding the fact that the majority of shrimp-like decapods are found in marine environments. Freshwater taxa only account for approximately a quarter of all described Caridea and are numerically dominated by the two families Atyidae and Palaemonidae. At present, the Atyidae contain 42 extant genera. The vast majority of species are described within the genus *Caridina*, which is widely distributed throughout the Indo-West Pacific. Atyid shrimps are abundant in various freshwater habitats worldwide including cave systems (freshwater and anchialine). There are many cave-dwelling species that are well-adapted to subterranean life, e. g. by strongly reduced eyes and lack of pigmentation. Previous molecular studies using Atyidae mainly from Europe and Australia already gave interesting insights into the evolution and biogeography of cave adapted shrimps. Data from Asia, a hotspot of atyid diversity, was lacking so far. A molecular phylogeny including 34 of the 42 living genera, based on mitochondrial and nuclear genes (16S, 28S, H3), revealed at least six independent clades comprising subterranean and often landlocked taxa. These results suggest multiple independent cave colonizations of atyid freshwater shrimps worldwide. Parallel, the phylogeny implies new insights into the systematics of these shrimps, e. g. on subfamily level. <http://www.icsb2010.net/>

**VON RINTELEN (K.), PAGE (T. J.), CAI (Y.), WOWOR (D.), WESSEL (A.), STELBRINK (B.), ILIFFE (T. M.) & VON RINTELEN (T.), 2010.** Colonization and subterranean speciation in atyid freshwater shrimps from Maros karst, Sulawesi:64, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The evolution of trogllobionts has fascinated scientists since Darwin's time. A high number of cave-dwelling animals are well studied today, among these several freshwater organisms, e. g. fishes or crustaceans. The freshwater shrimp family Atyidae (Crustacea, Decapoda, Caridea) also has several subterranean representatives worldwide. Whereas the trogllobiotic atyids from Australia and Europe have already been comprehensively studied with morphological and molecular methods, such data for Southeast-Asian shrimps is still largely lacking. From the Indonesian island Sulawesi, situated within the biogeographic hotspot area Wallacea, more than 46 species in four genera are known, the majority from the genus

*Caridina*. One of these genera (*Marosina*) and approximately fifty percent of all species are endemic to the island. Two genera (*Caridina* and *Atyopsis*) have epigean representatives, while the other two (*Marosina* and *Parisia*) exclusively occur in subterranean rivers in Maros karst, southwestern Sulawesi. The genus *Marosina* comprises only two species, *M. longirostris* and *M. brevisrostris*. Comprehensive collections of *Marosina* and *Caridina* from several caves of Sulawesi in 2007 and 2009 were studied with morphological and molecular methods. A phylogeny assessed from mtDNA revealed two independent cave colonizations: Cave-dwellers with reduced eyes in the genus *Caridina* derived from epigean ancestors from the island. In contrast, the trogllobiotic genus *Marosina* evolved within the caves independently and may have been derived from a widely distributed and anchialine cave dweller. In this genus, there are further hints of subterranean speciation into the two species known today. <http://www.icsb2010.net/>

**VONK (R.) & JAUME (D.), 2010.** *Glyptogidiella omanica* gen. et sp. nov., an inland groundwater bogidiellid from Oman with enlarged coxal plate V (Crustacea, Amphipoda). *Zootaxa* 2657(October, 26):55-65, 6 pl., 20 réf. ABS: A new genus and species of Amphipoda is reported from inland ground waters of the Sultanate of Oman. Although *Glyptogidiella omanica* gen. et sp. nov. exhibits several features typical of the Bogidiellidae (i. e. combined display of distinct carpal lobe on first gnathopod, reduced pleopodal rami, and unsegmented exopodite of third uropod), its exceptionally large fifth coxal plate and short rami of third uropod do not fit in the restricted diagnosis of the family as recently presented elsewhere. In fact, the enlarged coxal plate V is a feature not reported in any other amphipod, whereas no other bogidiellid displays an expanded basis on pereopod VII. The habitus of *Glyptogidiella* is not typical for a dweller of a true interstitial niche, with its short antennae, large coxal plate and short and stubby rami on the third uropod. This suggests that the interstitial medium could not be the primary habitat for the species, and that the underground of wadis might contain interstices of large size and could also be in contact with karstic hollows. KW: Gammaridea, Bogidiellidae, stygofauna, subterranean waters, hyporheic, wadi, Arabian Peninsula. <http://www.mapress.com/zootaxa/list/2010/2657.html>

**VREZEC (A.) & KAPLA (A.), 2010.** The influence of aboveground invasions on the diversity and distribution patterns of subterranean carabids (Carabidae):161. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The diversity of subterranean beetles in Slovenia appears to be one of the highest on the globe. The studies were so far concentrated on the aspects of gamma and beta diversity of the group, but much less on the aspects of alpha diversity, which reflects actual coexistence of species in the same ecosystem. Carabids (Carabidae) form the most important terrestrial predator guild in underground ecosystems. In the study we focused on the diversity and spatial distribution patterns of coexisting subterranean carabids related to biotic and abiotic parameters. From the most Slovenian caves only one carabid species is known, but subterranean carabid assemblages (SCA) can hold up to five coexisting species. For the study we selected nine caves with SCA consisted from one to four species. The diversity of SCA compared to aboveground carabid (AC) assemblages was significantly lower, but did not change significantly from the entrance towards deeper parts of caves. However, the SCA diversity was significantly affected by the invasion of aboveground species, especially by invasion of AC. The AC negatively influenced the abundance and species richness of SCA. The abundance of AC significantly decreased towards from the entrance distant parts of caves, but was positively associated with higher amount of moisture and organic matter in the substrate. On the contrary, SC were more abundant at substrate with less moist and organic matter, which can act as areas free of competition or even predation by AC species. Among SC eight species were sampled in higher numbers, which were divided into three groups according to their spatial distribution patterns within caves: (1) entrance SC were most abundant at the entrance part of the cave (1 species), (2) deep SC were most abundant at the most distant parts of the cave from the entrance (2 species), and (3) intermediate SC with no specific preference found connected to the distance from the cave entrance (5 species). Among these groups, the AC significantly negatively affected only the abundance of entrance SC presented by *Laemostenus*

- schreibersi*, the largest and the most abundant species in the SC guild.  
<http://www.icsb2010.net/>
- WANG (C.) & LI (S. Q.), 2010.** New species of the spider genus *Telema* (Araneae, Telemidae) from caves in Guangxi, China. *Zootaxa* 2632(October 1):1-45, 38 pl., 11 réf. ABS: Eight new species of *Telema* collected from caves in Guangxi (China) are described and illustrated: *T. adunca* sp. nov., *T. biyunensis* sp. nov., *T. cordata* sp. nov., *T. cucurbitina* sp. nov., *T. mikrosphaira* sp. nov., *T. renalis* sp. nov., *T. yashanensis* sp. nov. and *T. zonaria* sp. nov. All species have a clearly pigmented body, six eyes, and relatively short legs. They differ from congeners and each other in the detailed structure of the spermatheca and male palp. KW: Taxonomy, diagnosis, etymology, variation, distribution.  
<http://www.mapress.com/zootaxa/list/2010/2632.html>
- WANG (C.) & LI (S. Q.), 2010.** Four new species of the spider genus *Telema* (Araneae, Telemidae) from Southeast Asia. *Zootaxa* 2719(December 10):1-20, 16 pl., 9 réf. ABS: Four new species of the spider genus *Telema* from Southeast Asia are described and illustrated: *T. acicularis* sp. nov. and *T. anguina* sp. nov. from Thailand, *T. fabata* sp. nov. from Singapore, and *T. malaysiaensis* sp. nov. from Malaysia. KW: Taxonomy, cave, rainforest, variation, distribution. <http://www.mapress.com/zootaxa/list/2010/2719.html>
- WANG (C.) & LI (S. Q.), 2010.** Two new species of the spider genus *Cataleptoneta* from Balkan Peninsula (Araneae, Leptonetidae). *Zootaxa* 2730(December 24):57-68, 9 pl., 6 réf. ABS: Two new species of the spider family Leptonetidae from caves of Balkan Peninsula are diagnosed, described, and illustrated, i. e., *Cataleptoneta lingulata* sp. nov. from Northern Dalmatia, Croatia, and *Cataleptoneta semipinnata* sp. nov. from Island Kythira, Greece. KW: Taxonomy, Europe, variation, cave, description.  
<http://www.mapress.com/zootaxa/list/2010/2730.html>
- WANG (W.), MA (Xu), MA (Y.), MAO (L.), WU (F.), MA (XiaoJun), AN (L.) & FENG (H.), 2010.** Seasonal dynamics of airborne fungi in different caves of the Mogao Grottoes, Dunhuang, China. *International Biodeterioration & Biodegradation* 64(6, September):461-466. DOI: <http://dx.doi.org/10.1016/j.ibiod.2010.05.005>. ABS: Fungal spores are ubiquitous and can be found in both outdoor and indoor air samples, we investigated the temporal and spatial distributions, compositions, and determinants of ambient airborne fungi in Mogao Grottoes of Dunhuang, China. Culturable fungi in three categories of caves, Open Cave (OC) to visitors, Semi-open Cave (SC), and Closed Cave (CC) and an outdoor area (OD) in Mogao Grottoes monthly from September 2008 to August 2009, using a six-stage Anderson FA-1 sampler. The grand mean of total culturable fungi was  $187.45 \pm 37.76$  colony-forming units (CFU)/m<sup>3</sup> for all sites considered, and the number was  $110.52 \pm 17.40$  CFU/m<sup>3</sup>,  $137.81 \pm 26.67$  CFU/m<sup>3</sup>,  $245.39 \pm 37.20$  CFU/m<sup>3</sup>,  $240.87 \pm 54.91$  CFU/m<sup>3</sup> in OC, SC, CC, OD. The most prevalent fungi were *Cladosporium* spp., non-sporing fungi, *Penicillium* spp., *Alternaria* spp. and *Aspergillus* spp. at all four sampling sites. Airborne fungal numbers and their diversity were generally higher in CC and OD than in OC and SC. Most fungal genus had significant seasonal variations, higher levels were observed in summer and autumn. Pearson correlation analysis showed that the levels of ambient fungi were correlated positively with temperature and visitor numbers, but negatively with relative humidity and rainfall. The results suggested that the visitors have an obvious influence on concentrations and compositions of ambient fungi in Mogao Grottoes providing information to be considered in conservation and management. KW: Aerobiology, Biodeterioration, Culturable fungi, Mogao Grottoes.
- WANG (W.), MA (Y.), MA (Xu), WU (F.), MA (XiaoJun), AN (L.) & FENG (H.), 2010.** Seasonal variations of airborne bacteria in the Mogao Grottoes, Dunhuang, China. *International Biodeterioration & Biodegradation* 64(4, July):309-315. DOI: <http://dx.doi.org/10.1016/j.ibiod.2010.03.004>. ABS: Airborne bacteria are important biological components of bioaerosol and play an important role in the conservation of cultural heritage. High concentration of bacteria in the atmosphere can result in biological air pollution and potentially diseases. In this study, a systematic survey of culturable airborne bacteria was carried out in Mogao Grottoes of Dunhuang, China at four sites (one cave is open to visitors, another is semi-closed, the third one is closed to visitors, and the fourth site is the entrance gate). Airborne bacteria were collected using a six-stage culturable FA-1 sampler monthly from September 2008 to August 2009. The populations of culturable bacteria were in a range from  $1.01 \times 10^2$  colony forming units (CFU/m<sup>3</sup>) to  $3.8 \times 10^3$  CFU/m<sup>3</sup>. The mean was  $1.30 \times 10^3 \pm 145$  CFU/m<sup>3</sup>,  $1.1 \times 10^3 \pm 279$  CFU/m<sup>3</sup>,  $4.4 \times 10^2 \pm 67$  CFU/m<sup>3</sup> and  $4.4 \times 10^2 \pm 77$  CFU/m<sup>3</sup> in the Closed Cave, Open Cave, Semi-closed Cave and the Entrance, respectively. The particle size of airborne bacteria were mainly distributed in stage 4 of sampling with diameters approximately 2.1-3.3 µm. The correlation was found between airborne bacterial concentrations and environmental temperature, relative humidity, as well as tourists number. The results suggested that the number of visitors has an obvious influence on both the concentrations and the compositions of ambient bacteria in Mogao Grottoes. KW: Airborne bacteria, Mogao Grottoes, Culturable bacteria, Cultural heritage, Dunhuang, Visitors.
- WANG (X.-P.), GRISWOLD (C. E.) & MILLER (J. A.), 2010.** Revision of the genus *Draconarius* Ovtchinnikov, 1999 (Agelenidae: Coelotinae) in Yunnan, China, with an analysis of the Coelotinae diversity in the Gaoligongshan Mountains. *Zootaxa* 2593(August 31):1-127, 128 pl., 39 réf. <http://www.mapress.com/zootaxa/list/2010/2593.html>
- WANG (Zhe), HAN (N.), RACEY (P. A.), RU (B.) & HE (G.), 2010.** A comparative study of prenatal development in *Miniopterus schreibersii fuliginosus*, *Hipposideros armiger* and *H. pratti*. *BMC Developmental Biology* 10:10. DOI: <http://dx.doi.org/10.1186/1471-213X-10-10>.
- WATANABE (Shumpei), MASANGKAY (J. S.), NAGATA (N.), MORIKAWA (S.), MIZUTANI (T.), FUKUSHI (S.), ALVIOLA (P.), OMATSU (T.), UEDA (N.), IHA (K.), TANIGUCHI (S.), FUJII (H.), TSUDA (S.), ENDOH (M.), KATO (Kentaro), TOHYA (Y.), KYUWA (S.), YOSHIKAWA (Y.) & AKASHI (H.), 2010.** Bat Coronaviruses and Experimental Infection of Bats, the Philippines. *Emerging Infectious Diseases* 16(8, August):1217-1223. DOI: <http://dx.doi.org/10.3201/eid1608.100208>.
- WATIROYRAM (S.), BRANCELJ (A.) & SANOAMUANG (L.-O.), 2010.** Composition of cave-dweller microcrustaceans in Nam Nao National Park, Phetchabun Province:74-80. In: The 11<sup>th</sup> Graduate Research Conference, Khon Kaen University, SDO7. KW: Biology, Phetchabun, Tham Yai Nam Nao, Tham Pha Hong, Tham Song Hong, Tham Pha Rai, Tham Phaya Naak, Tham Bah Dahn, Tham Huai Pho Hai.
- WEBER (N.), GRANJON (L.) & FAHR (J.), 2010.** Gallery forests boost bat diversity in southern Mali, West Africa:311. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: It is commonly assumed that diversity of tropical bats decreases from forests to drier vegetation biomes. However, the transition zone between forests and savannas is characterized by a habitat mosaic, which offers suitable habitat patches for numerous forest species that have their centre of distribution in the forest zone. This vegetation mosaic is therefore expected to support high species richness of bats caused by habitat heterogeneity. To test this hypothesis, we assessed diversity and assemblage structure of bats in gallery and ravine forests in four regions in southern Mali. Our new surveys comprised 51 species, including 30 species recorded for the first time and increasing the total from 25 to 55 species for the country. Several new records constitute significant range extensions, mostly of species usually found in the forest biome further south. We further recorded several cave-roosting species that show an overall patchy distribution, with fragmented populations in the mountainous regions of West Africa. The four study regions differed in species richness and showed considerable species turnover, which might be caused by complex biogeographic and topographic connections with other (source) regions. On the larger scale, our data testify to the enormous importance of gallery and ravine forests, which despite their

small area contribute significantly to bat diversity on the landscape scale. In view of current land use conflicts between national authorities and local communities, appropriate co-management plans need to be designed and implemented by the different stakeholders as to protect these keystone habitats in southern Mali on the long-term.

**WEIGAND (A. M.) & JOCHUM (A.), 2010.** Mollusca, Gastropoda, Ellobioidea, *Carychium minimum* O. F. M  ller, 1774: Filling gaps. New population record for the State of New York, Northeastern United States. *Check List* 6(4):517-518.

**WEIGAND (A. M.), JOCHUM (A.), SLAPNIK (R.) & KLUSMANN-KOLB (A.), 2010.** A 21<sup>st</sup> Century identity for an old snail condemned to darkness - Barcoding *Zospeum* (Pulmonata, Ellobioidea, Carychiidae):148, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIĆ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Species identification through a short, homologous and ubiquitous stretch of nucleotides can be promising when classical taxonomy reaches its limits, e. g. through high morphological intraspecific variability or morphological stasis. DNA barcoding, i. e. delimitating species with a mitochondrial-encoded 650 bp fragment of the cytochrome c oxidase subunit 1 (CO1) gene, has shown to be especially suitable for species recognition. Suitability in this case means that intraspecific and interspecific genetic variability can be clearly separated. Here, we present a DNA barcoding approach to distinguish species in the troglitic taxon *Zospeum* Bourguignat, 1856. These blind and colorless snails are endemic to the karst caves of central and southeastern Europe. Our investigation presents a DNA barcoding and scanning electron microscopic (SEM) debut for *Zospeum* (Pulmonata, Ellobioidea, Carychiidae) species collected in Slovenian and Croatian caves. The combination of minute size, the general paucity of clearly distinguishing interspecific conchological characters and the strong selective pressure associated with subterranean habitats make this taxon an ideal workhorse model to test the applicability of this method. Transferring this novel approach to other subterranean organisms can well reveal an enormous cryptic diversity otherwise hidden in the depths and vagueness of the dark. <http://www.icsb2010.net/>

**WESSEL (A.), M  HLETHALER (R.), VON RINTELEN (K.), VON RINTELEN (T.), STELBRINK (B.), WACHMANN (E.) & HOCH (H.), 2010.** First record of a root community in Southeast Asia: cave-dwelling planthoppers from Maros karst, Sulawesi (Hemiptera: Fulgoromorpha: Cixiidae: Bennini):149, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIĆ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: A systematic survey of Maros karst caves in summer 2009 revealed the first known terrestrial cave with roots in the dark zone and an associated fauna for Southeast Asia. Remarkably, this very first discovery of available resources for a root community in the region coincides with the finding of planthoppers as sapsucking primary consumers. Planthoppers are common elements of root communities in different parts of the world. A total of more than 50 cave-dwelling species are known from Africa (incl. Madagascar), Australia, Latin America, and several oceanic islands. Two-thirds of the troglitic and trogliphilic species belong to the Cixiidae as well as the newly discovered species from Sulawesi. The Maros cave planthoppers however, are the first representatives of the tribe Bennini ever recorded in a subterranean environment. The Bennini (about 100 species) are characterised by a unique feature - they possess very conspicuous lateral appendages each ending in a wax-covered sensillum. The precise function of these appendages and a possible role in orientation in the dark is unknown as in general the biology of this group is poorly studied. It is assumed that the ability of planthoppers to communicate by substrate vibrations is a prerequisite for the colonisation of cave environments. A well-studied example from Hawaii shows species-specific "song" patterns and revealed a complex pattern of subterranean speciation. The successful recording of vibrational signals from the Maros cave planthopper may

open up a new model system for the study of the dynamics of subterranean evolution. <http://www.icsb2010.net/>

**WHEATLEY (A. E.), 2010.** Las Vegas, 380201, Southern Nevada Regional Science and Engineering Fair. EA012. Isolation of Troglitic Bacteria in the Sunken Gardens, Lehman Caves:102. 17, Junior, Northwest Career and Technical Academy, Las Vegas, Nevada, T: Carol Testa Adamson. In: *Intel ISEF (International Science and Engineering Fair) 2010*, 156 p.

**WHITTEN (T.), 2010.** Book Reviews. *Caves and Conservation. Conservation Biology* 24(3):912-913. DOI: <http://dx.doi.org/10.1111/j.1523-1739.2010.01522.x>.

**WIBBELT (G.), KURTH (A.), HELLMANN (D.), WEISHAAR (M.), BARLOW (A.), VEITH (M.), PR  GER (J.), G  RF  L (T.), GROSCHE (L.), BONTADINA (F.), Z  PHEL (U.), SEIDL (H.-P.), CRYAN (P. M.) & BLEHERT (D. S.), 2010.** White-nose syndrome fungus (*Geomyces destructans*) in bats, Europe. *Emerging Infectious Diseases* 16(8, August):1237-1243. DOI: <http://dx.doi.org/10.3201/eid1608.100002>.

ABS: White-nose syndrome is an emerging disease in North America that has caused substantial declines in hibernating bats. A recently identified fungus (*Geomyces destructans*) causes skin lesions that are characteristic of this disease. Typical signs of this infection were not observed in bats in North America before white-nose syndrome was detected. However, unconfirmed reports from Europe indicated white fungal growth on hibernating bats without associated deaths. To investigate these differences, hibernating bats were sampled in Germany, Switzerland, and Hungary to determine whether *G. destructans* is present in Europe. Microscopic observations, fungal culture, and genetic analyses of 43 samples from 23 bats indicated that 21 bats of 5 species in 3 countries were colonized by *G. destructans*. We hypothesize that *G. destructans* is present throughout Europe and that bats in Europe may be more immunologically or behaviorally resistant to *G. destructans* than their congeners in North America because they potentially coevolved with the fungus.

**WICKS (C.), NOLTIE (D. B.), PETERSON (E. W.) & DOGWILER (T.), 2010.** Disturbances in the habitat of *Macrocotyla glandulosa* (Kenk). *Ecohydrology* 3(1, March):116-125. DOI: <http://dx.doi.org/10.1002/eco.102>.

ABS: Disturbances lead to the displacement or mortality of organisms or communities. In stream ecosystems, hydrologic disturbances (floods, spates, freshets) can dislodge organisms from the streambed habitat and in some cases dislodge the sediment itself (scour). The primary aim of this study was to characterize the relation between the scour and the magnitude of freshets through the sediment size distribution and the depth of water at numerous locations along a cave stream in the habitat of the imperilled *Macrocotyla glandulosa* (Kenk), the pink planarian. Our hypothesis is that areas of stable streambed sediment would serve as habitat, whereas areas of mobile streambed sediment would not serve as habitat. We have combined the use of a numerical model of a cave stream with the size distribution of streambed sediment to designate locations of streambed stability or instability. Using pink planaria census data collected since 1988, we have identified locations that the pink planaria occupy and locations where the pink planaria have not been found. Our results show that five locations along the cave stream that lacked scour corresponded with locations of pink planaria occurrence, that two locations that experienced scour correspond with locations where the pink planaria were not found and that one location experienced scour and planaria were found. Thus, there seems to be a relation between the stability of streambed sediment and the use of that sediment as habitat. Conservation efforts aimed at increasing the population of the imperilled pink planarian should account for the stability of the streambed sediment. KW: Disturbance, scour, habitat, *Macrocotyla glandulosa*.

**WILKINSON (L.), 2010.** Updates by region. Alberta. Alberta Sustainable Resource Development. *Western Canadian Bat Network Newsletter* 17(Autumn):1.

**WILLIS (C. K. R.), 2010.** Updates by region. Manitoba. University of Winnipeg, Bat Lab Update. *Western Canadian Bat Network Newsletter* 17(Autumn):11-12.



**WNS Committee & SHIELS (D.), 2010. White Nose Syndrome Action Plan. Missouri Department of Conservation.** April 9, 47 p. SUM: White Nose Syndrome (WNS)

is a new disease that has killed at least one million hibernating bats in caves and abandoned, underground mines in the northeastern USA since 2006. WNS could arrive in Missouri within one year, and it could kill many of the six species affected so far. There is concern that WNS could also infect gray bats, which could then increase WNS's rate of spread, especially westward. Bats are ecologically and economically important consuming vast quantities of night-flying insects and supporting intricate cave ecosystems. This document sets out a WNS Action Plan for the Missouri Department of Conservation (MDC), which applies to the public who enter MDC caves, MDC staff, researchers with Wildlife Collector Permits, and - "cave stewards". MDC will use a measured approach based on science, with tiered actions. The goals of MDC's plan are to protect the diversity of Missouri's bats and other cave wildlife and to prevent or delay the spread of WNS. MDC's WNS Committee and its WNS Leaders will proactively detect and prevent the spread of the WNS fungus and reduce other factors that may contribute to the bat mortality observed with the syndrome. MDC bat caves have been prioritized for closure and protection when identified triggers are met. Although the infection is likely to be spread by bats, or possibly in the air, disinfection of clothing and gear is required as a precaution against accidental spread of fungal spores by humans. Closing bat caves to human entry reduces human disturbance of bats, which exacerbates the mortality rate caused by WNS, and reduces the risk of possible human-borne transmission. Twenty-three MDC bat caves are currently Class 3 (closed to human entry), and another 19 caves are closed because of hazards or sensitive resources. When any of four "WNS triggers" occurs, additional caves will be closed to human entry in tiers. "WNS Trigger 1" occurs when WNS is reliably reported or confirmed 100-200 miles from Missouri, in which case at least 17 additional high-priority bat caves would be closed to human entry. "Trigger 2" occurs when WNS is 100 miles from Missouri, in which case 22 additional medium-priority bat caves would be closed. "Trigger 3" would occur if WNS is found in Missouri, closing 18 more MDC bat caves. "Trigger 4" is when a specific MDC cave is infected with WNS, causing further restrictions for entry into the affected cave even by researchers. Thus, a total of about 100 of MDC's 290 caves could be closed and any additional caves found to have bats. New signs would be posted to inform the public and regulate caves on conservation areas, and news releases and contacts with caving groups will alert the public to the threats of WNS and actions needed to minimize its impacts on the bat populations Missourians value. Rules are detailed for entering MDC caves and abandoned, underground mines, disinfection, and conducting field and laboratory work. Since this plan has been in development during the winter of 2010, the range of WNS has spread over 300 miles to within 103 miles of Missouri's border. Therefore, conditions already require actions described for Trigger 1. Included are three appendices containing a technical supplement with bat survey methods, tables, important literature references, information on bat caves, and an MDC Wildlife Collector Advisory. MDC also is leading a cooperative effort to form an inter-agency Missouri WNS Working Group and write a statewide WNS action plan.

**WOŁOSZYN (B. W.) & PERESWIET-SOLTAN (A.), 2010.** Bat geographic distribution North of the Carpathians. *Travaux du Muséum national d'Histoire naturelle "Grigore Antipa"* 53(Décembre):339-346. DOI: <http://dx.doi.org/10.2478/v10191-010-0024-5>.

**WU (X.), WANG (Lin), CHEN (S.), ZAN (R.), XIAO (H.) & ZHANG (Y.-P.), 2010.** The complete mitochondrial genomes of two species from *Sinocyclocheilus* (Cypriniformes: Cyprinidae) and a phylogenetic analysis within Cyprininae. *Molecular Biology Reports* 37(5, June):2163-2171. DOI: <http://dx.doi.org/10.1007/s11033-009-9689-x>. ABS: We determined the complete mitochondrial DNA sequences for two species of surface- and cave-dwelling-cyprinid fishes, *Sinocyclocheilus grahami* and *S. altishouderus*. Sequence comparison of 13 protein-coding genes shows that the mutation pattern of each single gene is quite similar to those of other vertebrate animal species. Analysis of the ratios of Ka/Ks at these loci between *Sinocyclocheilus* and two other cyprinid species (*Cyprinus carpio* and *Procypris rabaudi*) show that Ka/Ks ratios are differed, consistent with purifying selection and variation in functional constraint among genes. Bayesian analysis and maximum likelihood analysis of the concatenated mitochondrial protein

sequences for 14 cyprinid taxa support the monophyly of the family Cyprininae, and further confirm the monophyly of the genus *Sinocyclocheilus*. The two *Sinocyclocheilus* species fall within the *Cyprinion-Onychostoma* lineage, including *Cyprinus*, *Carassius*, and *Procypris*, rather than among the Barbinae, as previously suggested on morphological grounds. KW: *Sinocyclocheilus grahami*, *Sinocyclocheilus altishouderus*, Mitochondrial DNA, Phylogenetic relationship, Cyprininae.

**WWF Japan, 2010. Nansei Islands Biological Diversity Evaluation Project Report.** April 2010, 214 p.

**www.gilyn.lt, 2010.** L'évènement. Géorgie. Abkhazie, massif d'Arabika: Expédition 2010 dans le gouffre Kruberavoronya Cave, actuellement -2191 m, la plus profonde cavité connue au monde. *Spelunca* 119(Septembre):4. trimestre):4.

**YAO (Z.) & LI (S. Q.), 2010.** Pholcid spiders of the genus *Khorata* Huber, 2005 (Araneae: Pholcidae) from Guangxi, China. *Zootaxa* 2594:1-79. ABS: Eighteen species of the genus *Khorata* Huber, including 16 new species, are reported from Guangxi, China: *Khorata digitata* sp. nov., *K. dongkou* sp. nov., *K. epunctata* sp. nov., *K. flabelliformis* sp. nov., *K. fusui* Zhang & Zhu, 2009, *K. guiensis* sp. nov., *K. liuzhouensis* sp. nov., *K. luojinensis* sp. nov., *K. macilenta* sp. nov., *K. miaoshanensis* sp. nov., *K. nanningensis* sp. nov., *K. ningming* Zhang & Zhu, 2009, *K. paquini* sp. nov., *K. robertmurphyi* sp. nov., *K. rongshuiensis* sp. nov., *K. shao* sp. nov., *K. triangula* sp. nov. and *K. wangae* sp. nov. KW: Taxonomy, morphology, new species, cave, Southeast Asia. <http://www.mapress.com/zootaxa/list/2010/2594.html>

**YAP (L.-M. Y. L.), COURT (D. J.) & LI (D.), 2010.** A new serrular structure and its implications for the phylogeny of the scytodids (Araneae: Scytodidae):484. In: *18<sup>th</sup> International Congress of Arachnology, University of Podlasie & International Society of Arachnology, Siedlce, Poland, 11-17 July 2010, Book of Abstracts*, editor: Marek ŻABKA, ISBN: 978-83-7051-575-1, 507 p. ABS: A new form of serrula in some large cave-dwelling scytodids (Araneae, Scytodidae) from the south west of China is reported and figured. The configuration of the serrula within the Araneae is reviewed and the new form is compared with the serrulae of other members of the Scytodidae, with those of other scytodoids, and with those of the much less closely related Mesothelae, Mygalomorphae and non-haplogyne Araneomorphae. Instead of the commonly observed single-rowed serrula the new form is bi-cusped almost to the extent of being double rowed. A cladistic analysis has been performed and we now consider it most parsimonious to treat this bi-cusped trait as being a unique apomorphic character which partially defines a clade within the Scytodidae. Although the serrula is nearly double-rowed we suggest that it is unlikely to be synonymous with the multi-rowed serrula of the Hypochilidae. It is speculated that the bi-cusped serrula functions as an instrument which ruptures a hard but brittle exoskeleton of an item of the spider's prey.

**YILDIRIM (H.), TAN (K.), ŞENOL (S. G.) & PIRHAN (A. F.), 2010.** *Chaenorhinum semispeluncarum* sp. nov. and *C. yildirimlii* sp. nov. (Scrophulariaceae) from east Anatolia, Turkey. *Nordic Journal of Botany* 28(4, August):457-464. DOI: <http://dx.doi.org/10.1111/j.1756-1051.2010.00790.x>. ABS: *Chaenorhinum semispeluncarum* H. Yıldırım, Kit Tan, S. Şenol & A. Pirhan sp. nov. and *C. yildirimlii* Kit Tan, H. Yıldırım, S. Şenol & A. Pirhan sp. nov. (Scrophulariaceae, C. sect. *Microrrhinum*) from east Anatolia are described and illustrated. They are both narrow endemics related to the rare *C. cryptarum*, also from east Anatolia. *Chaenorhinum semispeluncarum* occurs on calcareous marl rich in potassium nitrate at the entrance of wet caves in Malatya and differs from *C. cryptarum* by its erect habit, smaller corollas, shallowly ribbed and tuberculate, bicoloured seeds. *Chaenorhinum yildirimlii* from the neighbouring province of Erzincan was found on alluvial soil of stream banks and differs from *C. semispeluncarum* by its seed characters which are similar to those of *C. cryptarum*. *Chaenorhinum yildirimlii* differs from *C. cryptarum*, most conspicuously by the violet lower corolla lip spotted dark purple at the apex.

**YILDIRIMHAN (H. S.) & BURSEY (C. R.), 2010.** Helminth parasites of the eastern spadefoot toad, *Pelobates syriacus* (Pelobatidae), from Turkey. *Turkish Journal of*

- Zoology* 34(1, January):1-9. [DOI: http://dx.doi.org/10.1093/zoo-0810-2](https://doi.org/10.1093/zoo-0810-2).
- YODER (J. A.), CHRISTENSEN (B. S.), CROXALL (T. J.), TANK (J. L.) & HOBBS III (H. H.), 2010.** The Pheromone of the Cave Cricket, *Hadenoeus cumberlandicus*, Causes Cricket Aggregation but Does Not Attract the Co-Distributed Predatory Spider, *Meta ovalis*. *Journal of Insect Science* 47(May):1-10. [DOI: http://dx.doi.org/10.1673/031.010.4701](https://doi.org/10.1673/031.010.4701). ABS: Food input by the cave cricket, *Hadenoeus cumberlandicus* Hubble & Norton (Orthoptera: Rhaphidophoridae), is vital to the cave community, making this cricket a true keystone species. Bioassays conducted on cave walls and in the laboratory show that clustering in *H. cumberlandicus* is guided by a pheromone, presumably excreta. This aggregation pheromone was demonstrated by using filter paper discs that had previous adult *H. cumberlandicus* exposure, resulting in >70% response by either nymphs or adults, prompting attraction (thus, active component is a volatile), followed by reduced mobility (arrestment) on treated surfaces. Adults were similarly responsive to pheromone from nymphs, agreeing with mixed stage composition of clusters in the cave. Effects of [0.001M - 0.1M] uric acid (insect excreta's principle component) on *H. cumberlandicus* behavior were inconsistent. This pheromone is not a host cue (kairomone) and is not used as a repellent (allomone) as noted through lack of responses to natural *H. cumberlandicus* pheromone and uric acid concentrations by a co-occurring predatory cave orb weaver spider, *Meta ovalis* Gertsch (Araneae: Tetragnathidae). This pheromone is not serving as a sex pheromone because nymphs were affected by it and because this population of *H. cumberlandicus* is parthenogenic. The conclusion of this study is that the biological value of the aggregation pheromone is to concentrate *H. cumberlandicus* in sheltered sites in the cave conducive for minimizing water stress. Rather than signaling *H. cumberlandicus* presence and quality, the reduced mobility expressed as a result of contacting this pheromone conceivably may act as a defense tactic (antipredator behavior) against *M. ovalis*, which shares this favored habitat site. KW: Antipredator behavior, arresting, clustering, guano, shared habitat, uric acid.
- YOSHIZAWA (M.), GORIČKI (Š.), SOARES (D.) & JEFFERY (W. R.), 2010.** Evolution of a Behavioral Shift Mediated by Superficial Neuromasts Helps Cavefish Find Food in Darkness. *Current Biology* 20(18, September 28):1631-1636. [DOI: http://dx.doi.org/10.1016/j.cub.2010.07.017](https://doi.org/10.1016/j.cub.2010.07.017). SUM: How cave animals adapt to life in darkness is a poorly understood aspect of evolutionary biology. Here we identify a behavioral shift and its morphological basis in *Astyanax mexicanus*, a teleost with a sighted surface-dwelling form (surface fish) and various blind cave-dwelling forms (cavefish). Vibration attraction behavior (VAB) is the ability of fish to swim toward the source of a water disturbance in darkness. VAB was typically seen in cavefish, rarely in surface fish, and was advantageous for feeding success in the dark. The potential for showing VAB has a genetic component and is linked to the mechanosensory function of the lateral line. VAB was evoked by vibration stimuli peaking at 35 Hz, blocked by lateral line inhibitors, first detected after developmental increases in superficial neuromast (SN) number and size, and significantly reduced by bilateral ablation of SN. We conclude that VAB and SN enhancement coevolved to compensate for loss of vision and to help blind cavefish find food in darkness. Highlights: Vibration attraction behavior (VAB) was characterized in blind cavefish; VAB has a genetic basis and confers an advantage for feeding in darkness; VAB is based on an increase in superficial neuromasts (SN); Coevolution of VAB and SN was likely a critical step in adaptation to cave life.
- YOUNGBAER (P.), 2010.** Comments on Draft WNS National Response Plan - "A National Plan for Assisting States, Federal Agencies, and Tribes in Managing White-Nose Syndrome in Bats". <http://www.caves.org/WNS/index.htm>
- ZACHARDA (M.), 2010.** Troglomorphisms in Rhagidiidae (Acari: Prostigmata): are they all a morphological clock of adaptation?:127. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Psychrophilic rhagidiid mites are obligatory inhabitants of the mesovoid shallow substratum, subterranean voids in talus slopes and caves worldwide. They started their evolutionary processes of speciation and adaptation to life in subterranean habitats as early as the origin of these habitats. In the region of Prealps in the Mediterranean Basin the long-time persistence of fragmented subterranean habitats since the Pliocene or Miocene is consistent with long periods of postcolonization isolation and evolution of these mites. Their morphological adaptations to life in caves that have evolved under the similar selective pressures imposed by cave habitats, i. e., troglomorphisms, are often striking and well-discernible. In contrast, troglomorphisms in cave rhagidiids from Quaternary periglacial areas in central Europe and North America are only weakly discernible. These rhagidiids might have immigrated to cave refugia as late as at the beginning of, or during, the Quaternary glaciation. Tentatively, their troglomorphisms might reflect the history of immigration. Thus nowadays we can encounter rhagidiid mites with differently expressed traits of the derived troglomorphisms. In general, these similar morphologies are primarily the elongation of appendages and progressive development of sensory organs such as the increased length and number of the tactile setae and rhagidial solenidia on the tarsi and tibiae of the first two pairs of legs. However, individual suits of troglomorphisms are not uniform but species-specific. It is still in question whether all these differently expressed morphological adaptations are real troglomorphisms that positively correlate to a morphological clock, solely with time of the underground ancestral history of these troglobionts. Perhaps some of them also reflect specific adaptations to different specific subterranean niches, or feeding habits, i.e., not only differences in age. Molecular clock studies are the most suitable to resolve this problem and the troglomorphic representatives of the genera *Traegardhia* and *Troglocheles* seem to be the most suitable for these purposes. <http://www.icsb2010.net/>
- ZAGMAJSTER (M.), CULVER (D. C.), CHRISTMAN (M. C.) & SKET (B.), 2010.** Evaluating the sampling bias in pattern of subterranean species richness: combining approaches. *Biodiversity and Conservation* 19(11, October):3035-3048. [DOI: http://dx.doi.org/10.1007/s10531-010-9873-2](https://doi.org/10.1007/s10531-010-9873-2). ABS: We investigated the pattern of species richness of obligate subterranean (troglobiotic) beetles in caves in the northwestern Balkans, given unequal and biased sampling. On the regional scale, we modeled the relationship between species numbers and sampling intensity using an asymptotic Clench (Michaelis-Menten) function. On the local scale, we calculated Chao 2 species richness estimates for 20x20 km grid cells, and investigated the distribution of uniques, species found in only one cave within the grid cell. Cells having high positive residuals, those with above average species richness than expected according to the Clench function, can be considered true hotspots. They were nearly identical to the observed areas of highest species richness. As sampling intensity in a grid cell increases the expected number of uniques decreases for any fixed number of species in the grid cell. High positive residuals show above average species richness for a certain level of sampling intensity within a cell, so further sampling has the most potential for additional species. In some cells this was supported by high numbers of uniques, also indicating insufficient sampling. Cells with low negative residuals have fewer species than would be expected, and some of them also had a low number of uniques, both indicating sufficient sampling. By combining different analyses in a novel way we were able to evaluate observed species richness pattern as well as identify, where further sampling would be most beneficial. Approach we demonstrate is of broad interest to study of biota with high levels of endemism, small distribution ranges and low catchability. Electronic supplementary material. The online version of this article ([DOI: http://dx.doi.org/10.1007/s10531-010-9873-2](https://doi.org/10.1007/s10531-010-9873-2)) contains supplementary material, which is available to authorized users. KW: Biodiversity, Northwestern Balkans, Obligate cave beetles, Residual analysis, Sampling intensity, Species richness hotspots, Terrestrial troglobionts, Uniques.
- ZAGMAJSTER (M.), KADIŠ (A.), GOLOB (K.) & FIŠER (C.), 2010.** Range sizes in subterranean amphipods of the genus *Niphargus*:52, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Molecular

taxonomy revealed highly incomplete taxonomy in several groups, where existing species names frequently cover many yet undiscovered species. For aquatic troglobionts it has been suggested that species with distributions exceeding 200 km are probably a complex of species and should be taxonomically revised. On the other hand, narrow distribution ranges in subterranean species have been observed, with large numbers of its extremes - single site endemics. Many taxonomic groups, also in aquatic troglobionts, express high level of single site endemism. Within the amphipod genus *Niphargus*, distributed in the western Palaearctic, it has been estimated that about half of the species are known from the type locality only. Should this proportion be accepted as valid and expected, or should this be regarded as a result of lack of studies and insufficient sampling in the areas where single site endemics occur? To approach this issue, we used the dataset on about 13% of all the species of the genus *Niphargus*, which were included in our study based on two criteria. First, species had a well supported taxonomy, the variation of which has been revised by molecular characters or by easily diagnosed autapomorphic traits. Second, we selected the species from locally well explored areas. We mapped the distributions of 43 species, and calculated the maximum extent of their ranges. Only three species are known from single localities, all from the Balkans. Of five species known from two localities, the smallest distance among them was less than 1.5 km and the largest over 120 km. About 60% of the species had the maximum extent of the range less than 100 km, and about 78% of the species less than 200 km. Extent of nine species (21%) exceeded the 200 km limit, with three extremes: *N. kolombatovici* on the Balkans having the 350 km distance, *N. aggetelekiensis* in central Europe over 550 km and undescribed species within "*N. virei*" complex extending over 600 km in eastern France. This shows that aquatic troglobionts with large distribution ranges do exist. On the other hand, there are only few single site endemics, indicating that most of the single site species presently known in *Niphargus* are not true and other localities can be expected. <http://www.icsb2010.net/>

**ZAGMAJSTER (M.) & SKET (B.), 2010.** Biodiversity pattern and distribution ranges of terrestrial troglobionts in the northwestern Balkans:51. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Beetles represent about half of terrestrial subterranean species in the northwestern Balkans (Dinarides and parts of Southern Calcareous Alps). Due to a large number of published records as well as a relatively resolved taxonomy they serve as a model group for studies of regional biodiversity patterns of terrestrial troglobionts. Two areas of high species richness have been identified, one in northwest (in Slovenia) and the other in southeast of the region (extending over southeastern Bosnia and Herzegovina, southeastern Croatia and western Montenegro). In this study, we analysed the range sizes of troglotibiotic beetles, common distribution patterns and how they relate to the observed biodiversity pattern. We utilised a dataset of 371 troglotibiotic species from 1857 localities and covered the study area with a 20x20 km grid. Troglotibiotic beetles have small ranges, 37% of them being known from one cave only (single site endemics). With additional studies it can be expected they can be found in more caves, yet their ranges may remain restricted - in our dataset 52% of species occur within the area of one 20x20 km grid quadrat and only 7 species are known from more than 100 caves and 20 grid quadrats. Some overlap among quadrats with many single site endemics and high species richness is apparent in the southeastern part of the Dinarides, yet numbers of single site endemics were not generally correlated to non-endemic species richness. When maximal range sizes were compared, about 84% of species had them smaller than 50 km and only 5% of species larger than 150 km. Those few species having large distribution ranges may be complexes of separate species currently recognized as subspecies. We further analysed species range similarities using clustering techniques. The ranges of troglotibiotic beetle species show common distribution patterns. The northwestern and southeastern merodinaric patterns overlap with two areas of highest species richness, both having different species composition. <http://www.icsb2010.net/>

**ZAKOTNIK (T.), MULEC (J.), TURK (V.), AVGUŠTIN (G.) & STRES (B.), 2010.** Composition and activity of bacterial microbial communities in the Postojna cave sediments: are the microbes in 700000 years old sediments still active?:111. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3*

*September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: A sedimentation gradient ranging from present time to 700000 year old sediments according to Th/U dating was sampled in Postojna cave protected area. A relationship between the sediment age, microbial activity and current microbial community structure were explored. Long-term physical-chemical parameters served as explanatory variables in the redundancy analyses (CCA coupled RDA) for the identification of environmental parameters explaining the largest variability in the structure of microbial communities and in their specific activity. Whole microbial community DNA was successfully extracted from all samples and used in microbial community structure assessment by profiling of the genes for bacterial 16S rRNA. A special protocol for the detection of molecular contamination was developed and used consistently throughout the analyses. The specific activity of microbial communities present in these sediments was assessed through incorporation of [<sup>14</sup>C]-leucine in microbial biomass. Due to highly oligotrophic environmental conditions, extensive positive and negative controls were used to ensure high signal-noise ratio. A highly sediment-age related decay in microbial activity was observed. In addition, clone libraries containing genes for bacterial 16S rRNA that were prepared from the three samples exhibiting highest signal-noise ratio, were analyzed at various taxonomic levels and related to other published descriptions of cave and soil microbial communities. The results show highly consistent but complex microbial community structure in the sediments of varying age. <http://www.icsb2010.net/>

**ZAKŠEK (V.), SKET (B.) & TRONTELJ (P.), 2010.** Phylogeography of the unique cave tube worm *Marifugia cavatica* (Polychaeta: Serpulidae):69, poster presentation. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: *Marifugia cavatica* (Polychaeta: Serpulidae), the freshwater cave tube worm, is distributed in groundwaters along the Dinaric Karst on the Western Balkan Peninsula. With its large distribution range it contradicts the generalized upper range limit of about 200 kilometers for macrostygobionts. Two independent gene fragments were sequenced and analyzed to reveal its phylogeographic structure. A 386 bp long fragment of mitochondrial cytochrome b (cytb) and a 700 bp fragment of 28S rDNA were amplified and sequenced for 44 *Marifugia* specimens from most of its range. The results of phylogenetic analyses showed that *M. cavatica* is composed of four distinct and geographically well defined phylogroups: Western, Eastern, Southern and Southeastern. Both, mitochondrial and nuclear data supported the same phylogroups, although the relationships between them remain unresolved. The Western phylogroup includes populations distributed in the Italian Carso, southwestern Slovenia and the northeastern Istra Peninsula; the Eastern phylogroup contains populations from southeastern Slovenia through Croatia to Bosanska Krajina in Bosnia and Herzegovina; the Southern phylogroup is limited to the cave Vjetrenica, and the Southeastern in the cave Obod at Fatničko polje (both Bosnia and Herzegovina). Divergence between them was high even at the amino acid level of the cytb. We found no indication of gene flow between phylogroups. A molecular clock calibrated on *Marifugia* fossils suggested that the phylogroups separated about 8 million years ago. In comparison to the phylogeographic structure of other aquatic subterranean taxa from the Dinaric Karst (*Troglocaris* s. str., *Proteus anguinus*, *Asellus aquaticus*), *Marifugia* shows both concordant and discordant groupings. We explain the discordance by ecological differences during the life-cycle caused by its microscopic, conditionally planktonic larva. <http://www.icsb2010.net/>

**ZAKŠEK (V.), SKET (B.) & TRONTELJ (P.), 2010.** Phylogeography of the cave shrimp *Troglocaris* s. str.: a basis for a comparative phylogeography of Dinaric subterranean fauna:70. In: *20<sup>th</sup> International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book*, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Cave shrimps *Troglocaris* s. str. (sensu Sket & Zakšek, 2009) are distributed along the Dinaric Karst from Italy to southern Herzegovina, displaying the so called holodinaric distribution pattern. Within its large range (about 600 kilometers) we tested it for possible unknown diversity and phylogeographic structure. Its detailed

phylogeographic structure was revealed by analyzing two mitochondrial gene fragments (COI and 16S) and nuclear one (ITS2) for more than 250 specimens along its entire range. The results of phylogenetic analyses and several different phylogeographic approaches congruently revealed six phylogroups (species): Western, Eastern, Adriatic, Soča, Istra and *T. bosnica*. All recognized phylogroups are geographically well defined and allopatric. Only in Istra (Istra Peninsula, Croatia), representatives of two phylogroups (Western and Istra) were cooccurring. We used this phylogeographic structure, covering nearly the entire range of the Dinaric Karst, as basis for a comparative phylogeographic study of holodinaric subterranean taxa: the European cave salamander *Proteus anguinus* and the cave tube worm *Marifugia cavatica*. All three, although taxonomically so distant from each other, similarly show high levels of genetic differentiation. Their ranges are usually small and rarely exceed 150 kilometers (except of the Adriatic phylogroup in *Troglocaris*). Furthermore, there is substantial agreement between the geographic extent of the phylogroups, most markedly between *Troglocaris* and *Proteus*, while the cave tube worm shows a somewhat different pattern in the inner part of Dinarides. We explain these differences as a possible consequence of its different life history and dispersal abilities.

<http://www.icsb2010.net/>

**ZAMANPOORE (M.), GRABOWSKI (M.), POECKL (M.) & SCHIEMER (F.), 2010.** Two new *Gammarus* species (Crustacea, Amphipoda) from warm springs in the south-east pre-alpine area of the Zagros, Iran: habitats with physiological challenges. *Zootaxa* 2546(July, 23):31-51, 10 pl., 23 réf. <http://www.mapress.com/zootaxa/list/2010/2546.html>

**Zara Environmental, 2010.** Draft Preliminary Assessment of Rare Crustacean Species of the Southern Edwards Plateau Habitat Conservation Plan May 20, 2010, 8 p.

**ZEEMAN (R.), 2010.** Peripatus. *Cape Peninsula Speleological Society (CPSS) Newsletter* (June):1 p.

**ZEEMAN (R.), 2010.** Bat Netting. *Cape Peninsula Speleological Society (CPSS) Newsletter* (December):1 p.

**ŽGANEC (K.), GOTTSTEIN (S.), GRABOWSKI (M.) & PLATVOET (D.), 2010.** Distribution of the endemic amphipod species *Echinogammarus thoni* (Schäferna, 1922) in watercourses of the Balkan Peninsula. *Lauterbornia* 69(Mai):41-50, 4 fig., 2 tab. ABS: An overview of all records of the Balkan endemic *Echinogammarus thoni* is given for streams in Croatia, Bosnia and Herzegovina, Montenegro, and Albania, based on literature data and data from our field studies. For the first time *E. thoni* was found on 3 of 49 studied localities in Albania. In Montenegro a new record comes from the Orahovica River. In Croatia the species was recorded at 23 of 415 sites in total, with new records in 3 small rivers. The current distribution is from the Jadro River near the town of Split to the Zuzës River system in Albania. In the center of the distribution area, in the southern part of the Neretva River catchment inhabiting populations are characterized by a well developed dorsal keel on meso- and metasoma. Isolated populations from the Jadro and Ljuta Rivers, as well as from Montenegro and Albania have a less pronounced dorsal keel. *E. thoni* is well adapted to both freshwater and oligohaline conditions and it is more abundant in waters with high summer temperature. KW: *Echinogammarus*, Amphipoda, Crustacea, Balkan Peninsula, endemic species, distribution, habitat, faunistics. SCH(chlagwörter): *Echinogammarus*, Amphipoda, Crustacea, Balkan, Endemit, Verbreitung, Habitat, Faunistik.

**ZHANG (Feng), QU (J.-Q.) & DEHARVENG (L.), 2010.** Two syntopic and remarkably similar new species of *Sinella* and *Coecobrya* from South China (Collembola, Entomobryidae). *Zoosystema* 32(3):469-477. BL: Cf p. 470. "The Entomobryidae genera *Coecobrya* and *Sinella* were particularly diverse in caves as well as in forest soils". [http://www.mnhn.fr/museum/office/science/science/DocScientifique/publications/presentation/listeParution/ficheParution.xsp?PARUTION\\_ID=2426&PUBLICATION\\_ID=2&THEMPUB\\_ID=42&idx=30&nav=tableau1](http://www.mnhn.fr/museum/office/science/science/DocScientifique/publications/presentation/listeParution/ficheParution.xsp?PARUTION_ID=2426&PUBLICATION_ID=2&THEMPUB_ID=42&idx=30&nav=tableau1)

**ZI-MING (C.), JING (L.), HENG (X.) & JUN-XING (Y.), 2010.** Chapter 11. Subterranean Fishes of China:397-414. DOI: <http://dx.doi.org/10.1201/EBK1578086702-c11>. In: TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B.

G.), *Biology of Subterranean Fishes*. Edited by TRAJANO (E.), BICHUETTE (M. E.) & KAPOOR (B. G.). ISBN: 978-1-57808-670-2. eBook ISBN: 978-1-4398-4048-1. Science Publishers 2010. 460 p.

**ZOHOORI (H.), KIABI (B. H.) & KAVOUSI (K.), 2010.**

Impacts of various factors on population status and movement of *Rousettus aegyptiacus* in Iran:316-317. In: *15<sup>th</sup> International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁČEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: This study was done on Egyptian fruit bats in Iran from 2001-2007. We focused on 3 detected sites, selected based on old reports, climate (Ethiopian), cave (roosting area) and some plants such as *Phoenix dactylifera* and *Ziziphus spina-christi*. The sites were Baloochestan, Jahrom and Qeshm island. Our study has shown that the abundance of fruit bats in these 3 sites is different from each other, based on factors such as safety, food availability, climate, culture and economy. Qeshm has dry climate and is rich in fruit tree diversity but the number of trees of each kind is lowest. Jahrom has lowest safety (Cultural and Economic causes) among the three sites and least fruit tree diversity but the number of trees of each kind is highest. Baloochestan is in middle of 2 other sites. It seems Qeshm has to have better population and abundance but our observation is shown Jahrom has the highest then Baloochestan and Qeshm is in the end. So this result led us to rank different factors and find in the sites that fruit tree abundance and climate is more important than safety and diversity. Our results showed that the population of Qeshm is separated from the two populations of Jahrom and Baluchestan, taking into account the time table of fruits presence in 3 sites, governing factors of environmental condition, indications of reproductive activities (in Jahrom) and combination of these mentioned facts together with statistical analysis of body and skull measurements. Therefore, the movement of Fruit bat between Mainland (2 sites) and the Qeshm Island could not be considered.

**ZUBER (R.), 2010.** ????? Dr. Thomas L. POULSON (2506RL) (CM, SC, FE). *NSS News* (?), (May):?

**ZUBER (R.), 2010.** Spelean Spotlight: Dr. Thomas L. POULSON (2506RL) (CM, SC, FE). *Cave Research Foundation, Quarterly Newsletter*, 38(4, November):5-10.