Welcome to our 2nd issue of Biospeologica Bibliographia - Publications. Any suggestions are welcome and should be submitted to the editors at: bernard.lebreton.bl@gmail.com. We strongly encourage everybody to submit new titles and abstracts. Sincerely yours.

Bienvenue sur notre 2e numéro de Biospeologica Bibliographia - Publications. Toute suggestion est la bienvenue à l’adresse mel: bernard.lebreton.bl@gmail.com. Nous vous encourageons à nous soumettre les nouveaux titres ainsi que vos résumés. Sincèrement vôtres.

Acknowledgments-Remerciements


Publications 2010


ABOLAFIA (J.), 2010. Nematodos de la Cueva del Jabalí, Santiago-Pontones (Jaén). Monografías Bioespeleológicas 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: 20th 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 I 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 galarcai.72. In: 20th 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 galarcai (Giani & Rodriguez, 1988) is a stygobiont oligochaete species (Tubificinæa, Cirillata, 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. galarcai. 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 between Iberian and French populations for some measurements related 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 between Iberian and French populations for some measurements related.

AKMALI (V.), ESMAEILI RINEH (S.) & ALI (F.), 2010. Diversity and distribution of subterranean species in karst areas of Iran:129, poster presentation. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELI. 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 well known; and for now only few species were accidentally reported. Karst localities including Ghor-e-Ghele, Alisadr, Shirabad and Tadovan Caves are most important. In this study we found several species of cave-dwelling animals. The Iranian Cave-fish Ihanocrinus typhlops and Paraocobis smithi are found in a well-like pool, the natural outlet of a subterranean limestone system in the Zagros Mountains in the Abe-Surum Valley near Tange-Haft railway station in Lorestan Province, south-west Iran. The Gorganian salamander Paraictyctylodon gorganensis (Urodel, Hynobidae) was found in the eastern part of the Elburz Mountains in Shirabad Cave of Golestan Province. Moreover, we encountered one large spider (Araneae: Sparassidae), one Pseudoscorpion, three species of lizard belong to family Gekkonidae (Asascs eliae, Hemicladutus persicus and Asascs 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. hardwickii 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 Tarsipes (T. persicus) according to the criteria listed in the IUCN Red List Categories 2010, Ihanocrinus typhlops and Paraictyctylodon gorganensis are ranked as Vulnerable and critically endangered. One of the largest challenges regarding this 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 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 obscurcs. 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 Franche-Comté, Chrono-environnement, UMR 6249. Diffusion restreinte. Communication soumise à autorisation. Photocopies interdites. Cote LRMH: G391. MC: Grote, Peinture, Photosynthèse, Algue, Microorganisme, Pigment, Lumière, UV, UVC, Traitement, Essai, Essai, Microbiologie, Chlorophycée, Dunophycée, Contrôle, Art pariétal, Grotte ornée, Algue verte, Klebsormidium focialicum.

ALEGRE BARROSO (A.) & BARBA DÍAZ (R.), 2010. Jimenezella decui Avram, 1970: un opilión cubano amenazado (Arachnida: Opiliones)”. Boletín de la Sociedad Entomológica Aragonesa 47(2º semestre):455-456. RES: Se aportan datos de la distribución geográfico 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: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELI, ISBN 978-961-269-286-5. ABS: Tular is a natural cave, which was formed by a local river in the Sadina river Pliocene 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 miklitzi sp. staucherti has been described from this cave. In 1944 it was partly walled into an air-rain 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 Proteus in captivity. In 1999 and 2002, a colony of the dark pigmented subspecies, Proteus anguinus parkej, 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
suggest that lineage formation is not consistent with vicariant processes and that species other than short-distance dispersers share a perceivable age of origin of the family of insects, ending the prior existence of all lineages in Gondwanaland with subsequent regional extinction. KW: Gondwanaland, molecular rates, biogeography, cave crickets, Macropathinae, Rhaphidophoridae.

ALLEGRUCCI (G.), TRUCCI (E.) & SBORDONI (V.), 2010. Patterns of speciation in Dolichopoda cave crickets (Orthoptera, Rhaphidophoridae):45-54. In: 20th 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 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 rDNA) 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 by 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 populations in response to the invasion of the subterranean environment. http://www.icsb2010.net/


ANTOLINC (E.), JANŽEKOVIC (E.), PERC (M.) & NOVAK (T.), 2010. Cold-hardiness in central European troglobionts and trogloloxenes:115. In: 20th 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. Trogloloxenes, characterized as not adapted, and trogloloxenes not completely adapted to hypogean, thermo-stable environments, have not lost their ability to withstand freezing, while troglobionts presumably did. We hypothesized that trogloloxenes are less cold-hardy than trogloloxenes, which are better adapted to unstable epigean 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 trogloloxenes and trogloloxene species temporary or permanently inhabiting central European caves, and three trogloloxene 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 held 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, trogloloxenes are generally less cold-hardy than trogloloxenes. 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-dependent.

http://www.icsb2010.net/


Peracard Shrimp *Spelaeomysis bottazzii* (Lepidomysidae) from a Brackish Well in Apulia (Southeastern Italy). *Journal of Crustacean Biology* 30(3, August):384-392. DOI: [http://dx.doi.org/10.1556/09-3150.1](http://dx.doi.org/10.1556/09-3150.1). ABS: A population of the “eyesless” hypogean shrimp *Spelaeomysis 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, nauplios, and postnauplios; all were unpigmented, unlike the postnauplios 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 oostegites 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, seasonal variations. **Biological characteristics, Spelaeomysis bottazzii.**

**ASSING (V.),** 2010. From new species and additional records of *Staphyliidae* from Spain, primarily from the south (Insecta: Coleoptera). *Linzer Biologische Beiträge* 42(2, 19.XII):1105-1124. DOI: [http://dx.doi.org/10.1007/s00792-010-0322-7](http://dx.doi.org/10.1007/s00792-010-0322-7). ABS: The community inhabiting of the olm’s gut by traditional culturing and archaeal oligonucleotide primers. The randomly selected clones retrieved sequences belonging to representatives of the bacterial phylum *Firmicutes* and within them to the genus *Pepto* or *Peptostreptococcus* Incertae Sedis of the cloridial class. The rest of the sequences were assigned to *Firmicutes* too, mainly to the genus *Clostridium* and to unclassified *Clostridia*. The closest hits in RDP databank were 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 pattern. DOI: [http://dx.doi.org/10.1007/s00792-010-0322-7](http://dx.doi.org/10.1007/s00792-010-0322-7) **ÁVILA-FLORES (R.),** 2010. Resource selection by slow- and fast-flying insectivorous bats in a heavily urbanized landscape:91-92. In: 15th 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 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 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 *Lasiusus 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 *Dunalialiella* 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](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 phenomenon, here we describe the first species of the well-known genus of green unicellular alga *Dunalialiella* 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 *Dunalialiella* 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: *Dunalialiella*, Atacama Desert, Evolution, Cave, Adaptations, Water. **AZÚA-BUSTOS (A.) & VICUÑA (R.),** 2010. Chilean Cave *Cyanidium*. Cellular Origin, Life in Extreme Habitats and

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.


BÁČKOR (P.), 2010. Abandoned old mines in the Central Slovakia: Important bat hibernation sites:95. In: 15th 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 (Spania dolina, Uhrovce and Osblie) for the entire medieval Europe of the 14-16th centuries. Mining was abandoned at these sites approximately 200 years ago and some of the mines serve as bat hibernaculum. Altitudinal distribution of these hibernation sites range from 440 to 850 m a.s. l. The analysed data were obtained in January and February (2006-2011) and represent a seven-year period (2003-2010). Altogether 714 inds. of 11 bat species (Vespertilio fureumqueunum, R. hippocosmos, Myotis bechsteinii, M. blythii, M. myotis, M. mystacinus, M. brandii, M. daubentoni, M. emarginatus, Barbastella barbastellus, Plecotus auritus, and P. australicus) 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. hippocosmos (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 the predominant species a moderate increase (r(2003-2010)=0.073) was recorded. The main threat to the hibernating bats represent mineral collectors as the mines are type sites for three minerals. Additional studies on the reproductive biology and the behavioral ecology of members of this genus and 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.

BÁČKOR (P.), UHRIN (M.), VIŠŇOVSKÁ (Z.), URBAN (P.) & GRESCH (A.), 2010. Prehľad nálezov netopierov (Chiroptera) a chiropterologická bibliografia Národného parku Nízke Tatry (stredné Slovensko) [Review of bat records (Chiroptera) and chiropterological bibliography of the Nizke Tatry National Park (Central Slovakia)]. Vespertilio 13/14:3-34. ABS: Altogether 20 bat species were recorded in the Nizke Tatry National Park (Nizke Tatry Mts., Lower Tatry 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. hippocosmos, Myotis bechsteinii, M. blythii, M. myotis, M. brandii, M. mystacinus, M. daubentoni, M. dasychrome, M. emarginatus, M. nattereri, Pipistrellus pipistrellus, Nyctalus noctula, Eptesicus nilssonii, E. serotinus, Vespertilio murinus, Barbastella barbastellus, Plecotus auritus, and P. australicus. They make up 71.1% of the bat fauna of Slovakia. Altitudinal distribution of the species range between 375 and 1510 m a. s. l. (range 1135 m). The dominant species were M. myotis (65.7%), Rhinolophus hippocosmos (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 hypsideros with 22.3% and, Eptesicus nilssonii with 10.0%. In the study area, we confirmed two conservation categories (mostly in the loft species) of the following species: Rhinolophus hypsideros, Myotis myotis, M. blythii, M. emarginatus, and Vespertilio murinus. The northern part of the Nizke Tatry Mts. (mainly the Demänovský 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 Nizke 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?id=13

BAEEZA (J. A.), 2010. Observations on the sexual system and the natural history of the semi-terrestrial shrimp Mergus 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 Mergus rhizophorae is described, along with natural history observations on this unusual caridean. Individuals of M. rhizophorae in the Bucas del Toro Archipelago, Panama, were found occupying fossilized coral terraces in the upper and mid-intertidal zones, inhabiting caves and crevices, and 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 are 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 number of carapace width 45% of individuals is clipped at 1.89 mm. The abundance of shrimps at the study site was low. Shrimps were usually solitary, but occasionally observed in groups of ≤5 individuals. Shrimps were commonly observed walking while out of water, and in some cases, emerged shrimps jumped vigorously, presumably to avoid the many predatory crabs. Additional studies on the reproductive biology and the behavioral ecology of members of this genus and 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.) & VILIMOVÁ (J.), 2010. Bat bugs of the family Cimicidae (Heteroptera):96-97. In: 15th 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 paratizing 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 the haplotype was shared between populations of man and 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.), WALSH (D.), JARVIS (S.), BARTON (H. A.), ADAMS (J. 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 (CaCO₃) deposits (speleothems) in cave environments, we isolated 51 culturable bacteria from a coralline speleothem and tested their ability to dissolve and precipitate CaCO₃. The majority of these isolates could precipitate CaCO₃ minerals; scanning electron microscopy and X-ray diffractrometry 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 a metabolic activity. Given growth of these species on calcium acetate, but the toxicity of Ca²⁺ ions to bacteria, we created a loss-of-function gene knock-out in the Ca²⁺ ion efflux protein ChaA. The loss of this protein inhibited growth on media containing calcium, suggesting that the need to remove Ca²⁺ ions from the cell may drive calcification. With no carbonate in the media used in the calcification studies, we used stable isotope probing with C¹³O₂ to determine whether atmospheric CO₂ could be the source of these ions. The resultant crystals were significantly enriched in this heavy isotope, suggesting that extracellular CO₂ does indeed contribute to the mineral structure. The physiological adaptation of removing toxic Ca²⁺ ions by calcification, while useful in numerous environments, would be particularly beneficial to bacteria in Ca²⁺-rich cave environments. Such activity may also create the initial crystal nucleation sites that contribute to the formation of secondary CaCO₃ deposits within caves. KW: Calcite, calcium caves, corallids, homeostasis, speleothems, speleobiology.

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 anachial ecosystems, with many endemic species. The Mediterranean area has a high biodiversity of subterranean cirolans, which are considered thalassoid limnogastrobionts. 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, Sphaeromides delamarei, S. virei, Turcolana sp., 13 taxa of the genus Typhlocirolana and two American species, Arrhopalites aggtelekiensis, Pseudosinella aggtelekiensis. The Typhlocirolana species were 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 suggests a trans dinaric distribution, with a pronounced diversity in the Mediterranean basin and to two American taxa: S. seurati and S. v. aggtelekiensis. The majority of these species (except in Bosanska Krajina) are north and south America taxa and the Mediterranean area has a high biodiversity of subterranean cirolanids, which are isopods, about 23 genera are stygobitic and inhabit phreatic and anachial ecosystems, with many endemic species. The Mediterranean area has a high biodiversity of subterranean cirolans, which are considered thalassoid limnogastrobionts. 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, Sphaeromides delamarei, S. virei, Turcolana sp., 13 taxa of the genus Typhlocirolana and two American species, Arrhopalites aggtelekiensis, Pseudosinella aggtelekiensis. The Typhlocirolana species were 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 suggests a trans dinaric distribution, with a pronounced diversity in

BARCIOVÁ (T.), KOVÁČ (EU.) & MIKLISOVÁ (D.), 2010. Impact of tourism upon structure and diversity of Collemboal assemblages (Hexapoda) - a case study of the Gombasecká Cave, Slovak Karst (Slovakia). Slovenský Kras Acta Carsologica Slovaca 48(2):271-283. ABS: In 1998-2000 and 2006-2007 investigations were carried out in the Gombasecká 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 Gombasecká Cave, rather low species richness (27) was observed in the group. The majority of the species (21) was noted at distances of 50-75 m from the tourist path, while species richness was very low further away from the tourist path. The species diversity index (Shannon index) was highest at the entrance of the cave and lowest at distances of 50-75 m. The species richness of Collembola in the Gombasecká Cave is lower than in the Gombasecká and Brzotínska caves, 52 and 21 Collembola species were recorded, respectively. Three obligate cave species were registered in both caves, A. aggtelekiensis, D. schoenviszkyi and D. cf. krahotchvilii, eutrophilous Plutomurars carpathicus, Foliosoma candida and Atherihaloptes pygmaeus were the most abundant. The study revealed a great level of similarity of Collembola between tourist and reference caves investigated. However, Plutomurars carpathicus, abundant and frequent in the Brzotínska Cave system, was absent in the Gombasecká Cave. In contrary, troglophilic Pseudosinella aggtelekiensis, rather frequent in the Gombasecká Cave was totally absent in the Brzotínska Cave system. In the studied show caves several species were absent or present at very low abundance. Significant differences in species composition were observed in terms of species richness, troglomorphy development, and troglomorphy diversity. The Collembola species diversity recorded in the Gombasecká Cave is lower than in the Brzotínska Cave, but the species richness is lower in the Brzotínska Cave than in the Gombasecká Cave. The Collembola species diversity recorded in the Gombasecká Cave is lower than in the Brzotínska Cave, but the species richness is lower in the Brzotínska Cave than in the Gombasecká Cave.


BAUER (A. M.), KUNYA (K.), SUMONTHA (M.), NYOMWAN (P.), PAUWELS (O. S. G.), CHANHOME (L.) & KUNYA (T.), 2010. Cyrtodactylus dennuii (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 dennuii sp. nov. may be distinguished from all other congeners by the possession of a series of enlarged femoral scales, disjunct preocular and femoral pores in males (minute precloacal pores variably present in females), a relatively high number (18-22) of closely spaced, regularly arranged dorsal tubercles, enlarged subcaudal plates, and a color pattern of approximately six pairs of alternating light and dark subcaudal 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 troglobite. KW: Thailand, Chiang Mai, Reptilia, Gekkonidae, Cyrtodactylus dennuii, new species, taxonomy, cave-dwelling. http://www.mapress.com/zootaxa/list/2010/2570.html


BAYRAM (A.), COTJAS (M. A.), DANSIN (T.), SANCAK (Z.) & YİĞİT (N.), 2010. Checklist of the harvestmen of Turkey (Arachnida: Opiliones). Mnion 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.


BEDEK (J.), 2010. Data analysis of spatial distribution of cave terrestrial isopods (Isopoda: Oniscidea) in Croatia:36. In: 20th 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 using UTM grid map of Croatia (10 x 10 km) and macroregions according to Rogl, 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 (~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 Dinarc 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 macroregion 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. Some troglobitic species distributed outside the Dinaric karst area. There are no endemic Croatian cave taxa outside the Dinaric karst area. http://www.icsb2010.net/


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-inhabitating 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: 20th 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 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, both surface or subterranean. Due to direct or indirect development pressures, they 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 Ljubljanica River, including a series of intermittent lakes on karst poljes and water caves with underground rivers (Krizna 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, Megaderma ecaudata, Balionycteris maculates, Adontops macroura, Rhinolophus bontari, Eptesicus fuscus, Trifolius, Hipposideros ducovar, H. vinius, H. diadem, Myotis muricola), several rather rare forms were also recorded. Cynopterus minutus and Hipposideros dorie are reported from the territory of Sabah for the first time. Cynopterus sphinx for the second time. Arviolus cinereus was found for the first time 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?no=13]


BERAN (L.), 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 Medicine (Dr. rer. biol. vet.) from the Faculty of Veterinary Medicine of the Ludwig-Maximilians-University Munich, 116 p.

BERAN (L.), 2010. Izolované populace praměnky Bythinella austriaca (Frauenfeld, 1857) (Gastropoda: Hydriodidae) v okolí Prahy [Isolated populations of Bythinella austriaca (Frauenfeld, 1857) (Gastropoda: Hydriodidae) 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: Hydriodidae) in Prague surroundings 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, Hydriodidae, Prague surroundings, distribution.

BERKHOFF (S. E.), MATZKE (D.), BORK (J.) & HAHN (H. J.), 2010. Recording the stygoфаuna of the federal state of Sachsen-Anhalt, Germany:37. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRICH and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: In 2008 and 2009 stygoфаuna 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 "Georges" (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/]

BERNABO (P.), JOUSSON (O.), LENCIONI (V.) & LATELA (L.), 2010. Heat Shock Response in the leptoerdem Neobathyscia mancinii and Neobathyscia pasai:116, poster presentation. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRICH and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The response to increasing temperature in two cold stenothermal leptoerdem, Neobathyscia mancinii Jeannel and Neobathyscia pasai Ruffo (Coleoptera, Cholevidae, Leptodirinae) was evaluated as lethal temperature (LT50 and LT90) 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 (≈ LT50 and LT90) and as expression of 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, whereas the HSP70 is more expressed in N. mancinii. 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/]


ABS: As a mystery disease rips through North America's bat populations, scientists look for vital clues to stop the killer in its tracks.


BILANDŽIJA (H.), PODNAR (M.), JALŽIĆ (B.), PATARČIĆ (I.), TVRTKOVIĆ (N.) & CETKOVIC (H.), 2010. Phylogeny and phylogeography of the cave bivalve Congeria kusceri, with an outline for its endangerment in Croatia:56-57, poster presentation. In: 20th 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: Congeria kusceri Bole, 1962 is the only stygobitic bivalve in the world. It is also the only surviving species of the genus Congeria 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 Congeria being the third extant genus of the family Dreissenidae as previous studies suggested. Within Congeria, two main phylogeographical groups were found: one encompassing Markov ponor (Lika region) and Suvaja (northern Bosnia) populations, and another comprising all southern Dalmatian and Hercogovinian 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 Congeria kusceri in the Red list of Croatian cave fauna in the IUCN category CR.


ABS: Oogenesis in the neotenic, cave dwelling salamanders Proteus anguinus anguinus has not been studied yet, and this study provides a detailed description of the early growth of the oocytes. Early previtellogenic 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 previtellogenic 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.

BLEHERT (D. S.), METEYER (C. U.), BALLMANN (A. J.), BÖGNOLO (M.), 2010. White Nose Syndrome in North America:103-104. In: 15th 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 but mortality in the eastern United States and Canada. Since the winter of 2006-2007, the 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 in the United States and hibernaculum bats that 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 transmitted from bat to bat by 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 Geomyces destructans, and disease recurrence in bats of temperate regions of North America and beyond. The decline of North American bat populations may have far-reaching ecological consequences.

BÖGNOLO (M.), 2010. The genus Aphaobius Abeille de Perrin, 1878 (Coleoptera, Cholevidae, Leptodirinae):151, poster presentation. In: 20th 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, 545 p. 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 numerous species and subspecies were described, the genus was re-examined 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. muelleri. Only recently, new investigations led to the discovery of the new species A. grottolii (Vailati, 2004). The following latest revision (Bognolo & Vailati, 2010), the genus is composed of four species groups: muelleri, 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. miricae, A. angusticollis, A. kraussi, A. brevicornis and A. melliferus. The southern milleri group is mainly located on the other 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 species pattern of the genus Aphaobius show past isolation in the region between Ljubljana and Zeleniki, 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 limestone in the northern Balkan area.
biogéographie, conservation, endémisme, liste, Madagascar, Tsingy 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: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELI, 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 (Topolnita 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 Topolnita Cave are Rhinolophus ferrumequum, R. euryale, Miniopterus schreibersii, Myotis myotis/oxygenatus). In agreement with some indications, H. capsulatum might be present also in other caves in Romania, for example in Adam Cave, placed near by Topolnita 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.) & HAINN (H. J.), 2010. Nine years of long-term stygofauna monitoring in Southwest Germany;37-38. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELI, 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/


BOURNE (Steve), 2010. Bat Research at Naracoorte. AKMA Journal 78(March):?


BRANCHELJ (A.), WATIROYRAM (S.) & SANOAMUANG (L.-O.), 2010. The First Record of Cave-Dwelling Copepod from Thailand and Description from a New Species: Elaphoidella namnaoensis n. sp. (Copepod, 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 Copepod were collected. For the first time, a stygobiotic (=cave-dwelling) species of Copepod 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. RES: 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 stygobite (vivant dans les grottes) de copépodes a été découverte en Thaïlande. Elle appartient à un nouveau genre des Harpacticoida et a été reconnue comme une espèce nouvelle: *Elaphoidella namnaonensis* 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: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTIEL, 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 DOM occurs in cave and karst waters. The index ratio measures the influence of 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 SRFA and PLFA standards mix is more complex than natural water, 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/

BRINKLÖV (S.), KALKO (E. K. V.) & SURLYKKE (A.), 2010. Adaptation of echolocation call intensity to ecological constraints in phyllostomid bats:106-107. In: 15th 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 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 in sonar call intensity of phyllostomid bats, which often forage in highly cluttered space, but also the echolocation range to orient in situations where intense calls might be disadvantageous, 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/can/d/index.html?110

BRITZKE (E. R.), SEWELL (P.), HÖHMANN (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 (Tsk) 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 Tsk every 14 minutes for the life of the transmitters. We were able to monitor Tsk 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 hibernating ecology of WNS-affected bats under natural conditions.


BROWN (P. E.), 2010. Bats and mine closure: a double-edged sword:107. In: 15th 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: Many 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 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 mine 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 fungus:107-108, poster presentation. In: 20th 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 microflora 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 fungal species or even isolates of biotechnological interest. Such findings could strengthen conservation 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) hydrolyase. This enzyme catalyzes the hydrolytic 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 instantanous 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 Couatingi 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 this 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.iscb2010.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 analysis 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 tissues except the musculature and walls of the four cardiac chambers. KW: Bat, foraging, heart, morphology, niche, roosting.


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 limestones 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 or cave). Furthermore, similarity between habitats (Sorensen 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]

BUZZACOTT (P. L.), 2010. 20th International Conference on Subterranean Biology. AKMA Journal 81(December):7

BUZZACOTT (P. L.), BUCKLEY (D.) & WATERWORTH (P.), 2010. Chemoautotrophic microbial mantle prevalence in Murra El Elyven: catastrophic decline or seasonal fluctuation?:99, poster presentation. In: 20th 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 Elyven, and samples collected in Weebubbie and Warbla caves. The temperature in Murra El Elyven 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 4-2 cm where samples had previously been collected. In September 2009 microbial mantles were again recorded in abundance in Murra El Elyven 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 Elyven and 23.4°C in Tommy Graham’s cave. Meanwhile, the mantles at Weebubbie and nearby Ogolwin caves remained abundant. Given the rapid decline over six months in the prevalence of microbial mantle in Murra El Elyven alone, we postulate that the most likely potential scenario. Firstly, that localised falling average water temperature has transformed Murra El Elyven 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 Elyven 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 phenomenon and to establish which, if either of these possibilities, is likely the cause.

CABANELAS-REBOREDO (M.), DEURO (S.), ALÓS (J.) & HENDRICKS (L.), 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/10.1080/1745100903524690]. 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 Serpulidea in a marline cave (Dentino & Licciampo, 2006).”

CAIRE (W.) & LOUCKS (L. S.), 2000. 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 Serpulidea in a marline cave (Dentino & Licciampo, 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/JKNF-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 during 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 pérdida del peso corporal de los murciélagos, Myotis velifer, en 7 estaciones de la hibernación (octubre-marcha 1979-1986) en Oklahoma occidental. El peso mediano al inicio de la hibernación 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 hibernación 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 hibernación, los machos y las hembras perdieron 0.021 y 0.024 g/día, respectivamente. No detectamos ninguna diferencia en la tasa de la pérdida del peso entre la primera y segunda mitad de la hibernación 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 pérdida de peso fueron levemente más que la pérdida del peso registrada para machos y hembras cuando los murciélagos fueron muestreados cada mes durante la hibernación.


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, 2010, 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 setae 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 endopod, 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 associated with the genus are described for both sex. The new species is placed into the genus Parabathynellidae, Parabathynellidae, New South Wales, Australia, stygofauna.

CARDOSO (P.) & MORANO HERNÁNDEZ (E.), 2010. The Iberian spider checklist (Araneae). Zootaxa 2495(June 4):1-52, 4 pl., 50 réf. 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 (mainly Linyphiidae: 267 species), Portugal presents the highest endemic richness (46 species). Information regarding the provinces from where each species is present is given and presented in a map, allowing a large difference 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/2010/2590.html

CAREY (V.) & CAMPBELL (J. W.), 2010. Macroinvertebrate Survey of Byers Cave, Georgia. Poster P2.50.


CARTER (J.), FOWLES (A.) & ANGELE (C.), 2010. Monitoring the population of the linyphiid spider Porrhomma rosenhaeuri (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 rosenhaeuri (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 cavermoculous 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 number of individuals 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 rosenhaeuri is still well established in the Lesser Garth Cave. The fact 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/pubs/candks/index.html

CASALE (A.), 2010. From Anophthalmus schmidtii to molecular phylogenies: past and present in the knowledge of subterranean carabid beetles (Coleoptera: Carabidae): 152. In: 20th 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 author presents an updated, tentative synthesis of the available knowledge of the main groups of carabid beetles (Geodéphaga, or Carabodea) represented in subterranean environments in different areas of the world. Carabodea, with some families of Staphylinoidea, is considered a group of entomopodan beetles. This group is considered to be the only group within Coleoptera. As generalized ground and mostly pedacious 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 Reicheini, 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 tribes 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 (Paussinae Ozaeni, Pomerognathinae, Dryptinae Zuphiini) will also be recalled and debated. Funds were provided by PRIN-MIUR (Ministry of the University and Scientific Research, Italy) and the EU project Interreg


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 memorized 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\(\text{\textsubscript{9}}\)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 a 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 unfavorable 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 hypogéné Phreatichthys andruzzii Vinciguerra, 1924 à mémoriser un signal chimique synthétique (morpholine, C\(\text{\textsubscript{9}}\)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'acclimation. 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.


CHAKRABARTY (P.), 2010. Status and phylogeny of Millyeringiidae (Teleostei: Gobiiformes), with the description of a new blind cave-fish from Australia, Millyeringa brooksi, new sp. Zootaxa 2557(85):3;19-28, 5 pl., 13 réf. ABS: A phylogeny of Millyeringiidae is reported and a new species, Millyeringa 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 Millyeringa 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 subtropical habitat. This habitat is exceedingly rare and measures to preserve it and its fauna should be taken. KW: Blind, cave, stygobites, taxonomy, troglobydotic. http://www.mapress.com/zootaxa/list/2010/2557.html


ABS: We present oxygen isotope, micro-textural, and molecular evidence of microbial activity in the formation of hydroxylapatite (HAP) in three limestone caves (Gosu, Sunyung, 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. Microtextures 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 δ\(\text{18}\)O values of phosphate (δ\(\text{18}\)O\(\text{PO}_4\)) in HAP precipitated in the caves range from 14.6 to 15.6‰ and are close to isotopic equilibrium with the weighted mean annual δ\(\text{18}\)O value of rain water (δ\(\text{18}\)O\(\text{H}_{2}\text{O}\)) near the air temperature (measured cave temperature). The difference in oxygen isotopic composition between speleothem carbonate (δ\(\text{18}\)O\(\text{CaCO}_3\)) and phosphate (δ\(\text{18}\)O\(\text{PO}_4\)) in adjacent apatite crusts is similar to that of co-existing carbonate and phosphate in modern biogenic apatite. These results suggest that the phosphate isostatically derived during bacterial metabolism 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 δ\(\text{18}\)O values of HAP crusts in limestone caves demonstrate the utility of δ\(\text{18}\)O as an environmental temperature proxy and signature of microbiological processes. KW: Bat guano, Hydroxylapatite, Limestone cave, Phosphate oxygen isotope, Speleothem, Sulphur 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 (Des Moulins, 1827), unique espèce de bythinellidé 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 aquatics, were observed in the various sites. To this list, we have added 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 member of this genus previously 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.
Background: Massive die-offs of little brown bats (P. auritus) have been occurring since 2006 in hibernation sites around Albany, New York. Our findings provide strong evidence for an etiologic role of Geomyces destructans in bat WNS. (i) Direct smears from bat tissues showed 100% DNA match with the fungus present in positive tissue samples. (ii) G. destructans DNA was directly amplified from infected bat tissues. (iii) Isolations of G. destructans in cultures isolated from two sites were 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.


COOK (L. D.), TREWICK (S. A.), MORGAN-RICHARDS (M.) & JOHNS (P. M.), 2010. Status of the New Zealand cave weta (Rhaphidophoridae) genera Pachyrhamma, Gymnopteloton and Turbottoplectron, Invertebrate Systematics 24(2):131-138. DOI http://dx.doi.org/10.1071/IS090447. ABS: The New Zealand Rhaphidophoridae 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.

The weta include species assigned to three poorly differentiated genera, Pachyrhamma Brunner v. Wattenwyl, 1888, Gymnopteloton 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 Gymnopteloton 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: 9th International Congress of Neuroethology, Salamanca (Spain), 2-7 August 2010. Sponsored by the International Society for Neuroethology (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 lock on to and follow a moving target. Differences in swimming trajectories and in lateral line-enabled abilities to detect the cycles in flow perturbations that flow sensing 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

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 Notobathyrella and Billibathyrella, 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 calcrites and each appears to be endemic to a given calcrite 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.


COKENDOLPH (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 the only 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.nslf.ttu.edu/publications/papers.htm

COKENDOLPH (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 termiteophil. The new species is the 14th described species of the order from Southeast Asia, and the 19th member of the genus Apozomus. The described taxa of the Schizomida from Southeast Asia are reviewed. Many species remain to

ÇORAMAN (E.) & FURMAN (A.), 2010. The community structure of cave-dwelling bat populations in the Yildiz Mountains, Turkish Thrace:117. In: 15th 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 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 capaccini, 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 significant differences. 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.) & CHAUVE (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](http://dx.doi.org/10.1111/j.1365-2427.2010.02483.x) 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 debris and sediment in the hyporheic zone remains poorly documented. 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 hyporheic zone. 3. Alder leaves were introduced in a streambed that had been 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 other two 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 treatment 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 hyporheic environment. While shredders consumed 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 role of fungi is intensified 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 a source of carbon to the hyporheic and benthic habitats 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.


COURTIN (F.), STONE (W. B.), RISATTI (G.), GILBERT (K.) & VAN KRUININGEN (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](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 conformed 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 components), 3 bats (13%) had potentially toxic 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.

CRNČEVić (M.), KARDUM (K. L.) & SUDAREviĆ (N.), 2010. Conservation education of cave and subterranean biodiversity: Dubrovnik underground tales:80, poster presentation. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIC and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Ficopomatus enigmaticus (Faúvel, 1923) is a sedentary polychaete which has been found worldwide inhabiting coastal brackish waters, lagoons and estuaries of warm temperate areas of both hemispheres. The worm builds tubes of a 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 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-Tyrhenian 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. A higher variation rate was found along the 1200 bps fragment due to a faster evolutionary rate, than in the smaller region.

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(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 likely related to a unique pathogenicity of the fungus.

CUART CASTELL (J.), 2010. Palaeoecology and palynology of Icelandic groundwater amphipods based on the 16S rRNA gene, Faculty of Life 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 Crumstogynys thingvellensis. However a strong evolutionary pressure has led to a morphological convergence that makes difficult a clear taxonomy classification within this group. One of this study is to assess the position of these species within the superfAMILY Crangonyctoidea, and secondly to assess and compare the phylogeography of a of C. islandicus using different fragment sizes (420 and 1200 base paires) 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.), JALŽIČ (B.) & DESPALATOVIĆ (M.), 2010. Biodiversity in anchialine caves: First record of the tubeworm Ficopomatus enigmaticus (Annelida, Polychaeta):73, poster presentation. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIC and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Ficopomatus enigmaticus (Faúvel, 1923) is a sedentary polychaete which has been found worldwide inhabiting coastal brackish waters, lagoons and estuaries of warm temperate areas of both hemispheres. The worm builds tubes of a 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 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-Tyrhenian 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. A higher variation rate was found along the 1200 bps fragment due to a faster evolutionary rate, than in the smaller region.


CULVER (D. C.) & PIPAN (T.), 2010. Climate, abiotic factors, and the evolution of subterranean biodiversity. 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 development of animal and plant communities. At longer time scales, environmental 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 phenomena, legislation, protected natural areas and subterranean biota need to be assessed in order to coexist. http://carsologica.zrc-sazu.si/?stran=issue&volume=39&issue=3

to subterranean environments. We review four such habitats-shallow interstitial habitats, epikarst, karst, and 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 troglbionts 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 troglobiotic 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 Stigobromus indicated that species from epikarst and seep sites showed no differences in the level of troglomorphy compared to caves 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.

ČURČIĆ (B. P. M.), DIMITRIJEVIĆ (R. N.), RADA (T.), ČURČIĆ (N. B.) & MILINČIĆ (M.), 2010. Chthonius (Chthonius) onaei n. sp. (Chthoniidae, Pseudoscorpiones), a new epigean species from Croatia. Archives of Biological Sciences 62(2):495-501. DOI: http://dx.doi.org/10.2298/ABS1002495C. ABS: A new epigean pseudoscorpion, Chthonius (Chthonius) onaei n. sp. is erected from Podsalpije, nr. Omiš, Mt. Omiška Dinara, Dalmatia, Croatia. Its interrelations with two close congener, Chthonius (C.) litorale Hadži, 1933 and Chthonius (C.) dalmatinus Hadži, 1930 are briefly discussed. KW: Pseudoscorpions, Chthonius, onaei n. sp., Croatia.

ČURČIĆ (B. P. M.), LEMAIRE (J.-M.), ČURČIĆ (S. B.), DIMITRIJEVIĆ (R. N.), MILINČIĆ (M.) & PECELJ (J. M.), 2010. Two new epigean pseudoscorpions (Neobisiidae, Pseudoscorpiones) from the Maritime Alps, France. Archives of Biological Sciences 62(3):827-832. DOI: http://dx.doi.org/10.2298/ABS1003827CL. CL: Cf p. 832, “Remarks. The pseudoscorpions in France, both cave-dwelling and epigean, are scarcely known (Harvey, 1990). This is particularly due to the fact that they have been neglected during faunistic studies, and that pseudoscorpionists in France are diminishing in number in an exponential manner. Moreover, the names of a number of these arachnids are synonyms”.

ČURČIĆ (B. P. M.), MAKAROV (S. E.), RADA (T.), ČURČIĆ (S. B.), ČURČIĆ (N. B.) & PECELJ (J. M.), 2010. On three new cave Pseudoscorpion species (Pseudoscorpiones, Neobiidiae) 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. Specification 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 specialty and others highly specialized and evolved in a river's carriageway. Many species are represented by their origin, biogeography and evolution, it is necessary to compare the evidence about troglobiotic species with that of the epigean forms from different European habitats, especially in the Mediterranean or Dinaric regions. To the south of the river Zrnčanka, up to the lower Neretva valley, a massive Holokarst region rises to a considerable 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 (L. Koch), Neobisius 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: Pseudoscorpions, Neobiidiae, Neobisium montdori n. sp., N. dalmatinum n. sp., and N. dalmatinum. 

ČURČIĆ (B. P. M.), RADA (T.), ČURČIĆ (S. B.) & ČURČIĆ (N. B.), 2010. On Roncus alcocki n. sp., R. krupanjensis n. sp., and R. radji n. sp., three new pseudoscorpions (Pseudoscorpiones, Neobiidiae) 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 (Neobiidiae) are described from Croatia (from nr. Omiš, Dalmatia: R. alcocki n. sp.) and Serbia (near the town of Krupanj, north-western Serbia, Lučica Pećina Cave and nr. Isev. R. krupanjensis n. sp., and R. radji n. sp.), and their diagnostic characteristics are illustrated. Their interrelations with phenetically close congener are analyzed: in addition, the presence/absence of microseetae proximal to the trochothorax eb and esb is established as an important taxonomic characteristic. KW: Pseudoscorpions, Neobiidiae, Roncus alcocki, Roncus krupanjensis, Roncus radji/Ilidzanska Reka.


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 between FP and the proportion of desiccation-tolerant taxa. A high proportion of hypogean taxa distinguished the groundwater-fed and.

populations has become critical in the face of widespread anthropogenic modifications of cave 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 generalization of computing 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.


DEHARVENG (L.), TIAN (M.), LI (Y.) & BEDOS (A.), 2010. Invertebrate biodiversity of the Guanxi caves (southern China):131. In: 20º International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELLI, 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 Guanzhi. The present paper lists all troglobitic 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 emphasize and future prospects are outlined. Distributive patterns of the most remarkable groups of Guanzhi troglobites are given and discussed. Geographical, ecological and taxonomical gaps in our knowledge are emphasized and future prospects are outlined. http://www.icsb2010.net/.


DELTSHEV (C. C.), VRENOIS (B.), BLAHOEV (G. A.) & LAZAROV (S.), 2010. A faunistc and zoogeographical review of spiders in Albania (Arachnida: Araneae):112. In: 18º International Congress of Arachnology, University of Podlasie & International Society of Arachnology, Siedlce, Poland, 11-17 July 2010, Book of Abstracts, editor: Marek ZAKBA. 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.


DIEUELEVEUT (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)].

SOURCE: La faunistic et zoogeographical review of spiders in Albania (Arachnida: Araneae):112. In: 18º International Congress of Arachnology, University of Podlasie & International Society of Arachnology, Siedlce, Poland, 11-17 July 2010, Book of Abstracts, editor: Marek ZAKBA. 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.
detected in Morocco previously, Rhinopoma microphyllum, Rhinolophus blasii, Myotis nattereri, Myotis emarginatus, Pipistrellus rupPELLii, Otomysteris hemprichii and Tadarida teniotis, and new data are provided on their status and distribution. KW: Bats, distribution, Morocco.


DIXON (G.), 2010. Biodiversity of Cave-Obligate Animals on the Domain of the University in the Partial fulfillment of the requirements for honors in the Department of Biology, May 5th, 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 dwellers 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-oblige 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, 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/6ol6&num=4](http://www.checklist.org.br/archive/6ol6&num=4)


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° 2:7 RÉS: Souvent hors de porté et invisible, la vie dans les eaux souterraines est restée très longtemps secrète ou anecdotique. La faune stygobie, caractérisée par une vie qui se développe dans des eaux souterraines, est certainement bien développée dans le monde souterrain. 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 certaines types d’aquifères (porous 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 stygic fauna characterized by an exclusive life in subterranean waters is however well developed. Rhone-Alpes has around 130 species, mostly mollusks 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 stygic fauna was only taken into account in the inventories of the species to protect it in a very marginal way, although numerous forms are rare, endemic, or vulnerable. [http://www.linneenne-lyon.org/rubrique.php3?id_rubrique=41](http://www.linneenne-lyon.org/rubrique.php3?id_rubrique=41)

DOMINGUEZ (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](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 ovogenesis. Vitellogenic ovaries, and almost all females having one or two oviducal eggs, characterized the peak reproductive interval 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 the photoperiodic gonadal activity. The eggs of the species are distributed from July to September. Breeding activity was absent from October to March. The transition from one breeding activity to the other seemed to be related to the temperature of the external environment. The eggs of the species are distributed from July to September. Breeding activity was absent from October to March. The transition from one breeding activity to the other seemed to be related to the temperature of the external environment.

century and a half of collection and identification of stygobionts (i.e. obligate groundwater species). Botanicaea (1986) reported over 7000 species of 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, organisms' small and fragility, and morphological and genetic traits that plague taxonomic assignment are only a 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 Asellidae super-family with a special emphasis on one of the most diverse stygobiont genera: the genus *Proasellus*. Our phylogenetic inferences are 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/

**DOUANGBOUBPHA (B.), BUMRUNGSRI (S.), SOOISOOK (P.), MURRAY (S. W.), PUECHMAILLE (S. J.), SATASOOK (C.), BU (S. S. H.), HARRISON 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, 2):29-50. http://dx.doi.org/10.3161/15081101X504572. 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, including the first from northern and peninsular Thailand, which represent a substantial increase in the species’ known range. It 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: 20th 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 “knee Underground Protection” programme on the cross-border cooperation 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 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/

several authors indicate a poor terrestrial subterranean invertebrate fauna. A fine 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 appear 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 Palearctic 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.isc82010.net/

DREYBRODT (J.) & LAUMANNS (M.), 2010. The Unknown North of Laos. Part 3 - 2009-2010: Karst and Caves of the Provinces Houaphan and Oudomxay. Berliner Hohenkundliche 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 (39 caves). Includes the longest cave of northern Laos (Tham Chom Ost System), which is also the 2nd longest cave of Laos and the currently 9th 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 Laos European Cave Project" (www.laoscaveproject.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 Ost System as well as a chapter on palaeoecological 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.speloeo-berlin.de/php/abstracts.php?volume=38&lan=EN#summary

DRIESEN (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. There was a consistent number of pupae and adults coincided with an increase in the number of prey caught in light 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.

DRIESENS (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 developed a Y-maze apparatus 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-propylthethiane, 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 partially 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 a control comprising a non-predatory odour. The bats showed a 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.


DÜMNICKA (E.), 2010. Stygobiotic oligochaetes in Poland with remarks on their occurrence and distribution in Central Europe:74. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, IC SB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELIJ, 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. Stygobiotic species from families such as 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 Phallodrilinae, 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 even the occurrence of such specific ground 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 stygobiologic oligochaetae 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. Trichodorida cernovellosi, 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


DVORSČAK (K.), 2010. History of the presentation of the Proteus (Proteus anguinus) in Postojna Cave:81-82. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELI, 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 ČEČ 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 19th century took part in romantic, mystery-filled shows 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 individual experience - either by special 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.jscb2010.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 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. However, during the first winter of the disease 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 Blackstone River, NY (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 stygofauna in southwestern Western Australia:82-83. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELI, 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 modeling 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. Radiocarbon 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 crustacean to Leeuwin-Naturaliste caves 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 structure of stygofauna in Lake Cave, with the ultimate goal of developing management strategies for coping with climate change. http://www.jscb2010.net
Southern Australia:39. In: 20th 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 20,000 km² 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 19th 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 remaining 10%. 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 29 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. ABS: Discovery of diverse terrestrial invertebrate assemblages in subterranean habitats associated with iron-ore bearing rock in the Pilbara region. The systematic composition of the assemblages includes arachnids (Araneae, Pseudoscorpionida, Schizomida, Palpigrada), insects (Diptera, 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 (troglophyly), such as loss of eyes and pigment and elongation of appendages, their degree of specialization varied, and a proportion of troglobiotic 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 “troglofauna”. We highlight some key findings associated with the assessment of troglolofauna, and highlight future challenges in this rapidly developing research field. 

EBERHARD (S. M.), STEVENS (N.), PERINA (G.) & BELL (P.), 2010. Troglofauna in the Pilbara region, Western Australia - Patterns in diversity and distribution, and sampling considerations for conservation assessment:38. In: 20th 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 rock in the Pilbara region. The systematic composition of the assemblages includes arachnids (Araneae, Pseudoscorpionida, Schizomida, Palpigrada), insects (Diptera, 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 (troglophyly), such as loss of eyes and pigment and elongation of appendages, their degree of specialization varied, and a proportion of troglobiotic 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 “troglofauna”. We highlight some key findings associated with the assessment of troglolofauna, and highlight future challenges in this rapidly developing research field. 


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


ELIAS (N. A.), HASHIM (R.) & KINGSTON (T.), 2010. Energy and nutritional demands in Hipposideros bicolor 142 kHz giving birth right on time:127. In: 15th 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 maximized. Failure to match peaks in 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 Lumpur 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 monestry pattern of reproduction in which females produce one litter in a single season detected. Preliminary data suggests that 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.


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
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., limestones, dolomites, gypsum, halite) and generally 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 defined not by a continuous conduit system throughout most of the drainage basins.


ESMAEILI RINEH (S.), AKMALI (V.) & SHARIFI (M.), 2010. Tadovan Cave - a living ecosystem for study of bats in Iran:130. In: 15th 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 Tadovan cave is located 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. mastacutelum, Myotis blathyi, M. capaccini, R. euryale, R. euryale, R. hypossideros, and M. hipposideros schreibersii) 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. blasti, R. hipposideros, Myotis blathyi, M. capaccini, and M. hipposideros schreibersii hung from the cave ceiling. Several bat specimens were surveyed for ectoparasites. The found ectoparasites included the genera Spinoturris, Eutrombium, Ixodes, Pencilidia, and the family Sterbida. The inventory of the cave includes identification of the bat species, population estimate, ectoparasite load and reproduction state in the bats inhibiting 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: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELI, 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 Azarbijan province, Sasan River in Fars province, Ghori-Ghale cave in Kermanshah province, Razbahi spring in Lorestan province and Ghaemshahr and Daniel cave in Mazandaran province, Cheshme-Siah in Kohgiloyeh-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-

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.), 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(September 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, and its position within the subgenus Aphaenops (sensu stricto), but differs from its closest congeners by the small size-it is the smallest species of the group-and characteristics 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 Ciffait. 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 surfac. 84: In: 20th 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 (Badura & Brnišek, 1908, Prc, 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 Spomenika (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 valuations of caves. A legal regulation on the protection of all caves was defined, while 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 fulfill 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 to be able to conserve the subterranean 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. Therefore, 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/
FAURE (P. A.), VESELKA (N.), McERLAIN (D. D.), HODGKISSON (D. W.), EGER (J. L.), CHHIEH (R.), MASON (M. J.), BRAIN (K. L.) & FENTON (M. B.), 2010. A bone connection signals laryngeal echolocation in bats:132-133. In: 15th 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 (Ochonycteris 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 (K. L.), BERNARD (E. C.) & MOULTON (M. B.), 2010. Survey of Pogonognathellus Börner (Collembola: Tomoceridae) in the Southern Appalachian Mountains. 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 Mountains. The Ural Scale pattern, cuticle color, and molecular data were used with morphology and chaetotaxy to reapprove 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: P. celsus from the Great Smoky Mountains National Park resembles the California cave species P. celsus but possesses clubbed tenant hairs on all tibiotarsi; in P. celsus, the tenant 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.
evolution of species in underground systems in the world is based on three 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 intrusions and regressions), might have led to the evolution of many lineages of subterranean fauna in Brazil. Furthermore, especially for terrestrial troglobions, 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.icbs2010.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: 20th 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 arenite, ferruginous and granitic caves had their invertebrate communities studied. The present study aimed to compare the structure of invertebrate communities associated with carbonatic, magmatic, siliclastic and ferruginous caves. Significant differences related to richness were observed when comparing pairs of caves: siliclastic and carbonatic, ferruginous and siliclastic, magmatic and siliclastic, 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 troglobiotic 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 ferruginous rocks causes difference in amount of species. Cave size affects evolution of body length, and water velocity affects the length 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 form 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. Intertidal communities consist of small and stout, small and slender, and few species. InCarbonatic communities, slender type of species are not common opportunists, typically found also outside intertidal 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.icbs2010.net/.


Filippova (A.), Purschke (G.), Tzetlin (A. B.) & MÜLLER (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 Phyllodocida is still unresolved: phylogenetic analyses either show them as sister groups or more widely separated. This paper 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, whereas fibers in the anterior part of 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 ventricles of M. prolifera comprise primarily radial muscle fibers arranged in different rows, while in Sphaerodoropsis sp. do not; (5) 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. provides another example of the evolution of many species lacking typical circular muscles in the body wall. KW: Annelida, phalloidin, F-actin, evolution, proventricule. http://onlinelibrary.wiley.com/doi/10.1111/j.1744-7387.2010.09191.a/abstract.


Fiser (C.) & Trontelj (P.), 2010. Adaptive morphology of subterranean amphipod communities:165-166. In: 20th 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 nephargid 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 form 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. Intertidal communities consist of small and stout, small and slender, and few species. InCarbonatic communities, slender type of species are not common opportunists, typically found also outside intertidal 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.icbs2010.net/.

FLOT (J.-F.), BAUERMEISTER (J.) & DATTAGUPTA (S.), 2010. Niphargus amphipods and their Thiobacillus ectosymbionts in Frasassi (Central Italy): a tale of multiple invasions and host specificity. In: 20th 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 icthus, the only amphipod species previously reported from this locality, was recently shown to host Thiobacillus 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. icthus 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. icthus, two others have since then been described as N. frassanissianus 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 split 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 Thiobacillus symbionts on each of them. Scanning electron microscopy showed filamentous ectosymbionts on all three Niphargus species examined to date (N. icthus, N. frassanissianus and N. montanarius), and their assignment to the genus Thiobacillus was confirmed by sequencing 16S rDNA libraries. Phylogenetic analyses of 16S rDNA sequences reveal that Thiobacillus ectosymbionts are not monophyletic. Moreover, some symbiotic Thiobacillus 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. 

FLOT (J.-F.), WÖRHEIDE (G.) & DATTAGUPTA (S.), 2010. Unsuspected diversity of Niphargus amphipods in the chemoautotrophic cave ecosystem of Frasassi, central Italy. BMC Evolutionary Biology 10:171. DOI: 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 icthus, 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. icthus 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 the 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 events within the phylogenetic tree. At least two of these four species harbor Thiobacillus epibionts, which paves the way for further studies of the specificity and evolutionary history of this symbiosis.
or artificial substrates and bacterial 16S rDNA was amplified with universal bacterial 16S primers. Bacterial 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/net


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 sp. n. 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 sp. n.) belonging to the ‘meridionalis’ group. It was collected in a subterranean environment, in Liéquè, Larroque massif, Mouriès, Arége, 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 sp. n. 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. finsimilleni Freneseda & Salgado, 2006. We designate lectotypes of B. meridionalis and B. nitidula Normald, 1907. KW: Bathysciola, Meridionalis, Group, Pyrenees. RES: Se describe una nueva especie del género Bathysciiola Jeannel, 1910 (B. liqueana sp. n.) que pertenece al grupo “meridionalis”. Se ha encontrado en medio subterráneo, en la Grotte de Liéquè, macizo de Larroque, Mouriès, 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. finsimilleni Freneseda & Salgado, 2006. Se designan los lectotipos de B. meridionalis y de B. nitidula Normald, 1907. PC: Coleoptera, Leiodidae, Bathysciola, Grupo meridionalis’. Pirineos. http://www.raco.cat/mirador/ABC/articulo?hues=244976

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)

[On the presence of Catops subfuscus Kellner, 1846 in the Pyrenees (Coleoptera, Leiodidae, Cholevinae, Catopini)]


FRESNEDA (J.), GREBENNIKOV (V. V.) & RIBERA (L.), 2010. The geographic and phylogenetic limits of Leptodirini:152-153. In: 20th 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 Sardinya, 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 Scicophyes) 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.) & HAMIDOVIC (D.), 2010. Activity and roosting ecology of a mixed colony of Miniopterus schreibersii and Rhinolophus euryale in a cave in near Zagreb: Improving current bat monitoring and cave management:135-136. In: 15th 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 Vetenrica cave, a popular touristic 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 mightcause the speciesto desert the roost at the critical time just prior togiving 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: 15th 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 naive wildlife populations, which in turn can have substantial impacts on ecosystem integrity.


FRIEDRICH (M.), RAI (P.), BARRETT (R.), DAINES (B.) & CHEN (R.), 2010. The blind cave beetle that doesn’t: histological, behavioral and molecular evidence of functional photoreceptors in Ptomaphagus hirtus:153-154. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRČIĆ and Peter TRONTELI, 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 aerial 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/
century, 12 species, and, within the 1st half of the 20th 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 220 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.


GARCÍA-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: 15th International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants, edited by: Ivan HOARÁCEK 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, Netherlands 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.


GAZARYAN (S.), 2010. Distribution and migratory status of Pipistrellus pipistrellus and P. pygmaeus in the Russian Caucasus:144. In: 15th International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants, edited by: Ivan HÖRÄÇEK 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 (F), frequency (SF), and frequency (MF). 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 call 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.


**GEOFFROY (J.-J.) & IORIO (E.), 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: 20th 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 synonyms, 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 Scutigeromorpha (5% 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 present 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 *Eupolypholis excellens* (Silvestri), *Eupolypholis tridentina* (Fanzago), *Lithobius ambulodontus* Demange & Serra, *Lithobius deroutae* Demange, *Lithobius nodulipes* Latzé, *Lithobius schubarti* Demange, *Geophilus pygmaeus* Latzé. 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 troglobilic and troglobiotic taxa among the chilopod community. Several highly troglobilic taxa, linked with a high degree of endemicism are selected and proposed as good candidates for major patrimonial interest and conservation measures, such as for instance *Lithobius cavernicola* Fanzago and *Lithobius hoffmeisteri* Iorio, *Lithobius (agniesz) Ribaut, *Lithobius hoffmeisteri* Demange, *Lithobius raffaldi* Iorio, *Lithobius scotophilus* Latzé, *Lithobius speluncarum* Fanzago, *Lithobius typhlus* Latzé, *Cryptops umbriacus* Verhoeff, *Cryptops umbriacus lewisi* Iorio, *Geophilus persephones* Foddai & Minelli. Some of them could be selected for future UCN 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- INPNMHN databases. http://www.icsb2010.net/
inhabiting ground waters of Slovenia depict a fauna of approximately 50 species, 20 of which are stygobionts. In a Slovenian ground water, our study enabled us to study in more depth the oligochaete fauna of this environment. The material studied resulted from 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 studied oligochaetes species. Among them, Drilus marmoreus, Cernosvitoviella, Parvirdilus, 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. Einfluss der menschlichen Aktivität auf die ökologische und biodiversitätsgesetzlichen Verhältnisse der Hohlenbrüter in der Rhône-Alpen: ein synthises. 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 moeurs 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 fin 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 : I) Au cours des années 1950-1960, les populations de chauves-souris se sont effondrées en France, probablement en raison des activités humaines (modifications dans les pratiques agricoles, urbanisation, transport, tourisme souterrain, etc.). II) 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’ils sembleraient 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 néanmoins 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-20th 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.) i) during the second part of the 20th 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 20th 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 intervention of human activities.

http://www.linnenne-
yon.org рубрики.php?3d_rubriques41


communauté des invertébrés de ces cours d'eau karstiques est dominée en effet par les truites et présente une composition spécifique de coryphaenid (Coryphaenidae). 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 crénel et le frithial des cours d'eau de montagne, à des altitudes bien supérieures à celles où elles ont été recoltées dans les cours d'eau karstiques de la SI. Cette analyse comparative des 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 éloignées isolées, pour les apports 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 (résiflues, biocénoses, populations) qui sont habituellement présents dans 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 Gammaridae, 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 Simuliidae, Simulium sannini and S. galloprovinciale, occur on tufa (from Spain to Libanon). One of the most noteworthy faunal peculiarities, common in theastic hydrobiology of Mediterranean 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 atypical. 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 Rhycaphyla valisclausae, 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 isolated fauna which existed in the geological 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: Rissooidea: Hydrobiidae) from Montenegro. Archives of Biological Sciences 62(2):441-447. DOI: http://dx.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. lutaea Radoman, 1976 are recognized and defined as separate species; B. taraensis n. sp., which lives partially sympatric with B. dispersa in the central part of the Adriatic Sea, and B. radomana nov. sp., a species from the Montenegro inhabited the Dinaric part of the Black Sea drainage area, while it is practically absent from the Adriatic drainage area. KW: Montenegro, Bythinella dispersa, Bythinella lutaea, Bythinella taraensis n. sp.

GOATER (S.), GARDNER (A.) & KNOTT (B.), 2010. Are stygoauna really protected in Western Australia?:85. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSE 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTLEJ, 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 and policy initiatives encouraging commercial proponents to fund surveillance programs to perform 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 regarding 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.icse2010.net/...
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 endemc orange coral Astricentrotus calcarificus
(Scleractinia: Dendrophylliidae). Morphological aspects of
gametogenesis and ontogeny. Marine Biology Research
6(5):421-436. DOI: 10.1080/17451000903428488.
BL: Cf p. 422-423. " Astrid calcarificus is found at depths of 0-50 m (Rossi,
1971), but it 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: Polydesmidae:
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. tianii
sp., P. bedosor n. sp. and P. arunani n. sp. All six congeners from
southern China have only been found in caves, all likely representing
troglobites, whereas the sole epigean species is known from a high-
mountaine forest in northern Thailand. Such a vast disjunction is certainly
due to endoclimbing, also meaning a far more diverse fauna of
Pacidesmus to actually exist. KW: Diplopoda, Pacidesmus, new species,

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

GONZÁLEZ-GORDILLO (J. I.), ANGER (K.) &
SCHUBART (C. D.), 2010. Morphology of the larva and
first juvenile stages of two Jamaican endemic Crab species
with abbreviated development, Sesarma windsor and
Metopaulias depressus (Decapoda: Brachyura:
Pleocyemata). Journal of Crustacean Biology
30(1, February):101-121. 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
10 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 molts to a
facultatively lecithotrophic megalopa. In contrast, M. depressus directly
molts 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
these could be a shared autecological characteristic or the consequence of
covvergent 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:
Minioptiridae), with the description of a new species, M.
griffithsi. Journal of Zoological Systematics and
Evolutionary Research
48(1, February):75-86. DOI:
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 north of the Onilahy River from those to its
sister taxa to M. gleni, a taxon described in 1995 (holotype from
Sarodrano, just north of the Onilahy River). On the basis of the information
actualis, M. griffithsi se trouve dans la zone bioclimatique sub-aride de l'ile, 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'ile et sur
l'Ile 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 le majeur de Madagascar au sud 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 km², mais ce n'est certainement pas
représentatif de la distribution de cette espèce.

GOTTSTEIN (S.), ŽGANEC (K.), KRNEVIČI (V. C.)
& POPJJAČ (A.), 2010. Life history traits of the epigean
populations of Niphargus dalmatinus (Crustacea: Amphipoda)
along the Cetina River, Croatia:23-24. In: 20th International Conference on Subterranean Biology,
Postojna, Slovenia, 29 August-3 September 2010, ICSB
known about the epigean niphargid autecology. The aim of this study was
to establish the life history traits of the epigean Niphargus dalmatinus,
which regularly inhabits springs, epigean 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
seven 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 hyporheal zone, when water temperature
reached 9.7°C with the narrow range of 7.3-12.5°C.
Ovigerous 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 of N. dalmensi will help to interpret the distribution patterns, population structures, and the coexistence with other crustacean species.

http://www.icb2010.net/


GRAČIA (F.), CLAMOR (B.), GAMUNDÍ (P.) & FORNÓS (J. J.), 2010. El sistema de cavidades Gleda - Camp des Pou (Manacor, Mallorca). Endins 34:35-68. RES: La connexion entre la cova de sa Gleda i l’avenç des Camp de Pou ha permès afegir un nou sistema al llevat de Mallorca, el sistema Gleda-Camp des Pou de 13500 m de recorregut, que situa aquesta cavitat litoral com la de major recorregut subaquàtique d’Euròpa dins d’aquesta situació i espeleogènies. Es comenten les principals fites de l’exploració del sistema i els aspects tècnics per poder realitzar les tasques exploratòries a la cavitat. És fa la descripció tant dels nous sectors descoberts com de les contribucions novedoses 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 comprenció millor la gènies 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 cita 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 oligotòfic. ABS: The connection established between Cova de sa Gleda and Avenç 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 litoral 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 contrast existing between the western sector, 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.


GRIEBLER (C.), STEIN (H.), KELLERMANN (C.), BERKHOFF (S. E.), BREILMANN (H.), SCHMIDT (S. L.), 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 Environmental Agency (UBA) together with 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 caves 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 evaluation perspectives. It describes a new perspective on the implementation of groundwater ecosystems assessment programmes. KW: Aquifers, Bioindicators, Ecological assessment, Groundwater ecosystems, Biomonitoring, Stigofauna.

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/s11453-010-9173-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) ~3.0×10^3 colony-forming units (CFU). At the Florida and subterranean sites, the lowest average count noted was 3.5 bacteria CFU m^-3, and the highest averaged 140.4 total CFU m^-3. 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 aerobiocrombory 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 can be a useful tool, i.e., everything is not everywhere. KW: Bacteria, Fungi, Methods, Membrane filtration, Liquid impingement, Aerobiocrombory, Microbiology.

GRÜNKE (S.), LICHTSCHLAG (A.), BEER (D. de), Groupe herpétologique drômois & LPO Drôme, 2010.

Groupe Chiroptères Aquitaine (GCA), 2010.

Groupe mammologique normand, 2010.

Page 42 sur 116

©

Province, Thailand. These species are distinguished from each other and pattern and squamation characters. This brings the total number of illustrations that the unrealized diversity in this group is a function of unfocused collecting efforts coupled with poor taxonomy. 

KW:

bats in the Schenkgroeve, an artificial limestone cave in

west of the Tenasserim and Phuket Mountains and possibly all the way to

Thiobacterium spp. have not been phylogenetically classified. This

metabolic oxidizer,

phenology and circadian rhythms of this population.

observations will be done during a year to evaluate aspects on the


http://www.zoologievereniging.nl/raad/1018


GRÜNK (S.), LICHTSCHLAG (A.), BEER (D. de), KUYERS (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/ismej2010.23. 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 rDNA 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. Morphological, physiological, and other biochemical data suggest chemosynthetic 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.


GUADANUCCI (J. P. L.), BRAGA (P. L. M.), DE SOUZA SÁ (F.) & DA FONSECA FERREIRA (R.), 2010. A troglobyphe population of Diplura sp. (Araneae: Mygalomorpheae: Dipluridae) in a quartzitic cave in Diamantina, Minas Gerais, Brazil:172. In: 18th International Congress of Arachnology, University of Podlasie & International Society of Arachnology, Siedlce, Poland, 11-17 July 2010, Book of Abstracts, editor: Marek ZABKA, ISBN: 978-83-7051-575-1, 507 p. ABS: The cave Monte Cristo, located at 18°17′22.3S, 43°35′51.1W, is an approximately 200 meters long quantzitic formation. Hypogean environments house animals classified in three ecological-evolutionary categories according to their dependency on the cave: troglobene, troglobryphe and troglotibe. During an inventory survey on caverncinoulous arachnids in caves in Diamantina, state of Minas Gerais, several representatives of Diplura sp. were found. Considering the rarity of dense populations of Mygalomorphe 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 silvly webs with tunnels with sheet web at the entrance, what makes them highly adapted. This work aims at studying this population and present data on the abundance of individuals, spatial distribution within the cave, territoriality, phenology and circladian 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 coded ink on the carapace. A total of 38 individuals were marked, what makes it the largest mygalomorphe 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 prey 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 of webs of Diplura sp. were found. Several other animals are known to inhabit caves as troglobyle populations (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.
that some species are, indeed, widespread. However, species ranges appear to be at least in part 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 troglobiota 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 benchmark. Region-scale sampling, however, provides a much better basis for interpreting genetic and morphological variation than site-specific work. One important challenge for troglobiota 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 deeper understanding of troglobiota distributions. http://www.icsb2010.net/


HANÁK (V.), ANDĚRA (M.) & BENDA (P.), 2010. Česká chiropterologická bibliografie: Soupis publikovaných a diplomových prací od počátku 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]. Vespertilio 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 19th century) till the year 2009. Included are also all citations of papers by Czech authors working abroad or using 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.cz/publikace.php?r=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:161. In: 15th International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants, edited by: Ivan HORÁCEK and Petr BENDA, ISBN 978-80-87154-46-5, 380 p. ABS: Vertebrate remains recovered from a cave near Mé Auré on the central southwestern coast of the main island of New Caledonia (Grande Terre), southwest 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 eaten by people. Data suggest that at least one insectivorous bat species has become extinct in New Caledonia.
example of scientific altruism! When he entrusted his manuscript of 168 typed pages in German, (Pretner 1910: "Die Verdiene der Leo Weirather und die Anthropologie der Gewöhnlichen Höhlenschildkröte 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): Die Friedensnzipe, die Australisierer and the 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.) & HOBS III (H. H.), 2010, Effects of glaciation on the distribution of troglophilic biota in Ohio, USA:41, poster presentation. In: 20th 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 cavernicolous by displacing, extirpating, or, in the case of stygobionts, possibly expanding species' habitats exponentially and allowing for large distributional ranges. The study of troglophilic 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 troglobions and seven stygobionts. Trogloplasts 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 trogloplasts, 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 are more numerous, stygobiotic species are better distributed as has been shown in other regions of the United States (eight troglobions found in nine caves in six counties vs. seven stygobions found in 22 caves in eight counties). Troglobions 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. 

HEADS (S. W. Fls), 2010, The first fossil spider cricket (Orthoptera: Gryllidae: Phalangopsinae): 20 million years of troglobiomorphosis 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. Araneacryllus dianyi gen. et sp. nov. represents the first fossil record of Phalangopsinae, and is assigned to the tribe Luzarini, subfamily Araneaceae gen. nov. within a clade comprising Arachnopteryx, Neopantheroides, Longiparites, Mayagryllus, Nemoricantor, and Prolongiparites. This clade is the sister group to a clade comprising Amphibacusta, Ctenothemis, and Noctivox. The results of this analysis suggest that: (1) the common ancestor of all Amphibacustina was epeican, during the last 250 years. Alternatively, it is possible that this bat continued to be part of the extant New Caledonian fauna but has yet to be recorded by modern surveys.

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 relationship between the different inhabitants of the cave, should enable the design of a control strategy to guarantee its conservation.

KW: Caves, symbiota, food chain, fungi, rodents.


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, Cáceres, have suffered outbreaks of Fusarium solani, a fungus that has also been found in the air and sediments of the Dona Trinidad Cave, Ardales, Málaga. This work sets the bases for the creation of a Cave Microbiological Observatory for controlling the fungal presence 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 communities and cave inhabitants (insects, rodents, etc.), as many of the fungal presence 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 present.

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://dx.doi.org/10.1093/mollus/eyq002.
species of Machaerites (Coleoptera: Staphylinidae: Pselaphinae) from Croatia. *Natura Croatica* 19(1, June 30):111-119. ABS: Machaerites pavilek sp. nov. and M. marjanaci sp. nov., new cveniculous 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, biogeography, Croatia, taxonomy. 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, 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: This site has been known as a haunt of Tissue moths (*Triphosa dutilata*) for 100 years and I have recorded Herald (*Sciloeptrix 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 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 (Stonehills 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 waterfall that tumbles down Gildersbank Sink 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/publications/index.html?i=110


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, and particularly in southern Texas, 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 historical estimates. Overall, our 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.), LEIJS (R.), WATTS (C. H. S.) & AUSTIN (A. D.), 2010. Groundwater calcrites: sheets of subterranean habitat scattered on an Archaean landscape:24-25. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRČIČ and Peter TRONTELJ, ISBN 978-961-266-286-5. ABS: Groundwater (phreatic) calcrites are the main, often the only, habitat for aquatic troglobionts through much of arid Australia. Originally considered as homogenous habitats, calcrites 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 Gordwana elements (e.g., Spelaerogryphaea and some Parabuthynellidae and Candoninae) as well as late Tertiary colonisers (e.g., Dytiscidae, Oniscidea). Groundwater flow in the Yilgarn is confined to broad palaeorainfall 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 calcrites 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 calcrites that each stretch for tens of km. Biologically, the calcrites form subterranean islands in the desert. The stygobionts are mostly endemic to a single calcrite irrespective of whether the species may be air breathing (Dytiscidae), or not (Amphipoda), or whether they are interstitial (Parabuthynellidae). The groundwater between the calcrites occurs in a matrix unsuitable for aquatic troglobionts. Chemical sedimentation of calcrites 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 phyleogeography of the aquatic troglobionts. Gene flow does occur through the length of a single large calcrite (scale 104 m) although the populations are not panmictic. No detailed fine scale hydrology has been conducted on calcrites 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


IKER (B. C.), KAMBESIS (P.), OEHLER (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 cave conduit 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 source-derived catalytic 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 the presence of atrazine altered the natural microbial processes in these cave sediments, leading to an accumulation of nitrates. 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, roasing 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 energy mobilization. Swarming roosts tend to have a higher minimum temperature than hibernacula. The energetic effects were that the presence of atrazine altered the natural microbial processes in these cave sediments, leading to an accumulation of nitrates. 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.

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: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELi, ISBN 978-961-269-286-5. ABS: The natural monument Kalkberg, which includes the Segeberger Cave, the gypsum hill and the Small Segeberge Lake, is intensively influenced by human. If measures of protection are necessary, the Kalkberg is the most suitable site. A total of 13 caves are developed for more than 20000 bats and the habitat for the endemic cave beetle Cheleuta 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 on-ground rock face. The hill. Most of the actions were realised. Thus it was possible to minimize the effects of primarily planned geotechnical measures. The focus was on non invasive techniques to assure to protect the ecosystem. http://www.iscb2010.net/
Flying foxes are kept in tropical nocturnal pavilion designed as artificial fauna was analyzed, as well as the occurrence of the species depending on the time of day. For this purpose, we surveyed the fauna of Oribatid mites (Acari, Oribatida) from the Movile Cave area (Dobrogea, Romania). 

Social calls and social behaviour was recorded in a captive population of the bat described above. ABS: The paper discusses the results of the investigations on the orbibrattes collected from the Movile Cave area. ABS: The adaptive benefits of regressive troglobitic and phonotactic strategies of feeding in the cavedfish Astyanax mexicanus. ABS: The search for springtails: Boomslang and Silvermine, November 2010. Cape Peninsula Speleological Society (CPSS) Newsletter (December) 2 p.

JAHELKOVÁ (H.) & VAŠÍKOVÁ (M.), 2010. New data on the species Troglophantes (Araeanae, 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 réf. ABS: In this paper we describe Troglophantes lanai n. sp. from Pennine Alps and the unknown female of T. boncarnoi, 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 Troglophantes, 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. ABS: The search for springtails: Boomslang and Silvermine, November 2010. Cape Peninsula Speleological Society (CPSS) Newsletter (December) 2 p.


IVAN (O.) & VASILIU (N. A.), 2010. Fauna of Oribatid mites (Acari, Oribatida) from the Movile Cave area (Dobrogea, Romania). Travaux de l’Institut de Spéologie “Émile Racovitza” 49: 29-40. ABS: The paper discusses the results of the investigations performed on the orbibrattes 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, orbibrattes mites, Movile Cave. http://www.specotraux.asr.ro/01m.html

JAHELKOVÁ (H.) & VAŠÍKOVÁ (M.), 2010. Social calls and behaviour of Roussettia aegyptiacus: First results:182-183. In: 15th International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants, edited by: Ivan HORÁČEK and Pet 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 Roussettia 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 0.7-1.6 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 8.0-12.0 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 the edge of the group. ABS: The search for springtails: Boomslang and Silvermine, November 2010. Cape Peninsula Speleological Society (CPSS) Newsletter (December) 2 p.

JALŽIĆ (B.) & BREGOVIĆ (P.), 2010. The edge of the range of genus Anthroherpeton in Croatia:156, poster presentation. In: 20th 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: Although they have always attracted the attention of many biologists, subterranean beetles of genus Anthroherpeton 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 vlačom, Močiljska špilja; one pit: Glogovaški). It will also be processed data from new sites. The paper will be compared with the nearest cave type locality in Bosnia ans Herzegovina. For now, the species recorded in Croatia are Anthroherpeton apfelbecki apfelbecki and Anthroherpeton matulici. During this study the discovery of new taxa is possible. The poster will clearly display the distribution and taxonomy of the genus Anthroherpeton in Croatia. There will also be a small note on the genus Leptomesom. http://www.icsb2010.net/
embryos, which increases mouth and taste bud development at the expense of eyes, via pleiotropic Shh signaling. Cavefish lack melanin biosynthesis in regressed photoreceptors due to loss-of-function mutations at oca2, which normally regulate 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 Oliurus 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.icb2010.net/.


JANG (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.1365-294X.2010.01785.x. ABS: The cause and significance of variation in echolocation call frequency within sympatric 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 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 suggest an effect of cultural drift, and challenge the prey detection hypothesis. Moreover, an intriguing difference among 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. http://www.icsb2010.net/.


ABS: Diverse biogenic and abiogenic processes produce calcite speleothems. From a biogenic perspective, cave microbes produce a 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 microbially-mediated involvement in the formation of pool floors, stalactites/stalagmites, cave pisoliths and moonmilk. Nevertheless, absolute proof of microbial biogenesis in cave calcite speleothems is commonly difficult because taphonomic processes and/or diagenetic processes commonly mask evidence of microbial activity. The assumption that calcite speleothems are abiotic 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.


JUAN (C.) & EMERSON (B. C.), 2010. Evolution of diversity: the precarious evolution of 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, modern understanding of biogeography 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 main 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 convergence, often 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, dispersal and divergence.
JUGOVIC (J.), 2010. Mesovoid shallow substratum (MSS): 25-26. In: 20th 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 (Jubertie et al.). At the same time Ueno described in Japan the subgenus Aphaenops and Speonomus migrating from small populations surviving changed, and a soil covered the scree. It was colonized by Coleoptera the genesis of the MSS began 12000-13000 years ago when climate species, and 46 genera. Also found are: Isopoda, Pseudoscorpiones, dwellers. The specific community is composed of troglobile and MSS: one specific to the MSS, and the other composed of selected soil which penetrate passively or actively. Two fauna communities inhabit the compact bedrock. The more frequent MSS consists 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 troglobile and troglobiotic species, the same as in caves, or specific to MSS. Dominant group, the Coleoptera Trechinae and Leptomorphae: around 120 troglobitic species, and 46 genera. Also found are: Isopoda, Pseudoscorpiones, Araneae, Chilopoda, Diplopoda, Collembola, Campeida, 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.), PREVORČNIK (S.), ALJANIČIĆ (G.) & SKET (B.), 2010. The shrimp rostrum between phylogeny and adaptation:118, poster presentation. In: 20th 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 aphibian predator Protes anguinus, longer rostra armed with more numerous teeth are recorded. These shrimps are also larger than the ones living in the presumably more diverse 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 Protes was recorded on shrimps with long rostra. Also, a handling time of Protes 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: 20th 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 limestone 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 & Zaklček, 2009, being more closely related to the epigean Dugastella valentins (Ferrer Galdiano, 1924) than to its supposed congeners. The taxa from the other two areas constitute a monophylum comprising the Caucasian Xiphocaridinella Sadovsky, 1930, and three Dinaric subgenera: sg. Troglocaris (= Troglocaris s. str.), sg. Spelaeocaris 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 phyllogenetic and morphological characters of Spelaeocaris, Spelaeocaris 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/
roosting strategies within the range of sympathy? 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 the behaviour between members of Pipistrellus pipistrellus, 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

KARANAN (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 troglotibe appendage elongation:119. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELIJ, ISBN 978-961-269-286-5. ABS: During recent biospeleological research of the Velebit Mountains (Croasia), 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 were distinguished according to the degenerated eyes of the "tapetal-less form" compared with some closely related troglotibe species from the same genus and trogloticbin sironids generally. There are some endemic representatives of the same genus with elongated appendages too. This fact opens a question about functional significance of appendage elongation in troglotibes, 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 Nitocrella (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 Nitocrella Galassi, De Laurentis & Doile-Olivier, 1990, representing the first record of this genus in Australia. Nitocrella operculara 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 congener by the reduced armature of the antepenultimate and autapomorphic characters of the fifth leg. Three other species of Nitocrella has cuticular windows on prosomal or urosomal somites, or six elements on the third exopodal segment of the second leg. Nitocrella 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 armature of the antennula, antenna and almost all mouth appendages, as well as the large lateral pores on the fourth pedigerous somite, number of spinules on the armature of the antennula, antenna and almost all mouth appendages.
the anal operculum, number of setae on the maddibular 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 

**Nitocrella** and three outgroup taxa, based on 45 morphological characters. The resulting cladogram shows that the ingroup is well defined regarding to four synapomorphies, but the Australian specimen 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, stygofoam, subterranean, Tethyan relics, Western Australia, Yilgarn, zoogeography.

**KARYTUĞ (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 Kızılkalesi 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.


**KLINGENBERG (C. P.), 2010.** There’s something afoot in the evolution of ontogenies. *BMC Evolutionary Biology* 2010 10(7):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 may Fail. There, 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 Museum 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 hibernacula must offer a suitable microclimate for bats. Several important physical factors decide on the selection by bats of a refugee 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. RES: 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 gîtes par les chauves-souris: les gîtes utilisées en tant que lieu d'hibernation, dans lesquels les chauves-souris restent pendant l'hiver; les gîtes utilisées comme gîtes pour les colonies de reproduction au cours de l'été et les gîtes utilisées comme gîtes temporaires au cours des périodes de transition (au printemps et en automne) comme endroits propices pour y trouver leur nourriture. Les gîtes 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 se forment dans le réseau de galeries. KW: Chiroptera, écologie, hibernation, cave microclimate, refugioclimate.


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](http://dx.doi.org/10.1111/j.1469-7998.2010.00708.x). ABS: The endemic Malagasy microhylid genus *Stumpfia* 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 *Stumpfia* 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 *Stumpfia*, 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 *Stumpfia* contains one species from Nosy Hara, one from Ankara, one from Ampombolofo 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 fin disc, relative eye diameter and relative head width. We discuss the status of *Stumpfia 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, Microhydidae, Cophylinae, *Stumpfia*, 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, Ryuku Islands, at a depth of 30 m. In general morphology, it is most similar to *C. inermis* A. Milne-Edwards & Bouvier, 1892, but can be easily distinguished from that species by the elongate anterior calcar 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, Ryuku Islands. [http://www.mapress.com/zootaxa/list/2010/2690.html](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: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTJEI, 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-Pannonian and Mountain macroregion are far equal with 48.5% and 48.6%, while the Eastern-Pannonian macroregion has only 21.9% of centipede taxa recorded for Croatia. Centipedes of Croatian fauna belong to 4 superfamilies: Scutigeromorpha, Lithobiomorpha, Geophilomorpha and Staphylinomorpha. 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 cosmopolitans, 6 are Mediterranean endemics, 5 are Eastern European endemics, 3 are Euro-Mediterranean endemics and 1 is an Itrian 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 on the 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. leotyphus* and *E. obrovensis* are troglognaths, found in Croatia only in a few caves, with a high degree of morphological adaptations to cave habitats. Other species are troglolthes, also found mainly in caves, but in epigeal habitats as well. [http://www.icsb2010.net/]

KONEČ (M.) & BULOG (B.), 2010. Three-dimensional reconstruction of the inner ear of Proteus anguinus (Amphibia: Urolela):119-120, poster presentation. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTJEI, 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 spaces were 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 Reconstr was used for reconstruction. It is not the final 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 supplemented additionally by histological pictures. [http://www.icsb2010.net/]

KONEČ (M.) & TRONTJEI (P.), 2010. Microsatellites as new tools to study the evolution of subterranean crustaceans:168-169. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTJEI, 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; it is a crucial tool for investigating demographic events such as bottlenecks. But the history of a single genetic line may 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. Microsatellites are highly sensitive to 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...
Axelius aquaticus from the Ljubljanica drainage. Two troglobiotic and troglophenic populations are from Planina Cem - Amerk Channel and Pivka Channel, whereas the surface popula tion from Pivka 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 Fst estimates are highest between the surface and the Pivka Channel population (0.8) and are also high (0.6) between the two cave populations (0.57). Expected heterozygosity and allel 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 consequences of ongoing 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. Hydrobiology 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 notaional 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 multivariate index of groundwater health. Our case study uses 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 multivariate development is simple and our Tier 2 benchmarks determined from licensed data. Nevertheless, our framework will be applicable and readily adaptable to site-specific contexts. KW: Groundwater, Ecosystem health, Indicators, Aquifers, Stygoafana, Groundwater ecosystems. Handling editor: S. A. HALSE.

KORNOS (E.) & PÁLSSON (S.), 2010. Phylogeny of Crangonyctoidea: taxonomic status and origin of groundwater amphipods, endemic to Iceland, based on two nuclear genes:59. In: 20th 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 Cymrostylis 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 meristic characters compared to other Crangonyx species and might represent a new genus. Cymrostylis thingvallensis, defines a new family, is rare and has mainly been found in lake Thingvallavatn. These two species belong to the Crangonyctoidea super family, which has representatives both in North America and in 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, the cave 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 Bacitracus genus than with the other Crangonyx species. These findings clearly highlight the need for a taxonomic revision of the group. On the phylogenetic side, C. islandicus is more closely related to other Crangonyx species from North America which supports the hypothesis of an ancient colonization trough groundwater contacts between Greenland and Iceland during the early formation of the island. These two endemic species might therefore be the oldest representatives of the Hawaiian Islands.

http://www.icsb2010.net/


KOVAČ (EU.), LUPTAČIK (P.), PAPÁ (V.), MOCK (A.) & MOUREK (J.), 2010. Contribution to morphology of palgiprake Eukoenenia spelaea (Peyerimhoff, 1902) and its distribution in the Western Carpathians:134-135. In: 20th 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: Palpigrade amphipods are primarily inhabitants of upper soil layers of tropical forests. Moreover, they occur in caves of the Northern Hemisphere where they are extremely rare. Eukoenenia spelaea (Peyerimhoff, 1902) is the only palpigrade species inhabiting the caves in the Western Carpathians (Slovakia, Hungary). Firstly it was described as Eukoenenia vagovegoj Szilay, 1956. Later, Dozza-Farkas & Loksa (1970) made a redescription of the taxon and transferred it as subspecies to Eukoenenia austriaca. However, it clearly belongs to E. spelaeaeomplex that involves five subspecies with very vague taxonomic status since descriptions were made based on few specimens only and dendrostral 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 Eukoenenia spelaea, 17 in Slovakia and 4 in Hungary. It is the
Bat guano is one of the most important food sources for cave invertebrates; however, little is known about the ecology and degradation of this soil poorer fresh bat guano contains a large quantity of chitin residues as fragmented and non-fragmented butterfly/mothsoscale, insect wings, hairs of bats and pollen. Recent studies of guano heaps from Domica 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 and Predjama) were used as reference material for guano from Domica Cave. All caves are populated by the same insectivorous bats Miniopterus schreibersii and in Domica Cave by Rhynchosorus euryale in addition. Guano without an active colony of bats had higher pH (4.5 in Škocjanske jame I and Predjama) compared to the fresh guano in Škocjanske jame II (pH 3.5). Guano samples (layer 0-5 cm) from Domica 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 - 25 Pb and 0.3 - 0.5 Hg. Values of some of these heavy metals in the guano samples exceeded EU limits for agricultural soils (EC Document 86278/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/


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 aquaculor n. sp. from the “Vodna jama” pit (Dragaljsko polje near Grabovo, 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 biology are given. KW: Scotoplanetes aquaculor sp. nov., new species, Coleoptera, Carabidae, Trechinae, taxonomy, biology, subterranean environment, hygropetric, Montenegro. http://hrcak.srce.hr/index.php?show=clanak&id_clanak_jezik=82796&la


LANA (E.) & ISAIA (M.), 2010. Subterranean arachnids of the Western Italian Alps (Arachnida: Araneae, Opiliones, Palpigradi, Pseudoscorpiones):135, poster presentation. In: 20th 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 of the eastern Italian Prealps:42, poster presentation. In: 20th 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 km² and Monte Lessini 1403 km²) 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 troglobiotic and endemic species richness. A total of sixty caves (Baldo = 17; Lessinia = 43) and two cave species (Baldo = 6.46) as indicated by the ICE estimator. Both the troglobiotic 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

LEOBURGAS (J.), 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

LATTELLA (L.), 2010. Redescription of Eocatops ambiguus, Peyerimhoff, 1924 (Coleoptera, Cholevidae, Catopinidae, Eucatopinae) 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 Libya. Illustrations and SEM photographs of diagnostic features are reported. KW: Taxonomy, redescription, Cholevidae, Eocatops ambiguus, Lybia. RIAS: Redistribuzione di Eocatops ambiguus, Peyerimhoff, 1924 (Coleoptera; Cholevidae; Catopinidae; Eucatopinae) della Libia Eocatops ambiguus, Peyerimhoff, 1924 è stato descritto in base alle osservazioni condotte su un unico esemplare maschile raccolto nella Grotta del Lete (Libia, Bengasi). Nella descrizione originale non sono state riportate né immagini né altri caratteri taxonomici, bensì solo la descrizione no illustrazione de

LATTELLA (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: 20th 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 km² and Monte Lessini 1403 km²) 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 troglobiotic and endemic species richness. A total of sixty caves (Baldo = 17; Lessinia = 43) and two cave species (Baldo = 14. We calculated species accumulation curves based on 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 troglobiotic 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

LAUMBANS (M.), 2010. Karst and Caves of Myanmar. Berliner Höhlenkundliche Berichte 39. 130 p., colour maps, many surveys, Michael LAUMBANS, Editor. Voor: STEINER (H.), Chapter 7: Review of the biogeography of Myanmar.84-86. ABS: There are 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

Bernard LEBRETON & Jean-Pierre BESSON
Créé le : 01.01.2010
Modifié le : 30.06.2010

© Biospeologica Bibliographia
Publications 2010-1
Page 57 sur 116
caves according to provinces. The compilation also has chapters on cave archaeology, and bat morphology, 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 bio-speleological overview is presented, including the bats of Myanmar.

http://www.speleo-berlin.de/gb_publikationen.php


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, Gangwon-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 P5 in the male. Thus far, 22 species have been reported in the subgenus Echinoecamptus, 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 Echinoecamptus in several caves in Korea.


LEHOTSKÁ (B.), 2010. Bats in the Bratislava city, Slovakia:205-206. In: 15th 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: 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 Malé 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 block complexes. Some of them (Rhinolophus hipposideros, Myotis bechsteinii, Myotis nattereri) were observed in Bratislava territory only in this habitat type. From the beginning of the 20th 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.

LEJJS (R.), 2010. Evolution of chitoniid amphipods from subterranean and surface habitats in Australia:61. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRNIČ and Peter TRONTELI, ISBN 978-961-269-286-5. ABS: Stygobitic chitoniid amphipods recently have been found in subterranean habitats 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 Mount Remarkables NT). All the discovered subterranean species are depigmented and blind. Additionally, chitonid 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 springs in the SE Queensland. Australian subterranean species have been described: Phreatochitonella anophalum (subterranean) and Austrochitonella paludicola (surface), both from Dalhousie Springs; Arabannachitonella murphyi and Wangiannachitonella guzskiae from the Lake Eyre mound springs and A. australis and A. subtenus 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. subtenus. (2) There are numerous undescribed, morphologically 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/LECIONI (V.), BERNABÒ (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 (SCP), lower lethal temperatures (LLTs), and the effect of short-term exposures (1 min) to low temperatures were examined in the adults of two stenotheliodinid species, Neobathyschia magnostri and Neobathyschia pasoi (Coleoptera, Cholevidae).
Specimens were collected from two caves in the Venetian Prealps (NE-Italy). Inter-species comparison highlighted elevated values of SCP in N. mancini (-7.14±0.9°C) than in N. pasi (-4.0±0.3°C), with no significant interspecific differences in both species. N. pasi (LLT$_{25}$SSE=16.96±2.30°C; LLT$_{95}$SSE=25.41°C) tolerated short exposures to subzero temperatures better than N. mancini (LLT$_{25}$SSE=4.89±1.08°C; LLT$_{95}$SSE=11.72°C). According to the mortality and cumulative proportion of individual freezing curves (CPJF), SCPs and LLT$_{95}$SSE, N. pasi may be defined as "strongly freeze tolerant", N. mancini as "moderately freezing tolerant". Overall, these results may justify the different in-cave habitat selection showed by the two species (N. pasi was abundant close to the entrance where the temperature is variable whereas N. mancini was concentrated 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.


LEWIS (J. J.) & BOWMAN (T. E.), 2010. The subterranean asellids of Maryland: Description of Caecidotea pricei, new species, and new records of Caecidotea nordeni. 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. nordeni. Caecidotea pricei, n. sp. is a subterranean species described from Washington Co., Maryland and assigned to the hobbis Group. A new locality for C. pricei 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 200 km. The male pleopod 2 morphology of specimens from a Maryland population of the subterranean asellid C. nordeni is compared with populations from three caves in West Virginia. The range of C. nordeni extends from eastern West Virginia and adjacent Virginia to Garrett Co., Maryland.

LIENHARD (C.), HOLUDA (O.) & GRAFFITI (G.), 2010. Two new cave-dwelling Priolagidariidae from Venezuela and Namibia (Pscoidea: "Pscoptera": Troglophila). Revue suisse de Zoologie 117(2, Juin):185-197. ABS: The new genus Speleopuscus Lienhard gen. n. is described for a strongly cave-adapted (troglobite) new species from Venezuela, Speleopuscus chimantu Lienhard sp. n. This is the first New World representative of the subfamily Priolagidariinae. A special structure on the foretarsus of this species is described and interpreted as an antenna cleaner. The new species Sensitibilla etoshai Lienhard & Holuda sp. n., belonging to the subfamily Spelektorinae, 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, troglobite, antenna cleaner, living fossils. http://www.ville-ge.ch/tmg/publication05_01.php

LIENHARD (C.), OLIVEIRA DO CARMO (T.) & FERREIRA (R. L.), 2010. A new genus of Sensitibillini from Brazilian caves (Pscoidea: "Pscoptera": Priolagidariidae). Revue suisse de Zoologie 117(4, Décembre):611-635. ABS: The genus Neotrogla Lienhard gen. n. is described for three new cave-dwelling 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 anatomical representatives of the subfamily Spelektorinae 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 defined by the 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/tmg/publication01_02.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 4th 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 epiphalal gap increased up to 12 d and then linearly decreased. Some young bats could take flight with 89.92% of the forearm length and 85% of the body weight of adult bats. Two linear regression equations for age estimation were derived from the forearm length and the length of the total epiphalal 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 that 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.; Leptonetula antshan sp. nov., L. bama sp. nov., L. curvipsinosa sp. nov., L. danxia sp. nov., L. digitata sp. nov., L. furcaspina sp. nov., L. geminispinosa sp. nov., L. grandispina sp. nov., L. hamata sp. nov., L. hexacantha sp. nov., L. jinsha sp. nov., L. julong sp. nov., L. liping sp. nov., L. maxillacostata sp. nov., L. meitan sp. nov., L. okocanthua sp. nov., L. palmta sp. nov., L. pauxi sp. nov., L. quinquespinata sp. nov., L. tetracantha sp. nov., L. tongzi sp. nov. and L. yangi sp. nov.; Sinoneta notabilis gen. nov. and sp. nov., S. sexdigitip sp. nov. In addition, Leptonetula quinquespinata (Chen & Zhu, 2008) is transferred from Quileptometra 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, troglobites, 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 cricket Troglophilus cavicolus and T. neglectus (Rhaphidophoridae, Saltatoria) during overwintering:120. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICBS 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: The cave crickets Troglophilus cavicolus 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. cavicolus 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.
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 uocytes. Adipocytes are characterized by a large quantity of storage lipid droplets, glycogen rosettes and protein granula, and uocytes by glycogen rosettes and urate granula. Both undergo gradual structural changes. *T. caviola* use glycogen continuously, but stop using lipids after the middle of overwintering, while the use of these substances is inverse in *T. neglectus.*

**LIPS (J.), BEDOS (A.), KAUFMANN (B.), RHMADI (C.) & DEHARVENG (L.), 2010.** Arthropods of guano in Santo caves (Vanuatu):43, poster presentation. In: 20th 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 represent a much richer community than troglobionts in the studied area, with several species recorded only strictly limited to caves.

**LIK (Yan), XU (W.-B.) & PAN (B.), 2010.** 2604(September 7):61-68, 6 pl., 5 réf. 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 Brazil. Males of *P. arenicola* sp. n. resemble those of *P. sambilloi* 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: Bats, Mammalia, Chiroptera, taxonomy, new species, Coleoptera, Carabidae, Trechinae, taxonomy, Brazil, new species, Coleoptera, Carabidae, Trechinae, new species, Coleoptera, Carabidae, Trechinae, new species, Coleoptera, Carabidae, Trechinae.

**LOPES FERREIRA (R.), 2010.** Translocation of cave fauna in Brazilian iron ore cave:164-165. In: 20th 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. Instead of 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, 21 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 samples (1-2 mg) is described as a rapid 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, O. limosus (Spinycheek Crayfish) is considered extirpated within the past decade. Imipal species include Cambarus cyanus (Big Sandy Crayfish), Cambarus elegans (Elk River Crayfish), Cambarus longulus (Atlantic Slope Crayfish), and Cambarus nattereri (Greenbrier Cave Crayfish). Three species - O. virilis (Vivie Crayfish), Oconetes rusticus (Rustv Crayfish), and Procambarus yonagunia (Southern White River Crawfish) - have introduced populations within the state. Procambarus acutus (White River Crawfish) 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 performed 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 (Chelicera, 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 troglobitic 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. LOKIČ (M.) & BEDEK (J.), 2010. Behavior of cave fauna:177. In: 20th 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. Collected footage show these interesting moments of cave life like: mating and feeding of Alpiontescus, entering a basin of stagnant water by Titanethes, feeding in Aranea, Chilopoda and Opilionidae, grooming behavior in O blindus, Parastatilius and Eupolyphus, 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/ LOKIČ (M.), HOUSSEN (C.) & DEHARVENG (L.), 2010. Extreme troglobromorph in a new species of cave springtail, Tritomurus sp. nov., from Colombia (Tomoceridae):121, poster presentation. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 Aug-3 Sept 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 troglobromorph 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 troglobromorph species, Tritomurus sp. nov. Tritomurus sp. nov. was collected from -70 to -430 meters in Amlora 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 filtering structures observed in other species of the cave hygropetric, and suggests special feeding habits. Both remarkable species are able to live in both, as an adaptation to cave life and walking in the hygropetric. http://www.icsb2010.net/ LOKIČ (M.), HOUSSEN (C.) & DEHARVENG (L.), 2010. A new relictual and highly troglobromorph 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 troglobromorph 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 Comments are also added about the scorpion fauna of Southeast Asia and cave-wid life. KW: New species, Isometrus, Vietnam, Cave-dwelling. RÉS: 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 de la région de Hon Chong, Buthidae, Nouvelle espèce, Isometrus, Vietnam, Cavernicoles.

LUNDBERG (J.), 2010. The mitochondrial genome analysis of the unique cave dwelling sponge *Eunapius subterraneus* Sket & Velikonja, 1984 (Porifera: Spongillidae):62. In: 20th 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: Although some species possess planum morphology (absence of organs and tissues) and their phylogenetic position is at the base of the kingdom Metazoa several studies showed that sponges have surprisingly 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* to their orthologs in human than to either *Drosophila melanogaster* or *Caenorhabditis elegans*.

What we know about *Pantelozetes caviatus* (Acari, Oribatida), notes on distribution, ecology, food preference and morphology:121-122, poster presentation. In: 20th 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: Oribatid mites are common soil dwelling animals; together with springtails (Collembola) and springtails (Collembola) are the only relictual. KW: New taxon, Tritomus, Spain, cave, fossorial, cryptogam, tredecimorph. 

MACIAS-HERNÁNDEZ (N.), BIDEGRAY-BATISTA (L.), OROMÍ (P.) & ARNEDO (M. A.), 2010. Contrasting phylogeographies underlay among-lineage variation in species diversification in the spider genus Dysdera from the Canary Islands:260 In: 18th International Congress of Arachnology, University of Podlasie & International Society of Arachnology, Siedlce, Poland, 11-17 July 2010, Book of Abstracts, editor: Marek ZABK, ISBN: 978-83-7051-575-1 507 p. ABS: 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 diversities and estimated time of origin. Our results also indicate that demographic and phylogeographic patterns may explain phenotypic diversification asymmetries along lineages, and demonstrate that contrasting ecological strategies (specialist vs. generalist) play a major role on structuring populations of these species. 


September): 419-427.

http://dx.doi.org/10.3161/00345410X535406. ABS: The results of experimental rearing of Neotrombicula inopinata and Leptotrombidium rusticum and of field studies aiming at finding the habitat of unknown habitats occupied by active postlarval forms are presented. Diagnoses of deutonymphs reared from cell-collected larvae of both species are provided. Literature interpretation of deutonymph of N. inopinata is inconsistent with characteristics of deutonymph of N. inopinata obtained from larvae by experimental rearing. Larvae of L. rusticum and L. silvarum 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 rotenid 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: 20th 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 widely distributed species that could have dispersed northerward from southern refuges soon after the last glacial episode. However, there is a risk in considering widely distributed 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 epigean species (P. cosalis and P. meridians) and six stygobiotic species (P. cavaticus, P. slavus, P. stranguli, 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. nolli which appeared to be synonyms. The epigean species P. meridians and P. cosalis were highly homogeneous with haplotypes almost identical over distances >1000 km. The stygobiotic species P. valdensis and P. slavus also showed very low genetic diversity although their extent of occurrence was 150 and >650 km, respectively. The four other stygobitic taxa of >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 possible 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).


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 600 μm in diameter to several thousand micrometers in diameter were examined by light microscopy 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 oocytes reveal different active stages 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 arrays of lamellae of closely packed membranous stacks are also frequently observed. Previtellogene 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 fuscigaster ineptucus) 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 (x± 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, >50 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 Gundachi, 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 galleys. 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.), CADEDDU (B.), STOCCINO (G. A.), PANSINI (M.), PRONZATO (R.) & LEDDA (F. D.), 2010. Porifera checklist and database of Mediterranean marine caves:86, poster presentation. In: 20th 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 PRN-MUR, EU project Interreg III Sardinia-Corsica-Tuscany, Fondazione Banco di Sardegna and Regione Autonoma Sardegna. http://www.icsb2010.net/.

MANCONI (R.), LEDDA (F. D.), STOCCINO (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:

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 bat (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 zygomorphic arches, a relatively wide uropatagium, and wide first upper molars with poorly developed paracorons 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 hypocoidal 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 Andes western from Bolivia to Colombia; 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. geoffroyi. 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, bat, Colombia, new species: RES: Se describe una nueva especie de murciélagos neritrífico consecuencia del género Anoura (Chiroptera: Phyllostomidae) proveniente de los Andes y el sistema montañoso independiente de la Sierra Nevada de Santa Marta en Colombia. La presencia de arcos zigrómáticos completos, un uropatagio relativamente amplio y molares superiores amplios, son propuestos como sinapomorfías para la nueva especie y A. geoffroyi geoffroyi. Sin embargo, estos dos taxa se encuentran alópatricamente distribuidos y la nueva especie se distingue morfológicamente de A. g. geoffroyi por tener un menor tamaño de craneo y menor tamaño corporal, como más masivos y cuadrados, como con los hipoconos de los hipoconos más amplios, los P4 de un tamaño menor, no lateralmente comprimidos y cúspides anterobasales de mayor tamaño. Basado en análisis morfológicos interpretamos la distribución de las subespecies de A. geoffroyi como sigue: A. g. lasiopyga es restringida a las elevaciones medias y altas de Centro América desde Costa Rica hasta México; 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 América, incluyendo la isla de Trinidad. Adicionalmente, las afinidades morfológicas entre A. g. apolinari y miembros del complejo A. geoffroyi apoyan su actual reconocimiento como sinónimo menor de A. g. peruana. Basados en las diferencias morfológicas observadas entre A. g. peruana y A. g. geoffroyi, incluyendo la ausencia de arcos zigrómáticos completos, rostro más delicado, molares menos masivos y una coloración del pelaje más oscura, así como también la diferencia ecológica entre las áreas de distribución por estas dos taxa recomendamos el reconocimiento de A. g. peruana a estado específico. PC: Anoura, Colombia, murciélagos, nueva especie. http://www.nssl.ttu.edu/publications/opapers.htm

20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELI, 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 Marine Cave represents one of the most attractive units of natural heritage needing particular care 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 ingestion). The research was supported by Italian Ministero dell‘Ambiente (MATTM, Studio degli ambienti di grotte marine sommerse (Codice Habitat 8330) nelle Aree Marine Protette di Pelagie, Plemmirio e Capo Caccia), Ministero dell’Università 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.) & GRAFFITTI (G.), 2010. Biogeographic patterns of lithistids (Demospongiae) from Mediterranean marine caves:136, poster presentation. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELI, ISBN 978-961-269-286-5. ABS: Lithistid sponges recorded from marine dark karstic caves of the Mediterranean Sea are typically skiphilous and stygophilic/bathyphilic. They belong to the genera Axiculities, Microscleroserma, Neophrissospongea, Neoschrammeniella, Discoderma and Gastrophanellia (families Scleritrodermidae, Corallididae, Thoelonellidae, Sphomidiidae). 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 disjoned Tethyan distribution along the ancient margins of the Mesozoic Sea. The research was supported by Italian Ministero dell‘Ambiente (MATTM, Studio degli ambienti di grotte marine sommerse (Codice Habitat 8330) nelle Aree Marine Protette di Pelagie, Plemmirio e Capo Caccia), Ministero dell’Università 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.) & GRAFFITTI (G.), 2010. Is the geographic range of the palaeoenomic sponge Petrobiona massiliana (Porifera: Calcarea) restricted to the central-northwestern Mediterranean Sea?:136-137, poster presentation. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELI, 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 skhiphylous sponge (2-3 cm max size) peculiar for the ice-white colour and stone consistency (petra means rock in Latin). Rarely recorded, P. massiliana is a Mediterranean palaeoenedems 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 research was supported by Italian Ministero dell‘Ambiente (MATTM, Studio degli ambienti di grotte marine sommerse (Codice Habitat 8330) nelle Aree Marine Protette di Pelagie, Plemmirio e Capo Caccia), Ministero dell’Università 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/

MARACI (Ö.), BILGIN (R.), LUČAN (R. K.), BARTONIČKA (T.), HULVA (P.) & HORÁČEK (I.), 2010. The sympathy of Miniopterus schreibersii schreibersii and Miniopterus s. pallidus in three caves: The smoking gun for their elevation to full species status:220-221. In: 15th 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: 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 sympathy, 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 observed in sympathy. The first records in the first three caves and the first 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.), NADEL (S.), PISCART (C.) & CHAUVENT (E.), 2010. Particulate organic matter breakdown in shallow interstitial habitat of a rural stream:26-27. In: 20th 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: 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 located in a karst region. Photon flux density, relative humidity, and temperature were measured and the environmental ranges of conditions were 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 grown occurring fluctuated between 0.0008-0.06 μE·m⁻²s⁻¹, 55.0-95.0% and 5.4-18.0°C, respectively. All the microorganisms detected from the Gelada Cave were cyanobacteria. Other frequently observed groups in caves, such as Bacillariophyta and Chlorophyta, were not detected. Cyanobacteria, found to be grouped as blue, brown, green, or gray, appeared to be different from the samples 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 epiphytic cyanobacteria were identified, two of which were not 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.
environments (such as Rhycodrilus and Trichodrilus), or relics of an ancient fauna (such as Enchytraeidae), 2) the biodiversity patterns likely due to the European PASCALIS Project allowed to prove the high species richness of subterranean annelida 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.

MARTÍNEZ GARCÍA (A.), KVINDEBJERG (K.) & WORSAAE (K.), 2010. Annelid diversity in anhialine systems: unique adaptations and functional morphology of Protodrilus n. sp. to the cave environment of La Corona lava tube (Canary Islands, Lanzarote). 76. In: 20th 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 crustaceans, annelids are the second most diverse animal group in anhialine caves. Despite little attention paid to this group in early studies, the evidences of its high diversity has been recorded from several anhialine 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 anhialine water column at the caves. This holds also for several annulids belonging to otherwise predominantly intertidal 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 troglophilic or stygophilic. The role of historical and ecological processes on the origin of these taxa is brieﬂy discussed.


MARTÍNEZ-ANSEMIL (E.) & SAMBUGAR (B.), 2010. Annelida, an often neglected component of groundwater ecosystems? 77. In: 20th 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: 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 isopods 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 endemicity and regional differences, and we underline their contribution to the diversity and richness of the subterranean fauna. In the last decade, investigations of the groundwater fauna led to the discovery of a fauna with characteristic elements (such as the naidides of marine lineage and the stygobiont family Parvidrilidae), and of freshwater taxa showing an adaptive radiation in subterranean
contexts. It is high and that vocalization is closely related to different phases of social communication in a free-ranging nursing colony of Hipposideros turpis. In: 15th 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: Hipposideros turpis is the only h exclusiví 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 newborn 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 wariness. 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 appears to note the need of food and (3) the barking of the 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.


MATSUMURA (S.), 2010. Development of vocalization and social communication in a free-ranging nursing colony of Hipposideros turpis:223-224. In: 15th 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: Hipposideros turpis is the only h exclusiví 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 newborn 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 wariness. 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 appears to note the need of food and (3) the barking of the 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: 20th 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: 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. Stygobionts have been known in Chalk groundwater systems for several decades and over 150 species have been recorded. There have been sporadic reports of their distribution, and the spatial variability of stygobionts in the English Chalk is largely unknown. New studies have been carried out in recent years to the Chalk of Southern England. In Berkshire 19 boreholes in two catchments (total ~400 km²) 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). At both boreholes, sampling was conducted since 1983 on Iriomotejima Island, Okinawa Prefecture, Japan. There is great individual variation in the vocal signature of the attractive calls of newborn 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 wariness. 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 appears to note the need of food and (3) the barking of the 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.

MERRITT (D. J.) & CLARKE (A. K.), 2010. Heterogeneous copepod distribution in different groundwater habitats from northwestern Romania:27-28. In: 20th 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 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 Pidarea 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 harpactoid populations. http://www.icsb2010.net/ http://dx.doi.org/10.1051/hydro/2010001. RÉS: Une étude récente réalisée dans la région d'Oum-El-Bouaghi, dans le Nord-Est de l’Algérie, avait comme objectif de rechercher et de préciser la relation pouvant exister entre la qualité de l’eau des puits et des sources et la diversité de la faune aquatique présente dans ces habitats. Pour cela une quinzaine de stations (16 puits et 2 sources) ont fait l’objet,
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. mystacinusbrandtii, 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 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 mystacinus* 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 millipeed 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](http://dx.doi.org/10.3897/zookeys.41.420) ABS: *Tasmaniosoma armatum* Verhoeff, 1936 is redescribed from topotypic specimens and the following congers are described from Tasmania: *T. aces sp. n., T. aureorivum sp. n., T. australa sp. n., T. barbatulum sp. n., T. brunesi sp. n., T. cacofonix sp. n., T. Clarksonorum sp. n., T. compitale sp. n., T. decussatum sp. n., T. fusculum sp. n., T. fragilis sp. n., T. gerditorum sp. n., T. hesperium sp. n., T. Hickmanorum sp. n., T. lacobium sp. n., T. maria sp. n., T. orientale sp. n. and T. warra sp. n.


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 hypogaeic species *Neobidessodes limestoneensis* (Watts & Humphreys) and of the third-instar larva of *Hydroglyphus balkei* Hendich (Coleoptera: Dytiscidae: Bidessini) with phylogenetic considerations. *Zootaxa* 2658(October 27):38-50, 3 pl., 28 réf. ABS: The first-instar larva of *Neobidessodes Hendich & Balke* (through the hypogaeic species *N. limestoneensis* (Watts & Humphreys)) and the third-instar larva of *Hydroglyphus Motschulsky* (through *H. balkei* Hendich) (Dytiscidae: Bidessini) are described and illustrated in detail for the first time, including detailed morphometric and chaetotactic 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 mesoventer. 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 hypogaic existence, including a lightly sclerotized body, relatively longer cephalic capsule and mandibles, a strongly reduced occipital foramen, absence of sternumata, and short claws. However, primary chaetotaxy apparently has remained as a very conservative expression of the phenotype. KW: Diving beetles, larva, epigaic, hypogaic, morphometry, chaetotaxy, phylogenetic relationships. http://www.mupress.com/zootaxa/issue/2010/2655.html

MIHEVC (A.), PAUL-ISTRATE (V.), MOLDOVAN (O.), 2010. Final results on subfossils in cave sediments from Slovenia and Romania:46, poster presentation. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIC 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 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: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIC and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: Mountainous area of the Slovak Republic (Slovenská) 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 19th Century, including isopods and millipedes, but with limited successes for a long time. Up to the end of the 20th 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 (Isopoda). Nevertheless one troglobiotic millipede, Taphrophilus polypholas, 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, 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 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 fluvioglacial 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/
Morand (M.) & Jäger (P.), 2010. On three new species of the genus Sparioleus Simon, 1880 (Sparassidaceae: Heteropodinae) from Iran, with comments on taxonomy and zoogeography:304. In: 17th International Congress of Arachnology, University of Podlase & 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: Sparioleus 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 semi-arid parts of Iran (caves as well as river banks), three morphologically different species 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, Sparioleus 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, Bhatielleia, Proasellus, Pandercetes, Pseudopoda, Sinopoda, Sparioleus) and Australia (Heteropoda, Pandercetes, Yiinihs). Occurring of the members of Heteropodinae in the current arid and semi-arid 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.


Moškrič (A.), Trontelj (P.) & Fišer (C.), 2010. A bioinformatic quest for phylogenetic resolution: adding new genes to the Niphargus supermatrix:171. In: 20th 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 Schiötte (Amphipoda: Niphargidae) which is the largest genus of freshwater amphipods. It also represents one of the most diversified and well-studied group of aquatic troglobions. 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 species, especially in the 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 gene-specific DNA as a template we successfully amplified four nuclear regions (glutamyl- and prolyl- TRNA synthetase, elongation factor 1-α, 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 β, 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 increased. The results of this preliminary study already show the potential of resolving power of nuclear protein-coding genes. http://www.icsb2010.net/

MUGUE (N. S.), 2010. Caucasus and vicinity: comparative phylogeography of Ponto-Caspian and subterranean crustaceans:62-63. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELI, ISBN 978-961-269-286-5. ABS: We will present our data on molecular phylogenetics of large Ponto-Caspian groups of crustaceans (ponto-gammarids, corophiids and mysids), and subterranean genera Niphargus and Trogloclaus from caves and springs of the Caucasus. High ecological plasticity of the modern Ponto-Caspian taxa, its extraordinary success in Troglocaris big cave systems (Postojnska jama, Slovenia):102-103. In: microorganisms and relation to atmospheric parameters in subterranean environments phototrophic organisms can grow only in the proximity of light sources. In a study from eight Slovenian show caves: Crna jama, Kostanjevka jama, Krška jama, Pekel pri Zalogu, Pičvaka jama, Postońska jama, Škopljanska jama, Županova jama and two mines, Idrija 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 μmol photons/m²/s. Eucladium verticillatum had the highest span of PPFDs, ranging from 1.4 to 530.0 μmol photons/m²/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 μmol photons/m²/s, in Postońska jama Brachythecium salebrosum developed sporophytes at 4.7 μmol photons/m²/s. Recolonization of lichen flora 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.zeugaza.si/?stran=issue&volumes=39&issues=3

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: Crna jama, Kostanjevka jama, Krška jama, Pekel pri Zalogu, Pičvaka jama, Postońska jama, Škopljanska jama, Županova jama and two mines, Idrija 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 μmol photons/m²/s. Eucladium verticillatum had the highest span of PPFDs, ranging from 1.4 to 530.0 μmol photons/m²/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 μmol photons/m²/s, in Postońska jama Brachythecium salebrosum developed sporophytes at 4.7 μmol photons/m²/s. Recolonization of lichen flora 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.zeugaza.si/?stran=issue&volumes=39&issues=3

MULEC (J.) & WALOCHNIK (J.), 2010. Airborne microorganisms and relation to atmospheric parameters in big cave systems (Postońska jama, Slovenia):102-103. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELI, 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 Postońska jama cave system. The study included measurement of temperature, relative humidity, CO2, 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 CO2 and dust concentrations, 3-times or 2-times higher in the summer period. Similarly, using a deposition sampling method, higher DNA concentrations were measured compared to winter e.g. 68 ng DNA/cm² and 42 ng DNA/cm², 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/m³) compared to airborne fungi (40-195 cfu/m³). 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/m³). 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 (mass of 54) to the explained part of microbial count. In large cave systems like Postońska 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 impacter of maximum 1 m² of air revealed no FLA, but when depositional sampling of open Pieti 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 valkampfids. All acanthamoebae were genotyped and almost all isolates belonged to genotype T4. Other amoebozoans found very frequently were mycetozoa, mostly dictyostelids. http://www.icsb2010.net/
prioritaires (conformément à la législation européenne) sont: Rhinolophus ferrumequinum, Myotis myotis, M. oxytoechus, Barbastella barbastellus.

Pour cette raison, des actions ont été prises pour que la Grotte Šuša Mare soit déclarée aire protégée. KW: Bat hibernation colony, important roost in Europe, Pipistrellus pygmaeus.

MURPHY (N. P.), GUZIK (M. T.) & WILMER (J. W.), 2010. Biospeleological research in the Amazon: the case of Planaltina cave in the ecoregion Xingu-Tapajós, Brazil:87-88. In: 20th 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-Iaituba were studied by Trajan's group and among them the Planaltina cave appears to be the biggest limestone cave in Brazil (1500 m of length) and is characterized by high population density of Rodovia Transamazônica could be a 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 being threatened by the deforestation front and now by projects of construction of several dams in the Ecoregion Xingu-Tapajós. http://www.icscb2010.net/

MURPHY (N. P.), FILHO (J. E. M.), GUTEMBERGUE (G.) & ALBINO (U.), 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: 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 relationships 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 Nyarva dirga, a snail Fonscocllea accepta, an isopod Phreatomorus latipes and an amphipod Wingiannachthonia gazkei, 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. 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 it has to the evolution of long history species. KW: Aquatic invertebrate, comparative phylogeography, dispersal, landscape structure.


NAE (A.), 2010. Improbantes 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 Improbantes 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: Improbantes improbulus, new record, Roumania. http://sporetravaux.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 these dwelling species, is poorly studied. 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 cappucini) 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 (Myotis 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 UICN's Red List data as well as the number of individuals occurring in caves with the aim of identifying the key sites for conservation. The caves can also be considered as 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.

NÁPARUŠ (M.), ALJANČIĆ (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: 20th 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 km2), 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 arnology 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 analyze 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) 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://dx.doi.org/10.1645/GE-2539.1

NEGREA (Ş.), 2010. On the specimens of Eupolybothrus (Leptopolybothrus) tridentinus (Fanzago, 1874) (Chilopoda: Lithobiidae) from the "Z. MATIC" and "Ş. Negrea" collections (Romania). Travaux du Muséum national d'Histoire naturelle "Grigore Antipa" 53(Décembre):139-147.

http://dx.doi.org/10.2478/v10191-010-0010-y.


http://dx.doi.org/10.1002/tea.20330.


http://sammel.museum.pagesperso-orange.fr/Symbioses.htm


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 koyuneni 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 preocular groove; 39-40 preocular-femoral pores in males, arranged in a continuous row; females with 32 preocular-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. CW: Cyrtodactylus, Gekkonidae, description, new species, Khammouane, Laos, cave-dwelling. http://www.mapress.com/zootaxa/list/2010/2730.html


troglobiotic beetles (Insecta, Coleoptera) of Krivošiże area (Orjen Mt, Montenegro) in the scope of the recent biospeleological investigations:56, poster presentation. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTIEL, ISBN 978-961-269-286-5. ABS: Krivošiże area (Orjen Mt.) belongs to the Dinarides karstic massif and represents one of the most important diversity hot spots of troglobiotic arthropod fauna. Despite the fact that Krivošiže area is very well biospeleologically investigated, some very important new records of the troglobitic beetles, including new species and genera, have been noticed in recent years. The overview of all troglobiotic beetles of the mentioned area is given. http://www.icsb2010.net/


NOGARO (G.), DATRY (T.), MÉRMILOD-BLONDIN (F.), DESCLoux (S.) & MONTELLE (B.), 2010. Influence of streambeded sediment clogging on microbial processes in the hyporheic zone. Freshwater Biology 55(6, June):1288-1302. DOI: http://dx.doi.org/10.1111/j.1365-2477.2009.02352.x. SUM: 1. The hyporheic zone plays a key role in hydrological exchange and biochemical processes in streambeded 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 Usses, 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 anaerobonic 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.


NOVÁKOVÁ (A.), 2010. Cave microscopic fungi as food source for caves inhabiting springtills and some microfungal records:103-104. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTJEL, 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 and bat dung. Morten or dormouse excrements or isopod and diplopod feces (Penicillium glandicola, P. vulpinum, Chrysosporium speluncarum, Chaetomium brefeldii, and Phlycomyces nitens). Additional coprophilous species, Coenmancia aciculifera, was isolated from cave sediments. Botryosporum longibuchiatum was isolated from the frog carcass in the Domica Cave system (Slovakia). Rarely reported microfungal species Dimargaris basillapora was found repeatedly in collombolan rearings on the cave sediment from the Domica Cave system and the Punkva Caves (Czech Republic), but also on dead isopod Mesomusus grangeri in laboratory rearing and from C. aciculifera growth after one month the exposition of agar disc with C. aciculifera colony on the cave sediment in the Domica Cave. Sixteen microfungal species isolated from cave sediment of the Domica Cave (Puccillium lilacinum, Clonostachys rosea f. rosea, Cladosporum herbarum, Micor dimorphosporus, Absidia gluca, Coemaicana aciculifera, Taloromycus flavus, Mysterichum deflexum, Mortierella sp., Iaria farinosa, Dorotyomeses stemonitis, Oidiodendron cerealis, Fusariasolani, Trichosporon sp., pullulans, and T. dulcium) were used in food preference test with four collombolans, Folsomia candida, Heteromurus nitidus, Hypogaster anaepilepsis and Goliathostigmata chortopila. The test results are presented in a 2D graph, in which the Agar dishes covered with damp layer of Paster of Paris. The food was offered in form of agar discs cut from 7 days old microfungal colonies, each disc having been put into a separate sector. Twenty individuals of each collombolan 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. dulcium, T. citullus and C. aciculifera) were significantly preferred, while several species were ignored completely (D. stemonitis, T. flavus, and C. rosea f. rosea by O. reppopapillatus, T. polysporum and C. herbarum by F. candida; and Mortierella sp. by H. nitidus). D. stemonitis, C. cerealis and C. farinosa were preferred by some springtails only in advanced stages of the experiment. Nevertheless, there were still differences in food preferences among individual collombolan species. http://www.icsb2010.net/ 

NOVÁKOVÁ (A.), BRAD (O.), MOLDOVAN (O. T.) & HILLEBRAND (A.), 2010. Microscopic fungi isolated from several caves in Romania:104, poster presentation. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTJEL, 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 microfungal
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 Fanatea Cave, probably due to the extensive bat colonization. In the Uručlo 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.jcsb2010.net/


OARGA (A.), SCHILLER (E.), PÆRJOU (A.), ŠEBELA (S.) & MULEJ (J.), 2010. Contribution to the ecology of Copepoda in sulfficard springs (Zveplenička - Dolena Trebuša, Slovenia):138-139, poster presentation. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOSKRIC and Peter TRONTELJ, ISBN 978-961-269-286-5. ABS: For many groups of animals sulfficid habitats represent an inhospitable environment. Zveplenička (46°58´21.9´N 13°50´20.4´E) sulfficid spring (Dolena Trebuša, Slovenia) was investigated for faunal diversity and for environmental conditions. The sulfficid 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 hydrogeological situation typical for External Dinarides.

The spring discharge was rather constant in the 2-year monitoring period (~1 l/min). Water temperature was 10.5 ± 0.2°C, with pH of 7.56 ± 0.12, and specific conductance of 419 ± 8 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 δ15N and δδH values in Zveplenička spring indicate low 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 sulfficid water Bryocamptus echinatus tuenensis, Bryocamptus zschokkei, and Paracyclops fimbriatus were identified. Among the identified copepods ovigerous females and different copepodid stages were present. These species are known to have wide ecological distribution, but little data exists on their presence in sulfficid habitats. Long residence time of water in the underground (>5 months) and stability of physicochemical parameters in Zveplenička spring suggests that all the copepods here 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 sulfficid karst habitats. 

http://www.jcsb2010.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: 15th 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 differences in CFU numbers among individual caves, the highest CFU numbers having been estimated in the Fanatea Cave, probably due to the extensive bat colonization. In the Uručlo 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.jcsb2010.net/

Olgier (J.A.), Botero-Trujillo (R.) & Prendini (L.), 2010. On the trogloborphic scorpion Troglotyatosiscus humilicum (Scorpiones, Troglotyatosiscidae), with first description of the adults. American Museum Novitates 3691:1-19. ABS: The endemic Colombian trogloborphic scorpion, Troglotyatosiscus humilicum Botero-Trujillo & Francke, 2009, previously known only from the juvenile holotype, is redescribed based on newly collected adults of both sexes. New data on bursital 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/2246/4070


Oneto (F.), Ottone llo (B.), 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.


ORLOV (O. L.) & ORLOVA (M. V.), 2010. Occurrence of bat ectoparasites in the Urals:240-241. In: *International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants*, edited by: Ivan HORÁCEK and Petr BENDA, ISBN 978-80-8715-46-5, 380 p. ABS: Families of the ectoparasites of the chiroptera in Central Russia, Volga region, Caucasus, Ural and Siberia is insufficiently studied. Our investigationaimed 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 Azarkevskaya caves. Altogether five bat species of six species (Myotis brandtii, M. daubentonii, Eptesicus serotinus, Vespertilio murinus, Plecotus auritus) were investigated for parasites. In total, 91 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. daubentonii* and *M. daubentonii*. *Spinturnix plecotinis* (*Spinturnicidae*) were found on *P. auritus* only. Eleven mite species of the family Macronyssidae were found: *Macronyssus corethropsicus* on *M. dausynece*, *Macronyssus ellipticus*, *M. granulatus*, *M. charpentierei*, and *Stenonyssus sp.* on *M. brandtii*. *Macronyssus flavus* and *M. kolenatii* on *Epotesicus asellus*, *Macaronocerus diversipilis* and *M. cyclopis* on *M. daubentonii*. The larva of an acarian mite belonging to the family Trombiculidae was found from *Vespertilio murinus*. *Acantophthirius sp.* (*Spinturnicidae*) was identified from *M. brandtii*. Two species of bat flies (Nycteribiidae) were collected. *Penicillus monocerous* was found on *M. dausynece*. *Nycteribia kolenatii* was collected from *M. daubentonii*. Three bat fleas (*Ischnopsyllidae*): *Ischnopsyllus hexactenus* (*M. daubentonii*), *M. charusnurensis* and *Ischnopsyllus hexactenus* were collected from *M. daubentonii* and *M. brandtii*. The larva of an acarine mite belonging to the family Trombiculidae was found on the long-eared bat *Argas vespertilionis* (*Argasidae*) was collected from *Vespertilio murinus*. *Acantophthirius sp.* (*Spinturnicidae*) was found on *M. daubentonii*. Two species of bat flies (Nycteribiidae) were collected. *Penicillus monocerous* was found on *M. dausynece*. *Nycteribia kolenatii* was collected from *M. daubentonii*. Three bat fleas (*Ischnopsyllidae*): *Ischnopsyllus hexactenus*, *I. obscurus* and *Myodesypylla triellis* were recorded. *I. hexactenus* and *I. obscurus* were found on *Eptesicus nilsonii*, but *Myodesypylla triellis* was found only on *M. dasycneme* and *M. daubentonii*. *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.


**ORTUÑO (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: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRI and Peter TRONTELI, 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 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/

**ORTUÑO (V. M.) & REBOLEIRA (A. S. P. S.), 2010.** Description of the third instar larva of a hypogean ground beetle, *Trechus alacitanus* (Coleoptera: Carabidae: Trechinae). Entomologica Fennica 21(1):33-42. ABS: Description and illustrations are provided for the third instar larva of *Trechus alacitanus* Español, 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 reduction of cuticular 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/Volumes21/abstracts21_33.htm

**ORTUÑO (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 Sierra 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 therefore populations of the absence of factors and living in a biocoenosis with opportunistic elements and a small 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.) comas*, *M. (S.) fadiquei* 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.) auroxii, some features in the aedagus of the new species show similarities with the most troglobiographic species of the tribe Anillini in the Iberian Peninsula, Aphaenothys alegrei. A comparison of the main morphological characteristics of the species belonging to the Speleothys subgenus reveals the need for a thorough revision of the whole group, which could be paraphyletic. KW: Coleoptera, Anillini, taxonomy, new species, cave fauna, troglobiography. http://www.ville.ge.ch/mhng/publication03_01.php


ÖZMÈCE (R.), 2010. Arachnid cave-dwelling fauna on Biokovo Mt., Central Dalmatia, Croatia:324. In: 18th International Congress of Arachnology, University of Podlasie & International Society of Arachnology, Siedlce, Poland, 11-17 July 2010, Book of Abstracts, editor: Marek ŻABKA. ISBN: 987-83-7051-575-1, 507 p. ABS: Biokovo Mt. (1762 m), with relatively small surface of 200 km², is situated in Central Dalmatia (Croatia) and belongs to the Dinardre Mountains. Very similar to Velébit 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. Biospeleological research in region began in the first decades of 20th century but most intensive systematic research was performed between 2002-2006 with cooperation of Biokovo Nature Park and Croatian Biospeleological 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 Dinardres. Until now, 44 taxa new for science have been recognized. Among them, 57 cave-dwelling taxa belong to Arachnids: Acri (7), Palpigradi (1), Pseudoscorpions (23), Opiliones (4) and Araneae (22). All cavedwelling arachnid taxa are endemic for Dinardres, 23 taxa are endemic for Biokovo Mt. with at least 25% for science. Most representative genera are: Anilius, Opiliorcaris, Eukoenenia, Chthonium (Chthonae), Chthonius (Globochthonius), Chthonius (n. subg.), Troglochthonius, Protonoebois, Neobisium (Neobisium), Neobisium (Blothrus), Neobisium (Ommatothorax), Roncus, Cyphophthalmus, Follica, Stalagita, Mesostalita, Barnia, Sulcia, Stygophlebus, Centromerus, Typhlomyia, Hystopoma. 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 Neobiidae. Further systematic research on Biokovo Mt. will continue on cavedwelling, but also on soil and surface arachnid fauna.

ÖZMÈCA (R.), KARANAM (I. M.), TULIČ (U.), PAVIÊÇEVIĆ (M.) & LUKIĆ-BILELA (L.), 2010. Biospeleological research of Pećina na Vrelu Mrkanijske Miljace Cave in Bosnia and Herzegovina:139-140, poster presentation. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRICIČ and Peter TRONTELJ, ISBN 978-961-269-286-5, ABS: Near the city of Mostar, 30 km south of 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 Linnaeus, 1758) and cranial skeleton of beaver (Castor fiber Linnaeus, 1758). During recent research at the International speleological camp in 2009, systematical biospeleological research 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 (Cockrohoba), beetles (Coleoptera), but also very interesting taxa of tricladids (Tricladida), false spiders (Opilionides) and cicas (Cicadomophora), some as same parasitic fungi taxa. Among them, some taxa are considered to be new species for science, most interesting new false spider genus, closely related to genus Hadunia (Opiliones, Nematostomatae). In nature, research will proceed with future speleological but also biospeleological research combined with molecular genetic analyses. http://www.icbs2010.net/

ÖZMÈCA (R.), POLAK (S.), BEDEK (J.) & ZAKSÈK (V.), 2010. Biospeleological component of the project KUP (Kast Undergrowth Protection) in Istra Peninsula:89-90. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRICIČ 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 Kastar character with underground water flow and many Kastar phenomena. More than 200 caves are known in the area, inhabited by endemic, rare, endangered and protected animal species, as: Istriana mirnæ, Niphargus echion, Thaumatomoliscus spelaeus, Eupolothrix obravenosis, Verhoeffodesmus fragilipes, Troglochthonius doratodactylus, Leptodirus hochenwartii, Oxytopus bohemicus, Prospleaeobates vrezeci, Pauperopythus globuliventris, Proteus antaurus sp. 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 biospeleological research and accompanied activities is envisaged. The goal is to evaluate the diversity and core populations of troglobionts; 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 this two year project, started in 2010, is protection and evaluation of the cave fauna in a phenomenon region 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, which extends to the territory of both countries, and also establishing a biospeleological data base for the Istra region. http://www.icbs2010.net/
microsatellite DNA analysis. By applying several population genetic programs, we determined at least three main groups of D. adspersus, which turned out to genetically differ significantly from each other and completely isolated population. On the other hand, gene flow was detected among many 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 this species.


ABS: Macrobachrium 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. lingyuanense. This is an addition to the list of fifteen stygobiotic shrimp species already known from the karstic caves of China.


ABS: A new species, Gekko lauachindai 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. sciendiventura Rösler & al., 2005, G. russelltraini Ngo & al., 2009, and G. takonensis 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, preoculars 12-14, femoral pores absent, dorsal tubercles 14 rows, snout less than 1.5 times eye diameter, presence of ‘T’ shaped rostral groove, interorbital scale rows 36-40, digit I and IV of pes with 13 and 13-15 enlarged subdigital scanners, respectively, and dorsal pattern of large bright spots dorsally that may be expanded to 5-6 whitish narrow cross bars interrupted by a bright mid-dorsal dot 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 sympathy in the karst forests of Chalermprakiat District, Saraburi Province, central Thailand. KW: Gekko lauachindai, Gekkonidae, Thailand, description, Gekko petricolus, limestone. http://www.mapress.com/zootaxa/list/2010/2671.html.

PAPI (F.), PIPAN (T.) & CULVER (D. C.), 2010. The suprageneric classification of the freshwater isopods (Decapoda, Isopoda). In: Bernard LEBRETON & Jean-Pierre BESSON (eds), Ecological studies of an epikarst community in Alpine cave Snežna jama na planini Arto: preliminary results:30. In: 20th 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 Slovenia were investigated during the period 2005-2009: karst caves of the Muranska planina Plateau (MP) and Drienčanski Karst Region (DK), and nonkarst basalt caves in Cerova vrhovina Highland (CH). The study provides the first data on Colobella of volcanic caves in the Western Carpathians. More than 50 caves were examined and six species were the predominating group of cavernicolous invertebrates. In total 88 species of Colobella 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 and one species occur in karst caves (MP 7 troglobites) and DK (4 troglobites). Other 13 taxa (e.g. Mesogastarja ocyvieniensis, Pygmarhophaltes pygmaea, P. bifida, Oncopodura reyesdofsenii) were closely associated with cave environment. Four obligate cave species are new to science (Pseudossnella sp. 1, sp. 2, sp. 3 and Megalothorax sp. 1), probably endemic species of the Western Carpathians. Pseudossnella 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 Pseudossnella sp. 2 and 3 troglobites known from DK. Two psychrophilous species new to science were discovered in entrance parts of abysses in MP: Platotomurus sp. and Supraphorura sp. In the contrary, subterranean environment of CH supports diverse cave communities with absence of troglobites. Crevices basalt caves of this volcanic area are rather densely inhabited by troglobiophilous species such as Heteromurus nitidus, Protaphorura armata and Pseudossnella thibaudii. Moreover, Pygmarhophaltes pseudopappioides occurred in these caves representing eutroglophilous species occurring in Central Europe in: (1) mountains where it inhabits epigean habitats, and in (2) lower altitudes as cave-dweller. Other Colobelloidea recorded in caves of the Central Europe may be classified as epigean or edaphic, common in surface habitats and occasionally colonizing cave entrances. http://www.icsb2010.net/
taxonomic groups were found, including abundant Copepoda and Cladocera - http://dx.doi.org/10.1161/ecss.2009.11.004

PAQUIN (P.), BUCKLE (D. J.), DUPRÊRE (N.) & DONDALE (D. C.), 2010. Checklist of the spiders (Araneae) 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 Quebec (677). We record 69 species that are thought to be introduced from elsewhere and 321 that are known in the Palearctic. KW: Cana da, Alaska, spiders, fauna, checklist. http://www.mapress.com/zootaxa/list/2010/2461.html


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

PARZEFALL (J.) & TRAJANO (E.), 2010. The first ecological reconstruction of underground environment from Romania, Ciecolovina Uscată Cave [Prima reconstrucție ecologică a unui mediu subteran din România - Peștera Ciecolovina 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 Hârțja, there is a Ciecolovina Uscată Cave, which, known after the 1912 opening of a bright 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 palaeoanthropological 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 by the industrial exploitation of guano, a 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. Muraru, Al. Petecuselu 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 with which the first specialized 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. Muraru, D. Borda, A. Farcaş 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 a jeton railing, the original barred entrance being too fast 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 "Focal Viai" ('Living Fire') from Bucharest and implemented by "Emil Racoviţă" Institute of Speleology. 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 Homo neanderhtalienisis, should be implemented by "Emil Racoviţă" Institute of Speleology. In 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 thantatogenesis from Ciecolovina 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 presntation of the management plan of the "Grițăște Muncelului - Ciecolovina" Natural Park (plan which clearly presents what must not happen, for preserving the batrope mosaic where the entomofauna eaten by bats develop). We know 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 advantageous, by its scientific and factual example. http://www.travaux.ro/volum.php?id=51


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, troglobions.


Perreaú (M.), 2010. What does palaeontology reveal on the radiation of Leiiodidae, Choleviniae and their colonisation of the subterranean biotopes?:158. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda Móškrič 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 Leioididae Choleviniae, 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 Choleviniae 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/

Perreaú (M.) & Faille (A.), 2010. Advances in the knowledge of subterranean Staphylinidae of Morocco: the genus Apteranillus Fairmaire (Staphylinidae, Aleochariniae, Lomechusini):141-142, poster presentation. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda Móškrič 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 Anthrenesotes 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 was separated into two endogean species from Canary islands which were subsequently transferred to Anthethini and Apteranopus was downgraded to a subgenus of Drusilla. Finally, before the present work, the genus Apteranillus contained eight species, five endogean ones: dohrni Fairmaire, 1854; puell Peyerimhoff, 1907; tressensi Peyerimhoff, 1949; championi Bernauer, 1936; peregrinato Peyerimhoff, 1954, and the myrmecophilous species: rotroui, 1935; miniosias Lesocq & Quenneret, 1955. One new species: Apteranillus bichain in litt. has been discovered in Morocco during the Win-Timdouine 2008 speleological and biopaleontological expedition. Win-Timdouine is the hypogean region 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 cantoni Espanol. During this expedition, other speleological objects were explored in the vicinity of the Tasroukht Plateau. In the cave Imi Ougoug (=Ifri Ooudou 1-ergotte du vent) in Akseri, in the Akseri-Ankhout hydrogeological basin, 7 specimens of A. bichain in litt. have been discovered. On this occasion, we redescribe the species of this genus and the myrmecophilous nature of its host ants. 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 for hoary bats (Lasiurus vespertinus) peaked in late spring and late summer. Hair-sexed 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/10.1674/0003-033L.2010.164.2.270'Brien%5Bfulltext%3A%3Ecv?3D%5D&searchHistoryKey=43e57591b4-206f-4954-95a5-64649b09775b3ec3da

Peiffer (B.), Schwarzengerger (F.) & Mayer (F.), 2010. Mating system, swimming behavior and testosterone levels in a hibernating bat (Myotsis mystis) from the temperate zone:246. In: 15th International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants, edited by: Ivan Horaček 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 swimming behavior at caves in late summer to fall. These swimming sites may serve as rendezvous points where bats 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 (Myotsis mystis) from measuring testes sizes and enlargements of caudal epididymides. We additionally analyzed circulating testosterone levels from blood samples. Although spermatogenesis had already ceased at the peak of swimming 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 swimming behavior has a reproductive function.


PIERCE (B. A.), 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: 15th 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 (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 the cave, bats roost in crevices and other cavities at high density, creating an environment that may be conducive to virus transmission. Thus, conservation activities and the emergence of zoonotic diseases. Previous initiatives to reduce anthropogenic modifications are crucial to understanding the relationship between human activities and the emergence of zoonotic diseases. My objective is to document ecological characteristics and infection rates of cave-roosting bat species across a spectrum of landscape modification in order to facilitate a proactive approach to preventing potential spillover events.

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 a proactive approach to preventing potential spillover events.

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 Zbożecjek Cave in Łopurn (Bieszczady Mountains, Southern Poland). From 16 bat species the following parasites were collected: Carios vespertilionis, Ixodes vespertilionis, I. ricinus, Spinurix myoti, S. bechsteinii, S. emarginatus, S. kolenatii, S. anegavimus, S. plecostus, and S. punctatus. In the case of the Spinurix myoti 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.
Organic carbon in aquatic shallow subterranean habitats: 30-31. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTJEL, 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 hypotelminhoeotic 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 character, C-contents, and associated organic matter composition, was significantly lower in drips than in sinking streams or cave streams. In studies of the Rhône and its tributaries, Marmionier et al. report DOC values averaging between 1.9 and 3.5 mg C/L. Lower values were reported for smaller streams, increased distance, and increased lateral distance from the river. For the first time, we report on values for hypotelminhoeotic habitats, which average 3 mg C/L. http://www.icsb2010.net/

PLATH (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 the epikarst, the uppermost zone of karst with semi-isolated solutions and channels, and are often 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 immature individuals was higher in drips compared with pools, with the exception of one artificially enlarged pool in Škocjanske jame. 5. The cause of this difference is probably increased juvenile mortality in pools and reduced reproduction, indicating that pools are not source populations. 6. 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, Copepod, epikarst, rare species, stygobionts.

PLATH (M.), HERMANN (B.), SCHRÖDER (C.), RIESCH (R.), TOBLER (M.), GARCÍA DE LEÓN (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 diverse 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 H2S in sulfidic springs) drive the diversification of P. mexicana. Neoplastic molecular markers 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 to the Cueva de los Buitres). El that, in 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.


POEL (S.) & TRONTJEL (P.), 2010. Suprageneric systematics of leptodirine beetles (Leiodidae, Cholevinia): molecular versus morphological characters: 158-159. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTJEL, ISBN 978-961-269-286-5. ABS: Past attempts to understand the evolution and to establish a phylogenetic system of the subfamily Leptodirinae (Leptodirinae) have been 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 Leptodirina 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 classification of leptodirine taxa 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 Antroherponini (Antroherponia) and Bathysciini (Bathysciae) as well as subtribes Anthonothina and Spelaebathysciina, Bathysciina, Bactrosclerina, Leptodirina and Pholeumonina 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.
subterranean habitats, or dispersal may be important. Our study suggests that a new paradigm for the historical biogeography of subterranean arthropods 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: 20th 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 drippwaters 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 sequence similarity, we sequenced public database GenBank sequences for 21 of the species are most closely related to harpacticoids from the family Cletopodidae (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.) & GONZALES (J. M.), 2010. Moonmilk Deposits Originates from Specific Bacterial Communities in Altamura Cave (Spain). Microbial Ecology Online First™, 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 Altamura Cave (Spain). The study focuses on the relationship between 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 analysis, the developed database (moonmilk Biobank), two of the species 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 nanorosimetry showing higher metabolic activity from bacterial communities in 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 model for visible carbonate depositions and accumulation in cave environments. [http://www.microb-ecology.net!]

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: 15th 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. schreibersi in Asia Minor forms a cryptic species complex: Miniopterus pudicus and M. schreibersi. We analysed abundance of 2 species of nyceribid flies (Diptera, Nyceribiidae) and one wing mite
(Mesostigmata: Spinturnicidae) 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 end 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 is 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.


**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 (*Epitesicus fuscus*) exhibited no statistically significant change in size of population in any hibernculum, but significant change in abundance among most of its hibernacula, (n = 3) and in a site a reduction (9% of the hibernacula, n = 1). The pallid bat Perimyotis subflavus exhibited an increase in abundance in 60% (n = 6) in its hibernacula. The murciélago pálido (*Antrozous pallidus*) and the gran murciélago morrón (*Epitesicus fuscus*) no exhibieron cambios significativos con respecto al tamaño poblacional en ningún invernadero, aunque el murciélago pálido apareció en baja frecuencia y en bajos números (≤11 individuos) en el invernadero donde fue detectado. Los cambios en abundancia que detectamos pueden reflejar expansiones en la distribución geográfica de algunas especies (por ejemplo, el murciélago *P. subflavus*) o cambios en la calidad de invernadero u otros aspectos de hábitat, pero no se desconocen los mecanismos subyacentes.


**PRESETNIK (P.) & PODGORELEC (M.), 2010.** *Miniopterus schreibersii* - what is this cave-roosts flagship species doing in church attics?:251-252. In: 15th 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: 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 45° 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 neighboring Austria, has revealed that *M. schreibersii* forms nursery roosts in three attics: in the Slovenian village churches of Pučava and Završe and in the priest’s house in Klösch, 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) 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 Pučava, Završe and Klösch 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 a practical guide for the restoration of former roost sites destroyed in previous decades.

**PREVORČNIK (S.), TRONTELI (P.) & SKET (B.), 2010.** Rapid re-invasion and evolution following the mysterious disappearance of Racovitza's Axelius aquaticus cavernicolus (Crustacea: Isopoda: Asellidae):172. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELI, ISBN 978-961-269-286-5. ABS: The completely depigmented *Axelius aquaticus cavernicolus* was first described by Racovitza (1925) from the cave Crna 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, significativos en abundancia en la mayoría de sus invernaderos, pero en cambio exhibió un aumento en algunos invernaderos. El murciélago de la cueva (Myotis velifer) mostró aumento en algunos invernaderos (27% de los invernaderos, n = 3) y en un sitio una reducción (9% de los invernaderos, n = 1). El murciélago *Perimyotis subflavus* exhibió un aumento en abundancia en 60% (n = 6) en sus invernaderos. El murciélago pálido (*Antrozous pallidus*) y el gran murciélago morrón (*Epitesicus fuscus*) no exhibieron cambios significativos con respecto al tamaño poblacional en ningún invernadero, aunque el murciélago pálido apareció en baja frecuencia y en bajos números (≤11 individuos) en el invernadero donde fue detectado. Los cambios en abundancia que detectamos pueden reflejar expansiones en la distribución geográfica de algunas especies (por ejemplo, el murciélago *P. subflavus*) o cambios en la calidad de invernadero u otros aspectos de hábitat, pero no se desconocen los mecanismos subyacentes.
however, the population found at the exact type locality (Crna jama) was highly heterogeneous in pigmentation. Therefore, Sket used specimens from the homogenous, totally depigmented (sub)population from the adjacent downstream cave Pljanitsa 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. 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 part 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/


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. As we have seen, the Hazelton database, 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/public/indices.html?10


RAGHURAM (H.) & MARIMUTTU (G.), 2010. Food transfer by mother to pup in Megaderma lyra:255-256. In: 15th International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Program, 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.) & KOJMA (J.-L.), 2010. Does the whip spider genus Stygophrynus (Amblypygi: Charontidae) extend its distribution eastward?

Rahmani (C.), Harvey (M. S.) & Koijima (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 suyukae sp. nov. from Sabah (Malaysia), West and Central Kalimantan (Indonesia), and three species from East Kalimantan, S. cavernicola sp. nov., S. sangkularangensis sp. nov., and S. mardua sp. nov. Sarax mardua and S. cavernicola have pale coloration, reduced eyes and elongate legs suggesting troglomorph 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 Stegophrynus moutoni Gravely, 1915 (Charinidae) is briefly discussed. KW: Caves, troglomorphological species, taxonomy, new species, Stegophrynus. http://www.mapress.com/zootaxa/list/2010/2612.html


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: 15th 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, appropriate foraging resources, and knowledge to guide the 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 Myotis myotis bohi, 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 tomentis.

Rainho (A.) & Palmeirim (J. M.), 2010. The importance of distance variables in the modelling of bat foraging habitat:256. In: 15th 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 maximize their foraging efforts. However, flying is energetically expensive, so reaching these sites and discovering new resources as a drifter might 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) for troglomorphic adaptation and 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 importance of the different 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: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda Moškrič and Peter Trontelli, 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 Bolivar, 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 Diktaios Antron (Crete) and from Korician Antron (Beotia) and the Troglophilus specimens collected in two Albanian caves and on Mljek island (Dalmatia). The results of our work point out the richness of species of both genera in these regions, 48 out of 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 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 Diktaios Antron (Crete) and from Korician Antron (Beotia) and the Troglophilus specimens collected in two Albanian caves and on Mljek island (Dalmatia). The results of our work point out the richness of species of both genera in these regions, 48 out of 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 Balkan-Hellenic ones. 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.scb2010.net/

n. sp., H. vaillanti 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 boweries in the State of Andhra Pradesh, southeastern India, these new species introduce several morphological features that are unique to either the genus or the family Parabathynellidae. The spine row on the uronotal symphoid 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. nagarajai Ranga Reddy, 2002; H. schminkii 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, the ecology, biogeography and conservation of...
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 un Innulated 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-processed specimens representing 12 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.


REIMER (J. D.), HIROSE (M.) & WIRTZ (P.), 2010. Biospeologica Bibliographia pictures of bats flying into the cave (=62% of all flights into the cave). However, we found bat activity on every single day of the study period, activity, respectively. More than 109900 flights in to the cave and 101240 beams and automatic photographing of bats to get reliable results for Conservation Management.

South-Eastern British Columbia: Implications for


REIMER (J. D.), HIROSE (M.) & WIRTZ (P.), 2010. Biospeologica Bibliographia pictures of bats flying into the cave (=62% of all flights into the cave). However, we found bat activity on every single day of the study period, activity, respectively. More than 109900 flights in to the cave and 101240 beams and automatic photographing of bats to get reliable results for Conservation Management.
screes slopes covered by linden-maple forest in the valley Malý Ružínok (NO of Bratislava) about 500 m a.s.l. The portals of the traps each placed at the depth from 5 to 95 cm (every 10 cm) under the surface were inspected 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 then 26000 individuals were found: arthropods and a few specimens of gastropods and earthworms. Eudominant Collembola (67.5%), insect larvae (7.5%), Diptera (5.1%) and Coleoptera (1.2%), all the groups were captured along the entire depth gradient. Opiolines (3 spp.), Oniscidea (5 spp.), Diplodopa (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 Mesogonopodium grangeri, 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 cavernicole 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 not a stable deep refuge for specialists. The study was supported by the grant Vega 1/0139/09. [http://www.jscb2010.net/]


**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. granulatius 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. aequilis and G. varius groups, the latter including G. eremitus n. sp. as sister to G. delecta Willostann (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-Quaternary boundary). KW: Coleoptera, Dytiscidae, Graptodytes, subterranean medium, new species, diving beetle, molecular phylogeny. [http://www.mapress.com/zootaxa/list/2010/2641.html]
RODHOUSE (T. J.) & WRIGHT (R. G.), 2010. Publication and phylogeny of the subterranean genus Troglocharinus (Coleoptera, Leiodidae, Leptodirini): 159-160, poster presentation. In: 20th 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 endogeic habitat: blindness, depigmentation, typical "pholenoïd" or "batsoid" morphologies, size reduction, or changes in physiology and life cycle. They are mainly distributed in the north side of the Mediterranean area, from the Berrian 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 Sponnemus series. The genus Troglocharinus presents a distinct 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 Aragon. 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 mitogenomes (cox1, cytochrome b, 12S rRNA, 16S rRNA 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 geographic 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.icssb2010.net/ 

RODHOUSE (T. J.) & WRIGHT (R. G.), 2010. Study of bat roosts in John Day Fossil Beds National Monument, Oregon. Invertebrate Biology 129(4):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 30,000 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 bats species in the cave, R. cavernarum (12 g) and M. redmani (50 g) are captured in greater numbers by the cats. KW: Islands, tropical bats, predation, cats, foraging behavior.


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 Norfork (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 during this study. 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 introductions have been done into 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 Ballynaminta 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, accicular calcite moonmilk deposits at Ballynaminta Cave, Waterford, 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 m². However, the number of fungal species and fungal community richness were unaffected by sampling location. ANOSIM analysis revealed a significant difference in the bacterial 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, Phasmatoidea and Dermaptera. Chapter 13.3. In: ROQUES (A.) & al., Alien terrestrial arthropods of Europe. BioInvasions 4(2):807-831. DOI: http://dx.doi.org/10.3897/biorigin.4.68. ABS: The nervous system of the moonfish (Priapulus) is a simple nervous system. The nervous system of the moonfish (Priapulus caudatus) 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 intetroct includes longitudinal neurite bundles running below and between the rows of scalids, with a small cluster of sensory cells under each scalid. 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 reticulated system of nerves 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 within other priapulids.

RÚZICA (V.), 2010. Central European spiders adapted to life in subterranean habitats:33. In: 20th 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: Many species of macroarthropods have colonized various types of subterranean habitats. These are, for example, voids in soil layers, elastic river and slope sediments, stony accumulations, young volcanic deposits, old sedimentary and metamorphic bedrock, laval 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 dimishing and sometimes also veriform 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 Porhromma. They inhabit leaf litter, ant's nests, deep soil layers, void systems under soil surface, cave 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. Bathyphtantes eumenis buchari inhabits exclusively deep scree layers. Porhromma profandum was recorded exclusively in caves. Porhromma microps was recorded in leaf litter, deep soil layers and caves. Porhromma 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 troglobionts. http://www.icsb2010.net/


SALGADO (J. M.) & FRENSEDA (J.), 2010. Un nuevo troglobio de la región Cantábrica: Quaeastus (Speegeus) jubalitanis n. sp. (Coleoptera: Leiodidae: Cholevinae: Leptodirini). Heteropterus Revista de Entomología 10(2):99-106. RES: Se describe una nueva especie perteneciente al subgénero Speegeus Salgado, 1986, Quaeastus (Speegeus) jubalitanis s. sp. Se discute su posición taxonómica, tomando como base de diferenciación los caracteres morfológicos, el degado y el complejo estomacal. Se propone una nueva clave para las especies de este subgénero.


SANDOVAL (J. M.) & RODRIGUEZ-DURÁN (A.), 2010. Metabolic rates, nutritional state, and thermoregulatory behavior of Molossus:275. In: 15th International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants, edited by: Ivan HORÁCEK 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 Molossus (Phyllostomidae). Molossus molossus roosts predominantly in antropic structures where it is exposed to wide variations in ambient temperature. Brachyphlylla cavernarum is a cave dwelling species roosting in microclimate-stable environments. Body temperature was measured at the beginning and end of each experiment and, in the case of M. molossus, was also measured during the periglacial zone, and metabolic rate was determined. 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 O2 g−1 hr−1, and 1.01 ml O2 g−1 hr−1 for B. cavernarum. Both species closely regulate body temperature. We found differences in oxygen consumption based on the nutritional state of bats.

SANZ MUÑOZ (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. LIF016M Research project in biology for foreign students Teacher: Snebjörn Pálsson 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, Finnmark, Iceland and North America and Europe, is reflected in a nuclear marker and also to 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 size, and some samples with an extra satellite was fixed 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 Potamyphilus 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.

SCHETEPOV (D. M.), MUGUE (N. S.) & LJOVUSHKIN (S. I.), 2010. On molecular phylogeny of Niphargus from the West Transcaucasus:66, poster presentation. In: 20th 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: Of all European subterranean invertebrates, the genus Niphargus Schiödt, 1849 (Crustacea, Amphipoda) had traditionally attracted the attention of most researchers, being the largest among freshwater amphipods, with over 300 described species and subspecies. The majority of species were described in the middle of the 20th 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 and evolution of the Caucasus fauna 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 sminovichi Birstein, 1952 and Niphargus stygius Schiödt, 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 used as subspecies of N. sminovichi, 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.), 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: 20th 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: 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 Caucasus? 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 RuEnRf site described recently by Stein et al. in 2010, to test this hypothesis. http://www.icsb2010.net/

SCHULDT (A.), DRES (C.), DRESCHER (N.), SCHAfer (K.) & ASSMAANN (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: 20th 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: 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 beetles and the recentness of 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 mollies, 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. 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 sacculus otolith between a cave and two surface populations of Poecilia mexicana, we checked for additional differences in utricular and lagena otoliths, and tested whether different populations have similar hearing sensitivities. We found pronounced differences in the shape of all three otoliths. Otoliths of the sacculus 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.


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: 20th 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 Wandelisia were known from the interstitial waters of the Russian Far East. During subsequent investigations of interstitial fauna some interesting new records were obtained. The genus Amerothyasella, Stygomonomonia 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 Chappuisiides and Nudomodepis 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 (Stygomonomonia and Chappuisiides) have a Holarctic distribution. However, a majority of species belonging to these genera is known from Russia, Japan and North America, and a few from Europe. The other genera (Feltria, Nudomodepis and Wandelisia) 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 09-04-08844 and Far Eastern Branch of Russian Academy of Sciences grant 10-II-B-06-104. http://www.icsb2010.net/

SEMIKOLENNYKH (A. A.), RAKHLEEVA (A.) & POPUTNKOVA (T.), 2010. An environmental impact assessment of spent calcium carbide disposal in caves and mines:91. In: 20th 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 carbide, acetylene, polycyclic 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 autochololithothrophic ecosystems in the caves of the Kugitangtau Ridge, eastern Turkmenistan. Eurasian Soil Science 43(6, June):614-627. DOI: http://dx.doi.org/10.1134/S1064229310060025. ABS: Ecosystems, in which the role of primary producers is played by the photosynthetically active plants, but by the autochololithothrophic 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 regulating bioreactive 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 ©

SENDRA (A.), MOLDOVAN (O. T.), BALLESTEROS (B. J.), DOMÍNGUEZ-SÁNCHEZ (J. A.), TERUEL (S.), URIOS (G.), JAUME (D.), REBOLEIRA (A. S. P. S.) & GILGADO (J. D.), 2010. Discovery of stygiobiotic crustaceans in boreholes at the Deep Jurassic aquifer of El Maestrazgo (S. E. Spain):144-145, poster presentation. In: 20th 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 groundwater 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 stygiobiotic crustacean species among copepods, amphipods, isopods and decapods. 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 km² of carbonate rocks ranging from Jurassic to lower Cretaceous in age in the northern half of the province of Castellón. The aquifer reaches between 150 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 variations 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 mandatory. Ten out of 68 boreholes were considered for biological sampling, which was carried out with two Nytex nets of 140 µm 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 stygiobiotic species of copepods, amphipods, isopods (Therophloeolida sp.) and decapods (Thelphusa miravetiensis), also known to be present in several caves in the area. http://www.icsb2010.net/


SERRANO (A. R. M.) & BORGES (P. A. V.), 2010. The cave-adapted arthropod fauna from Madeira archipelago. Arquipélago. Arquipélago - 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 epigean fauna or the cave fauna of other Macaronesian archipelagos. Curious is the occurrence of one wood-louse cave species (Trichomusca 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 conservation of this specialized fauna requires the adequate management of surface habitats. KW: Cava, Coleoptera, lava tubes, Machico, troglobiont species.

ŠEVCÍK (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: 15th 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: 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 range is based on 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 rock systems (hibernation and permanent roots systems - relicts). Based on a revision of data from maternity colonies, the process of synanthropisation is discussed. Among 16 maternity roots, 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 underground roots is a function of population growth or a change of roost strategy in this species at its distribution margin.

SVĚČÍK (M.), KRISTFÓRÍK (J.), UHRIN (M.) & BENDA (P.), 2010. New records of ticks (Acarri: Ixodidae) parasitising on bats in Slovakia. Vespertilio 13:14:139-147. ABS: New records of ticks of the family Ixodidae (Ixodes simplex and I. persulcidentis), 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 persulcidentis 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.csos.org/publikace.php?p=13

SHEAR (W. A.), 2010. Hesperonemastoma similax, n. sp., a remarkable new harvestman from a cave in West Virginia, with comments on other reported cave-dwelling and Hesperonemastoma species (Opiliones, Ischyropsalidioidea, Saubacanoidea). Journal of Cave and Karst Studies 72(2, August):105-110. DOI: http://dx.doi.org/10.4311/jcks2009sc1013. ABS: Hesperonemastoma similax, n. sp., is a minute, highly troglomorphic harvestman described here from a single type specimen collected in McClung’s Cave, Greenbrier County, West Virginia. Hesperonemastoma species described previously from caves are briefly discussed. H. packardi (Roeover), 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 pallidimaculaus (Goodnight & Goodnight) is a moderately adapted troglobiont known from two caves in Alabama.

SHEAR (W. A.), 2010. New species and records of orthosomatine harvestmen from Mexico, Honduras, and the western United States (Opiliones, Nemastomatidae, Orthosomatinae). ZooKeys 52:9. DOI: http://dx.doi.org/10.3897/zookeys.52.471. ABS: The genus Trilasma Goodnight & Goodnight, 1942 is reinstated for Mexican orthosomatines, 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 Orthosomatinae Shear & Gruber, 1983 are described, as follows: Ortholasma collosus sp. n. is from California, Trilasma tempestado sp. n., T. hidalgo sp. n., T. trispinosum sp. n., T. ranchonuevo sp. n., T. peterspuosi sp. n. and T. chipequines sp. n. are from Mexico, and T. tucum sp. n. from Honduras, the furthest south for a dysnoan harvestman in the New World. A new distribution record for Martensolasma jocheni Shear, 2006 is given. The recently described Upper Cretaceous amber fossil Halitherses grimaldi Girbet & Dunlop, 2005 is not a member of the Orthosomatinae, but is likely a trogloloid of an undiagnosed family. KW: Orthosolama, Dendrolasoma, Trilasma, Cladolasma, Halitherses, amber, fossil, California, Sierra Nevada, Nuevo Leon, 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 Scoса 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?e=110

SIDOROV (D. A.), 2010. Pseudocrangonyctidae (Crustacea: Amphipoda) and its forming pathways:67. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELI, 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. Нахождка 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 Primorye) and some considerations about the taxonomic position of "Orchestia" solifuga Iwasa]. Вестник Свят 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: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELI, 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 Kangur Ice Cave, Babunogorskaia Cave, Ordinskaya Cave and driven wells in the Irgina River basin. The moderately stygomorphic animals are about 10-20 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 chibelnikovi, 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 pleon plates and an increasing number of pleopod retinacula, and will therefore be designated as type-species of a new crangonycid genus currently being described. The genus Bactrurus is endemic to the North American continent and widespread in subterranean groundwaters of the east-central United States. The finding of Bactrurus-like subterranean
ampipod 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/


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, 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 can alter the DOM character. 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.), MERMILLOD-BLONDIN (F.), MALARD (F.), LÉCUYER (C.), FOUREL (F.) & DOUADY (C. J.), 2010. Trophic niche of two subterranean isopod species along a parapatic boundary in pre-Alps and Jura Mountains (France): a preliminary field study using stable isotopes:122-123, poster presentation. In: 20th 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 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 epigean 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 sources to Proasellus diet have been calculated using mixing model from their 13C/12C and 15N/14N 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 experimentation on juvenile isopods is 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/


SKET (B.), 2010. Subterranean fauna of the wider Danica area - from first discoveries to a global hotspot, and its up-to-date biological evaluation:19-20. In: 20th 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: First troglobiotic animals were described from Slovenia (amphipan) Proteus, Laurenti, 1768; beetle Lepidoptira, 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 within it with the system; fauna succession and clinal variability within some species along an allogenous subterranean river; deeper invasion of epigean species after organic pollution. Some interesting species will be presented according to
their distribution patterns. Interstitial fauna of Black Sea Drainage closely relates to that of Adriatic drainage. Protocoriae are characteristic of in-situ karstic drainage. European distribution: Axelssonia articulata (Isopoda) and Synurella ambulans (Amphipoda: Crangonyctidae) with some troglobiotic 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: Aythidae) with members in Caucasus, Sphaeromatidae (Isopoda: Cirolanidae) with members in Bulgaria, French species of both not related to Dinaric ones. Zospeum (Gastropoda: Carychiidae) Dinardi - Pyrenees; Delaya burschei (Oligochaeta: Haplotaxidae) Slovenia - Bulgaria; Monolitrus (Isopoda: Sphaeromatidae); DK and Southen Calcareous Alps. Holodromic populations between Kras-Carso and SE Herzegovina. Subgenus Troglocaris (s. str., Marfugia "cavatica" (Polychaeta: Serpulidae), Proteus "anguinus", genus Titanethes (Isopoda: Trichoniscidae), Velkohvora enigmatica (Cnidaria: Bougainvilliiidae). All molecularly studied elements exhibit splitting into races or species within the area. Complementary NW and SE meridonic patterns best represented by geographically vicariant genera of Coleoptera, also of hydrobiont Gastropoda and others; leptodrioid habitats developed only in DK. Paraitalic meridonic 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 anhaline caves: presence of a disoxic layer; presence of troglobionts in illuminated layers if surface competitors are absent; withdrawal of predators of tender Thermobia naeus into the disoxic layer. Narrow endemic distribution patterns. Seldom species bound to stream rivers drainages, like Microlitoris spp. (Isopoda: Sphaeromatidae); distribution of the related Monolitrus cernua and most closely described by palaeontological Niphargobates orsophiobata (Amphipoda: Niphargidae) known only from one point. Narrow areas also the sponge Eunapius subterraneus (Porifera: Spongillidae), bizarre leech Creothobranchus mestrosi (Hirudinea: Erpobdellidae), an undescribed terrestrial planarian etc. Rich is the fauna of epizonic Turbellaria Tremnochelida. The troglobiotic species density probably the highest in the world. Up to 21 terrestrial troglobionts registered. For Postojna-Planina Cave System altogether 99 species. New species are still being found; a non-trogloomorphic race of Proteus found only in 1998; it is very instructive with its being troglobiotic 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 Marfugia and Congeria 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 troglobionts:173. In: 20th 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 troglobionts 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 troglobionts (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 Akaike Information Criterion for small sample sizes. Detection probabilities were estimated for 14 troglobionts (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 millipeded Psuedothele fulgida, was detected perfectly. For all species, time constant model had the greatest support (delta AICc values greater than 2). Estimating that detection probabilities change 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 troglobionts are less than perfect and supports the claim that estimating detection probabilities for troglobiotic species is needed. http://www.icsb2010.net/

SMIT (H.) & GERECZE (R.), 2010. A checklist of the water mites of France (Acari: Hydrachnida). Acarologica 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 Angeli, Decamps & Rey as a synonym of A. phreaticus Motaj & Tanasachi, Atractides foncitacis gallicus Angeli, Decamps & Rey as a synonym of A. spinipes Koch and Barbaxelloa pilosa Angeli, Decamps & Rey as a synonym of B. angulata (K. Viets). The following species are reported for the first time: Atractides orghidiani Motaj & Tanasachi, Hydrachna goldfeldi Thor, Hydrodromia pilosa Besseing, Limnesia curvipalpis Tuzovskij, Limnesia undulatoides Davids, Piona ambigua (Purseg), Forelia curvipalpis K. Viets, Moidopsis rozcozenis Biesiada & Kowalik, Arrenurus octagonus Halbert and Arrenurus tabulator (Müller). 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, Hydrachnida, France, checklist, distribution.


SOARES (D.), 2010. P 11. Cavefishes as models for sensory adaptation:694. In: 9th 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 prevalent darkness inside in caves is one of the primary harsh sensory constraints that offer a distinct opportunity to examine how sensory modules only become transformed, but also how they influence each other's changes. Troglockryptic 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 Ogillia pearsei (Yucatan, Mexico) and Astrolebias poletier (Napo, Ecuador).

SOISSOK (P.), NIYOMWAN (P.), SRIRATCHANG (M.), SRITHONGCHUAY (T.) & BATES (P. 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.

formations in the Brazilian semi-arid (caatinga). This genus, hitherto monotypic, was known only from Gabon and coastal Tanzania. However, 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.


Poster presentation. In: FERREIRA (R. L.), 2010. Coarse particulate organic matter (CPOM) in a tropical limestone cave: 48-49, poster presentation. In: SOUZA-SILVA (M.), PARENTONI 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: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELIJ, 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 of potential for 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 vegetation. 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. Unfavorable temperature conditions and, especially, low humidity in the soil promote low consumption rates of plant detritus. The cave functionality depends directly of the alcohonous food resources. Organic matter is transported in pulses by water flows and bats. Water can transport litter, while bats release feces. Both are extremely epigeon-dependent processes of the dry season conditions and intact with the surrounding epigean vegetation.

http://www.speleoclubdeparis.fr/spip.php?article107


http://www.speleoclubdeparis.fr/spip.php?article868


ŠTAMOL (V.), 2010. A list of the land snails (Mollusca: Gastropoda) of Croatia, with recommendations for their Croatian names. Natura Croatia 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&la


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 Wallcean (i.e. the biogeographical) shortfalls. Within this framework, and by means 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 epigean units; (iii) assessing the role of multiple point-richness and 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 seem 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 γ-diversity, suggesting the diversity accounted for the highest values of total species richness at the spatial scales analyzed. KW: Ground water, Species richness, Stygobions, 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: 20th 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 incidence-based coverage (ICE) estimators, we concluded that 82% of all species inhabiting the karstic area have been recorded so far (94% of terrestrial stygobiotic species, 75% of stygobiotic recent montane 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

STOCH (F.), 2010. Subterranean biodiversity in Italy: A review of regional species richness and diversity patterns. In: Berichte Karst und Caves of the Provinces Houaphan and Xe Pian-Xe Nam National Park, Laos. Marseille, Grotte Rolland (France, 13), 30 m; p. 19, 884 Quercus cocciifera 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: 20th 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 line with the biogeographic regions. http://www.icsb2010.net/ 


STOCHINO (G. A.), SLUTS (R.), MANCONI (R.), CASALE (A.), MARCIA (P.), GRAFFITTI (G.), CADEDDU (B.), CORSO (G.) & PALA (M.), 2010. Triclads from Italian groundwaters (Platyhelminthes, Dendrocoelidae), (Planariidae). Data on both stygobiotic and stygophilous species are mainly restricted to centralnorthern Italy and 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 line with the biogeographic regions. 


STOCK (F.), 2010. 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

STOCHINO (G. A.), SLUTS (R.), MANCONI (R.), CASALE (A.), MARCIA (P.), GRAFFITTI (G.), CADEDDU (B.), CORSO (G.) & PALA (M.), 2010. Triclads from Italian groundwaters (Platyhelminthes, Dendrocoelidae), (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 Intereg III Sardinia-Corsica-Tuscany. G. Stochino acknowledges financial support from SYNTHESYS, a programme of the European Commission under the 6th Research and Technological Development Framework Programme "Structuring the European Research Area", which enabled G.S to work at the Zoological Museum Amsterdam in November and December 2008 (grant number: NL-TAF 4717). http://www.icsb2010.net/
several species, results allowed (1) to assess the relative contribution to total spatial mass 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 contribution of species value of caves and enhanced priority areas for biodiversity conservation in the Karst.

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 troglomorphic 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. cloudlesi-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, geo-referencing 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. Interactive key, cybertaxonomy, semantic tagging, 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.

STRECKER (U.) & WILKENS (H.), 2010. Problems of taxonomy in Mexican Astyanax:67-68. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELI, 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 several surface and the cave populations. Based on these markers several different haplotype lineages and microsatellite clusters could be discriminated. However, the distribution of these lineages is 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. 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 troglomorphic 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. cloudlesi-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, geo-referencing 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.

STRIITH (N.), 2010. Biological and Vibratory Sense of Crickets. The Origin of Sound-Processing Elements in Ensifera Using Laser Vibrometry. Polytec. Technical Papers. Advancing Measurements by Light. IntFocus, Optical Measurement Solutions, 1:3 p., ISSN 1864-9203. http://dx.doi.org/10.3897/zookeys.50.504. ABS: In the life of insects, vibrational signals mediate important information that is used in various contexts, from mate 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 signalers in a complex environment. Without the use of special equipment to identify signals, the intriguing world of insect vibrations would remain hidden to humans, which mostly communicate by sight and sound.

STRIITH (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: 9th International Congress of Neuroethology, Salamanca (Spain), 2-7 August 2010. Sponsored by the International Society for Neuroethology (neuroethology.org). Abstracts. ABS: Cave crickets (Rhaphidophoridae) 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 signal's 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 signaler, the peak velocity of signals ranged between 2.5*10^-5 - 5.0*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 what degree the vibrational system of T. neglectus may be adapted to detect infraspecific signals at further processing levels, we investigated spectral sensitivity and responses to play-backed male signals in the brain 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: Skočjan Caves, Velika Dolina cross section:94, poster presentation. In: 20th International Conference on Subterranean Biology, Postojna, Slovenia, 29 August-3 September 2010, ICSB 2010 Abstract Book, edited by: Ajda MOŠKRIČ and Peter TRONTELI, ISBN 978-961-269-286-5. ABS: Skočjan Caves ranks among the most important karst phenomena not only in Slovenia's Karst region, but worldwide. Skočjan Caves is on the UNESCO list of 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 a presentation that goes beyond technical interpretations for 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

© Biospeologica Bibliographia
Publications 2010-1
Page 101 sur 116
Créé le : 01.01.2010
Modifié le : 30.06.2010
Stygobiotic and troglobiotic organisms have been discovered in Škocjan Caves. Epikarst vegetation (i.e., Copepoda) is particularly abundant. Moreover, numerous troglrophiles make their home in Škocjan 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 Škocjan and at the Academy of Fine Arts and Design (University of Ljubljana), and the Rekling Workshop. Over fifty illustrations were produced, illustrating ten troglobiotic and three troglophile organisms. These organisms have been incorporated into the illustration of the Velika Dolina cross-section with part of Škocjan 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


SUBHASH BABU (K. K.) & SIVASANKARAN (B. N.), 2010. The hypogean fauna of selected ecosystems of Kerala, India, with two new records:130. In: 20th 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: 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, well of varying kinds contributing to the water sources in 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 Silurid blind fish, Horaglanis akeshah was reported from the central part of Kerala. All these observations on the subterranean fishes from Kerala were quite accidental and the information on 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 p. The economic descriptions of the two hypogean fishes have been discussed with that of the genus of the same species described earlier. http://www.ICSB2010.net


SUSAC (R. A. J.), ANDERSON (J.) & MOULDS (T. A.), 2010. Comparisons of subterranean biodiversity from the West Kimberley Karst, Australia:92-93. In: 20th 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 Devonian Reef Complexes of the West Kimberley, in northern Australia, contain numerous endemic communities of relictal fauna including both troglophoric and stygobiotic representatives from several key groups. These relict faunas are coupled to a diversity 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, Geike, 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 endemicism 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 Cheridiidae cheridium (Pseudoscorpion), Bamachomus hanti (Schizomida), Kimberleydilio walockiidae (terrestrial isopod) and Tansipsisopis. aquatique 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: 20th 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 1997 Jasmins documented the biodiversity and ecology of cave streams from Yanchep National Park (YNP), a karstic system, situated on the South West coast of Australia containing Short Range Endemic species and Gondwanan relicts. These cave streams of the Swan Coastal Plain, are driven by the hydraulic head of the Gnangara 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 reclamation. 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 habitat modification 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: 20th 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 Prototrophot botryoides, Spongiochloris irregularis, Botrydiospis 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-CÉBALLOS (N.) & MEDELÍN (R. A.), 2010.** Multi-spatial approach for monitoring and modeling bat colonies in Puebla México:292-293. In: 15th 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 of 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 rabies outbreaks and new regional areas. 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: 15th 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, Myoxynathus, Rhinolophus ferrumequinum, R. hipposideros, Miniopterus schreibersii, Barbabusta barbassus, Myotis bechsteinii) 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 the seasonal activity (e.g., foraging, roosting, hibernation and reproduction), management plans will be agreed with local landowners 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.


Microorganisms are an important part of this subterranean system. They may not be associated with an ecological or geological process in the environment. These organisms may also produce a variety of 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 aphytic 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 Dichloran Glycerol (DG-18) Agar and DRBC (Dichloran Rose Bengal Chlorophenicol) 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 activity. 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 new species of Aspergillus (Aspergillus sp) that 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.j-cdb2010.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, Cambaridiae). *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 chela and longer antennae, and females had longer 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. RES: *Fallicambarus fodiens* (Cottle, 1863), l’écrevisse fouisseuse, est largement distribuée dans les bois de forêt alluviée et d’autres habitats humides 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 multifacteurielles 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.


unas ideas de conservación y gestión de la cavidad, debido a su importancia biogeológica.


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, cavanish, 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. On the other hand, 97% of subsurface groundwater dependent ecosystems (LGDEs) 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 LGDEs and highlight the ecological relevance of their connectivity with other ecosystems. A lack of attention to LGDEs in groundwater plans risks inadequate provision for environmental water requirements with probable impacts on ecological values, water quality and ecosystem goods and services in LGDEs and connected ecosystems. We suggest an ecohypological approach to understanding the implications of anthropogenic disturbance on LGDEs based on their connectivity to other ecosystems and aquifer permeability. As well as a template for comparative research on the biogeochemistry and ecology of LGDEs 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: 20th 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: 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 caves and regions often variation in the use of organic matter input into the anchialine systems. Results from an anchialine cave in Mexico show huge variations. Atyid 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. This work shows the need for the best abscenses of Remipedia (Crustacea). Remipedia censuses have been conducted in 2001, 2007, 2009 and monthly during 2010. http://www.icsb2010.net/


TRAJANO (E.), 2010. Source versus sink populations concept applied to the Schinner-Racovitza classification of subterranean organisms:174. In: 20th 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: 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 it maintains a minimum amount of habitat-level 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; Itiglanis epikarsticus 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-trogloxenes, all individuals are dependent on both surface and trogloxenes (stygoxenes) are instances of source populations in epigean regimes into subterranean populations (and vice-versa); 3. troglophiles (stygophiles) include source populations both in hypogean and epigean habitats, with individuals regularly commuting between these habitats, promoting the introgression of genes selected under epigean regimes into subterranean populations (and vice-versa); 3. troglophiles (stygophiles) include source populations in epigean habitats, but using subterranean resources (in the so-called obligatory trogloxenes, all individuals are dependent on both surface and subterranean resources). Sink populations do not fit the Schinner-Racovitza scheme, unless one considers stranded troglobitic or stygobitic individuals as part of the subterranean source population from which they originated (e.g., the above mentioned Itiglanis and Trichomycterus catfishes).

http://www.icsb2010.net/


TRAJANO (E.) & BICHUETTE (M. E.), 2010. Diversity of Brazilian subterranean invertebrates, with a list of troglobromorphic taxa. Subterranean Biology 7(2009, December):1-16. ABSTRACT: 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 troglobromorphic taxa is also presented. KW: Subterranean biodiversity, invertebrates, Brazil, troglobromorphic taxa, distribution.


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: 20th 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. ABSTRACT: Species of Pimelodella and Rhamdia have adjacent placements within the Heptapteridae phylogeny, and are similar in general appearance, distribution and habitat preferences and food habits - 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 troglobitic P. kornei and R. enfurnada did not reveal any differences in which could not be attributed to habitat specificities. However, important behavioral differences were observed in laboratory. Chronobiological studies indicated that, in aquaria, P. kornei exhibits higher levels of spontaneous activity, with shorter intervals without detectable locomotor activity (less than 30 min.), whereas R. enfurnada exhibits levels of activity (less than 30 min.) which could not be attributed to habitat specificities. However, important behavioral differences were observed in laboratory. Chronobiological studies indicated that, in aquaria, P. kornei exhibits higher levels of spontaneous activity (less than 30 min.), whereas R. enfurnada may remain stationary for hours; this may reflect differences in the epigean ancestors since large Rhamdia catfishes are sit-and-wait predators. P. kornei 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. enfurnada, in which reaction to conspecifics varied from indifference to attraction; when detected, such responses were delayed in relation to the observed for P. kornei, possibly as a correlate to the lower activity levels in R. enfurnada. A new troglobromorphic Rhamdia species from Bodoquena karst area, NW Brazil, is described, which reacts in these aspects. Likewise, patterns of aggression are similar in general appearance, distribution and habitat preferences and food habits - 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 troglobitic P. kornei and R. enfurnada did not reveal any similarities and differences in relation to other tropical and temperate regions are pointed to. An updated list of subterranean troglobromorphic taxa is also presented. KW: Subterranean biodiversity, invertebrates, Brazil, troglobromorphic taxa, distribution.

http://www.icsb2010.net/


TSAO (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: 9th International Conference on Neuroethology, Salamanca (Spain), 2-7 August 2010. Sponsored by the International Society for Neuroethology (neuroethology.org). Abstracts. ABSTRACT: 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 within a deep natural crater they 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 systems in mammals.

TSAO (A.), ULANOVSKY (N.), BARTAN (Y.), TURJAK (M.) & TRONTELJ (P.), 2010. Movement ecology of GPS-tracked Rousettus aegyptiacus: Unexpected foraging movements in a predictable heterogeneous landscape:300-301. In: 15th 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 the first 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. Over relatively large spatial scales with high spatiotemporal resolution, these results provide the first evidence for large-scale navigational systems in mammals.


ABS: Bats use various route 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.

ULANOFSKY (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: 15th 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.


URZUÁS (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 biodetergents 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™, 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 *Asbestoplasma* is described from the southernmost Antarctic region of McMurdo Sound. *Asbestoplasma (Asbestoplasma) vacellii* 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 actively populated overhangs of rocky substrata. The new species stands out among Antarctic *Asbestoplasma* by the possession of forceps microscleres, a feature shared with several species from Arctic-Boreal waters (bathyhal to deep-sea) and one from the Kermadec Trench (deep sea), but not previously reported from Antarctic species. As a result, *A. vacellii* is the first species to date from all forceps-bearing *Asbestoplasma* of 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 ovoidal body. A comparison is made with descriptions of Antarctic *Asbestoplasma* species and all species possessing forceps microscleres. KW: Antarctica, Carnivorous sponge, *Asbestoplasma*, 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: 9th International Congress of Neuroethology, Salamanca (Spain), 2-7 August 2010. Sponsored by the International Society for Neuroethology (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 florescent vital dyes (DASPEI and FM1-43) following exposure to 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 (*Asystenax 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 disrupts rheotaxis in the blind Mexican cave fish, *Asystenax mexicanus*. These results demand re-evaluation of many prior behavioral studies of the lateral line system.


VAUGHAN (T. A.), RYAN (J. M.) & CZAPLEWSKI (N. J.), 2010. Mammalogy. Fifth edition. Jones & Bartlett Learning, 755 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.
VEROVNIK (R.), STOCH (F) & SKET (B.), 2010. Phylogeny of the western taxa of the genus Monolitrus (Crustacea: Isopoda: Sphaeromatidae):68-69. In: 20th 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 Monolitrus is predominantly distributed in the Dinardies; 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 125 rDNA fragments in total length of pruned sequences of 1832 bp were analysed using Bayesian inference. The phylogeny is characterised by three main clades with all taxa inhabiting the Alpine region representing a well supported (93%) monophyly. 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 bergomensis. All but one taxon in this clade belongs to the subgenus Tysphlophera. Namely, the M. coeca julia, which is widely included within Alpine clade, is morphologically more similar to species of the supposed plesiomorphic subgenus Monolitrus, 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.) racoviçai is the only representative of the Tysphlophera subgenus in the Dinardic clade, forming a well supported monophylum with the species of all the other subgenera also limited to the Dinardies. This species and the species of the subgenus Microlistra are the most recent invaders at the NW edge of the Dinardies, with very little or no genetic differentiation among populations; however their distribution area does not overide the western border of the CarsoKras in Italy. Given the surprisingly large genetic divergence, we have to assume the taxonomic rank of some taxa needs to be revised.


VINCENT (S.), 2010. Pélodonte ponctué, Pelododytes punctatus (Daudin, 1803):36-37. In: Groupe Hépétologique Drômois & LPO Drôme, Atlas préliminaire des Reptiles et des Amphibiens de la Drôme. ISBN: 978-2-953497-1-3, September 2010, 107 p. Bl.: Ct p. 36: “Fait notable, le pélodonte est une espèce que l’on rencontre régulièrement en cavités souterraines, par exemple ‘Pélodonte ponctué’ de la grotte de Bojnicka hradna Cave near the Prievidza town. The common epigean Gummarius 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). Harpacticoids are represented mostly by members of the genera Elaphoidella (E. pseudhephtreata, E. phreatica, E. proserpina), Bryoacanthac (B. szchokki, B. echinata, B. typhlops, B. spiculosus), in some cases also by Marsenobiotus volvovky, Paracanomids schmeili and Epactophanes richardi. Of the 13 cycloid copepods, the most diversified genus is Diceryclops which is well represented in several epigean-Dinarid caves. The stygobiotic Acanthocyclops venustus, Microcyclops rubellus and stygopholic 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 Cryptocandonia diadichi from the Domica-Baradla cave system in the region of Hungary-Slovakia boundary zone. No stygobiotic Cladocera and Calanoidea 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: 20th 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 in the cave-dwelling representatives of the terrestrial Isopoda family, mostly 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 troglobitic 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 pleonal anterior gland-piliferous organs from Pian di Spagna 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. Aggregates 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 alexandri. Additional ultrastructural characterization will help us draw further conclusions concerning the organs’ structure and function. http://www.icsb2010.net/


VON REUMONT (B. M.) & BURMESTER (T.), 2010. Remipedia and the Evolution of Hexapods. Encyclopedia of Life Sciences. DOI: http://dx.doi.org/10.1002/9780470015902.0022862. 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 phylogenetic work mainly 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 offer new living relatives for hexapods. This hypothesis comes from similar branch architecture, presence of an insect-type respiratory haemocyanin in remipeds 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 is 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 hexapod crustaceans, whereas branch structure of hexapods is closer 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.), VON RINTELEN (K.), PAGE (T. J.), CAI (Y.), WESSEL (A.), STELBRINK (B.), ILIFFE (T. M.) & VON RINTELEN (T.), 2010. Living in the dark: phylogeny of atyid freshwater shrimps reveals multiple cave invasions: 65, poster presentation. In: 20th 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: Freshwater caridean shrimps (Crustacea, Decapoda) occur in all biogeographic realms 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 Palearmonidae. 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 42 living genera, based on mitochondrial and nuclear protein gene sequences (16S, 28S, 18S, COX1) has revealed 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.), ROE (K.), 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: 20th 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 evolution of troglobions 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 troglobiotic 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 other genera (Caridina and Anypus) 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. brevirostris. Comprehensive collections of Marosina and Caridina from several caves of Sulawesi in 2007 and 2008 were studied with morphological and molecular methods. Phylogenetic studies have demonstrated that crustaceans are the closest living relatives of hexapods. Crustaceans are more likely paraphyletic in terms of hexapod crustaceans, whereas branch structure of hexapods is closer 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.

VONK (R.) & JAUME (D.), 2010. Glyphotidiella 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 Glyphotidiella omanica gen. et sp. nov. exhibits several features typical of the Bogidiellidae (e. g. combined display of distinct carpal lobe on first uropod, 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 Glyphotidiella is atypical 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 abpostcode invasions on the diversity and distribution patterns of subterranean carabids (Carabidae):161. In: 20th 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 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 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 abpostcode 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 abpostcode species, especially by invasion of AC. The AC negatively influenced the abundance and species richness of SCA. The AC negatively influenced the abundance and species richness of SCA. The AC negatively influenced the abundance and species richness of SCA. The AC negatively influenced the abundance and species richness of SCA.
schreibersi, the largest and the most abundant species in the SC guild.

WANG (C.) & LI (S. Q.), 2010. New species of the spider genus *Telea* (Araneae, Telelidae) from caves in Guangxi, China. Zootaxa 2632(October 1):1-45, 38 pl., 11 réf. ABS: Eight new species of *Telea* collected from caves in Guangxi (China) are described and illustrated: *T. aduncus* sp. nov., *T. biyennsis* sp. nov., *T. cordata* sp. nov., *T. cucuitarina* sp. nov., *T. mikroprophiara* sp. nov., *T. renalis* sp. nov., *T. tushanensis* 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 described and illustrated:

Kythira, Greece. KW: Taxonomy, Europe, variation, cave, description.

(W-Araneae, Leptonetidae).

Grottoes, Dunhuang, China. Four 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 described, diagnosed, 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.

WANG (W.), MA (Y.), MA (Xu), WU (F.), MA (Xiaojun), WANG (C.) & LI (S. Q.), 2010. New species of the spider genus *Telea* (Araneae, Telelidae) from caves in Guangxi, China. Zootaxa 2632(October 1):1-45, 38 pl., 11 réf. ABS: Eight new species of *Telea* collected from caves in Guangxi (China) are described and illustrated: *T. aduncus* sp. nov., *T. biyennsis* sp. nov., *T. cordata* sp. nov., *T. cucuitarina* sp. nov., *T. mikroprophiara* sp. nov., *T. renalis* sp. nov., *T. tushanensis* 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 described and illustrated:

Kythira, Greece. KW: Taxonomy, Europe, variation, cave, description.

(W-Araneae, Leptonetidae).

Grottoes, Dunhuang, China. Four 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 described, diagnosed, 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.


WANG (C.) & LI (S. Q.), 2010. Four new species of the spider genus *Telea* (Araneae, Telelidae) from Southeast Asia. Zootaxa 2719(December 10):1-20, 16 pl., 9 réf. ABS: Four new species of the spider genus *Telea* from Southeast Asia are described and illustrated: *T. acicularis* sp. nov. and *T. anguina* sp. nov. from Malaysia, *T. fahata* sp. nov. from Singapore, and *T. malaysiawensis* sp. nov. from Malaysia. KW: Taxonomy, cave, rainforest, variation, distribution.


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 described, diagnosed, 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.


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 were collected from 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 ± 37.57 colony-forming units (CFU/m³) for all sites considered, and the number of CFU/m³ was 38.52 ± 17.00 CFU/m³ in SC, 37.91 ± 26.67 CFU/m³ in CC, 245.39 ± 37.20 CFU/m³ in OC, and 240.87 ± 54.91 CFU/m³ in 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 both the concentrations and the compositions of ambient fungi in Mogao Grottoes providing information to be considered in conservation and management. KW: Aerobiology, Biodeterioration, Culturable fungi, Mogao Grottoes.


http://dx.doi.org/10.3201/edil1608.100208.


WEBER (N.), GRANJON (L.) & FAHR (J.), 2010. Gallery forests boost bat diversity in southern Mali, West Africa: 311. In: 15th 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 978-80-78154-65-5, 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 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 rainforest 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 rainforest forests, which despite their importance...
small area contribute significantly to bat diversity on the landscape scale. In view of current and 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.), SLAPNIK (R.) & KLUSSMANN-KOLB (A.), 2010. A 21st Century identity for an old snail condemned to darkness - Barcoding Zospeum (Pulmonata, Elllobioidea, Carychiomidae):148, poster presentation. In: 20th 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 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 similarity. A DNA barcoding, i.e. determining species by a mitochondrial-encoded 650 bp fragment of the cytochrome c oxidase subunit 1 (COI) 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 troglobitic taxa 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, Elllobioidea, Carychiomidae) 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.), MÜHLEHRAER (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: Fulgoromorph: Carychiidae: Benninni):149, poster presentation. In: 20th 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 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 sap sucking 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 troglobiotic and trophiliophic species belong to the Carychiidae 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 as unknown sensory modalities is 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 subterranean evolution.


WIBBET (G.), KURTH (A.), HELLMANN (D.), WILKINSON (L.), 2010. Disturbance, scour, habitat, planthopper may revealed a complex pattern of subterranean speciation. The successful recording of vibrational signals from the Maros cave planthopper may 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.), NOLTE (D. B.), PETRISON (E. W.) & DOGWILER (T.), 2010. Disturbances in the habitat of Macrocytoila glandulosa (Kenk). Ecolhydrology 3(1, March):116-125. DOI: http://dx.doi.org/10.1002/eco.102. ABS: Disturbances to stream communities or mortality of organisms 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 relationship 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 Macrocytoila 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 planarian 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, Macrocytoila glandulosa.


WOŁOSZYN (B. W.) & PERESWIET-SOLTAN (A.), 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). 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 48 hours of Missouri and 6-7 miles of the border. Therefore, proposals 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.


WU (X.), WANG (Lin), CHEN (S.), ZAN (R.), XIAO (H.), 2010. Phylogeography of fish 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/s11033-009-09689-x. ABS: We determined the complete mitochondrial DNA sequences for two species of surface- and cave-dwelling-cyprinid fishes, Sinocyclocheilus grahami and S. altishoulderus. 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 Cyprinidae, and the monophyly of the genus Sinocyclocheilus. The two Sinocyclocheilus species fall within the Cypriniformes:Oncychetostoma lineage, including Cyprinus, Carassius, and Procypris, rather than among the Barbinae, as previously suggested on morphological grounds. KW: Sinocyclocheilus grahami, Sinocyclocheilus altishoulderus, Mitochondrial DNA. Phylogenetic relationship, Cyprinidae.


YAP (L-M. Y. L.), COURT (D. J.) & LI (D.), 2010. A new serrural structure and its implications for the phylogeny of the scytodids (Araneae: Scytodidae):484. In: 18th International Congress of Arachnology, University of Podlasie & International Society of Arachnology, Siedlc, Poland, 11-17 July 2010, Book of Abstracts, editor: Marek ZABRA, 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 scytodids, 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. (H.)), TAN (K. (K.)), YILDIRIM (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 Yildirim, K. Tan, H. Yıldırım, S. Şenol & A. Pirhan sp. nov. and C. yildirimlii K. Tan, H. Yıldırım, S. Şenol & A. Pirhan sp. nov. (Scrophulariaceae, C. sect. Microrhinum) from east Anatolia are described and illustrated. They are both narrow endemics occurring on calcareous marl rich in potassium nitrate at the entrance of wet caves in Malatya and 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
Zimmer, 1848. Troglocheles, are often striking and well-discernible. In contrast, troglomorphic representatives of the genera Trauzugria and Trogocheles seem to be the most suitable for these purposes. 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 mechanism to help blind cavefish find food in darkness. 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, at 35 Hz, blocked by lateral line inhibitors, first detected after developmental increases in superficial neuromast (SN) number and size, which shares this favored niche of H. cumberlandicus with surface-dwelling form (surface fish) and various blind cave-dwelling animals adapt to life in darkness is a poorly understood aspect of evolution. Morphological adaptations to darkness; VAB is a genetic basis and confers an advantage for feeding success in the dark. The potential for showing this 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 pathogenic. 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 success 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. 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 success 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. 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 success 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. VAB is a genetic basis and confers an advantage 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, which shares this favored niche of H. cumberlandicus with surface-dwelling form (surface fish) and various blind cave-dwelling animals adapt to life in darkness is a poorly understood aspect of evolution. Morphological adaptations to darkness; VAB is a genetic basis and confers an advantage 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, which shares this favored niche of H. cumberlandicus with surface-dwelling form (surface fish) and various blind cave-dwelling animals adapt to life in darkness is a poorly understood aspect of evolution. Morphological adaptations to darkness; VAB is a genetic basis and confers an advantage 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, which shares this favored niche of H. cumberlandicus with surface-dwelling form (surface fish) and various blind cave-dwelling animals adapt to life in darkness is a poorly understood aspect of evolution. Morphological adaptations to darkness; VAB is a genetic basis and confers an advantage 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, which shares this favored niche of H. cumberlandicus with surface-dwelling form (surface fish) and various blind cave-dwelling animals adapt to life in darkness is a poorly understood aspect of evolution. Morphological adaptations to darkness; VAB is a genetic basis and confers an advantage 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, which shares this favored niche of H. cumberlandicus with surface-dwelling form (surface fish) and various blind cave-dwelling animals adapt to life in darkness is a poorly understood aspect of evolution. Morphological adaptations to darkness; VAB is a genetic basis and confers an advantage 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, which shares this favored niche of H. cumberlandicus with surface-dwelling form (surface fish) and various blind cave-dwelling animals adapt to life in darkness is a poorly understood aspect of evolution. Morphological adaptations to darkness; VAB is a genetic basis and confers an advantage 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, which shares this favored niche of H. cumberlandicus with surface-dwelling form (surface fish) and various blind cave-dwelling animals adapt to life in darkness is a poorly understood aspect of evolution. Morphological adaptations to darkness; VAB is a genetic basis and confers an advantage 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, which shares this favored niche of H. cumberlandicus with surface-dwelling form (surface fish) and various blind cave-dwelling animals adapt to life in darkness is a poorly understood aspect of evolution. Morphological adaptations to darkness; VAB is a genetic basis and confers an advantage 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, which shares this favored niche of H. cumberlandicus with surface-dwelling form (surface fish) and various blind cave-dwelling animals adapt to life in darkness is a poorly understood aspect of evolution. Morphological adaptations to darkness; VAB is a genetic basis and confers an advantage 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, which shares this favored niche of H. cumberlandicus with surface-dwelling form (surface fish) and various blind cave-dwelling animals adapt to life in darkness is a poorly understood aspect of evolution. Morphological adaptations to darkness; VAB is a genetic basis and confers an advantage 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, which shares this favored niche of H. cumberlandicus with surface-dwelling form (surface fish) and various blind cave-dwelling animals adapt to life in darkness is a poorly understood aspect of evolution. Morphological adaptations to darkness; VAB is a genetic basis and confers an advantage 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, which shares this favored niche of H. cumberlandicus with surface-dwelling form (surface fish) and various blind cave-dwelling animals adapt to life in darkness is a poorly understood aspect of evolution. Mor...
taxonomy revealed highly incomplete taxonomy in several groups, where existing species names frequently cover many yet undiscovered species. For aquatic troglobionts, it was additionally shown that species ranges 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 amphibian genus Niphargus, distributed in the western Palearctic, 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 it 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. kolomabatovici on the Balkans having the 350 km distance, N. aggetelekiensis in central Europe over 350 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: 20th 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, Croatia and parts of Montenegro). In this study, we analysed the range sizes of troglobiotic beetles, common distribution patterns and how they relate to the observed biodiversity pattern. We utilised a dataset of 371 troglobiotic species from 1857 localities and covered the study area with a 20x20 km grid. Troglobiotic 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 quadrant 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% 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 troglobiotic beetle species show common distribution patterns. The northwestern and southeastern merodinaric patterns overlap with two areas of highest speeies richness, both having different species composition. http://www.jcsb2010.net/

ZAKOTNIK (T.), MULEC (J.), TURK (V.), AVGUŠTN (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: 20th 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 7000000 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 was 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 amplified 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 [14C]-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. Phyleogeography of the unique cave tube worm Marifugia cavatica (Polychaeta: Serpulidae):69. poster presentation. In: 20th 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 macro-stygobionts. Two independent gene fragments were sequenced and analyzed to reveal its phyleogeographic structure. A 386 bp fragment of mitochondrial cytochrome c (cyt b) and a 700 bp fragment of 28S rDNA were amplified and sequenced for 44 Marifugia specimens from most of its range. The results of phylegetic analyses showed that M. cavatica is composed of four distinct and genetically 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 trough Croatia to Bosnia and Herzegovina; the South Eastern 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 cyt b. 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 phyleogeographic structure of other aquatic subterranean taxa from the Dinaric Karst (Troglocaris s. str., Protes anguinaus, Axellas aquaticus), Marifugia shows both concordant and discordant groupings. We explain the discordance by correspondence to the life-cycle characteristics of its microscopic, conditionally planktonic larva. http://www.icsb2010.net/ 
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 congruously 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 Dinamic 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.zcsb2010.net/


ZOHOORI (H.), KYABI (B. H.) & KAVOUSI (K.), 2010. Impacts of various factors on population status and movement of Rousettus aegyptiacus in Iran:316-317. In: 15th International Bat Research Conference, Prague, 22-27 August 2010, the conference manual: Programme, abstracts, list of participants, edited by: Ivan HORAČEK 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 spinia-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 sirs. 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 then safety and diversity. Our results showed that the population of Qeshm is separated from the two populations of Jahrom and Baloochestean, 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.