

Inside this issue:

Notes from the Editor	1
Recent Literature	2 - 6
Notice Board	7



© ECJ Seamark & TC Kearney 2008

Above: *Myotis tricolor* (TM 48188) caught at the Farm Schaapplaats, Free State, South Africa.

Notes from the Editor

2009 sees the 200th anniversary of the birth of Charles Robert Darwin (born 12 February 1809), and the 150th anniversary of the publication of his famous book the 'Origin of Species' (published 24 November 1859). Bats are referred to about 15 times by Charles Darwin in the Origin of Species; some of the references are as follows:

Thus, the bat's wing is a most abnormal structure in the class mammalian...

...because there is a whole group of bats having wings; it would apply only if some one species of bat had its wings developed in some remarkable manner in comparison with other species of the same genus.

...how an insectivorous quadruped could possibly have been converted into a flying bat...

And it seems to me that nothing less than a long list of such cases is sufficient to lessen the difficulty in any particular case like that of the bat.

...how cautious we should be in concluding that the most different habits of life could not graduate into each other, that a bat for instance, could not have been formed by natural selection from an animal which at first only glided through the air.

In the Origin of Species, Charles Darwin recognized that the most serious challenge to his and Wallace new theory of natural selection was its inability to explain the apparent sudden emergence of evolutionary novelty in the fossil record, and he appreciated the evolution of flight by bats to be one such problematic example (see Cooper and Tabin in Genes and Development 2008 22: 121-124 for further information about this topic).

Sixty people have to date successfully subscribed to receive African Bat Conservation News electronically. I apologize to those who have been unsuccessful in subscribing or attempting to email me, there appears to be a protocol problem with the service provider I am currently using. The problem is being investigated, in order to try and accommodate all email protocols. - ECJS

Download and subscribe to African Bat Conservation News at:

www.Africanbats.org

The views and opinions expressed in articles are not necessarily those of the editor or publisher.

Articles and news items appearing in African Bat Conservation News may be reprinted, provided the author's and newsletter reference are given.

RECENT LITERATURE

PUBLISHED PAPERS

ADEEYO, O. A., CAXTON-MARTINS, A. E., OFUSORI D.A., ASHAMU E.A., OMOTOSO E.O., ODUKOYA S.A., and YUSUF, U. A., 2008. Comparative histological features of the pancreas in fruit-eating bat (*Eidolon-helvum*) and pangolin (*Manis tricuspis*). *Journal of Cell and Animal Biology* 2(6): 134-139.

Mammals have varying histological features in their gastrointestinal tract to enable them cope with their dietary preferences. Fruit-eating bat (*Eidolon helvum*) is a frugivore while pangolin (*Manis tricuspis*) is an insectivore, pancreases of the two animals were investigated histologically to know if the histological features of pancreas could have any implication on their dietary preferences. The animals were sacrificed by cervical dislocation and the pancreases of the two mammals were harvested. The pancreases were divided into three regions of head, body and tail and fixed in 10% formol saline for histological analysis. The sections were stained with routine Haematoxylin and Eosin and Halmi's modified Gomori Aldehyde Fuchsin method. The results revealed that the pancreas of the bat consisted of acini as well as islet of Langerhans but that of Pangolin contained only acini with no stainable islet of Langerhans. Despite being a mammal, pangolin still retains some primitive features like third troncater and convex head. Absence of islet of Langerhans in the pancreas may be one of its primitive features and the islet of Langerhans may be located in other part of gastrointestinal tract higher up than the location of pancreas. Also, it is possible that pangolin may metabolize glucose via another pathway aside insulin/glucagon mechanism which may not yet be elucidated.

AGBOOLA, F. K., FAGBOHUNKA, B. S., and ADENUGA, G. A., 2006. Activities of thiosulphate and 3-mercaptopyruvate-cyanide-sulphurtransferases in poultry birds and the fruit bat. *Journal of Biological Sciences* 6(5): 833-839.

The activities of the sulphurtransferases in different tissues of some poultry birds and the fruit bats that, presumably, feed on cyanogenic plants and/or their products have been measured. Thiosulphate sulphurtransferase (rhodanese, EC 2.8.1.1) and 3-mercaptopyruvate sulphurtransferase (EC 2.8.1.2) were assayed in the crude extracts of some tissues (liver, kidney, lung, gizzard, heart and brain) of four domestic birds (local chicken, poultry chicken, pigeon and duck) and the fruit bat by the determination of the thiocyanate released from the reaction of potassium cyanide with respective sulphur donor by the Sorbo's ferric-nitrate reagent. The results showed that rhodanese (RHD) and 3-mercaptopyruvate sulphurtransferase (3-MST) are present in all the tissues studied. In the chickens, duck and fruit bat, the liver had the highest level of rhodanese while in the pigeon; the activity was highest in the kidney. The brain or the gizzard contained the lowest activity of RHD in all the birds. On the other hand, 3-mercaptopyruvate sulphurtransferase activities in the local chicken and pigeon were found to be highest in the liver, followed by the kidney. In poultry chicken, duck and the fruit bat, the level of the 3-MST was found to be highest in the kidney, followed by the lung in poultry chicken and the liver in the duck. Moreover, determination of the cyanide content of some food materials in the locality, poultry rations and parts of plants found at the roosting site of a colony of fruit bats on the Obafemi Awolowo University (Nigeria) campus showed different levels ranging from 1.82 ± 0.37 to 15.73 ± 0.18 mg 100 g⁻¹.

EVIN, A., BAYLAC, M., RUEDI, M., MUCEDDA, M., and PONS, J. M., 2008. Taxonomy, skull diversity and evolution in a species complex of *Myotis* (Chiroptera: Vespertilionidae): A geometric morphometric appraisal. *Biological Journal of the Linnean Society* 95(3): 529-538.

Phylogenetic relationships between taxa are not necessarily reflected by morphological data due to widespread homoplasy and convergence. However, combining morphological and molecular data provides insights into the evolution of biological forms and into the potential factors involved. Here we focus on a complex of three taxa of bats with unclear taxonomic affinities: *Myotis myotis*, *Myotis blythii* and *Myotis punicus*. Traditional morphometric methods failed to separate them, whereas recent molecular-based studies suggested that they constitute separate biological species. In the present study, landmark-based geometric morphometrics methods have been used to analyse the skull variability of 218 specimens belonging to this species complex. Patterns of size and shape delimitate three morphological groups that are congruent with the proposed taxonomic assignments, and therefore support species rank for all three major groups. These morphometrics results, however, suggest that *M. myotis* and *M. punicus* share shape characteristics in the rostrum and in the posterior part of the skull that differ from *M. blythii*. Because previous molecular phylogenetic analyses suggested that *M. myotis* and *M. blythii* are sister species, we interpret the similitude in skull morphology between *M. myotis* and *M. punicus* as a convergence probably related to their similar feeding habits. Within the taxon *M. punicus*, the skull of Corsican and Sardinian populations significantly differs from that of Maghrebian ones, suggesting the existence of further cryptic taxonomic diversity.

FLANDERS, F., JONES, G., BENDA, P., DIETZ, C., ZHANG, S., LI, G., SHARIFI, M., and ROSSITER, S. J., 2009. Phylogeography of the greater horseshoe bat, *Rhinolophus ferrumequinum*: Contrasting results from mitochondrial and microsatellite data. *Molecular Ecology* 18(2): 306-318.

Phylogeographical studies are typically based on haplotype data, occasionally on nuclear markers such as microsatellites, but rarely combine both. This is unfortunate because the use of markers with contrasting modes of inheritance and rates of evolution might provide a more accurate and comprehensive understanding of a species' history. Here we present a detailed study of the phylogeography of the greater horseshoe bat, *Rhinolophus ferrumequinum*, using 1098 bp of the mitochondrial ND2 gene from 45 localities from across its Palaearctic range to infer population history. In addition, we re-analysed a large microsatellite data set available for this species and compared the results of both markers to infer population relationships and the historical processes influencing them. We show that mtDNA, the most popular marker in phylogeography studies, yielded a misleading result, and would have led us to conclude erroneously that a single expansion had taken place in Europe. Only by combining the mitochondrial and microsatellite data sets are we able to reconstruct the species' history and show two colonization events in Europe, one before the Last Glacial Maximum (LGM) and one after it. Combining markers also revealed the importance of Asia Minor as an ancient refugium for this species and a source population for the expansion of the greater horseshoe bat into Europe before the LGM.

GOODMAN, S. M., and RANIVO, J., 2008. A new species of *Trienops* (Mammalia, Chiroptera, Hipposideridae) from Aldabra Atoll, Picard Island (Seychelles). *Zoosystema* 30(3): 681-693.

The bat genus *Trienops* Dobson, 1871, of the family Hipposideridae is broadly distributed in Africa, portions of the Middle East, and islands in the western Indian Ocean. Three species of *Trienops* are restricted to Madagascar (*T. rufus*, *T. auritus* and *T. furculus*) and the latter is also known from the western Seychelles Islands. After comparisons of specimens previously referred to *T. furculus* from Aldabra Atoll to recent series of this species group obtained on Madagascar, it is clear that the former represents a species new to science, which is described herein as *T. pauliani* n. sp. from Picard Island. *Trienops pauliani* n. sp., which is within the *T. furculus/auritus* group, differs from other congeneric species based on external, cranial, and dental measurements and characteristics, as well as the shape of the trident noseleaves. Previous records of *T. pauliani* n. sp. on Cosmoledo Atoll in the western Seychelles are called into question and these specimens are presumed to be from Picard Island, Aldabra Atoll.

GOODMAN, S. M., VAN VUUREN, B. J., RATRIMOMANARIVO, F., PROBST, J.-M., and BOWIE, R. C. K., 2008. Specific status of populations in the Mascarene Islands referred to *Mormopterus acetabulosus* (Chiroptera: Molossidae), with description of a new species. *Journal of Mammalogy* 89(5): 1316-1327.

On the basis of molecular and morphological evidence, *Mormopterus acetabulosus*, hitherto considered an endemic to the Mascarene Islands (Mauritius and La Réunion), is shown to comprise 2 closely related taxa. The holotype of *M. acetabulosus* is from Mauritius and the new taxon described herein is from La Réunion. *M. acetabulosus* from Mauritius is notably larger than members of this genus from La Réunion, and several soft-part and cranial characters distinguish these 2 taxa. This conclusion is supported by examination of mitochondrial DNA control region data for 141 bats, which shows these 2 groups to be reciprocally monophyletic, separated by an average of 5.01% uncorrected sequence divergence. Two nuclear intron regions (7th intron of the beta fibrinogen gene and thyrotropin) also were included, but showed limited genetic variation and no fixed differences between the 2 taxa. These 2 species of *Mormopterus* are common on Mauritius and La Réunion, often living in caves or synanthropically, and are not considered a conservation concern.

HERRERA M, L. G., KORINE, C., FLEMING, T. H., and ARAD, Z., 2008. Dietary implications of intrapopulation variation in nitrogen isotope composition of an Old World fruit bat. *Journal of Mammalogy* 89(5): 1184-1190.

We used nitrogen isotope analysis from pectoral muscle of the Egyptian fruit bat *Rousettus aegyptiacus* (Chiroptera: Pteropodidae) to determine intrapopulation variation in sources of dietary protein throughout the year in northern Israel. In Mediterranean climates, winter and summer are stable seasons, whereas spring and fall are transitional seasons. Number of species of fruit-bearing plants is higher during the transitional periods, and we therefore predicted that intrapopulation variation would be higher during spring than in winter and summer; we made no prediction for fall because sample size was small. We also reconstructed sources of dietary protein for each individual using nitrogen isotope ratios (d15N) to determine whether individuals foraged on the same sources of food within each season. Intrapopulation variation in d15N was significantly higher in spring (d15N range: 9.7-17.5‰) compared to winter (8.8-11.1‰) and summer (9.5-11.2‰), suggesting that individuals during this period varied more in their use of protein sources. Dietary reconstruction revealed intrapopulation partitioning among the bats in the use of plant food items, and interspecific partitioning among plants in their dependence on dispersal by bats.

JACOBS, D. S., RATCLIFFE, J. M., and FULLARD, J. H., 2008. Beware of bats, beware of birds: The auditory responses of eared moths to bat and bird predation. *Behavioural Ecology* 19(6): 1333-1342.

The allotonic frequency hypothesis (AFH) proposes that the preponderance of moths in the diets of some bats (e.g., Rhinolophidae) is the result of these bats echolocating at allotonic frequencies, that is, outside of the typical hearing range of most moths (ca., 20-60 kHz). The broader hearing range of African moths (5-110 kHz) suggests that their ears may function at frequencies usually considered allotonic. We investigated 1) whether moth ears were functionally audible to the Cape horseshoe bat, *Rhinolophus capensis* (Rhinolophidae), which forages in dense vegetation and echolocates at 84 kHz, and 2) whether moth auditory sensitivity below 10 kHz allows them to detect the rustling noises made by bird predators as they pursued moths through vegetation. The calls of *R. capensis* were audible to moths albeit over shorter distances relative to syntonic bats. Shorter detection distances combined with the constrained spaces in the cluttered habitat in which rhinolophids forage give moths both less time and less space within which to react to an attacking bat. Thus, the AFH in combination with habitat offers a better explanation for the preponderance of moths in the diets of rhinolophids than either of them on their own. Moths also responded both neurologically and behaviorally to the rustling sounds made by birds (Cape bulbul, *Pycnonotus capensis*) as they pursued moths. We suggest that the high sensitivity of moths to frequencies from 5 to 10 kHz allows them to avoid these avian attacks by using responses that have traditionally been considered solely anti-bat behavior.

JENKINS, R. K. B., and RACEY, P. A., 2008. Bats as bushmeat in Madagascar. *Madagascar Conservation & Development* 3(1): 22-30.

Bats are eaten by people throughout Madagascar and although the larger species like *Pteropus rufus*, *Eidolon dupreanum*, *Rousettus madagascariensis* and *Hipposideros commersoni* are preferred, small insectivorous bats are also eaten. The national hunting season for bats is widely ignored and both unsuitable hunting practices and high offtake represent a serious threat to bat populations in some areas. Bat bushmeat may be an important source of protein for Malagasy people during periods of food shortage but in general there are few data on the socioeconomic and cultural importance of bats. Fruit bats produce a single offspring per year and are therefore susceptible to over-hunting. Nevertheless, large roosts offer the possibility of community managed harvests to secure the colony and provide a source of meat but further research is needed before this can be considered. Roost sites also present the best focus for conservation and greater effort is needed to control hunting using existing legislation and flexible community - based solutions that are sensitive to the local context. The threat of pathogen transfer from bats to people is of growing concern as more bat species are identified as vectors of emergent viral diseases.

JUNKER, K., BAIN, O., and BOOMKER, J., 2008. Helminth parasites of Natal long-fingered bats, *Miniopterus natalensis* (Chiroptera: Miniopteridae), in South Africa. *Onderstepoort Journal of Veterinary Research* 75(3): 261-265.

The helminth community infecting *Miniopterus natalensis* was studied at two localities, the De Hoop Nature Reserve (DHNR) (n = 57), Western Cape Province and Pretoria (n = 12), Gauteng Province, South Africa. Hosts from the DHNR had formed part of an earlier, unrelated study and were all pregnant females. A single hymenolepidid cestode species, the nematodes *Molinostrongylus ornatus* and *Litomosa chiropteroorum* together with nematodes of the subfamily Capillariinae were present at both study sites, while a single digenean, *Allassogonoporus* sp., was only found in hosts from the DHNR. The prevalence of helminth infections was high at both localities, 68.4 % in the DHNR and 77.7 % in Pretoria, whereas the mean intensity of infection was low at the DHNR (3.76 ± 3.15), but higher in Pretoria (10.4 ± 9.9). *Molinostrongylus ornatus* and, to a lesser extent *L. chiropteroorum*, were the main contributors to the higher intensities in Pretoria. The species richness ranged from 0 to 4 at both localities.

KEARNEY, T. C., VAN CAKENBERGHE, V., SEAMARK, E. C. J., NDHLOVU, C., and COHEN, L., 2008. Notes on the taxonomy and distribution of *Eptesicus hottentotus* (Chiroptera: Vespertilionidae) and reidentification of some museum voucher specimens. *Annals of the Transvaal Museum* 45: 127-134.

KUZMIN, I. V., NIEZGODA, M., FRANKA, R., AGWANDA, B., MARKOTTER, W., BEAGLEY, J. C., URAZOVA, O. Y., BREIMAN, R. F., and RUPPRECHT, C. E., 2008. Possible emergence of West Caucasian bat virus in Africa. *Emerging Infectious Diseases* 14(12): 1887-1889.

The prevalence of neutralizing antibody against West Caucasian bat virus (WCBV) in *Miniopterus* bats collected in Kenya ranged from 17% to 26%. Seropositive bats were detected in 4 of 5 locations sampled across the country. These findings provide evidence that WCBV, originally isolated in Europe, may emerge in other continents.

LAMEED, G. A., and AYODELE, A. E., 2008. Environmental impact assessment of cement factory production on biodiversity: A case study of UNICEM, Calabar Nigeria. *World Journal of Biological Research* 1(1): 1-7.

The natural forest at the segment of Southeastern state (Cross River State) is losing its primary status due to various types of human development and industrial activities. This is more envisaged with dry process Kiln method that United Cement Company of Nigeria (UNICEM) intend to use for manufacturing of cement, which will leave the particulate emission rate of cement as high as 20.8Kg / bbl on the atmosphere. Other environmental pollution problems associated with this activity are bad odour, noise, dust and fumes, aesthetic nuisance, smoke, vibration, effluent and glare. A total of eighty-two tree species among which are some economic species were recorded during the assessment. Diversity Indices of between 0.03 and 1.33 were recorded for the vegetations. Many of the trees are medicinal with the barks and roots used for the treatment of diseases such as malaria, diarrhea, high blood pressure, and skin diseases. Others are cultivated for food, and as ornaments. No disease symptoms were found on the plants within the factory site except that most of the lower plants were dehydrated due to lack of rain. Some of the *Rhizophora* leaves along the coastline showed some leaf spots, yellowing of leaves and the presence of downy meadows. In conclusion, the industrial activity of UNICEM will in no doubt have impact on habitat vegetation of wildlife species; such species will be compelled to migrate or face mortality. And greater concern must be given to endangered and endemic species such as *Pan troglodytes* (Chimpanzee), *Gorilla gorilla*, and *Pandillus leucophaeus* that can only be found in this rain forest zone of Cross River National Park.

LAUMANN, M., 2007. Virunga 2007 - deutsch-niederländische Expedition nach Ruanda. *Mitt. Verb. dt. Höhlen- u. Karstforscher* 53(4): 111-113.

At the end of the seventies six caves with a total of 6.8 km of passage were known from Rwanda. The latest phase of exploration of the volcanic caves of Rwanda started in 2003 with a Swiss-German team that added 42 caves and 10 km to the list including the new longest non-segmented cave of Rwanda at that time (Ubuwumo Nyabikuri-Ruri, 3,384 meters). A subsequent US-Kuwaiti-Dutch-German expedition in 2004 extended the number of known caves to 65 with a total of 24.1 km of passages, and added several new long lava tubes to the "top ten" list of Rwandan caves (e.g. the now third longest cave of the country - Ubuwumo Manjari deux at 1,660 meters). The Dutch-German expedition from 2007, despite being severely hampered by a total change of the administrative structures in Rwanda resulting in permit problems, was nevertheless able to survey 10 new caves with a total of 6.1 km of passages. The most remarkable finding was Ubuwumo Bwibihonga located in the Kanzenze secteur of the new Rubavu district (formerly: Gisenyi province). The cave is a complicated system of partly large and parallel running lava tubes on at least two distinctive levels. A number of roof collapses appear to segment the cave system at the first glance but all collapse holes can be circumvented by underground passage creating a non-segmented cave system. Several very large colonies of fruit bats inhabit parts of the cave and make exploration unpleasant in places. The total number of bats is about 100,000 creating the most important cave bat roost found so far in Rwanda. After one week of survey work the total passage length of Ubuwumo Bwibihonga arrived at 4,530 meters - by far the longest non-segmented lava cave known in Rwanda. The cave is located very close to the main tarred road from Ruhengeri to Gisenyi and is suitable for ecotourism.

MAITRE, E., SIGÉ, B., and ESCARGUEL, G., 2008. A new family of bats in the Paleogene of Europe: Systematics and implications for the origin of emballonurids and rhinolophoids. *N. Jb. Geol. Paläont. Abh.* 250(2): 119-216.

Four new species and two new genera are identified and described, following the study of >600 fossil bat remains from 35 Eocene and Oligocene Southern France localities (phosphorite karstic fillings). These genera, *Mixopteryx* nov. gen. and *Carcinopteryx* nov. gen., show new combinations of dental characters. These characters are usually observed independently, but not in such combinations, in two well-known families: emballonurids and hipposiderids. Because of these atypical morphological mixtures, several specimens have previously been incorrectly identified, left in open nomenclature, or attributed to *Vespertiliavus* or *Hipposideros* (*Pseudorhinolophus*). Based on an extended comparative analysis of numerous fossil samples ranging from ~43 Myr (late Middle Eocene) to ~28 Myr (early Late Oligocene), these two new genera are grouped into a new family: Mixopterygidae, nov. fam. These new paleontological data improve the ongoing phylogenetic debate on bat intra-ordinal phylogeny. By strongly suggesting that mixopterygids, ernballonurids and hipposiderids derive from a same late

Early Eocene common ancestor, they clearly support yinochiropteran monophyly within microchiropterans.

ODUKOYA, S. A., ADEEYO, O. A., OFUSORI, D. A., CAXTON-MARTINS, A. E., AYOKA, O. A., OYEWO, O. O., BABATUNDE, L. S., YUSUF, U. A., ADEGOKE, A. A., and ISHOLA.O.O., 2008. Histological investigation of the pregnant and non pregnant uterine limbs of the frugivorous bat (*Eidolon helvum*). *International Journal of Integrative Biology* 3(4): 169-174.

A total of forty-seven pregnant female bats were studied. They were harvested on the Obafemi Awolowo University Campus. The animals after being carefully assessed, screened and confirmed to be presumably healthy were sacrificed by cervical dislocation. The left and right uteri limbs with the uteri body were immediately fixed in 10% formal saline, processed for paraffin embedding and sectioned at 5 µm with a Rotary microtome. The sections were stained using Haematoxylin and Eosin (H&E) stain to demonstrate the histoarchitecture of the uterus, and Verhoeff-van Giesson's stain to demonstrate collagen and elastic fibers. The results showed that both uterine limbs are histologically implicated during pregnancy. Pregnancy can either be implanted in the right or left uterine limb of the *Eidolon helvum* as opposed to the earlier reports that implantation is always in the left uterine limb. *Eidolon helvum* only carry one fetus per time in this study, and a single gestation per annum. The prevalent fiber is the collagen type during pregnancy and the elastic type during the non pregnant state.

OFUSORI, D. A., CAXTON-MARTINS, E. A., KOMOLAFE, O. O., OLUYEMI, K. A., ADEEYO, O. A., AJAYI, S. A., OLUWAYINKA, P. O., ADELAKUN, E. A., KEJI, S. T., and ADESANYA, O. A., 2008. A comparative stuey of the ileum in Rat (*Rattus norvegicue*), bat (*Eidolon helvum*) and Pangolin (*Manis tricuspis*) as investigated using histological methods. *Int. J. Morphol.* 26(1): 137-141.

The histological and morphometric differences in some parts of the gastrointestinal tracts of rat, bat and pangolin have been well established. This investigation aims at comparatively elucidating any adaptational changes the ileum of the three mammals must have adopted to meet its dietary requirements and also cope with their morphological differences. The investigation was carried out using ten rats, ten bats and ten pangolins of both sexes. The animals were slightly anaesthetized under chloroform inhalation. The intestines were harvested and the ileum excised and fixed in 10% formol saline. The tissues were processed for light microscopic study. The following stains were employed: Haematoxylin and eosin (H & E), Van Gieson and Verhoeff's haematoxylin elastic tissue stain. Stained slides were also analysed morphometrically. The results revealed microstructural modifications which characterized the mucosa as well as the pattern of distribution of the conjunctive tissue fibers in the ileum of the three mammals. These modifications are means of successfully coping with their respective diets and morphological differences.

RAHAINGODRAHETY, V. N., ANDRIAFIDISON, D., RATSIMBAZAFY, J., RACEY, P. A., and JENKINS, R. K. B., 2008. Three flying fox (*Pteropodidae: Pteropus rufus*) roosts, three conservation challenges in southeastern Madagascar. *Madagascar Conservation & Development* 3(1): 17-21.

We visited three roosts of the Madagascar flying fox *Pteropus rufus* in December 2005 in the Anosy Region. Colony size was 900 at Berenty Private Reserve, 412 at Amborabao and 54 at Sainte Luce, based on single counts at each site. Hunting at the roost is prohibited at Berenty but *P. rufus* is trapped at night in the area surrounding the reserve, where it feeds on sisal. At Amborabao, the bats roost in a sacred forest and hunting is forbidden. At Sainte Luce, the forest is highly degraded and the bats are hunted frequently, despite efforts to engage the local community in forest conservation. Questionnaires with people living near the roosts revealed the flying foxes were regarded as pests of litchis in Amborabao and Sainte Luce. Berenty is the only site where tourists are able to observe roosting *P. rufus*. The role of sacred forests and local taboos (fady) is very relevant for *P. rufus* conservation and might be the only practical mechanism in sites where legislation on hunting and land use is not being enforced.

RAZAFINDRATSIMANDRESY, R., JEANMAIRE, E. M., COUNOUR, D., VASCONCELOS, P. F., SALL, A. A., and REYNES, J.-M., 2009. Partial molecular characterization of alphaherpesviruses isolated from tropical bats. *Journal of General Virology* 90(1): 44-47.

Herpesviruses have previously been isolated from African and South-American bats. Recently, herpesviruses detected from European insectivorous bats (family Vespertilionidae) were classified molecularly as betaherpesviruses and gammaherpesviruses. In the current study, we performed PCR analyses targeting the UL30 catalytic subunit region of the DNA polymerase gene of the African and South American herpesviruses and new Malagasy and Cambodian herpesviruses isolated from bats, especially frugivorous bats from the families Pteropodidae and Phyllostomidae. The sequences obtained from the amplified products indicated that these isolates belonged to the genus *Simplexvirus* of the subfamily Alphaherpesvirinae. These results extend the taxonomic range of bat herpesviruses with the description of four members in the subfamily Alphaherpesvirinae. Furthermore, these data confirm and extend the geographical distribution of herpesvirus in bats to three more continents (Africa, South America and Asia) and indicate the presence of these viruses in frugivorous bats of the families Pteropodidae and Phyllostomidae.

RIJSDIJK, K. F., HUME, J. P., BUNNIK, F., FLORENS, F. B. V., BAIDER, C., SHAPIRO, B., VAN DER PLICHT, J., JANOO, A., GRIFFITHS, O., VAN DEN HOEK OSTENDE, L. W., CREMER, H., VERNIMMEN, T., DE LOUW, P. G. B., BHOLAH, A., SAUMTALLY, S., PORCH, N., HAILE, J., BUCKLEY, M., COLLINS, M., and GITTENBERGER, E., 2009. Mid-Holocene vertebrate bone Concentration-Lagerstätte on oceanic island Mauritius provides a window into the ecosystem of the dodo (*Raphus cucullatus*). *Quaternary Science Reviews* 28(1-2): 14-24.

Although the recent history of human colonisation and impact on Mauritius is well documented, virtually no records of the pre-human native ecosystem exist, making it difficult to assess the magnitude of the changes brought about by human settlement. Here, we describe a 4000-year-old fossil bed at Mare aux Songes (MAS) in south-eastern Mauritius that contains both macrofossils (vertebrate fauna, gastropods, insects and flora) and microfossils (diatoms, pollen, spores and phytoliths). With >250 bone fragments/m² and comprising 50% of all known extinct and extant vertebrate species (ns = 44) of Mauritius, MAS may constitute the first Holocene vertebrate bone Concentration-Lagerstätte identified on an oceanic volcanic island. Fossil remains are dominated by extinct giant tortoises *Cylindraspis* spp. (63%), passerines (~10%), small bats (7.8%) and dodo *Raphus cucullatus* (7.1%). Twelve radiocarbon ages [four of them duplicates] from bones and other material suggest that

accumulation of fossils took place within several centuries. An exceptional combination of abiotic conditions led to preservation of bones, bone collagen, plant tissue and microfossils. Although bone collagen is well preserved, DNA from dodo and other Mauritian vertebrates has proved difficult. Our analysis suggests that from ca 4000 years ago (4 ka), rising sea levels created a freshwater lake at MAS, generating an oasis in an otherwise dry environment which attracted a diverse vertebrate fauna. Subsequent aridification in the south-west Indian Ocean region may have increased carcass accumulation during droughts, contributing to the exceptionally high fossil concentration. The abundance of floral and faunal remains in this Lagerstätte offers a unique opportunity to reconstruct a pre-human ecosystem on an oceanic island, providing a key foundation for assessing the vulnerability of island ecosystems to human impact.

SCHOEMAN, M. C., and JACOBS, D. S., 2008. The relative influence of competition and prey defenses on the phenotypic structure of insectivorous bat ensembles in Southern Africa. *PLoS ONE* 3(11): e3715.

Deterministic filters such as competition and prey defences should have a strong influence on the community structure of animals such as insectivorous bats that have life histories characterized by low fecundity, low predation risk, long life expectancy, and stable populations. We investigated the relative influence of these two deterministic filters on the phenotypic structure of insectivorous bat ensembles in southern Africa. We used null models to simulate the random phenotypic patterns expected in the absence of competition or prey defences and analysed the deviations of the observed phenotypic pattern from these expected random patterns. The phenotypic structure at local scales exhibited non-random patterns consistent with both competition and prey defense hypotheses. There was evidence that competition influenced body size distribution across ensembles. Competition also influenced wing and echolocation patterns in ensembles and in functional foraging groups with high species richness or abundance. At the same time, prey defense filters influenced echolocation patterns in two species-poor ensembles. Non-random patterns remained evident even after we removed the influence of body size from wing morphology and echolocation parameters taking phylogeny into account. However, abiotic filters such as geographic distribution ranges of small and large-bodied species, extinction risk, and the physics of flight and sound probably also interacted with biotic filters at local and/or regional scales to influence the community structure of sympatric bats in southern Africa. Future studies should investigate alternative parameters that define bat community structure such as diet and abundance to better determine the influence of competition and prey defences on the structure of insectivorous bat ensembles in southern Africa.

SREEPADA, K. S., KOUBINOVÁ, D., KONEÈNÝ, A., KOUBEK, P., RÁB, P. R. M., and ZIMA, J., 2008. Karyotypes of three species of molossid bats (Molossidae, Chiroptera) from India and western Africa. *Folia Zool.* 57(4): 347-357.

Conventional and G-banded karyotypes are reported for three species of molossid bats from India (*Chaerephon plicatus*) and Senegal (*Ch. pumilus*, *Mops condylurus*). The chromosome diploid number $2n = 48$ and the number of chromosomal arms $FN = 54$ were recorded, similarly as in the previous published reports on karyology of molossid bats from Thailand, East Malaysia, and Africa. A synopsis of karyotypes of bats of the family Molossidae is presented with comments on their chromosomal evolution.

ŠKLÍBA, J., ŠUMBERA, R., and BENDA, P., 2008. Bocage's fruit bat (*Lissonycteris angolensis*), a new species for Malawi. *Nyala* 24: 61-64.

THIAM, M., BÂ, K., and DUPLANTIER, J.-M., 2008. Impacts of climatic changes on small mammal communities in the Sahel (West Africa) as evidenced by owl pellet analysis. *African Zoology* 43(2): 135-143.

To evaluate the impact of climatic change on rodent sahelian communities, we analysed the contents of over 2500 barn owl (*Tyto alba*) pellets collected along the Senegal river between 1989 and 2003, and from the Ferlo sahelian area in 2003. These results are compared with data from the 1970s and 1980s in the same zones. Rodents were the most common prey (over 90%). Gerbillinae were most common in dry areas (84 to 96%) whereas in wetlands and rice fields murines were most common (77 to 88%). Nowadays, the genus *Gerbillus* constitutes the main prey in dry areas (77% to 88%). The genus *Taterillus*, which was the most abundant rodent in the Ferlo in the 1970s, now represents only 7% of rodents. Gerbils were not present in Senegal before the 1980s: *G. tarabuli* and *G. henleyi* were trapped for the first time in 1989 at the northern border of Senegal, and *G. nigeriae* 10 years later at the same place. The latter is now present a hundred kilometres southwards and as abundant in owl pellets as the two other gerbils.

WEYENETH, N., GOODMAN, S. M., STANLEY, W. T., and RUEDI, M., 2008. The biogeography of *Miniopterus* bats (Chiroptera: Miniopteridae) from the Comoro Archipelago inferred from mitochondrial DNA. *Molecular Ecology* 17 (24): 5205-5219.

The endemic fauna of the Comoro Archipelago is composed of a mixture of taxa originating from Africa and Madagascar. Bats are the only native land dwelling mammals on this archipelago, but the biogeographical origins for the vast majority of species within this group are ambiguous. We report here genetic analyses based on two mitochondrial DNA markers to infer the origin of Comorian bats belonging to a reputed species complex of *Miniopterus* that is further distributed across Africa and Madagascar. Phylogenetic reconstructions show that east African *M. minor* are not closely related to the insular *Miniopterus* of Madagascar and the Comoros (Grande Comore and Anjouan). The latter cluster into two distinct, monophyletic clades (Clade 1 and Clade 2). Representatives of these clades occur sympatrically both on the Comoros and on Madagascar, and are distinguished by a large genetic distance (K2P: 9.9% for cytochrome b). No haplotypes are shared between any islands, suggesting the absence of contemporary gene flow. Populations of the widespread Clade 1 are furthermore characterized by a significant inter-island structure (FCT = 0.249), and by high haplotype and nucleotide diversities ($h = 0.90-0.98$, $p = 0.04-0.06$). Demographic analyses of Clade 1 suggest secondary contact between two distinct phylogroups (Subclade 1 A and 1B) that reached Grande Comore and Anjouan, and a large, stable population with a long evolutionary history on Madagascar. These results and the current distribution of related lineages suggest that the Comoros were colonized independently at least two or three times by ancestors from Madagascar.

NOTICE BOARD

Conferences



50th Anniversary Conference of the Zoological Society of Southern Africa

To be held at: Natalia, Illovo Beach, KwaZulu-Natal, 21- 25 July 2009.
Further information: <http://www.zssa.co.za/>



10th Anniversary Conference of the Southern African Society for Systematic Biology

To be held at: Natalia, Illovo Beach, KwaZulu-Natal, 26- 28 July 2009.
Further information: <http://www.zssa.co.za/>

Future Planning

10th International Mammalogical Congress

Mendoza, Argentina, 9-14 August 2009 <http://www.cricyt.edu.ar/imc10>

12th European Bat Research Symposium - Lithuania, August 2011.

Call for contributions

African Bat Conservation News publishes brief notes concerning the biology of bats, new geographical distributions (preferably at least 100 km from the nearest previously published record), sparsely annotated species lists resulting from local surveys including roost counts and echolocation and sonograms of bat species occurring on the African continent and adjacent regions, including the Arabian peninsula, Madagascar, and other surrounding islands in the Indian and Atlantic oceans.

African Bat Conservation News Project Cycle

Issues will be published Quarterly (January, April, July, October).

Deadlines for scientific contributions (1 November, 1 February, 1 May, 1 August).

Deadlines for non-scientific contributions (1 December, 1 March, 1 June, 1 September).

General contributions should be sent to the editor: EditorABCN@Africanbats.org

Scientific Contributions should be sent to: ScientificEditorABCN@Africanbats.org

Editorial Board: Robert Barclay (University of Calgary, Canada); Woody Cotterill (University of Stellenbosch, South Africa); Jakob Fahr (University of Ulm, Germany); Steve Goodman (Chicago Field Museum of Natural History, United States of America); David Jacobs (University of Cape Town, South Africa); Richard Jenkins (University of Aberdeen, United Kingdom); Teresa Kearney (Transvaal Museum, South Africa); Ara Monadjem (University of Swaziland, Swaziland); Peter Taylor (Durban Natural Science Museum, South Africa); Victor Van Cakenberghe (University of Antwerp, Belgium).