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Inside this issue:

Above: Nigerian Free-tailed Bat (*Chaerephon nigeriae*) (ECJS-77/2009) caught in the Chitabi area, Okavango Delta, Botswana.

NOTICE BOARD

Conferences

2nd Berlin Bat Meeting: Bat Biology and Infectious Diseases

To be held at: Berlin, Germany, 19– 21 February 2010.
Further information: http://www.izw-berlin.de/

15th International Bat Research Conference

To be held at: Prague, Czech Republic, 23– 27 August 2010.
Further information: http://www.ibrc.cz

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OBSERVATIONS, DISCUSSIONS AND UPDATES

OBSERVATIONS

Correction to Observation # 10: Incorrect common name - Rüppell's Bat not Rendall's Seortine Bat.

By: Julio Balona, Gauteng and Northern Regions Bat Interest Group.

The incorrect common name has been used in observation # 10 (African Bat Conservation News 21: 4) and should be Rüppell's Bat not Rendall's Seortine Bat.

DISCUSSIONS

Bat deterrent / repellent

By Dave Hood

The picture (right) is of a ball of crumpled tinfoil (aluminium foil) hung above an outside bathroom. You've probably heard of this sort of bat deterrent before but it was new to me. I also noticed that no mention of it is made in Peter Taylor's book "Bat of Southern Africa" under the section on removing bats from roofs.

We had a problem with bats using an edge of the corrugated iron roofing directly over the toilet seat as a night roost, practically every night. Since putting up two of these foil balls about three weeks ago, we have not found a single bat dropping in the outside bathroom. The only bat I have actually seen in the outside bathroom is a Slit-faced bat, from distribution presumably *Nycteris thebaica*.

I want to use a similar deterrent in one of our sheds but will wait until autumn because the shed is used as a day roost and there are probably bat pups there at the moment. I will let you know what the results are.

"We have had reports that suspending strips of aluminium foil, 50 mm wide by 180—250 mm long, near entrance holes to a roost appears to have deterred bats, although this may depend on the species of bat and the time of year." - **BAT INTEREST GROUP OF KWAZULU-NATAL**, 2007. *Bats in roofs*. Flame Tree Media, Scottsville, South Africa, 44p.

If any one has any other suggestions for deterrents please let us know.

UPDATES

NEWLY DESCRIBED SPECIES

GOODMAN *et al.* (2009) has recently described two new species of *Miniopterus* (Long-fingered Bat) from Madagascar.:-

Miniopterus brachytragos new species – GOODMAN *et al*. (2009)

The name is derived from the Greek *brachys* ("short") and *tragos* meaning "goat" a word ultimately borrowed into New Latin to mean "tragus", and has been chosen as this taxon is easily distinguished from its congener by its diminutive tragus.

Miniopterus mahafaliensis new species – GOODMAN *et al*. (2009)

The name *mahafaliensis* is derived from the Malagasy word *mahafaly*, meaning "to make taboos", but here specifically referring to one of the local cultural groups in southwestern Madagascar, the Mahafaly, and the Mahafaly Plateau, a limestone karst area, from whence many of the specimens of this taxon were collected.

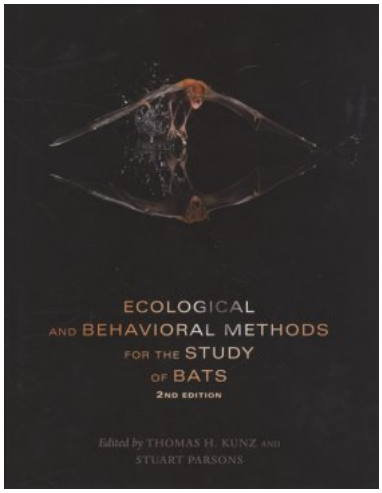
References

GOODMAN, S. M., MAMINIRINA, C. P., BRADMAN, H. M., CHRISTIDIS, L. and APPLETON, B. R., 2009. The use of molecular phylogenetic and morphological tools to identify cryptic and paraphyletic species: Examples from the diminutive Long-fingered Bats (Chiroptera: Miniopteridae: Miniopterus) on Madagascar. *American Museum Novitates* **3669**: 1 - 34.

RECENT LITERATURE

BOOKS

KUNZ, T.H. and PARSONS, S. (Eds). 2009. *Ecological and Behavioral Methods for the Study of Bats*. 2nd edition. The John Hopkins University Press, Baltimore, 901pp.



First published in 1988, "Ecological and Behavioral Methods for the Study of Bats" is widely acknowledged as the primary reference for both amateur and professional bat researchers. Only one group of mammals includes more species than bats. Bats live on every continent except Antarctica, range from deserts to tropical forests to mountains, and their activities have a profound effect on the ecosystems in which they live. Despite their ubiquity and importance, bats are challenging to study. This volume provides researchers, conservationists, and consultants with the ecological background and specific information needed to study bats in the wild and in captivity.

The chapters not only describe the most commonly used field and laboratory techniques and also provide information on many new methods and techniques, but they also provide information on many new methods and techniques needed to advance the study of bats. This book describes how these methods are applied to the study of the ecology and behavior of bats both in the field and in the laboratory and provides advice on how to interpret the results of research.

The book includes forty-three chapters, fourteen of which are new to this second edition, with information on molecular ecology and evolution, bioacoustics, chemical communication, flight dynamics, population models, and methods for assessing postnatal growth and development.

Fully illustrated and featuring contributions from the world's leading experts in bat biology, this reference contains everything bat researchers and natural resource managers need to know for the study and conservation of this wide-ranging, ecologically vital, and diverse taxon.

PUBLISHED PAPERS

BIZOUX, J.-P., DAÏNOU, K., BOURLAND, N., HARDY, O. J., HEUERTZ, M., MAHY, G., and DOUCET, J.-L., 2009. Spatial genetic structure in *Milicia excelsa* (Moraceae) indicates extensive gene dispersal in a low-density wind-pollinated tropical tree. *Molecular Ecology* 18(21): 4398-4408.

Abstract: In this study, we analysed spatial genetic structure (SGS) patterns and estimated dispersal distances in *Milicia excelsa* (Welw.) C.C. Berg (Moraceae), a threatened wind-pollinated dioecious African tree, with typically low density (~10 adults/km2). Eight microsatellite markers were used to type 287 individuals in four Cameroonian populations characterized by different habitats and tree densities. Differentiation among populations was very low. Two populations in more open habitat did not display any correlation between genetic relatedness and spatial distance between individuals, whereas significant SGS was detected in two populations situated under continuous forest cover. SGS was weak with a maximum Sp-statistic of 0.006, a value in the lower quartile of SGS estimates for trees in the literature. Using a stepwise approach with Bayesian clustering methods, we demonstrated that SGS resulted from isolation by distance and not colonization by different gene pools. Indirect estimates of gene dispersal distances ranged from sigma-g = 1 to 7.1 km, one order of magnitude higher than most estimates found in the literature for tropical tree species. This result can largely be explained by life-history traits of the species. *Milicia excelsa exhibits* a potentially wide-ranging wind-mediated pollen dispersal mechanism as well as very efficient seed dispersal mediated by large frugivorous bats. Estimations of gene flow suggested no major risk of inbreeding because of reduction in population density by exploitation. Different strategy of seed collection may be required for reforestation programmes among populations with different extent of SGS.

ENDERS, A. C., JONES, C. J. P., TAYLOR, P. J., and CARTER, A. M., 2009. Placentation in the Egyptian slit -faced bat *Nycteris thebaica* (Chiroptera: Nycteridae). *Placenta* 30(9): 792-799.

Abstract: Bats are a highly successful, widely distributed group, with considerable variation in placental structure. The Egyptian slit-faced bat *Nycteris thebaica* is a member of one of the few families with previously undescribed placentation. It was found that, although the interhemal type of the *Nycteris* placenta is endotheliochorial with a single layer of cytotrophoblast, the arborizing pattern of the maternal vessels and especially the extraordinary major placental artery differs from the placenta of the emballonurid bats to which this family is considered to be most closely related. The major placental artery providing maternal blood to the vessels of the placental disk has a highly glycosylated matrix surrounded by two-layered folds of trophoblast, forming an apparently rigid structure of unique morphology. The yolk sac is collapsed, with hypertrophied endodermal and mesothelial cells similar to many other bat species. The paraplacenta is extensive with abundant fetal vessels underlying cytotrophoblast and syncytial trophoblast layers, fronting on an endometrium that largely lacks uterine epithelial cells but has large decidual cells and is poorly vascularized. The placenta of *Nycteris* lacks a hemophagous region, unlike the emballonurid bats *Taphozous* and *Saccopteryx*. Although the latter two species have similar placentas, the placental structure of *Nycteris* does little to relate it to the other family within the Emballonuroidea. Shared and divergent reproductive characters are discussed in relationship to bat phylogenetic relationships.

GOODMAN, S. M., MAMINIRINA, C. P., BRADMAN, H. M., CHRISTIDIS, L., and APPLETON, B., 2009. The use of molecular phylogenetic and morphological tools to identify cryptic and paraphyletic species: Examples from the diminutive Long-fingered Bats (Chiroptera: Miniopteridae: *Miniopterus*) on Madagascar. *American Museum Novitates* 3669: 1-34.

Abstract: Based on nearly complete (1125 bp) cytochrome-b sequence data and morphological characters, two new endemic species of *Miniopterus* are described from Madagascar that were previously identified as *M. manavi*. Using phylogenetic analysis, the basal nodes of major lineages in the Malagasy members of this genus are weakly supported, while, in most cases, the branches leading to each of the clades are well resolved. *Miniopterus mahafaliensis*, new species, occurs in the southwestern semidesert areas and *M. brachytragos*, new species, has a broad distribution across the northern half of the island, ranging across several different biomes. Phylogenetic inference indicates that these two new taxa are not closely related to *M. manavi* sensu stricto, with average genetic distances of 9.2% and 5.7% from this taxon, respectively. On the basis of this and previous revisions, the former *M. manavi* complex is now recognized to represent at least five taxa, which do not form a monophyletic group with respect to one another, and represent extraordinary examples of convergent evolution. *Miniopterus brachytragos* is closely related to the recently named *M.aelleni*, while *M. mahafaliensis* is not closely associated with any of these species. Molecular phylogenetic analysis was imperative to resolve the species limits of these taxa and morphology then provided the means to corroborate the recovered clades. There are localities on the island, specifically limestone karstic zones, where four species of the former *M. manavi* sensu lato complex occur in strict sympatry. These species often use the same day-roost caves and have similar external and craniodental measurements. This raises intriguing questions as to how these animals divide their worlds with regard to dietary regimes and foraging strategies, as well as their speciation history.

HASTRITER, M. W., 2009. A description of four new species of fleas (Insecta, Siphonaptera) from Angola, Ethiopia, Papua New Guinea, and Peru. *ZooKeys* 8: 39-61.

Abstract: Four new species of fleas are described: *Aphropsylla truncata* sp. n. (Ethiopia), *Ectinorus hirsutus* sp. n. (Peru), *Rhinolophopsylla traubi* sp. n. (Angola), and *Haumapsylla wilsoni* sp. n. (Papua New Guinea). Our understanding of the genus *Aphropsylla* is deficient, therefore a discussion of host/parasite relationships and new records from Uganda are provided. A key is provided for the genus *Aphropsylla*, while representatives of the other three genera are associated with existing keys to facilitate their identification. The presence of lucodiscs on *Aphropsylla* and other genera is briefly discussed. The occurrence of lucodiscs among representatives of the order Siphonaptera deserves further investigation.

KOCK, D., and STANLEY, W. T., 2009. Mammals of Mafia Island, Tanzania. *Mammalia* 73(4): 339-352.

Abstract: Mafia Island is the third largest island of the Zanzibar Archipelago, and one of the only two localities where fruit bats of the genus *Pteropus* Brisson 1762 live in Tanzania. Even though the island is famous for this mammalian resident, there is very little known about the mammalian fauna in general on Mafia. We present collected information about the mammals of Mafia based on historical records and recent biotic surveys, and list a total of 30 species recorded from the island, three of which are reported here for the first time. With the exception of *Pteropus*, the fauna of Mafia is much like that of the nearby mainland of Tanzania.

LOUCHART, A., WESSELMAN, H., BLUMENSCHINE, R. J., HLUSKO, L. J., NJAU, J. K., BLACK, M. T., ASNAKW, M., and WHITE, T. D., 2009. Taphonomic, avian, and small-vertebrate indicators of *Ardipithecus ramidus* habitat. *Science* 326(5949): 66, 66e1-66e4.

Abstract: Thousands of vertebrate specimens were systematically collected from the stratigraphic interval containing *Ardipithecus ramidus*. The carcasses of larger mammals were heavily ravaged by carnivores. Nearly 10,000 small-mammal remains appear to be derived primarily from decomposed owl pellets. The rich avifauna includes at least 29 species, mostly nonaquatic forms. Modern analogs of the most abundant birds and of a variety of rodents are associated with mesic woodland environments distant from large water bodies. These findings support inferences from associated geological, isotopic, invertebrate, and large-vertebrate assemblages. The combined results suggest that *Ar. ramidus* occupied a wooded Pliocene habitat.

MONADJEM, A., RESIDE, A., CORNUT, J., and PERRIN, M. R., 2009. Roost selection and home range of an African insectivorous bat *Nycteris thebaica* (Chiroptera, Nycteridae). *Mammalia* 73: 353-359.

Abstract: Roost site selection, daily movement patterns and home range area of African bats are poorly known. We used radio -telemetry to investigate these parameters in the African bat *Nycteris thebaica*. The bats predominantly used antbear *Orycteropus afra* burrows or culverts as night roosts. Day roost sites included caves and antbear burrows. Individuals travelled an average of 1.1 km between day roosts and foraging areas, a distance similar to that predicted from a comparative study of aspect ratios. Foraging (home) ranges were relatively small and averaged 12.9 ha. The foraging range of each bat overlapped on average with the ranges of 4.3 neighbouring bats, and the are of overlap covered 49% of its foraging range. For a bat with low wingloading, *N. thebaica* is capable of large travelling distances, suggesting that it is a strong flyer. We suggest that antbear burrows are not limiting; however, it is likely that these bats travel beyond the foraging area for more optimal roosts such as caves.

MULDOON, K. M., DE BLIEUX, D. D., SIMONS, E. L., and CHATRATH, P. S., 2009. The subfossil occurrence and paleoecological significance of small mammals at Ankilitelo cave, southwestern Madagascar. *Journal of Mammalogy* 90(5): 1111-1131.

Abstract: Small mammals are rarely reported from subfossil sites in Madagascar despite their importance for paleoenvironmental reconstruction, especially as it relates to recent ecological changes on the island. We describe the uniquely rich subfossil small mammal fauna from Ankilitelo Cave, southwestern Madagascar. The Ankilitelo fauna is dated to the late Holocene (?500 years ago), documenting the youngest appearances of the extinct giant lemur taxa *Palaeopropithecus*, *Megaladapis*, and *Archaeolemur*, in association with abundant remains of small vertebrates, including bats, tenrecs, carnivorans, rodents, and primates. The Ankilitelo fauna is composed of 34 mammalian species, making it one of the most diverse Holocene assemblages in Madagascar. The fauna comprises the 1st report of the short-tailed shrew tenrec (*Microgale brevicaudata*) and the ring-tailed mongoose (*Galidia elegans*) in southwestern Madagascar. Further,

Ankilitelo documents the presence of southwestern species that are rare or that have greatly restricted ranges today, such as Nasolo's shrew tenrec (*M. nasoloi*), Grandidier's mongoose (*Galidictis grandidieri*), the narrow-striped mongoose (*Mungotictis decemlineata*), and the giant jumping rat (*Hypogeomys antimena*). A simple cause for the unusual small mammal occurrences at Ankilitelo is not obvious. Synergistic interactions between climate change, recent fragmentation and human-initiated degradation of forested habitats, and community-level processes, such as predation, most likely explain the disjunct distributions of the small mammals documented at Ankilitelo.

POURRUT, X., SOURIS, M., TOWNER, J. S., ROLLIN, P. E., NICHOL, S. T., GONZALEZ, J.-P., and LEROY, E., 2009. Large serological survey showing cocirculation of Ebola and Marburg viruses in Gabonese bat populations, and a high seroprevalence of both viruses in *Rousettus aegyptiacus*. *BMC Infectious Diseases* 9(1): 159.

Background: Ebola and Marburg viruses cause highly lethal hemorrhagic fevers in humans. Recently, bats of multiple species have been identified as possible natural hosts of Zaire ebolavirus (ZEBOV) in Gabon and Republic of Congo, and also of marburgvirus (MARV) in Gabon and Democratic Republic of Congo.
Methods: We tested 2147 bats belonging to at least nine species sampled between 2003 and 2008 in three regions of Gabon and in the Ebola epidemic region of north Congo for IgG antibodies specific for ZEBOV and MARV.
Results: Overall, IgG antibodies to ZEBOV and MARV were found in 4% and 1% of bats, respectively. ZEBOV-specific antibodies were found in six bat species (*Epomops franqueti*, *Hypsignathus monstrosus*, *Myonycteris torquata*, *Micropteropus pusillus*, *Mops condylurus* and *Rousettus aegyptiacus*), while MARV-specific antibodies were only found in *Rousettus aegyptiacus* and *Hypsignathus monstrosus*. The prevalence of MARV-specific IgG was significantly higher in *R. aegyptiacus* members captured inside caves than elsewhere. No significant difference in prevalence was found according to age or gender. A higher prevalence of ZEBOV-specific IgG was found in pregnant females than in non pregnant females. Conclusion: These findings confirm that ZEBOV and MARV co-circulate in Gabon, the only country where bats infected by each virus have been found. IgG antibodies to both viruses were detected only in *Rousettus aegyptiacus*, suggesting that this bat species may be involved in the natural cycle of both Marburg and Ebola viruses. The presence of MARV in Gabon indicates a potential risk for a first human outbreak. Disease surveillance should be enhanced in areas near caves.

RUSSO, D., TEIXEIRA, S., CISTRONE, L., JESUS, J., TEIXEIRA, D., FREITAS, T., and JONES, G., 2009. Social calls are subject to stabilizing selection in insular bats. *Journal of Biogeography* 36: 2212-2221.

Aim Bats communicate by emitting social calls, and these often elicit reactions in conspecifics. Many such vocalizations are species-specific so that unambiguous signals can be transmitted and interpreted by conspecifics. In species-rich assemblages, evolutionary pressures might prompt interspecific diversification of call structure so that communication with heterospecifics is avoided. In speciespoor island communities, where no risk of miscommunication occurs, stabilizing selection should prevail and preserve call structure and function. Call structure in island bats might be inherited from colonizers from the mainland and be maintained with little change in the absence of selection from heterospecifics. To test this hypothesis we studied *Pipistrellus maderensis*, an insular taxon occurring on the Madeira Archipelago, the Canary Islands and the Azores. It is closely related to one of the most widespread European pipistrelles, *Pipistrellus kuhlii*. *Pipistrellus maderensis* most probably evolved from a common ancestor shared with *P. kuhlii,* or from founders of that taxon that colonized the islands. We hypothesized that on Madeira Island, where no risk of ambiguous communication with heterospecifics exists, the structure and function of social calls should have been preserved by stabilizing selection. Echolocation calls, subject to different selection pressures, may instead show more pronounced differences between *P. maderensis* and *P. kuhlii*.
Location Madeira Island (Portugal, Atlantic Ocean), central and southern Italy.
Methods We recorded social and echolocation calls from allopatric populations of the two pipistrelles and explored interspecific differences in time and frequency characteristics. We also conducted playback experiments by broadcasting recordings of social calls from *P. kuhlii* and *P. maderensis* (taken respectively in peninsular Italy and on Madeira) and monitoring the bats' responses.
Results Social call structure showed a strong similarity between species, whereas echolocation calls were markedly different and exhibited a mean divergence of over 6 kHz in their frequency of maximum energy. On Madeira, *P. maderensis* significantly reduced flight activity when we broadcast *P. kuhlii* signals, as did *P. kuhlii* in Italy in response to *P. maderensis* calls.
Main conclusions Reliable interpretation of social calls provides benefits to both the signaller and the receiver because signals help to optimize food exploitation at foraging sites. In the absence of closely related species that can emit similar calls, this advantage may have acted as a strong evolutionary pressure, stabilizing social call structure in *P. maderensis* in insular ecosystems with limited foraging resources.

STANLEY, W. T., and COLLETT, L., 2009. Attack or consumption of *Epomophorus* (Chiroptera) by *Paraxerus* (Rodentia) and *Papio* (Primates) in Tanzania. *African Journal of Ecology* 47: 792-793.

STOFFBERG, S., JACOBS, D. S., MACKIE, I. J., and MATTHEE, C. A., 2010. Molecular phylogenetics and historical biogeography of *Rhinolopus* bats. *Molecular Phylogenetics and Evolution* 54: 1-10.

Abstract: The phylogenetic relationships within the horseshoe bats (genus *Rhinolophus*) are poorly resolved, particularly at deeper levels within the tree. We present a better-resolved phylogenetic hypothesis for 30 rhinolophid species based on parsimony and Bayesian analyses of the mitochondrial cytochrome b gene and three nuclear introns (TG, THY and PRKC1). Strong support was found for the existence of two geographic clades within the monophyletic Rhinolophidae: an African group and an Oriental assemblage. The relaxed Bayesian clock method indicated that the two rhinolophid clades diverged approximately 35 million years ago and results from Dispersal Vicariance (DIVA) analysis suggest that the horseshoe bats arose in Asia and subsequently dispersed into Europe and Africa.

WEBER, N., KALKO, E. K. V., and FAHR, J., 2009. A first assessment of home range and foraging behaviour of the African long-tongued bat *Megaloglossus woermanni* (Chiroptera: Pteropodidae) in a heterogeneous landscape within the Lama Forest Reserve, Benin. *Acta Chiropterologica* 11(2).

Abstract: We investigated spatial use and foraging behaviour of the nectarivorous African long-tongued bat, *Megaloglossus woermanni* (Chiroptera: Pteropodidae), in the Lama Forest Reserve, southern Benin, West Africa. We monitored movement and activity patterns of two males and two females that were fitted with position-sensitive radio transmitters for five to nine nights within a three-month study period. The study site comprised the central patch of relatively undisturbed forest ('Noyau Central'), and a mosaic of orchards, agroforestry plantations, and degraded forests surrounding the central patch. Spatial use of *M. woermanni* was characterized by small home ranges and high site-fidelity. Mean home range sizes (minimum convex polygon) were larger in females (139.0 and 146.8 ha) than in males (99.8 and 102.9 ha). Throughout the study period, long-tongued bats were frequently observed visiting flowers of cultivated bananas. The mean foraging areas (95% density kernel) of females (39.0 and 109.4 ha) were much larger than in males (12.3 and 14.1 ha). Difference in core areas (50% density kernel) between the sexes was less marked (both females: 6.8 ha, males: 2.7 and 2.9 hectares). Core areas constituted only a small part of home ranges (2.64.9%). Large segments of the home ranges were only used for commuting flights between discrete resource patches. Our study provides, for the first time, information on home ranges and foraging behaviour of the sole obligate nectar-drinking bat in Africa.

WRIGHT, G. S., 2009. *Hipposideros caffer* (Chiroptera: Hipposideridae). *Mammalian Species* 845: 1-9.

Abstract: *Hipposideros caffer* (Sundevall, 1846) is a hipposiderid bat commonly called Sundevall's leaf-nosed or roundleaf bat. *H. caffer* is a medium-sized insectivorous bat with a horseshoe-shaped nose leaf and 2 color phases in adulthood. It is 1 of 67 species in the genus *Hipposideros* and is found in the southwestern Arabian Peninsula, in most of Africa south of the Sahara (excluding the central forested region), and in Morocco, Zanzibar, and Pemba. *H. caffer* is a savanna-dwelling species and inhabits a variety of roost types including caves, hollow trees, and abandoned buildings. It often roosts in groups of thousands of individuals, is very common, and is not of special conservation concern.

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).

Contributions should be sent to the editor: tehome@vodamail.co.za