Z. Säugetierkunde 57 (1992) 112–115

ISSN 0044-3468

WISSENSCHAFTLICHE KURZMITTEILUNGEN

Bats from Mana Pools National Park in Zimbabwe and the first record of *Eptesicus rendallii* from the country

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Receipt of Ms. 28. 10. 1991
Acceptance of Ms. 3. 12. 1991

The bat fauna of Africa is not well documented compared to other African mammals. For example, while the bats of Zimbabwe have received some attention (Fenton 1975; Smithers and Wilson 1979; Hutton 1986), at most locations there has been no specific survey of bats. Even at Mana Pools National Park on the Zambezi River (15° 44′ S; 29° 21′ E), the site of some bat research (e.g. Aldridge et al. 1990; Fenton et al. 1990; Obrist et al. 1989), there is virtually no information about the bat fauna.

Between 18:00 and 21:00 we used 12 m mist nets (126 net hours in November 1987) and two macro-mist nets (36 net hours in June 1990; Rautenbach 1985) to sample bats at sites within 10 km of the headquarters of Mana Pools National Park. We sampled sites in the dry woodland some distance away from the river, and on the flood plain of the Zambezi River in the predominately *Acacia albida* woodland along the Zambezi River, a park-like habitat with dispersed tall canopy trees and little understory (Dunham 1989). Here we record the first record of *Eptesicus rendallii* from Zimbabwe and the occurrence of 20 species of bats in Mana Pools National Park (Table 1), 15 of which are recorded for the first time.

The bats recorded for Mana Pools National Park are compared with the species compositions of two other sites in southern Africa (Table 1). These bat faunas are typical of open woodland in southern Africa. *Nycticeius schlieffenii* and *Scotophilus borbonicus* together accounted for 80 % of the 136 bats netted at Mana Pools National Park between 18:00 and 21:00 over 12 nights in June 1990. In comparing the faunas (see Table), it is clear that a number of species are rarely encountered, while others are taken only in the immediate vicinity of their roosts. The larger species richness recorded for Pafuri, may be ascribed to greater ecological complexity and more intensive surveying.

Eptesicus rendallii is widespread in open woodland savannahs of subsaharan Africa (Smithers 1983) and ranges southwards into northern Botswana (Smithers 1971), central Zambia (Ansell 1978), southern Malawi (Ansell and Dowsett 1988), and the Tete and Mocambique districts of Mocambique (Smithers and Lobao Tello 1976). Our specimens are the first from Zimbabwe and they have been prepared as standard skin and skull vouchers and deposited in the national mammal collection of the Transvaal Museum. In wing characteristics (aspect ratio 6.71 male, 6.18 female; wingloading 7.81 N m^{-2} and 6.93 N m^{-2}) and size (6.0 and 6.5 g) these bats would be included in the Group 1 of Aldridge and Rautenbach (1987), species with high flight manoeuvrebility that should forage in relatively cluttered situations.

We prepared standard bone marrow karyotypes from the two *E. rendallii* using the in vivo technique of Robbins and Baker (1978) as modified by Baker et al. (1982). At least

The bats captured at Mana Pools National Park compared with species recorded in the Sengwa Wildlife Area in Zimbabwe (18° 10′ S; 28° 13′ E) and the Pafuri area of the Kruger National Park in South Africa (22° 25′ S; 31° 13′ E)

While the actual numbers of bats from Mana Pools National Park are shown, for the other two sites relative abundance (for comparable sampling effort) is indicated as follows: * <3; + = 3–10; ++ = 11–20; +++ = 21–30; ++++ = 31–40, etc. The "r" identifies bats captured emerging from roost sites, not in nets set in woodland. The "a" is from SMITHERS and WILSON (1979); the "b" from FENTON et al. (1990); the "c" from ALDRIDGE et al. (1990); the "d" from HUTTON (1986); and the "e" an observation of THOMAS VOLPERS (pers. comm.)

Species	Mana Pools	Sengwa	Pafuri	Species	Mana Pools	Sengwa	Pafuri
Epomophorus wahlbergi	–	+	+	*Pipistrellus nanus*	1	++	+
Epomophorus crypturus	1	++	*	*Chalinolobus variegatus*	6	*	*
Rousettus aegyptiacus	–	+	++	*Laephotis botswanae*	–	+	*
Taphozous mauritianus	+[a]	*	*	*Eptesicus rendallii*	2	–	–
Nycteris grandis	+[b]	–	–	*Eptesicus hottentotus*	–	–	*
Nycteris woodii	–	+	*	*Eptesicus* cf. *melckorum*	3	?	+
Nycteris thebaica	+[c]	++	+	*Eptesicus zuluensis*	1	*	+
Rhinolophus hildebrandtii	1	+	+	*Eptesicus capensis*	4	+++	++
Rhinolophus fumigatus	–	+	+	*Scotophilus dinganii*	–	+	++++
Rhinolophus clivosus	–	*	*	*Scotophilus borbonicus*	52	++++	++++
Rhinolophus darlingi	1	–	*	*Nycticeius schlieffenii*	55	++++	++++
Rhinolophus landeri	*[d]	+[r]	*	*Kerivoula argentata*	–	*	*
Rhinolophus simulator	–	+[r]	*	*Kerivoula lanosa*	–	–	*
Rhinolophus swinnyi	–	–	*	*Otomops martiensseni*	–	*	–
Hipposideros commersoni	1[e]	+	*	*Tadarida fulminans*	–	*	*
Hipposideros caffer	–	+++[r]	+++[r]	*Tadarida bivittata*	–	+	–
Cloeotis percivali	–	*[r]	–	*Tadarida ansorgei*	–	–	*
Miniopterus schreibersii	1	+	*	*Tadarida nigeriae*	–	+	–
Myotis welwitschii	–	*	*	*Tadarida chapini*	–	++	–
Myotis tricolor	–	–	*	*Tadarida pumila*	7	–	++[r]
Myotis bocagei	–	–	*	*Tadarida midas*	1	–	+[r]
Pipistrellus rueppellii	1	++	+	*Tadarida condylura*	–	–	++[r]
Pipistrellus rusticus	–	–	+++				

five representative chromosome spreads were examined from each bat to determine diploid (2n) and fundamental numbers (FN). Photomicrographic enlargements of suitable spreads were used in the final analyses and to prepare a karyogram.

Our data show that the standard karyotype of *E. rendallii* is 2n = 38, FN = 50, and the autosomal complement is seven pairs of bi-armed chromosomes, and a size-graded series of 11 acrocentric pairs. A prominent secondary constriction is apparent near the centromere of one of the larger pairs of acrocentric chromosomes. The X chromosome is a large, submetacentric, and the Y a small submetacentric. Our findings agree with the earlier description of the karyotype of *E. rendallii* (McBee et al. 1987), with the exception of the Y chromosome, which is described for the first time.

Some workers (e.g. Heller and Volleth 1984) would group *E. rendallii* together with other karyotypically variable *Eptesicus*-like African bats, as *Pipistrellus* since they deviate from what is considered to be the typically conservative karyotype of 'true' *Eptesicus* (2n = 50). Based on bacular morphology others (e.g., Hill and Harrison 1987) also consider *E. rendallii* as a *Pipistrellus*. However, the complexity of the problem makes it prudent to report our record as *Eptesicus rendallii,* pending the results of more in-depth systematic studies.

Acknowledgements

We thank the Director of the National Parks and Wildlife Management Department for permission, and Warden F. Buyeye and C. Jakopo for advice and assistance in the field. R. B. Martin, Assistant Director (Research) provided logistical help, while M. B. Cumming, M. K. Musgrace, J. S. Taylor and T. Volpers helped in the field. This study was supported by grants from the Natural Sciences and Engineering Research Council of Canada to MBF and the South African Foundation for Research Development to ILR.

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