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Bat Records from Upper Volta, West Africa

KARL F. KOOPMAN,¹ RUSSELL E. MUMFORD,² AND
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ABSTRACT

The bats of Upper Volta are reviewed, based chiefly on previously unreported material. For the 27 species recognized, locality, habitat, and reproductive data are given. Taxonomic notes are added where necessary, and the distributional patterns in Upper Volta are considered in relation to the vegetation belts in West Africa. All but two species occur in the Sudan savanna, but nearly half of these also

occur in the Guinea savanna, to which the two additional species appear to be confined. Several species reach the Sahel savanna. Whereas 12 species are recorded from Upper Volta for the first time, only two represent significant range extensions: *Pipistrellus deserti* south from Algeria and *Tadarida demonstrator* west from Sudan. A gazetteer of bat collecting localities in Upper Volta is included.

INTRODUCTION

Little has been published on the bats of Upper Volta. Rosevear (1965) mentioned no specimens from the country. Kock (1969) recorded *Eptesicus guineensis* and *Tadarida pumila* from Nouna. Poché (1975) listed specimens of *Epomophorus gambianus*, *Taphozous perforatus*, *Lavia frons*, *Hipposideros caffer*, *H. ruber*, and *Tadarida pumila*, which he evidently examined at the National Museum of Natural History in Washington, D.C. Heisterberg served as a Peace Corps volunteer in Upper Volta from December 1971 until March 1975. During this period he collected 84 bat specimens (National Museum of Natural History, The American Museum of Natural His-

tory, Purdue University Wildlife Laboratory Collection). When we began working with Heisterberg's collection, we learned that the National Museum had a considerable amount of other Upper Voltan material, which Henry W. Setzer kindly permitted us to examine and include in the present report. We subsequently found that R. E. Vaden had obtained more than 900 specimens of bats in Upper Volta for the National Museum, which are also included here. Unless otherwise stated, nomenclature follows Hayman and Hill (1971). Overall ranges are in general those of the species.

Upper Volta lies mostly within the Sudan savanna, with smaller portions in both the

¹Associate Curator, Department of Mammalogy, the American Museum of Natural History.

²Department of Forestry and Natural Resources, Purdue University.

Sahel savanna and the Doka (Guinea) savanna (Rosevear, 1965).¹ These extensive bands of vegetation stretch from Senegal eastward to the Republic of the Sudan, thus providing bats native to these vegetation types a broad range. Other authors show roughly the northern half of Upper Volta to be (or to have been) acacia savanna and the southern half tall grass savanna. Man has greatly altered the native vegetation over the years. Heavily forested areas are scarce in the country, and restricted mostly to relatively small, isolated patches in the southwestern portion.

A gazetteer included in this paper lists collecting localities.

We thank Dr. Henry W. Setzer, Dr. Don E. Wilson, Dr. Brian Robbins, and Ms. Barbara Harvey for assistance during our studies.

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SPECIES ACCOUNTS

Eidolon helvum helvum (Kerr). Specimens examined: 5. Fo (2), Koutoura (1), Sideradougou (2). Specimens were taken in riverine forests and tree savannas and from trees in villages. These are the first records for Upper Volta but the species is already known from all surrounding countries. Although known only from the southwestern part of the country, the species is presumably widespread at least south of the Sahel savanna.

Heisterberg observed a roost of about 10,000 *Eidolon* at Voko on May 4 and June 21, 1973. The bats inhabited a *Ficus* sp. and a *Cassia senegalensis* tree, each 2 m. in diameter, surrounded by a cultivated millet field. The village chief, an 80-year-old man, told Heisterberg that the bats had used this roost since he was a child, and during most of the lifetime of his father. The bats reportedly arrive in March or April, reach a peak of numbers in early July, then gradually decline until none is left in Oc-

tober. April is when most trees in the region begin fruit production, and the rainy season begins in late May and lasts to the end of September. The chief considered these bats a good omen for millet production and performed a sacrifice while the population was at its peak; after these fetish rites, the bats were subject to some hunting pressure from children with slingshots.

Rousettus angolensis smithi Thomas. Specimens examined: 2, Orodara. One was in a native hut; one was taken in tree savanna. This is the first record for Upper Volta but this bat is already known from Togo, Ghana, and the Ivory Coast to the south. It is evidently near the northern limits of its range in Upper Volta.

Hypsignathus monstrosus H. Allen. Specimens examined: 12. Fo (1), Orodara (1), Sideradougou (10). These were taken in riverine forest, tree and tree-shrub savannas, and from a tree in a village. These are the first records for Upper Volta but the species is already known from Ghana and Ivory Coast to the South. It is evidently near the northern limits of its range in Upper Volta.

Epomophorus gambianus gambianus (Ogilby). Specimens examined: 182. Arly National Park (2), Boussouma (3), Cella (5), Djipologo (4), Fo (45), Founzan (21), Koutoura (14), Natiaboani (4), Nobéré (4), Ouagadougou (32), Ougarou (18), Pigahiri (1), Sideradougou (29). Specimens were taken from mango groves, village trees, riverine forests, tree and tree-shrub savannas (some in Sudan savanna), and over waterholes. This species has been recorded from Upper Volta by Poché and is also known from all surrounding countries. It is widespread in Upper Volta and clearly widespread in the northern savannas of West Africa, except the Sahel savanna.

A female taken January 16 (Ouagadougou) was lactating. Six females from Ougarou (March 23-25) each contained single fetuses ranging from 23 to 39 mm. in crown-rump length. A female taken September 2 (Nobéré) contained an unmeasured embryo. A female from Founzan (May 14) contained one embryo 49 mm. in crown-rump length.

Micropteropus pusillus (Peters). Specimens examined: 4. Djipologo (1), Koutoura (1), No-

¹Rosevear (1965) called these zones woodlands, and distinguishes a northern portion of what he had previously (Rosevear, 1953) called the Guinea savanna, as the Doka woodland and restricted the name Guinea woodland to the more Southern portion (not occurring in Upper Volta). We prefer Rosevear's 1953 usage.

béré (2). These were taken over a waterhole and from a village tree, in Sudan savanna. These are the first records from Upper Volta but the species is already known from Togo, Ghana, and Ivory Coast to the south. It is evidently near the limits of its range in Upper Volta.

Taphozous perforatus E. Geoffroy. Specimens examined: 32. Barga (23), Dio (1), Gorgadji (7), Tatarko (1). They were collected in Sudan and Sahel savannas. This bat was recorded from Upper Volta by Poché and is also known from Niger and Mali to the north and Ghana to the south. Although known only from the northern part of the country the species is presumably widespread except for the Guinea savanna.

Nycteris hispidus hispidus (Schreber). Specimens examined: 185. Arly National Park (62), Djipologo (8), Founzan (18), Goden (35), Konankira (1), Koutoura (13), Nobéré (4), Orodara (24), Oulo (3), Sideradougou (17). Many were taken from native huts. These are the first records from Upper Volta but the species is already known from Mali to the north and from Togo, Ghana, and Ivory Coast to the south. It is widespread in Upper Volta and clearly widespread in Africa.

A female taken at Djipologo (July 8) had one embryo 10 mm. in crown-rump length, and seven females taken at Arly National Park (November 14) were lactating.

Nycteris macrotis macrotis Dobson. Specimens examined: 104. Founzan (10), Goden (4), Konankira (2), Natiaboani (47), Nayouré (33), Nobéré (7), Orodara (1). Specimens were taken from native huts, a water well, and burrows in tree-shrub and Sudan savannas. These are the first records from Upper Volta but the species is already known from Niger to the north and from Togo, Ghana, and Ivory Coast in the south. The species is widespread south of the Sahel savanna.

Nycteris thebaica E. Geoffroy. Specimens examined: 111. Barga (1), Dio (9), Djipologo (19), Founzan (1), Koutoura (2), Natiaboani (41), Nayouré (1), Orodara (1), Oulo (19), Tatarko (17). Some were collected in Sudan savanna. These are the first records from Upper Volta but the species is known from Niger and

Mali to the north and possibly Ghana to the south. It is widespread in Upper Volta and probably extends beyond it in several directions. There is some uncertainty about the occurrence of this species to the south and west of Upper Volta because of confusion with *N. gambiensis*.

Two females taken at Oulo (May 3) contained single embryos of 20 and 22 mm. in crown-rump length.

Nycteris gambiensis (Andersen). Specimens examined: 75. Founzan (19), Konankira (18), Koutoura (4), Orodara (4), Oulo (30). Most of the specimens were from native huts. These are the first records for Upper Volta, but the species is known from Togo and Ghana to the south. The species probably reaches its north-eastern limits in Upper Volta. Though earlier Koopman (1975, p. 381) regarded *gambiensis* as a subspecies of *T. thebaica*, it is clear that they are sympatric and perfectly distinct in western Upper Volta and should therefore be recognized as distinct species.

Lavia frons (E. Geoffroy). Specimens examined: 37. Cella (35), Nobéré (2). All were from the Sudan savanna. This bat has been recorded from Upper Volta by Poché and is also known from Niger to the north and from Togo and Ghana to the south. Though the two Upper Volta localities are both in the south-central part of the country, it is probably widespread in Upper Volta as it is in Africa south of the Sahel savanna.

Six females taken at Cella (March 11) each had single embryos ranging from 13 to 33 mm. in crown-rump length. On March 13, two females from Cella contained single embryos 20 and 23 mm. A female taken at Cella on March 14 had one 19 mm. embryo.

Rhinolophus landeri landeri Martin. Specimens examined: 12. Barga (2), Konankira (5), Natiaboani (4), Nayouré (1). Some were taken from water wells and from Sudan savanna. These are the first records from Upper Volta but the species is known from Togo and Ghana to the south. It is probably near its northern limits in Upper Volta.

Rhinolophus fumigatus Rüppell. Specimens examined: 19. Djipologo (2), Nobéré (15), Orodara (2). Some were from native huts and

others were netted over waterholes. These are the first records from Upper Volta but the species is known from Niger to the north and Togo to the south. Although known only from the southwestern part of the country, it is probably widespread as it is in Africa south of the Sahel savanna.

Hipposideros caffer (ruber) guineensis Andersen. Specimens examined: 41. Arly National Park (7), Barga (1), Djipologo (9), Goden (3), Konankira (19), Ougarou (1), Sequenega (1). Koopman (1975, pp. 392-393) explained why he included what are two clearly distinct sympatric taxa in the same species. Since they do act like separate species in Upper Volta, they are treated separately here. The parentheses in the above name serve to indicate this fact. *Hipposideros caffer guineensis* was recorded from Upper Volta by Poché and is also known from Niger to the north and from Togo, Ghana, and Ivory Coast to the south. It is probably widespread in Upper Volta and in Africa south of the Sahel savanna.

Hipposideros caffer tephros Cabrera. Specimens examined: 18. Arly National Park (8), Barga (1), Konankira (2), Nobéré (2), Orodara (5). Some specimens are from the Sudan savanna. The species was recorded from Upper Volta by Poché and is also known from Mali to the north and from Togo and Ghana to the south. It is probably widespread in Upper Volta as in Africa south of the Sahel savanna and outside of densely forested areas.

Hipposideros abae J. A. Allen. Specimens examined: 4. Djipologo (3), Orodara (1). Some were from tree-shrub savanna. At least some of the specimens were netted over waterholes. These are the first records from Upper Volta but it is known from Ghana to the south. It probably reaches its northern limits in Upper Volta.

Hipposideros commersoni gigas (Wagner). Specimens examined: 3, Konankira. All are in an identical, reddish orange pelage. This is the first record from Upper Volta but the species is known from Togo, Ghana, and Ivory Coast to the south. Although known in Upper Volta from a single locality, it is probably widespread south of the Sahel savanna as it is in Africa as a whole.

Pipistrellus deserti Thomas. Specimens examined: 1, Nobéré. A male was taken January 25, 1975, with testes 6.5 mm. long. This is the first record for Upper Volta and is most unexpected since the other records are all from the northern Sahara. The nearest previous record was from southern Algeria. See Koopman (1975, p. 401) for a discussion of this poorly known species.

Eptesicus guineensis (Bocage). Specimens examined: 3. Gorgadji (1), Nobéré (1), Ougarou (1). This species was previously recorded from Upper Volta by Kock (1969). It seems to be widespread at least in the Sudan and Sahel savannas.

The two females taken September 12 and 13 each had twin embryos, for which no measurements are available.

Eptesicus somalicus (Thomas). Specimens examined: 1, Nobéré. This is the first record from Upper Volta but it is also known from Togo to the south. Although known from only one locality in Upper Volta, it is probably widespread at least in the Sudan savanna.

Nycticeius schlieffeni (Peters). Specimens examined: 10. Djipologo (1), Goden (2), Gorgadji (3), Markoye (1), Ougarou (3). These are the first records for Upper Volta but the species is known from Niger and Mali to the north and from Togo and Ghana to the south. It appears to be widespread at least in the Sudan and Sahel savannas.

Scotophilus leucogaster leucogaster Cretzschmar. Specimens examined: 14. Goden (1), Nobéré (7), Ouagadougou (1), Petoye (3), Pô National Park (2). The *Scotophilus* picture turns out to be more complex than previously thought (Koopman, 1975, pp. 415-416). Dr. Brian Robbins of the National Museum of Natural History is currently working on the systematics of this genus in West Africa so the identifications made here are tentative. Since, however, he believes that the name *nigrita* has been misapplied (Robbins, In press), it is not used here. It is now evident to us that in West Africa, there are three rather than two taxa that act as separate species, the large forest *nux*, the middle-sized *leucogaster* and the small *nigritellus*. We still believe that the large and middle-sized forms must be put together in one

species (for which the oldest name is *S. leucogaster*) for the reasons stated. However, it is now clear that the small *nigritellus* does not intergrade with any other form of *Scotophilus* but is sympatric with at least the middle-sized *S. l. leucogaster* and must therefore be put in its own species. *Scotophilus leucogaster* has been recorded from Upper Volta by Poché (who called it *S. nigrita*) and is also known from Niger to the north and from Togo, Ghana, and Ivory Coast to the south. It is probably widespread throughout Upper Volta and beyond its borders in several directions, but there is some uncertainty about this because of confusion with the following species.

Single males taken January 21 and 22 each had testes 10 mm. long.

Scotophilus nigritellus de Winton. Specimens examined: 7. Pô National Park (1), Nobéré (6). This species was recorded from Upper Volta by Poché (under the name of *leucogaster*) and is also known from Niger and Mali to the north and from Togo and Ghana to the south. Though it is known from only a small area of south-central Upper Volta (Pô National Park, Nobéré), it is probably widespread, at least in the Sudan savanna. Whereas the species seems to be confined to far West Africa, the Niger record (National Park W) shows that it extends at least slightly east of Upper Volta.

Tadarida major (Trouessart). Specimens examined: 43. Nobéré (1), Petoye (42). These are the first records for Upper Volta but the species is known from Niger and Mali to the north and from Togo and Ghana to the south. Although known from only two localities, it is probably widespread.

Tadarida pumila (Cretzschmar). Specimens examined: 71. Arly National Park (3), Boromo (5), Goden (40), Nobéré (19), Pô National Park (1), Tatarko (3). This bat was recorded from Upper Volta by Kock (1969) and Poché. It is also known from Niger and Mali to the north and from Togo and Ghana to the south and is probably widespread in Upper Volta as elsewhere in Africa.

Single males taken January 16 and 20 had 5-mm. and 4.5-mm. testes, respectively. A

female taken August 30 (Nobéré) contained one embryo 50 mm. long. One female from Nobéré had a white, midventral strip.

Tadarida demonstrator (Thomas). Specimens examined: 4, Pô National Park. All were taken in mist nets over the Red Volta River. These are the first records from Upper Volta. It was not previously known from west of Sudan and Zaire, though Kock (1969) predicted that it would be found to occur in West Africa. The two Upper Volta localities (Pô National Park and Pigahiri) are only 22 km. apart and this may indicate a localized distribution in Upper Volta and perhaps in West Africa.

Tadarida midas midas (Sundevall). Specimens examined: 2. Nobéré (1), Pigahiri (1). These are the first records from Upper Volta. It was not previously known between Nigeria and Senegal. The two localities are in the same restricted area from which *T. demonstrator* comes and this may likewise indicate a localized distribution in Upper Volta.

DISCUSSION

The present paper brings to 27 the number of species of Chiroptera known from Upper Volta. All but two species (*Rousettus angolensis* and *Hipposideros abae*) are known from the Sudan savanna. These two are known only from the Guinea savanna. Ten other species are also known from the Guinea savanna in Upper Volta and six additional species (*Lavia frons*, *Hipposideros caffer* (*ruber*), *Hipposideros comersoni*, *Scotophilus leucogaster*, *Tadarida major*, *Tadarida pumila*) probably also occur there since they inhabit similar vegetation associations of adjoining areas to the south. Five species are known from the Sahel savanna of Upper Volta; these are *Taphozous perforatus*, *Eptesicus guineensis*, *Nycticeius schlieffeni*, *Scotophilus leucogaster*, and *Tadarida major*. Three additional species (*Nycteris hispida*, *Nycteris thebaica*, *Tadarida pumila*) are known from the Sahel savanna of Mali to the north. Judging by the number of species known from surrounding areas but not yet recorded from Upper Volta, it is probable that the list for this country is only three-fifths complete.

GAZETTEER OF COLLECTING LOCALITIES, UPPER VOLTA, WEST AFRICA

	<u>Anon., 1965 Gazetteer locations</u>	<u>Actual collecting localities</u>
Barga	13°47' N, 2°16' W	13°51' N, 2°12' W
Boromo	11°45' N, 2°56' W	same
Boussouma	12°55' N, 1°05' W	12°57' N, 1°05' W
Cella	11°37' N, 0°22' W	11°38' N, 0°22' W; 11°32' N, 0°22' W
Dio	13°20' N, 2°38' W	same
Djipologo	10°56' N, 3°07' W	same
Fo	11°53' N, 4°31' W	same
Founzan	11°27' N, 3°14' W	same
Goden	12°23' N, 2°18' W	12°22' N, 2°18' W
Gorgadji	14°02' N, 0°31' W	14°02' N, 0°22' W
Konankira	12°54' N, 3°54' W	12°54' N, 3°53' W
Koutoura	10°21' N, 4°50' W	10°19' N, 4°53' W
Markoye	14°39' N, 0°02' E	14°54' N, 0°04' E
Natiaboani	11°42' N, 0°30' E	same
Nayouré	12°16' N, 0°15' E	12°15' N, 0°16' E
Nouna	12°44' N, 3°02' W	
Nobéré	11°33' N, 1°12' W	11°26' N, 1°10' W
Orodara	10°59' N, 4°55' W	11°04' N, 4°41' W
Ouagadougou	12°22' N, 1°31' W	12°21' N, 1°32' W; 12°21' N, 1°33' W
Ougarou	12°09' N, 0°56' E	12°10' N, 0°56' E
Oulo	11°54' N, 2°59' W	11°54' N, 2°58' W
Parc Natl. D'Arly	11°35' N, 1°28' E	11°34' N, 1°26' E
Parc Natl. de Pô	11°20' N, 1°10' W	11°27' N, 1°10' W
Petoye	14°35' N, 0°22' W	same
Pigahiri	11°15' N, 1°08' W	11°15' N, 1°07' W
Séquénéga	13°27' N, 1°58' W	13°24' N, 1°55' W
Sideradougou	10°40' N, 4°15' W	same
Tatarko	13°28' N, 0°19' W	13°29' N, 0°20' W
Voko ¹		11°38' N, 1°15' W

¹Approximate location, as calculated from map (not from gazetteer). Map in possession of Jon F. Heisterberg.

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