WOOLLY FALSE VAMPIRE
Chrotopterus auritus (W.Peters, 1856)

FIGURE 1 - Head detail (© Merlin D. Tuttle, Bat Conservation International, www.batcon.org).

TAXONOMY: Class Mammalia; Subclass Theria; Infraclass Metatheria; Order Chiroptera; Suborder Microchiroptera; Superfamily Noctilionoidea; Family Phyllostomidae; Subfamily Phyllostominae, Tribe Vampyrini (López-Gonzalez 2005, Myers et al 2006, Hoofer et al 2008). This species is the sole representative of the genus *Chrotopterus,* Peters 1865. The origin of the name *Chrotopterus* is Greek meaning "skin colour wing" presumably in reference to the wing membranes (Palmer 1904). The species name *auritus* is Latin meaning "long-eared". (Braun & Mares 1995). Czaplewski & Cartelle (1998) describe Quaternary fossils of this species from Minas Gerais, São Paulo and Bahía, Brazil.

Carter & Dolan (1978) disputed the designation of Mexico as the type locality and claimed that the type specimen actually came from Santa Catarina, Brazil. However Peters (1856) clearly states that the specimen is from Mexico and Medellín (1989) claims that the type specimen is ZMB 10058 in the Zoologisches Museum der Humboldt Universität zu Berlin, which consists of a clean skull and skeleton with body parts in alcohol (Gardner 2007).

Traditionally three subspecies have been recognised, that present in Paraguay is *C.a.australis* Thomas 1905 (Type Locality Concepción, Paraguay). Supposedly this subspecies is distinguished by its extensive woolly grey pelage which covers the wing and tail membranes reaching the elbows and knees, a

small white spot on the wing tips and a woolly patch on the metacarpal of the thumb. Paraguayan specimens examined by Myers & Wetzel (1983) shared these characteristics. However given the wide geographic range of the species and the relatively small number of specimens available for comparison, many modern authors prefer to consider the species as monotypic pending a thorough revision (López-González 2005, Gardner 2007). Synonyms adapted from Medellín (1989), Gardner (2007) and López-González (2005).

Vampyrus auritus W. Peters 1856:305. Type locality "Mexico et Guyana". Restricted to Mexico by Peters (1856)

[*Vampyrus* (]*Chrotopterus*[)] *auritus* W. Peters 1865:505. Name combination.

Chrotopterus auritus Hensel 1872:20. First use of current name.

[*Vampyrus* (*Chrotopterus*)] *auritus* Trouessart 1897:153. Name combination.

ENGLISH COMMON NAMES: Woolly False Vampire (Sazima 1978), Woolly False Vampire Bat (Medellín 1989), Peters´s Woolly False Vampire Bat (Eisenberg & Redford 1999, Nowak 1991), Peters´ False Vampire Bat (Rick 1968), Great Woolly Bat (Gardner 2007), Big-eared Wooly (sic) Bat (IUCN 2008), Big-eared Woolly Bat (Wilson & Cole 2000).

SPANISH COMMON NAMES: Falso vampiro lanudo (Emmons 1999), Falso vampiro orejón (Redford & Eisenberg 1992, Chebez 1996), Falso vampiro orejas largas (Massoia et al 2006), Gran murciélago carnívoro (Chebez 1996), Murciélago carnívoro (Massoia et al 2006), Murciélago carnicero (Massoia et al 2006), Murciélago gigante (Chebez 1996), Murciélago orejudo (Chebez 1996), Murciélago orejudo mayor (Chebez 1996), Murciélago lanudo orejón (Aguirre 2007).

GUARANÍ COMMON NAMES: Mbopí-guasu (Chebez 1996), Mbopí-guazú (Massoia et al 2006).

DESCRIPTION: This is one of the largest bats in Paraguay with exceptionally long, round-tipped ears that are well-separated on the head. Ears hairy on the posterior part of the inner margin. Tragus small, elongated and pointed. The nose leaf is long, broad and blunt with a thick rib and well-developed lower element that borders the nostrils. Snout long and narrow. Vibrissae are scarce and warts are present at the bases. Lower lip with two thickened areas forming a V-shaped groove. Lips, nose leaf and ears pale brownish-pink in colour. Eyes rounded, black and beady. Pelage thick, woolly and greyish, being slightly shorter and paler ventrally than dorsally where it is c12mm long. Forearm heavily furred on both sides for at least two-thirds of total length. Thumb long and with strongly curved claws, it being furred for the basal half. Propatagium dark brown, well-developed and furred to almost the elbow. Terminal phalanx of the third digit whitened and surrounding membrane lightened for about 1.5cm at the tip. First phalanx of middle finger >50% of metacarpal length and subequal to the second phalanx. The uropatagium is wide, long and completely encloses the short tail, which may on occasion appear to be completely absent. Calcar slightly shorter than foot. Males have a glandular structure on the foreneck that is absent in females. (Peters 1856, Medellín 1989, Nowak 1991, Anderson 1997).

CRANIAL CHARACTERISTICS: Skull robust with wide rostrum, close to *Phyllostomus* but less angular. Rostrum and interorbital region subcylindrical. Paroccipital expansion small but obvious. Braincase elongate and expanded with prominent sagittal and lamboidal crests. Wide, strong zygomatic arches. Auditory bullae small covering less than half the cochlea and with diameter almost twice the height at the inner edge. Lower mandible robust. (Miller 1907, Medellín 1989).

Taddei (1975) gives the following measurements for 7 unsexed specimens from northeast Brazil: *Greatest Skull Length* 35.91mm (+/- 0.24mm); *Condylobasal Length* 31.57mm (+/- 0.24mm); *Condylocaninal Length* 31.03mm (+/- 0.22mm); *Basal Skull Length* 26.57mm (+/- 0.18mm); *Length of Palate* 15.37mm (+/- 0.12mm); *Length of Mandible* 24.37mm (+/- 0.13mm); *Width Across Upper Canines* 7.76mm (+/- 0.04mm); *Width Across Upper Molars* 12.27mm (+/- 0.09mm); *Postorbital Width* 6.27mm (+/- 0.10mm); *Transverse Zygomatic Width* 19.51mm (+/- 0.25mm); *Width of Braincase* 13.97mm (+/- 0.15mm); *Mastoid Width* 17.63mm (+/- 0.26mm); *Height of Braincase* 13.94mm (+/- 0.19mm).

The following measurements are based on a series of unsexed Paraguayan specimens (n=11) published in López-González (2005): *Greatest Skull Length* 36.1mm (+/- 0.74mm); *Condylobasal Length* 31.1mm (+/- 0.68mm); *Transverse Zygomatic Width* 19.2mm (+/- 0.74mm); *Mastoid Width* 17.5mm (+/- 0.55mm); *Interorbital Constriction* 6.1mm (+/- 0.18mm); *Width Across Upper Molars* 11.9mm (+/- 0.26mm); *Width Across Upper Canines* 7.1mm (+/- 0.29mm).

Dias et al (2002) give the following measurements for 2 males from São Paulo, Brazil: *Greatest Length of Skull* 36.8-37.5mm; *Condylobasal Length* 32.4-33.2mm; *Basal Length* 28.8-30mm; *Width Across Molars* 12-13mm; *Mandibular Length* 25.3-25.6mm; *Width Across Canines* 8.5-8.7mm; *Postorbital Constriction* 6-6.4mm; *Zygomatic Width* 19.5-20mm; *Width of Braincase* 13.7-14mm; *Mastoid Length* 17.5-18.3mm.

Lemke et al (1982) give the following measurements for a male (IND 2215) from Colombia, ssp *guianae*: *Greatest Skull Length* 35.4mm; *Transverse Zygomatic Width* 18.6mm; *Interorbital Constriction* 6.3mm; *Depth of Braincase* 15.2mm; *Width Across Upper Canines* 7.9mm; *Width Across Upper Molars* 11.7mm.

DENTAL CHARACTERISTICS: I2/1 C1/1 P 2/3 M 3/3 = 32. Upper incisors similar to *Phyllostomus* but inner pair lower and less projecting. Upper canines indistinctly grooved on front surface. First upper premolar minute and displaced on labial side, being so low that its short cusp barely exceeds the cingulum of the canine. Upper molars robust with W-shaped lophs and prominent hypocones and protocones. Paracone and metacone of upper molars close to each other, mesostyle and its commissures notably reduced so that W-pattern is distorted by the lengthening of the posterior limb and shortening of the two median limbs.

The presence of only a single pair of lower incisors is diagnostic when compared to species of a similar size. Lower canines protrude beyond lower incisors giving protognathous state. Only first and third lower premolars are well-developed. Lower molars with cusps unmodified but hypoconid and entoconid are lower than in *Phyllostomus*. Paraconid and metaconid of m1 are near to protoconid and indistinctly separated from it. (Miller 1907, Medellín 1989).

The following measurements are based on an unsexed series of Paraguayan specimens (n=11) published in López-González (2005): *Upper Tooth Row* 12.5mm (+/- 0.28mm); *Lower Tooth Row* 14.5mm (+/- 0.34mm). Taddei (1975) gives the following measurements for 7 unsexed specimens from northeast Brazil: *Upper Tooth Row* 13.11mm (+/- 0.07mm); *Lower Tooth Row* 15.06mm (+/- 0.05mm). Dias et al (2002) give the following measurements for 2 males from São Paulo, Brazil: *Upper Tooth Row* 14-14.1mm; *Lower Tooth Row* 14.5-16.1mm.

Lemke et al (1982) give the following measurements for a male (IND 2215) from Colombia, ssp *guianae*: *Length of Upper Tooth Row* 13.3mm; *Length of Lower Tooth Row* 15mm.

GENETIC CHARACTERISTICS: 2n=28. FN=52. (Medellín 1989). The X-chromosome is submetacentric and the Y-chromosome is acrocentric (Baker 1973). The standard karyotype shows a close relationship to bats of the genera *Tonatia* and *Lophostoma*. Brazilian specimens showed a conspicuous constriction close to the centromere on the long arm of the largest chromosome (Varella-García et al 1989).

EXTERNAL MEASUREMENTS: One of the largest Paraguayan bats.

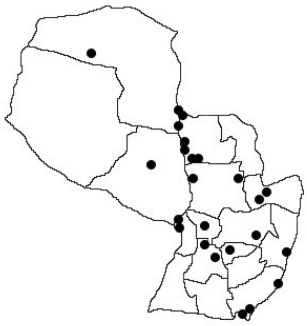
Taddei (1975) gives the following measurements for 6 adults from northeast Brazil: **HB:** 106.42mm (+/- 1.21mm); **FT** 19.92mm (+/- 0.15mm); **FA** 83.17mm (+/- 0.76mm); **EA** 44.67mm (+/- 0.96mm); *Height of tragus* 11.33mm (+/- 0.10mm); *Third Metacarpal* 61.08mm (+/- 0.64mm); *First Phalange of Third Digit* 33.00mm (+/- 0.45mm); *Second Phalange of Third Digit* 36.75mm (+/- 0.42mm); *Third Phalange of Third Digit* 21.75mm (+/- 0.34mm); *Fourth Metacarpal* 64.83mm (+/- 0.76mm); *First Phalange of Fourth Digit* 26.08mm (+/- 0.49mm); *Second Phalange of Fourth Digit* 25.83mm (+/- 0.28mm); *Fifth Metacarpal* 69.50mm (+/- 1.10mm); *First Phalange of Fifth Digit* 25.67mm (+/- 0.31mm); *Second Phalange of Fifth Digit* 23.50mm (+/- 0.18mm); *Tibia* 37.75mm (+/- 0.59mm); *Calcar* 25.00mm (+/- 0.55mm). Dias et al (2002) give the following measurements for **FA** 2 males from São Paulo, Brazil: 84-84.4mm.

The following measurements are based on a series of unsexed Paraguayan specimens (n=11) published in López-González (2005): **TL** 139.7mm (+/- 27.65mm); **TA** 37.3mm (+/- 17.41mm); **FT** 24.2mm (+/- 1.86mm); **FA** 80mm (+/- 3.61mm); **EA** 48.3mm (+/- 2.12mm); *Length of Third Digit* 61.3mm (+/- 1.95mm); **WT** 84.6g (+/- 7.98g). Podtiaguin (1944) states that females are slightly larger than males giving the following range measurements for males (n=7) and females (n=3) from Paraguay: **HB:** male 98-105mm female 112-113mm; **FA:** male 76-81mm, female 80-81mm; *Thumb* male 3-5mm female 5mm; *First phalange* male 30-32mm female 31-32mm; *Second phalange* male 34-37mm female 37-38mm; *Third phalange* male 18-24mm female 20mm.

Lemke et al (1982) give the following measurements for a male (IND 2215) from Colombia, ssp *guianae*: **TL** 145mm; **TA** 13mm; **FT** 22mm; **FA** 45mm; **EA** 45mm; *Tragus* 11mm; *Calcar* 20mm; *Noseleaf* 16mm.

SIMILAR SPECIES: This species can be easily identified on the basis of its large size (it is one of the largest bats in Paraguay), long, woolly pelage and extremely long ears. Only *Phyllostomus hastatus* approaches it in size, but that species has dense, short, velvety pelage and much shorter ears (c28mm in *P.hastatus* compared with c48.3mm in *C.auritus*). Note also that this species has only a single pair of lower incisors, other Paraguayan bats of similar size and aspect have two pairs.

DISTRIBUTION: Widespread throughout the Neotropics from Chiapas, Oaxaca, Quinatana Roo, Tabasco and Yucatan in Mexico south to northern Argentina. The species is distributed predominately east of the Andes, with a circum-Amazonian range and occurs in every Neotropical country except Chile and Uruguay. The species is generally considered monotypic (López-González 2005, Gardner 2007) though three subspecies are sometimes recognised. *C.a.auritus* Peters 1856, is found in Central America and northwestern Colombia; *C.a.guianae* Thomas 1905, occurs in northern South America from eastern Colombia, Venezuela, the Guianas, south to north-eastern Peru and northern Brazil; *C.a.australis* Thomas 1905, is found in the remainder of the range south through much of Bolivia and Paraguay to northern Argentina and Brazil south to central Rio Grande do Sul.



In Argentina it has been reported from the Provinces of Salta, Jujuy, Tucumán, Formosa, Chaco, Corrientes and Misiones (Barquez et al 1993). In Bolivia the species has been recorded in Departamentos Beni, Santa Cruz and western La Paz, but is also likely present in Pando, Cochabamba, Chuquisiaca and Tarija (Aguirre 2007). In Brazil the species is widely distributed, having been been recorded in the following states: Acre, Amazonas, Amapá, Bahía, Distrito Federal, Espirito Santo, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Pará, Pernambuco, Paraiba, Paraná, Rio de Janeiro, Rio Grande so Sul, Santa Catarina and São Paulo (dos Reis et al 2007).

In Paraguay specimens are known from almost all Departamentos except Boquerón, Ñeembucú, Misiones, Amambay and Caaguazú, however the species is principally distributed in the eastern region with only a scattering of records in the Chaco, the majority close to the banks of the Rio Paraguay (López-González 2005).

HABITAT: Typically a species of humid forested areas, being found at low density in the Atlantic Forest of eastern Paraguay. However there is a specimen from the Dry Chaco at Cerro León, Departamento Boquerón which was taken in low thorny woodland and another from palm savanna in the Humid Chaco site of Fortín Orihuela, Departamento Presidente Hayes which suggest that the species may undertake movements and make use of seasonally-productive habitats, at least during some parts of the year (López-González 2005). The majority of specimens are collected close to water, frequently along forested streams or trails, but also in thick, secondary scrub. The species typically occurs where bat species-richness is high. (Medellín 1989). Podtiaguin (1944) describes the preferred habitat of Paraguayan specimens as forest edge close to water and cultivated fields. A single individual was seen flying over an urbanised area close to the Rio Paraná during the late afternoon in October 2004 (P.Smith pers. obs.).

ALIMENTATION: This large bat is at least partly carnivorous taking mainly vertebrate prey supplemented with large insects. Large prey is typically consumed close to the place of capture whereas smaller prey is carried to the roost for consumption. The species was considered a carnivore by Kalko (1996) but as an omnivore by Bernard (2002).

Foraging Behaviour and Diet Prey items range in mass from 10-35g, with a maximum of 70g. Mammalian prey in Chiapas, Mexico accounted for 79% of the vertebrate prey and 68% of the total prey items taken. In total vertebrates accounted for 86% of the prey items. (Medellín 1988, Medellín 1989). Ruschi (1953) provided details of haematophagous feeding in this species as well as a suggestion of frugivory, though there have been no further reports of such behaviours and they were placed in doubt by later authors. The foraging area of a young female in Costa Rica was shown to cover an area of 4ha adjacent to its roost (A.Brooke in litt in Medellín 1989). Delpietro et al (1992) noted that of three individuals captured (two males and a lactating female), only the female had fed and suggested that a group

living system in which preference is given to reproductive females at feeding time may exist as in *Desmodus rotundus*.

There has been some suggestion that there is resource partitioning with the largely sympatric, predatory *Vampyressa spectrum* with that species concentrating largely on non-passerine birds and bats, and this species preferring passerines and rodents. A male taken in Venezuela had recently consumed a large arboreal gecko *Thecadactylus rapicaudus* (Tuttle 1967) an arboreal species which can reach 15cm in size and is nocturnal in behaviour. Sazima (1978) found bone fragments of an anuran "probably a hylid tree-frog" in the stomach of a young male taken in Sao Paulo State, Brazil. Bird species recorded in the diet across the range include antshrikes *Thamnophilus sp.,* ground-doves *Columbina talpacoti,* bush-tanagers *Chlorospingus ophthalmicus,* black-tyrants *Knipolegus cabanisi* and wood-warblers *Dendroica* sp. Mammal prey include mouse-opossums ex-*Marmosa,* shrews *Sorex* sp., mice (*Heteromys, Oligoryzomys, Reithrodontomys, Peromyscus, Ototylomys, Nyctomys* etc) and tuco-tucos *Ctenomys*. Typically only large insects such as Coleoptera (*Cerambycidae*, *Scarabaeidae*) and Lepidoptera (*Sphingidae*) are taken. In the Yacyreta area of Paraguay the species has been observed feeding on fruits of *Calophyllum brasiliense* and *Rheedia brasiliensis* (Massoia et al 2006). Podtiaguin (1944) describes Paraguayan individuals as feeding noisily on mangos and discarding the fibres. Bernard (2002) lists the plant *Vismia* sp and Arachnida in the diet in central Amazonian Brail.

Delpietro et al (1992) noted that individuals observed in Provincia Corrientes, Argentina showed no interest in bats captured in mist nets as prey items. There is a record of *Glossophaga soricina* in the wild in Brazil (Acosta y Lara 1951), though several authors have fed small bats to captive individuals. Noquiera et al (2006) documented the predation of a *Carollia perspicillata* by a female individual in Rio de Janeiro State, Brazil - the bat having been apparently captured and half-eaten before hitting a mist net.

Pine & Ruschi (1976) note a record of the species attacking a cow in Espirito Santo, Brazil, presumably to feed on blood and Bauer (1957) even went so far as to imply that this species may be responsible for rabies transmission amongst cattle in areas where Desmodontids do not occur. More recently such records of sanguinivorous feeding in this species have been treated with scepticism, but records of rabid Phyllostomines that do not otherwise typically feed on blood attacking and infecting large mammals have been documented under captive conditions.

Diet in Captivity Prey of captive individuals is consumed from the head down, victims being surrounded by the wing membranes and held firm by the thumbs. Bats and mice are killed by bites to the throat or nape and birds are dispatched with bites to the top of the head. Hard bony items such as beaks, rostra, limbs and long feathers are discarded as are occasionally the viscera, and though faeces contain mainly hair (typically <5mm long), long guard hairs are apparently not consumed. During consumption prey may be held in the mouth or supported against the inner surface of one folded wing. (Medellín 1988).

Medellín (1988) noted that live prey offered to a captive individual would be followed by constant reorientation of the ears and nose leaf when it was moving, but interest would be lost when if they became quiet and reigniting only when it made a sound. Prey was taken only when it approached the bat and it was not actively pursued. The process of prey consumption lasted from 1 to 20hrs in captivity (Medellín 1988, Noguiera et al 2006).

A captive specimen refused fruit that was offered but readily consumed vertebrates and was maintained on a diet of raw beef, House Sparrows *Passer domesticus,* bats and lab rats and mice (Peracchi & Alburquerque 1976). From their observations of this captive individual they suggested that the hunting technique may involve visual and echolocation searches from a temporary roost. Constantine (1966) reported that a male specimen captured in Mexico and kept in captivity ate mice and other bats, and "enthusiastically grasped gloved fingers which it proceeded to chew quite effectively in the same manner (..as it dispatched its prey)".

REPRODUCTIVE BIOLOGY: Data on breeding suggests that the cycle is monestrous with dates varying by latitude.

Seasonality Podtiaguin (1944) states that the species is usually seen alone in Paraguay but during December pairs or small groups may form, speculating that this is related to breeding activity. A female with a small suckling young was killed on a mango tree on 20 December 1938 at Colonia Elisa near San Antonio (Podtiaguin 1944).

Argentina Delpietro et al (1992) captured a lactating female on 21 December 1984 in Provincia Corrientes, Argentina. Barquez (1986) noted pregnant females in October and males showing signs of reproductive

activity in November in Provincia Salta. Pregnant females and males with scrotal testes have been found in July.

Brazil In Sao Paulo state female reproductive activity appears to be confined to the second half of the year (Taddei 1976).

Courtship Presumably describing courtship behaviour Podtiaguin (1944) describes males as pursuing females, launching themselves at them and falling to the floor where they tumble around "in a thousand ways". However it is not made clear how individuals engaged in such behaviours were sexed.

Pregnancy A female captured in Sao Paulo state and kept in isolation gave birth after 99 days (Taddei 1976). As with other members of the family they give birth to a single young.

BEHAVIOUR: ***Activity Levels*** Crespo (1982) noted that individuals became active after 11pm in PN Iguazú, Argentina though Podtiaguin (1944) states that activity begins at dusk in Paraguay. Flight is slow, making them difficult to catch in mist nets as they are able to take necessary evasive action, however they have been caught in dense thickets at a height of 1 to 2m (Redford & Eisenberg 1992).

Flight Pattern Wing-loading value is high among the Phyllostomids at 18.81 N/m^2 and is second only to *Phyllostomus* in the family. The basal metabolic rate is high and body temperatures do not vary widely when subjected to varying environmental temperatures. Delpietro et al (1992) observed a group of four individuals flying together on several occasions along a forest trail at a height of c3m in Provincia Corrientes, Argentina but they were not seen to utilise nearby open habitat. One of these individuals when captured in a mist net began to vocalise loudly attracting the other members of the group and resulting in the capture of a second individual. The original bat captured continued to vocalise even when removed from the net and placed in a bag which were then left close to the net resulting in the capture of a third individual, the remaining bat having departed. On another occasion four of five bats in a group were captured under similar circumstances, consisting of three adult males and a lactating adult female. They concluded that a dominance hierarchy may operate within groups and that groups may exist to improve hunting success. Podtiaguin (1944) however describes individuals feeding over a corn field and flying rapidly, though noting that the flight is slow and straight when inside the forest, retracing the same path.

Roosts Roosts are located in crevices or caves, including tree holes (Medellín 1988), ruins of buildings (Rick 1968), hollow termite mounds and mines and no correlation exists between preferential roost site and habitat type (Medellín 1989). Typically roosts are monospecific, but occasionally are shared with other species including *Desmodus rotundus* (Venezuela, Brazil, Argentina, Costa Rica), *Glossophaga soricina* (Brazil), *Lophostoma brasiliense* (Mexico), *Phyllostomus hastatus* (Venezuela) and *Peropteryx macrotis* (Venezuela). Colonies may contain between 1 and 7 individuals (Medellín 1988), with 3 to 5 the typical colony size (Sazima 1978) and roost site may be changed frequently (Medellín 1988). Relative humidity within Brazilian roosts was found to be between 77-93% with a temperature of 14-22°C (McNab 1969).

Mortality Massoia et al (2006) list *Tyto alba* as a predator of this species. Massoia et al (2006) list two cases of roadkill in this species from Departamento Misiones at Santa Pipó in 1984, and in PN Iguazú in May 1994.

Parasites Presley (2005) found high parasite loads on this species in Paraguay with 151 parasites on 3 specimens of this bat. High abundances may account for how a streblid (*Strebla chrotopteri*) and trombiculid (*Trombicula* sp.) that infest only this relatively uncommon host species persist through ecological time. Such high infestation rates reduce the chance of local extinction of a parasite, which may be an important if the only host is a rare, long-lived species. Dick & Gettinger (2005) also found *Strebla chrotopteri* on this species in Paraguay with 2 of 4 specimens infected with 15 parasites.

Parasites include two Streblid flies *Strebla wiedemanni* and *Trichobius dugesioides;* a red mite *Hooperella vesperuginis;* a Nycteribiid fly *Basilia ortizi* and a tick *Ornithodoros brodyi.* The Nycteribiid fly *Basilia hughscotti* and the Diplostomid trematode *Neodiplostomum vaucheri* are known only from this species. (Medellín 1989).

Longevity This species has been maintained in captivity for over a year (Peracchi & Alburquerque 1976). A male captured by Delpietro et al (1992) was at least 5 years old, having been marked as an adult in 1984 and recaptured in 1988.

VOCALISATIONS: As with other foliage-gleaning bats the echolocation is of short duration (<2msec), low amplitude and high frequency with multiple harmonics (Medellín 1989).

HUMAN IMPACT: Human impact likely negligible.

CONSERVATION STATUS: Globally considered to be of Least Concern by the IUCN, see http://www.iucnredlist.org/search/details.php/14829/all for the latest assessment of the species. Considered potentially vulnerable in Paraguay by López-Gonzalez (2005) though no further information was provided and the species occurs in several protected areas. As a large, predacious species this bat occupies a place near the top of the food chain and occurs at naturally low density. The alarming destruction of the Atlantic Forest habitat that this species utilises has undoubtedly had serious effects on the population of this species in Paraguay and its low reproductive rate hampers the species ability to recover rapidly from population declines. Medellín (1989) states that the species probably depends on primary forest with sufficient roost sites. Following extensive sampling in Paraguay, Willig et al (2000) found this species to account for 0.42% of all bats caught in the Humid Chaco region (n=3989).

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FIGURE 2 - **Woolly False Vampire** *Chrotopterus auritus.*
Adult (©Marco Mello www.casadosmorcegos.org).

FIGURES 3-8 - Skull (©Philip Myers/Animal Diversity Web http://animaldiversity.ummz.umich.edu).