A GUIDE TO THE IDENTIFICATION OF THE BATS OF THE BAHAMAS

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ABSTRACT

A key to 16 species of living and fossil bats recorded in the Bahamas is supplemented with illustrations and descriptions of external morphology.

INTRODUCTION

Several recent keys to North American and Antillean bats include species that occur in the Bahamas (e.g. Bakeret al., 1984; Hall, 1981 ; Pine, 1980), but none is exclusively Bahaman in coverage or complete in coverage of "Bahaman species." Also, some keys are based in part on cranial features difficult to examine in the field. The present paper is a simplified. guide to the identification of adults of the 16 species of bats recorded in the Bahama archipelago, including the Turks and Caicos Islands (Fig. 1). All the fossils mentioned probably are of Pleistocene age (see Olson, 1982).

METHODS

The key is based on external characters (Fig. 2) and requires no equipment other than a millimeter rule; a hand lens is helpful in some cases. Measurements (in mm) are taken as follows: parts of the limbs as the greatest distance from joint to joint; head and body from tip of snout to base of tail or posterior end of body, with specimen flat against rule; noseleaf as the distance from the upper surface of the snout to tip of flap; tragus from base to tip; ear from notch to tip; tail from where it joins the body to its tip. In the cases of *Macrotus, Monophyllus, Erophylla, Natalus, Eptesicus,* and *Tadarida,* I measured Bahaman specimens only; in the other cases, measurements are supplemented with specimens from several different sources. Numerals in parentheses following names in the key indicate sequence in Figure 3 (illustrations based on photographs and preserved specimens) and in the annotated list of species. Scientific names are from Hall (1981) with the following exceptions in Baker et al. (1984): *Mormoops blainvillii* is the accepted name for *Aello cuvieri,* and *Lasiurus borealis* includes *L. minor*. See Buden (1986) for additional notes on status and distribution.

FIELD KEY

1. Tail visible (but may be partially or completely imbedded in interfemoral membrane) 3
   Tail not visible (in *Brachyphylla* it is so small as to be virtually concealed in base of interfemoral membrane) 2

2. Noseleaf evident as a conspicuous flap extending upward from nose . . . . . *Artibeus jamaicensis* (8)
   Noseleaf not a conspicuous flap . . . . . *Brachyphylla cavernarum* (9)

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3. Tip of tail reaching or extending beyond margin of interfemoral membrane . . . 7
Tip of tail not reaching margin of interfemoral membrane 4

4. Forearm longer than 65 mm . . . *Noctilio leporinus* (1)
Forearm shorter than 65 mm 5

5. Noseleaf present . . . . . *Glossophaga soricina* (6)
Noseleaf absent (a wart-like tubercle present on snout in *Pteronotus*) 6

6. Lower lip and chin with three tiers of leaf-like folds (the uppermost small, square-shaped, and warty, the second large and with a deep median slit) . . . . . *Mormoops blainvillii* (3)
Lower lip and chin not as above (the lip a broad, flat, warty plate overlying a smaller chin plate) *Pteronotus parnellii* (2)

7. Upper lip with series of deep vertical grooves . . . . . *Tadarida brasiliensis* (16)
Upper lip without series of deep vertical grooves 8

8. Tail shorter than tibia . . 9
Tail longer than tibia. . . . 10

9. Free tip of noseleaf shorter than greatest distance across nostrils (from outer edge of one nostril to outer edge of other); forearm longer than 41 mm . . . . . *Erophylla sezekorni* (10)
Free tip of noseleaf longer than greatest distance across nostrils; forearm shorter than 41 mm. *Monophyllus redmani* (7)

10. Noseleaf present and conspicuous . . 11
Noseleaf absent 12

11. Noseleaf shorter than tragus . Macrotus . . . . . *waterhousii* (4)
Noseleaf longer than tragus . . . . . *Lonchorhina aurita* (5)

12. Fur on back dark brown or black and strongly washed with silver. . . . . *Lasionycteris noctivagans* (13)
Fur on back not colored as above; usually red, light to medium brown, or pale buff 13

13. Fur on back brick-red or rusty red; entire surface of interfemoral membrane furred . . . . . *Lasiurus borealis* (15)
Fur on back not red (usually brown or pale buff); entire surface of interfemoral membrane not furred 14

14. Forearm longer than 39 mm . . . . . *Eptesicus fuscus* (14)
Forearm shorter than 39 mm 15

15. Horizontal ridge below lower lip (at tip of jaw) present - gives appearance of a "second lower lip" . . . . . *Natalus . . . . . micropus* (11)
Horizontal ridge below lower lip absent. . . . . *Natalus lepidus* (12)

Annotated List of Species

Noctilio leporinus. --Large (forearm c. 70-92 mm, head and body usually greater than 100 mm); males average slightly larger than females. Orange or orange-brown to dull brown or gray above, paler below; a pale stripe along center of back. Hair short; flanks nearly naked. Feet very large (greater than 20 mm) and heavily clawed. Tail extends to about middle of interfemoral membrane — tip free on upper surface. Bulldog Bats (also known as Fishing Bats or Fisherman Bats) have an especially strong, musky odor. *Status:* Recorded once (5 specimens) on Great Inagua.

Pteronotus parnellii. --Medium-sized (forearm c. 50-55 mm, head and body c. 55-65 mm). Upper parts light to dark brown, grayish brown, or orange; under parts usually paler. A prominent wart-like tubercle on the snout; lower lip broad, shelf-like, warty, and subtended by a narrower chin-plate. Tail usually shorter than tibia, with tip free on upper surface of interfemoral membrane and not reaching margin of fully extended membrane. *Status:* Known in the Bahamas only as fossil material from New Providence.

Mormoops blainvillii. --Small to medium-sized (forearm c. 44-49 mm, head and body c. 48-58 mm). Upper parts light brown or reddish brown (pale phase) to dark brown (dark phase); under parts paler. Ears short and rounded. Lower lip and chin with three tiers of leaf-like folds —middle one largest and divided into right and left halves by a median slit. Tail longer than tibia, with tip free on upper surface of interfemoral membrane and not reaching margin of fully extended membrane. *Status:* Known in the

Bahamas only as fossils from New Providence and Little Exuma.

Macrotus waterhousii. --Medium-sized (forearm c. 47-55 mm, head and body c. 55-75 mm). Upper parts medium to dark brown, occasionally reddish brown or tawny (basal parts of hairs white); under parts paler, often washed with grayish white. Ears exceptionally long (over 25 mm and longer than tibia), rounded at tip and connected at base by a ridge of skin with a v-shaped notch. Noseleaf present. Tail longer than tibia, with tip extending slightly beyond margin of interfemoral membrane. *Status:* Widespread and common on the Great Bahama Bank, San Salvador, and in the southern Bahamas; unknown on the Little Bahama Bank.

Lonchrorhina aurita. --Medium-sized (forearm c. 45-50 mm, head and body c. 54-67 mm). Upper parts medium brown; under parts paler. Noseleaf lance-like and much longer than tragus. Tail longer than tibia, with tip reaching margin of interfemoral membrane. *Status:* One specimen supposedly collected in New Providence is the only record.

Glossophaga soricina. --Small (forearm c. 32-42 mm, head and body c. 49-64 mm). Upper parts medium to dark brown; under parts with same color but occasionally slightly paler. Snout long and slender; noseleaf present. Tail shorter than tibia, with tip papilla-Iike and barely protruding from interfemoral membrane, near middle of the upper surface. *Status:* A skull said to have been taken in the Bahamas is the only record.

Monophyllus redmani. --Small (forearm c. 35-40 mm, head and body c. 48-66 mm). Upper parts medium to dark brown, occasionally grayish brown or gray; under parts paler and usually with more gray. Snout long and slender; noseleaf present. Tail shorter than tibia but extending beyond margin of narrow interfemoral membrane for a distance about 1/2 its length. *Status:* Uncommon in the southern Bahamas; unknown north of Crooked Island.

Artibeus jamaicensis. --Large (forearm c. 50-65 mm, head and body c. 70-90 mm in ‘specimens from Bahamas and Greater Antilles). Upper parts brown, grayish brown or gray (basal parts of the hairs white or grayish white, at least on neck and shoulders); under parts paler. Snout short and robust; noseleaf conspicuous. Tail absent and interfemoral membrane narrow. *Status:* Uncommon to locally common in the southern Bahamas –Mayaguana is the northernmost record.

Brachyphylla cavernarum. --Large (forearm c. 50-65 mm, head and body c. 70-85 mm in specimens from Cuba, Hispaniola, and the Bahamas; those from Puerto Rico southward through Lesser Antilles average larger). Upper parts light or medium brown with reddish or yellowish hues (basal parts of hairs white or yellowish white); under parts paler. Noseleaf either vestigial or rudimentary and not forming a free flap. Tail present but extremely short and embedded in base of interfemoral membrane —more easily felt than seen. *Status:* Found only in one cave on Middle Caicos and as a fossil on New Providence.

Erophylla sezekorni. --Medium-sized (forearm c. 40-50 mm, head and body c. 60-75 mm). Upper parts usually yellowish brown or tawny, occasionally medium brown or grayish brown (basal parts of the hairs white); face frequently predominantly white; under parts pale buff or grayish buff. Snout long, but not especially thin or delicate; noseleaf short and stubby. Tail shorter than tibia but extends beyond margin of narrow interfemoral membrane. *Status:* Widespread and common.

Natalus micropus. --Small (forearm c. 31-35 mm, head and body c. 38-45 mm). Upper parts pale buff or pale yellowish brown (basal parts of hairs paler than tips); under parts pale buff. Small, hairy protuberance on upper surface of snout near tip superficially resembles a rudimentary nose leaf. Horizontal ridge of skin on chin has appearance of a “second lower lip” (though not so prominent as in illustration). Tail approximately as long as or distinctly longer than legs and reaching margin of interfemoral membrane. *Status:* Uncertain, found only on Great Abaco and San Salvador and as a fossil on Great Exuma.

Natalus lepidus. --Small (forearm c. 27-31 mm, head and body c. 30-40 mm). Fur pale buff to brown above and below (basal parts of hairs paler than tips). Tail approximately as long or longer than legs and reaching margin of interfemoral membrane. Distinguished from the very similar *N. micropus* mainly by: absence of a lip-like horizontal ridge on the chin, absence of a prominent hair-covered protuberance on the snout, and by smaller measurements (especially forearm). *Status:* Uncertain but probably locally common. Known in the Bahamas on five islands of the Great Bahama Bank Eleuthera, Cat, Great Exuma (fossil only), Little Exuma and Long.

Lasionycteris noctivagans. --Small to

medium-sized (forearm c. 37-45 mm, head and body c. 50-60 mm). Upper parts dark brown to nearly black, strongly washed with silver; under parts similar though more brown than black. Tail longer than tibia and reaching margin of interfemoral membrane, which is furred on basal half of upper surface. *Status:* Accidental, probably during migration; recorded once on Providenciales, Caicos Islands.

Eptesicus fuscus. --Small to medium-sized (forearm c. 42-50 mm, head and body c. 50-65 mm). Upper parts light brown to medium brown; under parts paler. Ears small (c. 14-18 mm); tragus short and straight (without lobes, notches, or other ornamentation). Tail about twice as long as tibia, with tip extending slightly beyond margin of interfemoral membrane. *Status:* Uncommon to locally common on the Great Bahama Bank, San Salvador, and in the southern Bahamas, but unknown on the Little Bahama Bank.

Lasiurus borealis. --Small (forearm c. 37-41 mm in three from the Bahamas and one each from Hispaniola and Puerto Rico, head and body c. 47-57 mm in specimens from Jamaica, Cuba and Continental North America). Upper parts brick-red or rusty red (tips of hairs occasionally frosted white); under parts usually paler. Tail longer than tibia and reaching the margin of interfemoral membrane, which is completely furred on upper surface (an alternative name for Iasiurines is hairy-tailed Bats). *Status:* Widespread but scarce; unrecorded on the Little Bahama Bank.

Tadarida brasiliensis. --Small (forearm c. 39-43 mm, head and body c. 50-60 mm). Upper parts brown or grayish brown; under parts paler (more tawny, less gray). Upper lip with a series of deep, vertical grooves. Toes with long, slender hairs. Tail much longer than tibia and extending well beyond margin of interfemoral membrane. Free-tailed bats have a strong, musty odor. *Status:* Locally common at least in the northern Bahamas; recorded from Little Abaco southward to the Crooked-Acklins Bank.

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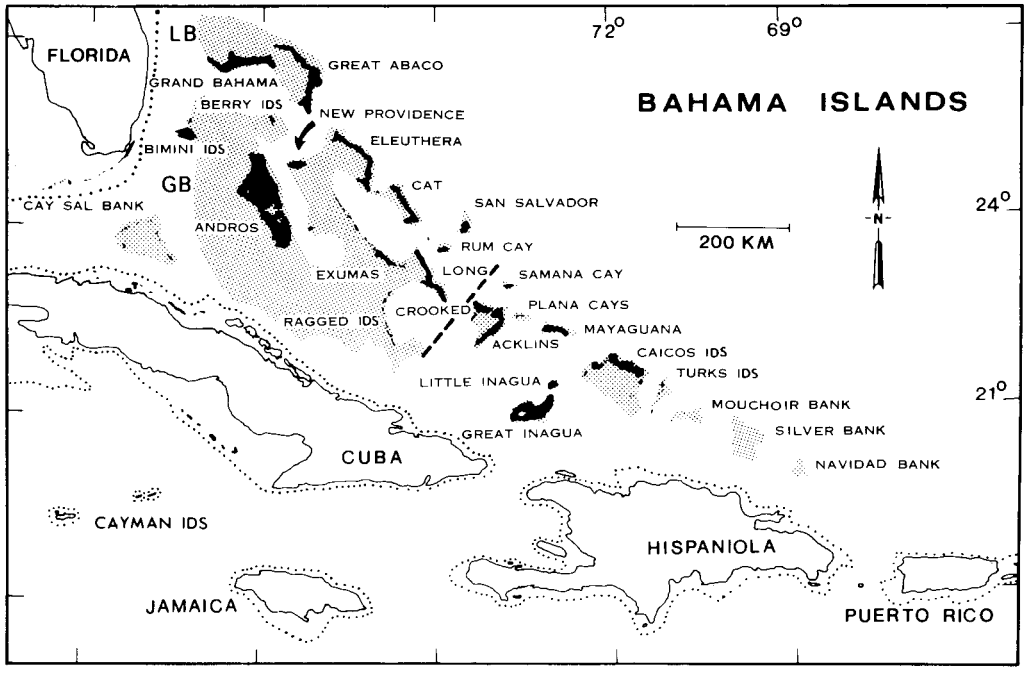

FIGURE 1. –Map of the Bahama Islands. Stippling denotes Bahama Banks and, along with dotted lines, the areas within the 100 fathom contour; LB = Little Bahama Bank, GB = Great Bahama Bank; broken line passes through the Crooked Island Passage and between the northern and the southern Bahamas.

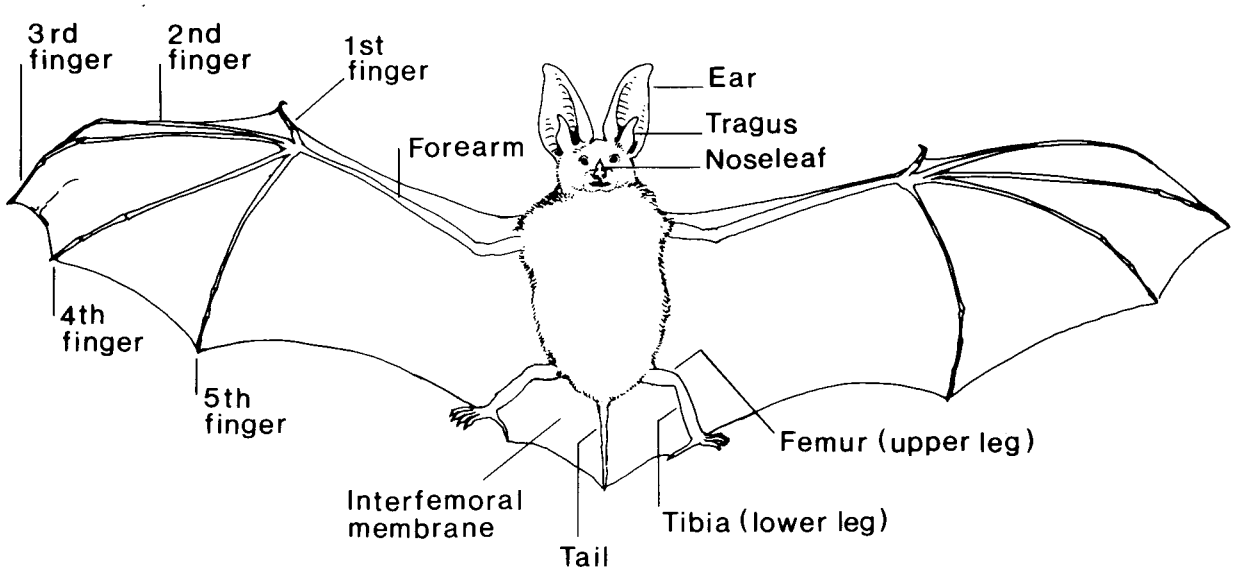

FIGURE 2. –Generalized diagram of a bat showing key characters mentioned in the text.

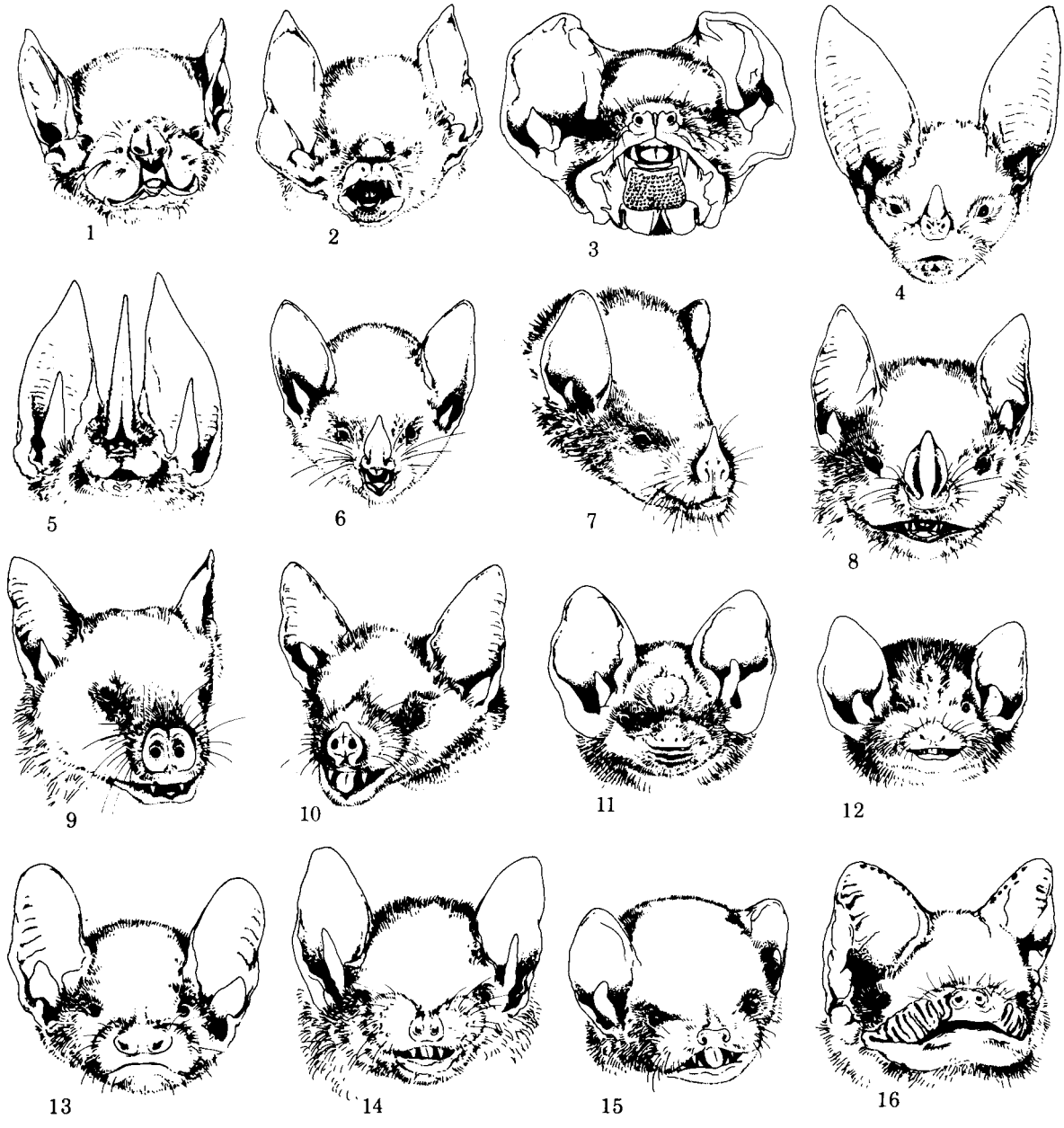

FIGURE 3. –Bats of the Bahamas (drawn by Sylvia Feder): 1. *Noctilio leporinus*. 2. *Pteronotus parnellii*. 3. *Mormoops blainvillii*. 4. *Macrotus waterhousii*. 5. *Lonchorhina aurita*. 6. *Glossophaga soricina*, 7. *Monophyllus redmani*. 8. *Artibeus jamaicensis*, 9. *Brachyphylla cavernarum*. 10. *Erophylla sezekorni*. 11. *Natalus micropus*. 12. *Natalus lepidus*, 13. *Lasionycteris noctivagans*. 14. *Eptesicus fuscus*. 15. *Lasiurus borealis* 16. *Tadarida brasiliensis*.