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Centurio senex.  By Jennifer L. Snow, J. Knox Jones, Jr., and Wm. David Webster

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**Centurio Gray, 1842**

*Centurio Gray*, 1842:259. Type species *Centurio senex*.

**Trichocorys Allen**, 1861:359. Type species *Centurio mexicarum*.

**Trichocorytes Gray**, 1866:118, an emendation.

**Trichocoryctes Trouessart**, 1897:164, a misspelling.

**CONTEXT AND CONTENT.** Order Chiroptera, Family Phyllostomidae, Subfamily Stenodermatinae. *Centurio* is a monotypic genus.

**Centurio senex Gray, 1842**

Wrinkle-faced Bat

*Centurio senex* Gray, 1842:259. Type locality fixed by Goodwin (1946:327) at Realejo, Nicaragua.

*Centurio flavogularis* Lichtenstein and Peters, 1854:335. Type locality erroneously listed as Cuba.

*Centurio mexicana* Saussure, 1860:381. Type locality warm regions of Mexico.

*Centurio mexicarum* Allen, 1861:359. Type locality Mirador, Veracruz.

*Centurio minor* Ward, 1891:750. Type locality Cerro de los Pájaros, Las Vegas, Veracruz.

**CONTEXT AND CONTENT.** Context same as for genus. Two subspecies are recognized (Paradiso, 1967):

- *C. s. senex* Gray, see above (other names above are synonyms).
- *C. s. greenhalli* Paradiso, 1967:601. Type locality Port of Spain, St. George Parish, Trinidad.

**DIAGNOSIS.** *Centurio senex* (Fig. 1) is a tailless, medium-sized bat, generally with drab brownish to yellowish-brown pelage. There is a small white patch over each shoulder, and a series of pale transverse striations on the wing membrane between the fourth and fifth digits and to a lesser extent between the fifth digit and the forearm. A true nose-leaf is absent and the face, which is broad and naked, is covered by convoluted dermal outgrowths. The skull is characterized by the position of the external nares, which are located directly above the roots of the upper incisors. *Centurio* can be distinguished cranially from all other stenoder-

matines in that the upper dental arcade is semicircular and the rostrum is much reduced (Jones and Carter, 1976).

**GENERAL CHARACTERS.** The pelage is variable in color, but generally yellowish-brown, paler ventrally; hairs of the dorsal are tricolored—dark brown basally, buffy medially, and yellowish-brown distally. Males, in addition to having more prominent dermal outgrowths on the face than females, possess furred chin folds that "enclose a skin mask which can be extended up and over the face" (Paradiso, 1967). Females have only rudimentary chin folds and lack the facial mask. The ears have a conspicuous flap of skin at the inner base and moderately long tragus. For a more extensive discussion of the facial characteristics, see Goodwin and Greenhall (1961) and Paradiso (1967).

The skull of *Centurio* (Fig. 2) was described by Goodwin and Greenhall (1961) as "short and broad, with a high, rather narrow braincase, moderately well-developed sagittal crest, virtually no rostrum, palate short and very wide . . . ." Miller (1907) noted that the auditory bullae are relatively small, covering less than half the cochlear surface.

*Centurio senex greenhalli* differs from *C. s. senex* in being somewhat larger, both externally and cranially, and in having a more domed braincase, better developed sagittal crest, and relatively shorter maxillary toothrow. Cranial measurements (Paradiso, 1967) of a series of *greenhalli* from Trinidad, followed by those of a series of *senex* from Panamá, are (mm): greatest length of skull, 18.6 (18.2 to 18.9), 18.0 (17.3 to 18.4); condylobasal length, 15.3 (15.3 to 15.8), 14.8 (14.4 to 15.1); zygomatic breadth, 15.7 (holotype only), 15.0 (14.4 to 15.3); interorbital breadth, 5.2 (5.1 to 5.6), 5.2 (4.9 to 5.4); breadth across upper molars, 11.1 (10.9 to 11.2), 10.8 (10.4 to 11.0); length of maxillary toothrow,

**Figure 1.** Male *Centurio senex* photographed on Trinidad by R. J. Baker.

**Figure 2.** Dorsal, ventral, and lateral views of skull, and lateral view of lower jaw (♀, TTU 24332) of *Centurio senex* from Hidalgo. Greatest length of skull is 18.7 mm.
FOSSIL RECORD. One cranium has been reported from subfossil owl pellets collected at Inferno, Tamaulipas (Koopman and Martin, 1959).

FORM. The hair of C. senex has a length of about 12 mm medially and has melanin granules located in the proximal and distal thirds of the filament (Benedict, 1957). Measurements and description of wing structure are in Smith and Starrett (1979). The dental formula is 2/2, c 1/1, p 2/2, m 3/3, total 28. A detailed description of the dentition was given by Miller (1907). The brain of this species (McDaniel, 1976) is externally similar to that of Ametriza and Stenoderma, and is characterized chiefly by antero-posterior compression.

Goodwin and Greenhall (1961) found the throat of C. senex to be extremely narrow (1.3 to 1.4 mm in diameter) and, based on observations of captive specimens, reported that the animals appeared to suck, rather than bite or lick, fruit pulp. The alimentary tract is modified in size, shape, and distribution of glands for consumption and temporary storage of large amounts of food, presumably resulting in increased digestive efficiency (Forman et al., 1979). Sperm morphology is unique in that the sperm head has a rounded nucleus and extremely pointed acrosome (Forman and Genoways, 1979).

Collectors have likened the flight pattern of Centurio to that of a large butterfly. Males emit a strong, musky odor from the chin area.

ONTOGENY AND REPRODUCTION. Scattered reports indicate that females probably are polyestrous or asynchronous (Wilson, 1979). Pregnant females have been taken in every month from January through August, except May. Lactating females have been collected in February, March, and August. March-born males from Nicaragua averaged larger in length of testes (5.6 mm) than a July-born individual (4.0 mm) (Jones et al., 1971).

ECOLOGY. Specimens of C. senex have been captured in a variety of habitats including deciduous forests (Watkins et al., 1972) and xeric to humid tropical forests (Handley, 1976), frequently in nets stretched over water. Individuals have been collected from sea level up to 4,700 ft in elevation. Jones et al. (1971) captured bats in Nicaragua that were hanging during daylight hours in small "cubicles" in a thick growth of vines.

Centurio senex is frugivorous, but little is known of the specific fruits upon which it subsists. Felten (1956) recorded an individual of this species circling a fig tree; Goodwin and Greenhall (1961) found yellow fruit pulp in the stomach of a bat from Trinidad; and Ramírez-Pulido and López-Forment (1979) netted specimens in Guerrero that were carrying fruits from an azúlillo tree in their mouths. Walker et al. (1964) reported that C. senex gen-
eraly feeds on soft mushy fruits and Gardner (1977) indicated that it may be an obligate frugivore.

*Centurio senex* has no known endoparasites (Ubelaker et al., 1977) and only one reported ectoparasite, *Basilia*, a wingless, hematophagous fly (Webb and Loomis, 1977). Goodwin and Greenhall (1961) found specimens taken in Trinidad to be negative in tests for rabies.

**GENETICS.** As shown in Fig. 4, the karyotype of *Centurio* (2N = 28, FN = 52) contains three pairs of metacentric, six pairs of submetacentric, and four pairs of subtelocentric chromosomes (Baker, 1967). Additionally, the X-chromosome is subtelocentric and the Y-chromosome is submetacentric (Baker and Hsu, 1970). Karyotypic data (Baker, 1973) indicate that *Centurio* is most closely related to *Sphaeronycteris* (2n = 28, FN = 52) and next to *Ametrida*, *Stenoderma*, and *Artiheus* (2n = 30–31, FN = 56).

**REMARKS.** There has been some confusion regarding the geographic origin of the type specimen of *C. senex* (see Paradiso, 1967, for discussion); Goodwin (1946) restricted the type locality to Realejo, Nicaragua. Paradiso (1967) suggested that an erroneous measurement listed by Dobson (1878) was the probable reason that *C. s. greenhalli* went unrecognized as a distinct subspecies until 1967.

*Centurio* is Latin, meaning division into hundreds, and *senex* (also Latin) refers to an old person. The name was chosen because the wrinkled face of this bat was likened to that of a “hundred-year-old man.” The subspecies *greenhalli* was named by Paradiso (1967) for Arthur M. Greenhall, who collected the holotype.

**LITERATURE CITED**


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