

Notes on the Occurrence of Morphological and Color Aberrations in Bats From Oklahoma, Missouri, and Mexico

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Polydactyly has been reported in *Tadarida brasiliensis* (3, 4), *Pipistrellus sublavus* (5), and *Eptesicus fuscus* (2). Polydactyly usually does not decrease survival unless it is associated with other abnormalities (2). A polydactylous male *Myotis velifer* was collected on 24 October 1986, in the Selman Cave system, Woodward Co., Oklahoma from a cluster of approximately 150 hibernating individuals. This is the first report of polydactyly in this species. The bat had two left pollexes and six toes on each hind foot (Fig. 1). The right wing was structurally normal. X-rays and dissection revealed that each pollex consisted of two phalanges with the extra thumb extended medially from near the joint of the main thumb and the first metacarpal. The supernumerary toes were determined to be third digits. Each articulated with an additional metatarsal which occluded somewhat medially with the middle cuneiform bones. The bat appeared normal in other respects and was reproductively active (epididymides distended).

The extent and types of morphological and color aberrations in bats is essentially unknown. Reports exist of pied, albino, and other unusually colored bats (1); however, few morphological variants have been documented, since badly malformed individuals probably die before reaching maturity (2) and thus are not observed during field studies.

Squared-ear mutations have been reported for *Myotis* occurring in Missouri and Costa Rica (6). Other ear mutations have not been reported. A male *T. brasiliensis* with abnormal ears was trapped at Alabaster Caverns, Woodward Co., Oklahoma, in May 1982. The ears were less than half normal length and lacked pigmentation along the dorsal rims. The pinkish coloration suggested fibrous hyperplasia which often develops at the scar site after severe frostbite of an appendage; however, the outline of each ear was smooth, regular, and had identical medi-

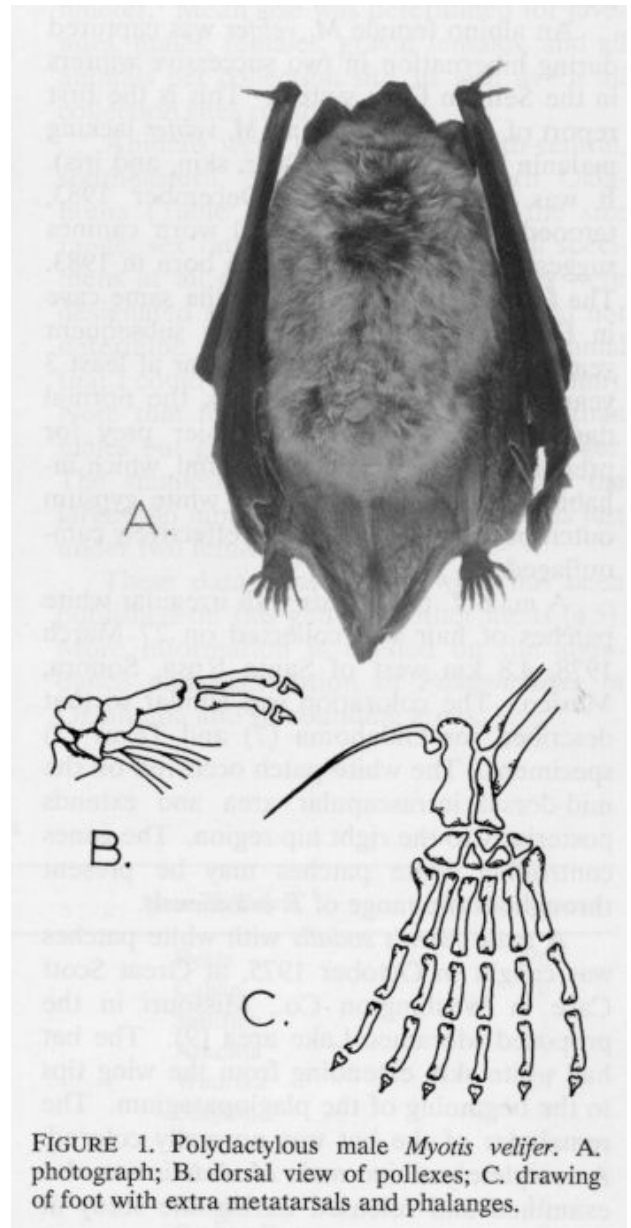


FIGURE 1. Polydactylous male *Myotis velifer*. A. photograph; B. dorsal view of pollexes; C. drawing of foot with extra metatarsals and phalanges.

ally projecting indentations at the same location. Unlike the ill-defined borders of a keloidal-frostbite scar, this deformity may have been congenital. The bat was one of about 1000 which were caught, examined, and released. The aberration did not seem to affect adversely the bat's ability to echolocate in leaving the cave roost (personal observation).

An albino female *M. velifer* was captured during hibernation in two successive winters in the Selman Cave system. This is the first report of a complete albino *M. velifer* lacking melanin pigment (e.g. in hair, skin, and iris). It was first captured in December 1983, tattooed, and released. Well worn canines suggested that it had not been born in 1983. The female was recaptured at the same cave in December 1984, but not in subsequent years. This bat had been alive for at least 3 years. Albino bats, which lack the normal dark coloration, might be easier prey for predators; however, this individual, which inhabited a region of extensive white gypsum outcrops, may still have been effectively camouflaged.

A male *T. brasiliensis* with irregular white patches of hair was collected on 27 March 1978, 4.8 km west of Santa Rosa, Sonora, Mexico. The coloration was similar to that described for Oklahoma (7) and Texas (8) specimens. The white patch occurred on the mid-dorsal intrascapular area and extends posteriorly to the right hip region. The genes controlling white patches may be present throughout the range of *T. brasiliensis*.

A male *Myotis sodalis* with white patches was caught in October 1975, at Great Scott Cave in Washington Co., Missouri in the proposed Meramec Lake area (9). The bat had white skin extending from the wing tips to the beginning of the plagiopatagium. The remainder of the bat was normally colored. A completely albino male *M. sodalis* was also examined and released during the study at the same cave.

Morphologically aberrant bats do occur. However, the kinds of aberrations and their frequency of occurrence are poorly known. The continued documentation of these atypical forms should improve our understanding of the extent and impact aberrations have in natural populations.

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REFERENCES

1. W.B. Quay, in: W.A. Wimsatt (Ed.), *Biology of Bats*, Academic Press, Inc., New York, NY, 1970, pp. 37-42.
2. T.H. Kunz and J. Chase, *Can. J. Zool.* 61: 365-369 (1983).
3. C.B. Koford and P.H. Krutzsch, *J. Mammal.* 29:418 (1948).
4. C.F. Herreid, II, *J. Mammal.* 39: 581 (1958).
5. W.L. Jennings, *J. Mammal.* 39: 437-438 (1958).
6. R.K. Laval and M.L. Laval, *Missouri Dept. of Conservation Terrestrial Ser.* 8: 1-53 (1980).
7. B.P. Glass, *Am. Midl. Nat.* 52: 400-402 (1954).
8. C.F. Herreid, II, and R.B. Davis, *J. Mammal.* 41: 117-119 (1960).
9. R.K. Laval, R.L. Clawson, W. Caire, L. R. Wingate, and M. L. Laval, *An Evaluation of the Status of Myotiline Bats in the Proposed Meramec Park Lake and Union Lake Project Areas, Missouri*. U.S. Army Corps Engineers, St. Louis Dist., 1977.