

AGING BATS IN WINTER

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A method for separating young bats from old ones in winter has long been desired by bat banders studying survival and longevity. Recent observations on *Pipistrellus subflavus* have suggested that some young of the year can be recognized in hibernating populations in certain areas by examining epiphyses and pelt.

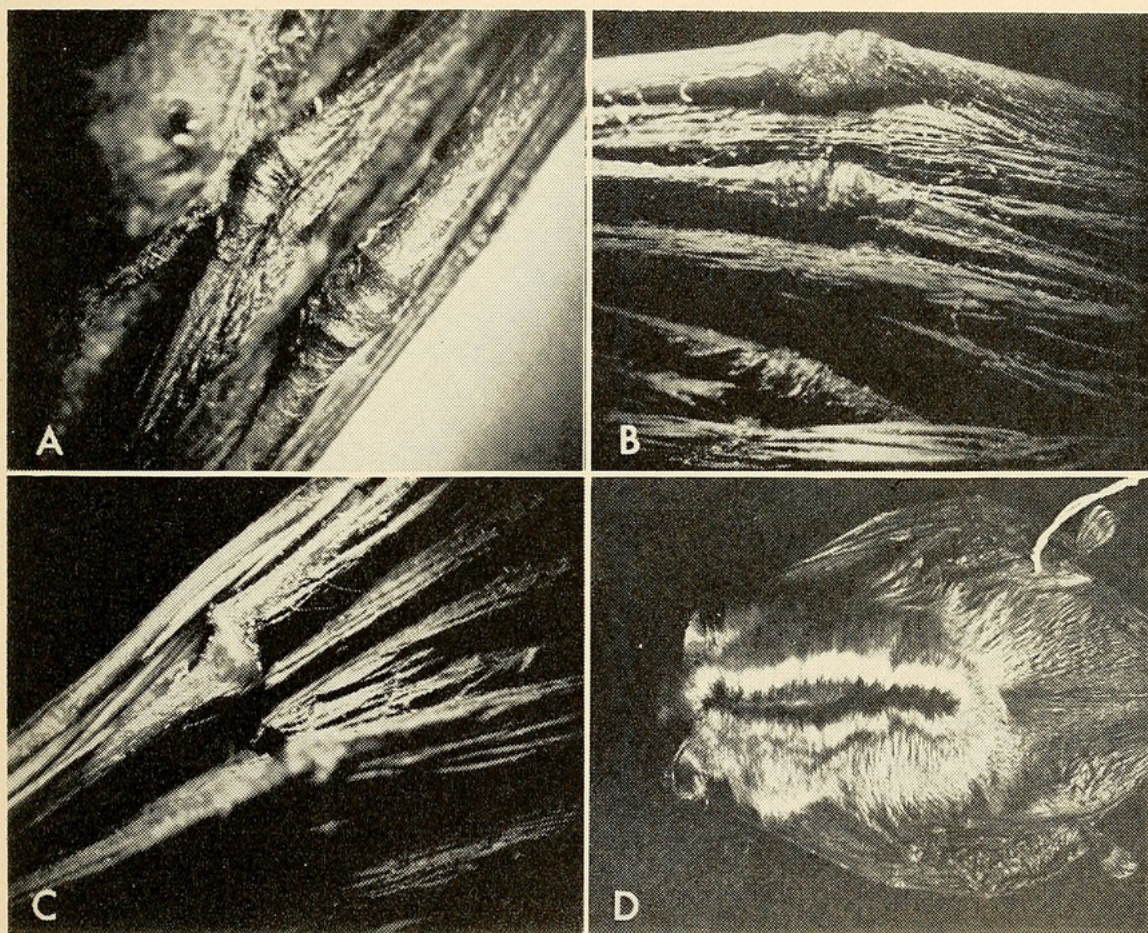
In those populations of *Pipistrellus subflavus* which winter in Vermont, Quebec and eastern Ontario young of the year can easily be separated from the older bats. The epiphyses of the young have not closed by the time they enter the caves for hibernation. Apparently no growth of the epiphyses takes place after the bats enter the caves, for young are as readily distinguished in April and May as in October. This is based upon examination of 33 study skins from the above areas. Farther south, in the caves of West Virginia and Kentucky, most young have closed epiphyses by the time they enter hibernation. A few individuals, however, are recognizable (Plate I B). This is also true of those wintering in southern Wisconsin and Minnesota.

Juvenile pipistrelles in West Virginia molt in the autumn. In the northeastern part of their range young pipistrelles go into hibernation before molting. Some of those taken from the caves of Vermont in the early winter have a juvenile pelage which is no different from that of young shot in West Virginia in August and September (e.g. Natl. Mus. nos. 296717 & 296718, from East Dorset, Bennington County, Vermont, Dec. 12, 1948). The juvenile pelage is recognizable in that it is darker, particularly the subterminal band of the hair, and the banding is not as distinctive as on the adults.

Pipistrelles wintering in Vermont are probably born in early July, and may be little over two months old when entering the caves for hibernation. At the other extreme are those pipistrelles which hibernate in the caves at Florida Caverns State Park in Jackson County, Florida. Among 14 skins examined from this population, young of the year could not be distinguished. The epiphyses are closed and the first molt has been completed in all individuals. These bats probably do not go into hibernation until late in the autumn.

Since the molt has not begun when the young pipistrelles of Vermont go into hibernation, and is completed before hibernation by

those in Florida, there should be an intermediate area in which some young have completed molting and some have not when taken from the caves in autumn. A series of 43 pipistrelles taken from the caves in Carter Caves State Park, Carter County, Kentucky, during the autumn and winter months was examined for signs of molt. Three individuals were found which apparently were in the process of molting when they entered the caves for hibernation. All of these were young of the year. One is of particular interest in that most of the juvenile pelage is still apparent, and the new fur can be seen coming in at the base of the old in the dorsoposterior region (Plate I D). The pelt in this region is unprime. That the bat was quite young when entering hibernation is evident from the epiphyses (Plate I B).



Photos by Luis de la Torre

PLATE I *Pipistrellus subflavus*

A.—Individual very young at the time of entering hibernation (Amer. Mus. No. 100161, from a cave at Rutland, Chittenden Co., Vt., Nov. 8, 1931).

B.—Young bat, somewhat older than A at the time of entering hibernation (W. G. Frum No. 1479, from Carter Cave, Carter Co., Ky., Nov. 12, 1950).

C.—Adult (W. G. Frum No. 2308, from Cave Mt. Cave, Pendleton Co., W. Va., Dec. 31, 1954).

D.—Same bat as B, showing juvenile molt in posterior region. Juvenile pelage on head and shoulders.

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