

C. townsendii, and *P. hesperus* in west central Nevada likely give birth sometime in late June or early July. These dates are similar to those reported by Hall (1946).

The number of individuals and species we captured at individual sites was highly variable. Our mist-netting surveys focused on water sources. Preference for foraging over open water varies with bat species (Fenton et al. 1980), and interspecific foraging strategies may have influenced the species captured. However, during active periods most bat species do drink nightly (Kunz 1982), and many of the water sources we visited were the only ones available for many kilometers in any direction. It is likely that bat populations in these areas are dependent on these isolated water supplies. Other factors that possibly influenced our capture results are the placement and configuration of mist-nets (Kunz and Kurta 1988) and temporal variation in bat activity (Hayes 1997).

C. townsendii, *M. ciliolabrum*, and *P. hesperus* were found hibernating in 27% of the mines we surveyed. Similar results have been obtained by others. In a winter survey of 85 mines in central Nevada, Alcorn (1944) found 14 *C. townsendii* in 12 mines, 19 *M. ciliolabrum* in 14 mines, and 6 *P. hesperus* in 3 mines. Szewczak et al. (1998) also found *C. townsendii* and *M. ciliolabrum* to be scattered sparsely throughout mines in the Inyo and White Mountains of eastern California and western Nevada.

We found no difference in average temperature and relative humidity between used and nonused mines. However, evidence suggests that bats select hibernacula that provide stable temperature and humidity regimes (Humphrey 1978, Genter 1986). Since our temperature and relative humidity data were collected on only a single visit, we have no information on how these varied over the winter. A lack of mines providing stable environments would help explain why the majority of mines we surveyed did not contain bats.

Thorough knowledge of the current distribution of any species is necessary to maintain existing populations. Results of this study contribute some important information on bat distribution and use of mine adits for hibernacula in west central Nevada, but much work remains to be done. Data on roost and foraging-site selection are needed to develop a better understanding of bat species within this region.

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LITERATURE CITED

- ALCORN, J.R. 1944. Notes on the winter occurrence of bats in Nevada. *Journal of Mammalogy* 25:308-310.
- BARBOUR, R.W., AND W.H. DAVIS. 1969. *Bats of America*. University of Kentucky Press, Lexington. 286 pp.
- BEST, T.L. 1988. Morphologic variation in the spotted bat, *Euderma maculatum*. *American Midland Naturalist* 119:244-252.
- BETTS, B.J. 1998. Roosts used by maternity colonies of silver-haired bats in northeastern Oregon. *Journal of Mammalogy* 79:643-650.
- BOGAN, M.A. 1974. Identification of *Myotis californicus* and *M. leibii* in southwestern North America. *Proceedings of the Biological Society of Washington* 87: 49-56.
- CAMPBELL, L.A., J.C. HALLETT, AND M.A. O'CONNELL. 1996. Conservation of bats in managed forests: use of roosts by *Lasiurus noctivagans*. *Journal of Mammalogy* 77:976-984.
- FENTON, M.B., C.G. VAN ZYLL DE JONG, G.P. BELL, D.B. CAMPBELL, AND M. LAPLANTE. 1980. Distribution, parturition dates and feeding of bats in south-central British Columbia. *Canadian Field-Naturalist* 94: 416-420.
- FINDLEY, J.S., AND C. JONES. 1965. Comments on spotted bats. *Journal of Mammalogy* 46:142-144.
- GENTER, D.L. 1986. Wintering bats of the Upper Snake River plain: occurrence in lava-tube caves. *Great Basin Naturalist* 46:241-244.
- HALL, E.R. 1946. *The mammals of Nevada*. University of California Press, Berkeley. 710 pp.
- _____. 1981. *The mammals of North America*. 2nd edition. John Wiley and Sons, New York. 1181 pp.
- HANDLEY, C.O., JR. 1959. A revision of American bats of the genera *Euderma* and *Plecotus*. *Proceedings of the United States National Museum* 110:95-246.
- HAYES, J.P. 1997. Temporal variation in activity of bats and the design of echolocation-monitoring studies. *Journal of Mammalogy* 78:514-524.
- HOUGHTON, J., C. SAKAMOTO, AND R. GIFFORD. 1975. Nevada's weather and climate. Nevada Bureau of Mines and Geology. University of Nevada, Reno. 78 pp.
- HUMPHREY, S.R. 1978. Status, winter habitat, and management of the endangered Indiana bat, *Myotis sodalis*. *Florida Scientist* 41:65-76.