

WINTER TOADS

J. R. TESTER and W. J. BRECKENRIDGE*

Winter behavior and survival of the Manitoba toad (*Bufo hemiophrys*) were studied on a virgin prairie in northwestern Minnesota, an area of extremely rigorous winters. Animals marked with radioactive tantalum-182 were followed during the period of summer movement and were located in early fall in their wintering sites. Over a 3-year period 7,483 toads were captured emerging in the spring and from Mima-type mounds (small earth mounds 10-40 feet in diameter and 1-2 feet high scattered over the prairie at a density of about 2 per acre. We believe that in our study area they are at least partly the result of pocket gopher (*Geomys bursarius*) activity. The mounds are covered by coarse weedy plants in contrast to the surrounding prairie flora).

Most toads began hibernation in late August or early September and all of them hibernated on the upland 75 to 115 feet from pond margins. Nearly all selected Mima-type mounds for burrowing. Most of the toads moved vertically during the winter, apparently in response to decreasing soil temperatures. Soil profiles of the hibernation sites were analyzed and we concluded that the depth of burrowing was not influenced by any of the soil characters examined. Most of the toads emerged from their wintering sites during May and early June. Peaks of emergence were associated with periods of high temperature and precipitation.

One toad was located at 18" below the soil surface in mid-October, 1959, 23" in November, 24" in December and January, 33" in February, 46" in March and April and 20" in mid-May. Another burrowed down 52 inches by mid-November, 1961, and remained there until mid-April, emerging at the end of the month. First toad maintained a position in the soil just below the frost line. This would indicate that

it was surviving in soil with a temperature only 1 or 2 degrees above freezing. The other individuals appeared to spend the winter in considerably warmer soil many inches below the frost line. The winter of 1959-1960 was one with very little snow cover on the ground whereas the winter of 1961-1962 was one with deep snow cover on the wintering site.

*Abstracted from "Winter Behavior Patterns of the Manitoba Toad, *Bufo hemiophrys*, in Northwestern Minnesota". *Annales Academiae Scientiarum Fennicae*, Series A, IV. Biologica, 1964, P. 423-430.



"LOST" LIZARDS TRACED, FOUND

TUCSON, Ariz. — Scientists had to stir around in the stomach of a lizard preserved 75 years to come up with the latest attraction at the Arizona-Sonora Desert Museum here.

The Ditmars Horned Lizard was discovered in the desert of Sonora, Mexico, in 1897 by Raymond Ditmars, curator of reptiles at the New York Zoological Park. It was declared a new species in 1910, but no new specimen was found for three-quarters of a century.

Then M. D. Robinson of the University of Arizona combined records of an 1890 lizard-collecting expedition with clues taken from the stomach of one of the preserved reptiles. Identification of ingested grasses, pebbles and insect remains helped scientists pinpoint the creature's habitat and rediscover the Ditmars population. — *The Minneapolis Star*, Feb. 19, 1974.

