

# AN EARLY LITTER FOR THE OPOSSUM (*DIDELPHIS MARSUPIALIS*) IN OHIO<sup>1</sup>

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## ABSTRACT

A female opossum, *Didelphis marsupialis*, was found dead on the road in Columbus, Franklin County, Ohio, on 25 February 1973, with nine young tightly attached to her teats. The size of the young suggests that they were conceived the first week of January and that the female was reproductively active during the last part of December. Early breeding at this latitude (lat. 40° N) is very unusual and is compared with known breeding dates from other areas of temperate North America.

A female opossum was found dead on the road within the city limits of Columbus, Franklin County, Ohio, 25 February 1973, with nine live young tightly attached to her teats. Their size suggests that they were conceived in early January, an extremely early date for this northern latitude (lat. 40°N). Only Meigs (1847) records an example of such early breeding at this latitude. In February 1845 and presumably near Philadelphia, Pennsylvania, he procured a female opossum with two young ones the size of small kittens.

The nine young, preserved in alcohol and installed in the mammal collection at The Museum, Michigan State University (Nos. 21654-21662), averaged 57.8 mm (range 57-59 mm) in snout-rump length when measured according to the method described by Hartman (1928). Examination of Hartman's growth curve indicates that these opossums were approximately 40 days of age; they must have been born about 16 January and conceived 12 to 13 days earlier, on the 3rd or 4th of January.

Behavioral observations by McManus (1967) and by Reynolds (1952) indicate that estrus (receptivity) lasts no more than 36 hours and that it will end previous to this time with copulation. According to Hartman (1923a, b), ovulation is spontaneous and probably occurs early in estrus. He and Reynolds found also that the entire estrus cycle is about one month in duration; evidently this adult must have been reproductively active during at least part of December.

Breeding season dates vary in different parts of the country. Hartman (1923a, 1928) found the breeding season of *D. marsupialis* at Austin, Texas (lat. 30°N), to begin generally in January, following a three-month anestrus period. The earliest litters reported by Hartman (1928) in Austin were one litter born in the first week and three others in the second week of January. Burns and Burns (1957) discovered that northern Florida (lat. 30°5'N) populations gave birth, at the earliest, in the last week of January. Reynolds (1945), studying the life history of the opossum in Missouri (lat. 39°N), found the earliest birth to be on 12 February. Petrides (1949) estimated the earliest birth date of young trapped in Columbus, Ohio, to fall in early February. Wiseman and Hendrickson (1950), working in southeastern Iowa (lat. 41°N), found a female with a litter not more than two days old on 23 February. Several other individuals with young were estimated to have borne litters near this date. Fitch and Sandidge (1953) reported that opossums near Lawrence, Kansas (lat. 39°N), breed slightly later than in Iowa, with most of the conceptions occurring from the middle of February into early March. The earliest litters were born, according to Hartman's (1928) growth data, no earlier than the first week of February.

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Temperature data for Columbus, obtained from the National Weather Service office at Port Columbus International Airport, show that October and November 1972 were slightly cooler than normal. The October normal was 49.6°F, a -4.6°F departure; the November normal was 40.5°F, a -0.7°F departure. The first half of December had an average temperature about 1°F above the normal 36.1°F. The last half was much warmer, averaging 10°F higher than normal. These more favorable temperatures might have made conditions more conducive for opossum reproductive activity. This is only conjecture: Hartman (1928) found no correlation between temperature and the onset of breeding.

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**Environmental Geomorphology and Landscape Conservation, Volume I: Prior to 1900.** *Donald R. Coates*, editor. Dowden, Hutchinson, and Ross, Stroudsburg, Pennsylvania. 1972. x+485 p. \$22.00.

This volume is one in a series of 18 "Benchmark Papers in Geology," under the editorship of Rhodes W. Fairbridge, that are to be produced. There will be three volumes on the above topic; volumes II and III will cover Urban and Non-urban areas, respectively. The 33 articles reprinted in the "Prior to 1900" volume are contained in five chapters: Importance of Water to Man, Influence of Terrain on Man, Physical Environmental Descriptions of the United States, Environmental Degradation by Man, and Landscape Conservation. Each chapter (and some subchapters) contains a helpful editor's introduction which describes the papers and the authors.

Particularly fascinating are the accounts of environmental management problems that existed several thousand years ago; early descriptions of the United States by Robert Beverly, F. V. Hayden, Clarence King, and J. W. Powell; and the importance of man as a geological agent, according to G. P. Marsh, G. K. Gilbert, and J. L. Rich. Speculations on the decline of civilizations that existed for hundreds of years add perspective to our current environmental problems and projections. As is often the case, "new" or fashionable ideas are often very old; control of soil erosion by planting an unplowed field was patented in 1814 in this country.

The assembly of these fine papers into one book will be useful to scholars and graduate students in geology, agronomy, environmental science, and possibly climatology. Unfortunately the price will probably restrict the book to the reference category for undergraduates. As is the case with some reproductions, the type ranges from 2 to 4 mm in height which, together with some English script in places, makes for difficult reading. Some reproductions from zerographed copies that were reduced are, in places, almost unreadable, and one reprint appears to end in the middle of a sentence.

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