

RESURRECTED RECORDS: "NEW" REPTILE OCCURRENCE RECORDS FOR MONTGOMERY COUNTY, INDIANA

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ABSTRACT: Current and historic records of species occurrences in particular localities enable researchers to monitor changes in species distribution and abundance. While current fauna can be documented with sufficient effort, missing historical records represent data that can never again be obtained. It is with this importance in mind that we report for the first time records of eight reptile species in Montgomery County, Indiana, USA, that were documented in 1964, though no vouchered specimens persist. These species include: *Sternotherus odoratus*, *Terrapene carolina carolina*, *Chrysemys picta marginata*, *Apalone spinifera spinifera*, *Thamnophis sauritus sauritus*, *Storeria dekayi wrightorum*, *Lampropeltis calligaster*, *Lampropeltis triangulum*. We also provide a list of the 23 currently documented reptile species that occur (or have occurred recently) in Montgomery County.

Documented records of a species occurrence in a particular locality are critical data for the study of biodiversity for both theoretical and applied purposes (Graham et al. 2005, Newbold 2010). In particular, locality records make it possible to describe and model species distributions and, over time, to monitor changes in these distributions (Shaffer et al. 1998, Newbold 2010). Reptile populations are declining globally (Gibbons et al. 2000), and the detection of these declines is greatly facilitated by historic records of species occurrence, which can be compared to current data on distributions (Shaffer et al. 1998). Ideally, these records are supported by vouchered specimens maintained in accessible natural history collections (Reynolds and McDiarmid 2012). Vouchered specimens allow reevaluation of the original identification, which may be especially important when taxonomic designations change (Reynolds and McDiarmid 2012). Unfortunately, some geographic regions may be poorly represented in such historic collections, with the result that only the current status of the reptile fauna can be described. It is therefore valuable when even unvouchered historic records are available to provide some indication of the biodiversity of the past. Because unvouchered records cannot be evaluated for accurate species identification, caution is warranted. The likelihood of species being misidentified can be assessed on the prevalence of similar sympatric species, and whether a particular record constitutes an outlier in the otherwise documented range of the species (Graham et al. 2010).

One of the authors (WSP) collected occurrence records of reptile species in Montgomery County, Indiana, USA, in 1964 as an undergraduate student at Wabash College (Crawfordsville, IN). Specimens had been collected as early as 1953 and many had been preserved and maintained in a collection at Wabash College (see individual species records below). Identifications were agreed upon by biology faculty at the college (namely, Eliot C. Williams, Jr.). Unfortunately, the preserved specimens were all lost in the course of building renovations. These records were never published, but they importantly noted the occurrence of species that had otherwise never been documented in the county (Minton 2001). The written records were rediscovered (Figure 1) and are presented here to enhance the knowledge of herpetofauna in the region and provide historical occurrence data with which to compare the results of future biodiversity assessments.

The state of Indiana is within the documented range of approximately 56 reptile species, and their populations in the state are likely under significant anthropogenic stress. Land in Indiana has been heavily utilized for agriculture, with a maximum level in the 20th century of 94% of the total land area occurring on farms (US Census of Agriculture 1999). Montgomery County in the Central Till region of west-central Indiana (Figure 2) is of particular interest, with as much as 96.5% of its land having been historically associated with agriculture (US Census of Agriculture 1999). Farmland declined slightly

in Montgomery County during the 20th century along with a modest increase in the amount of woodland (about 4% of land area in recent years; US Census of Agriculture 1999). Furthermore, Montgomery County's herpetofauna has been poorly documented, with only 15 out of 29 reptile species whose ranges include Montgomery Coun-

ty having been previously recorded here (Table 1; Minton 2001). We provide records here for eight additional reptiles, resulting in confirmation of 23 reptile species in the county (Table 1), albeit without currently available vouchered specimens. None of the species occurrences we report here occur outside the established range, mak-

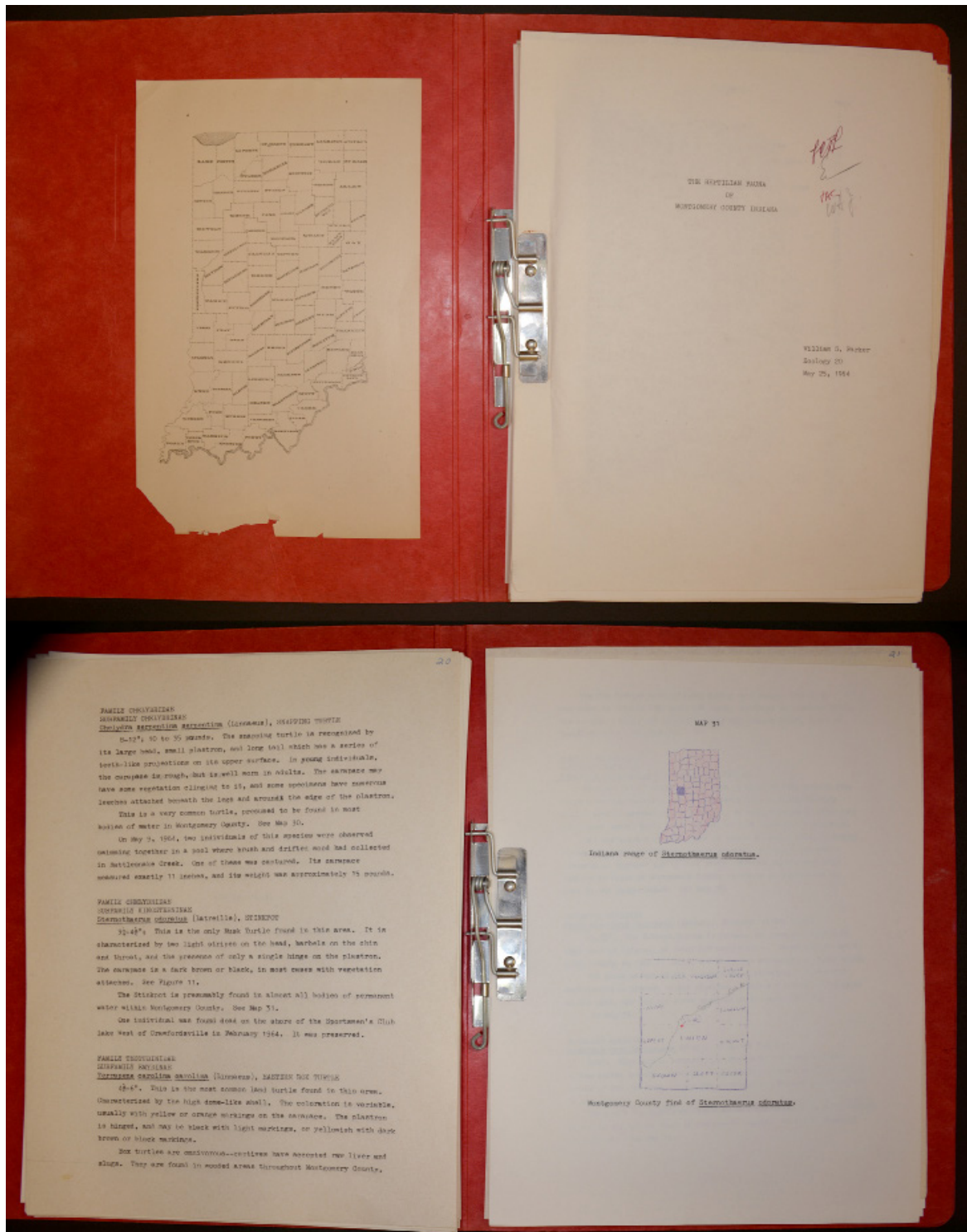


Figure 1. Sample pages from WS Parker's report for an independent course at Wabash College, Crawfordsville, IN, USA, in 1964. This report lists reptile species known from Montgomery County, IN, including original records from the Wabash College collection that have not been otherwise formally documented in the county. The document is typewritten, with annotations in handwriting.

Table 1. Documented reptile species of Montgomery County, Indiana, USA. Records not first reported here are noted by Minton (2001).

Order	Species	Common name	First noted here?
Testudines	<i>Chelydra s. serpentina</i>	Snapping Turtle	-
Testudines	<i>Sternotherus odoratus</i>	Common Musk Turtle	Yes
Testudines	<i>Terrapene c. carolina</i>	Eastern Box Turtle	Yes
Testudines	<i>Graptemys geographica</i>	Northern Map Turtle	-
Testudines	<i>Chrysemys picta marginata</i>	Midland Painted Turtle	Yes
Testudines	<i>Apalone s. spinifera</i>	Spiny Softshell	Yes
Squamata	<i>Plestiodon fasciatus</i>	Five-lined Skink	-
Squamata	<i>Thamnophis s. sirtalis</i>	Common Gartersnake	-
Squamata	<i>Thamnophis s. sauritus</i>	Common Ribbonsnake	Yes
Squamata	<i>Nerodia sipedon</i>	Common Watersnake	-
Squamata	<i>Regina septemvittata</i>	Queensnake	-
Squamata	<i>Clonophis kirtlandii</i>	Kirtland's Snake	-
Squamata	<i>Storeria dekayi wrightorum</i>	Midland Brownsnake	Yes
Squamata	<i>Storeria o. occipitamaculata</i>	Red-bellied Snake	-
Squamata	<i>Virginia valeriae elegans</i>	Western Smooth Earthsnake	-
Squamata	<i>Coluber constrictor</i>	North American Racer	-
Squamata	<i>Pantherophis spiloides</i>	Gray Ratsnake	-
Squamata	<i>Lampropeltis calligaster</i>	Yellow-bellied Kingsnake	Yes
Squamata	<i>Lampropeltis triangulum</i>	Eastern Milksnake	Yes
Squamata	<i>Diadophis punctatus edwardsi</i>	Ring-necked Snake	-
Squamata	<i>Heterodon platirhinos</i>	Eastern Hog-nosed Snake	-
Squamata	<i>Agkistrodon contortrix mokasen</i>	Northern Copperhead	-
Squamata	<i>Sistrurus catenatus</i>	Eastern Massasauga	-

ing it unlikely that they are misidentifications. In preparing these records, we also searched through geographic distribution records published in *Herpetological Review* and the VertNet database of vouchered museum records (<http://www.vertnet.org>) to confirm that none of these species have been documented in Montgomery County

since Minton's 2001 work. Common names are those used by Minton (2001).

ORDER TESTUDINES

Sternotherus odoratus (Common Musk Turtle). One specimen was collected in a lake west of the city of Crawfordsville in Union Township and preserved in February 1964. The nearest documented record of *S. odoratus* is from Parke County, southeast of Montgomery County, with additional potential records in Putnam County (south) and Boone County (east; Minton 2001).

Terrapene carolina carolina (Eastern Box Turtle). Two specimens were collected, one in an unspecified township in the northern part of the county (October 1963) and the second in an unspecified township in the southern part of the county (unknown date). The nearest previously documented records of this species are from Parke County (southeast) and Tippecanoe County (north), with an additional potential record in Putnam County (south; Minton 2001).

Chrysemys picta marginata (Midland Painted Turtle). Three records were documented – two in Union Township and one in Ripley Township. No dates or other information are recorded. *C. p. marginata* is noted as being the most common turtle in the county. The nearest documented records are from Carroll, Clay, Hamilton, Howard, Marion, Morgan, Owen, Vigo, and White counties, none of which are adjacent to Montgomery County (Minton 2001). Two less reliable reports are recorded from the adjacent counties Boone and Tippecanoe (Minton 2001).

Apalone spinifera spinifera (Spiny Softshell). One specimen was recorded from Sugar Creek in Union Township, but was apparently identified with modest confidence from a distance. A juvenile specimen was collected and preserved on May 20, 1964 in Sug-



Figure 2. Map of Indiana counties, with Montgomery County highlighted. Public domain image, acquired from Wikimedia Commons.

ar Creek near Shades State Park, on the border of Ripley and Brown townships. The nearest previous records of *A. s. spinifera* are from Carrol, Morgan, Owen, and Vigo counties, none of which are adjacent to Montgomery County, with additional potential records in adjacent Boone and Putnam counties (Minton 2001).

ORDER SQUAMATA

Thamnophis sauritus sauritus (Common Ribbonsnake).

One specimen was collected and preserved on April 28, 1964, in Ripley Township, near the town of Alamo. *T. s. sauritus* has been previously recorded in adjacent Fountain County and Parke County (to the west) and Boone County (to the east; Minton 2001).

Storeria dekayi wrightorum (Midland Brownsnake). This species was noted as "very common" in the county. Specimens were collected in October 1953 (preserved), April 6, 1962, May 7, 1963, and May 9, 1964 from multiple locations in the southwestern quarter of the county. The nearest previous records are in Parke County (to the southwest) and Boone County (to the east; Minton 2001).

Lampropeltis calligaster (Yellow-bellied Kingsnake). One specimen was found in Madison Township, north of the city of Crawfordsville, on October 7, 1958. It was preserved. The nearest previous record was from Fountain County (to the west; Minton 2001). This record in Montgomery County would constitute the easternmost extent of *L. calligaster's* range at this latitude (Minton 2001).

Lampropeltis triangulum (Eastern Milksnake). Two specimens were collected, one on September 15, 1963, in Union Township, and one on May 4, 1964, at "Corner Creek" in an unspecified township (this specimen was preserved). The former specimen was identified as *L. t. triangulum*, while the latter was thought to be either *L. t. sypila* or a cross between *L. t. sypila* and *L. t. triangulum*. The nearest known records for *L. triangulum* are from several adjacent counties to the west (Fountain and Parke), north (Tippecanoe),

and east (Boone; Minton 2001).

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