

THE EASTERN MASSASAUGA (*Sistrurus catenatus catenatus*) IN INDIANA: A PRELIMINARY HISTORICAL SURVEY

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ABSTRACT

The eastern massasauga (*Sistrurus catenatus catenatus*) has been reported historically from twenty-seven Indiana counties. The reports from three of these counties are unconfirmed. Over 159 specimens of *Sistrurus catenatus catenatus* have been collected or observed at over seventy-two sites in Indiana from the late nineteenth century to the present.

INTRODUCTION

The eastern massasauga (*Sistrurus catenatus catenatus*) is listed as a threatened species in Indiana. A threatened species is defined as: "any species or subspecies of wildlife likely to become endangered in the foreseeable future. This also includes all species or subspecies classified as threatened by the federal government which occur in Indiana... It is unlawful for any person to take, transport, harass, export, process, sell or offer for sale any species or subspecies of wildlife classified as endangered or threatened within Indiana. It is also unlawful for any person to possess endangered or threatened species of wildlife, dead or alive, within Indiana ..." (Whitaker and Gammon 1988).

Sistrurus catenatus catenatus occurs in the northern half of Indiana. Minton (1972) describes the Indiana habitat of *Sistrurus catenatus catenatus* as "rank grassland and undergrowth surrounding lakes or marshes, dry prairie, hay or grain fields, second growth swamp forest, and the neighborhood of buildings in proximity to the above."

The predicament of *Sistrurus catenatus catenatus* and its habitat in northwest Indiana was summed up by Pepoon as early as 1927.

"These are haunts of ferns and orchids, rattlesnakes and 'rarae aves'. Each year an increasing pilgrimage takes place to see and study, and too often, alas, to gather under the conscience-quieting guise of collecting for some school or college, and so both snake and flower are disappearing, crushed or plucked, no matter how we, who love the wild things, may warn or plead" (Pepoon 1927). He also lamented the destruction of its habitat by drainage, sewage, pasturage, cutting and fire.

METHODS

This preliminary historical survey is based almost entirely on the Indiana literature and on preserved materials in several museum collections. My own collection records are included for Porter, Carroll, LaPorte and LaGrange counties. Most of these records were already in the Indiana Department of Natural Resources, Division of Nature Preserves, Indiana Natural Heritage Program database which was the foundation for this survey. I augmented, refined or added to the database entries by cross checking them against records from the literature, museum specimens and my own survey work. Publications by Whitaker and Minton (1988) Minton, List and Lodato (1982), Minton (1972), Adler (1960), Cooper (1944), Swanson (1939), Grant (1936) and Hay (1892) were compared to the database records. Specimen records from the Carnegie Museum (CM), Chicago Academy of Sciences (CAS), Field Museum of Natural History (FMNH), United States National Museum (USNM) and the University of Michigan Museum of Zoology (UMMZ) were also compared to the database records. Records from the Sherman A. Minton, Jr. collection (SAM) and the Indiana State University collections were taken from Whitaker and Minton (1988).

Because some of the records in the Natural Heritage Program database were reports of visual observations unsubstantiated by preserved specimens, an effort was made to designate a museum voucher specimen, a reliable literature record or photograph for each county represented by records in the database.

When compiling the total number of site records for each county, an effort was made to screen duplicate locality records in a consistent manner. This was difficult in certain cases because of the lack of detail given by the original collectors. In the case of the Fulton County records, the specific locality for one is "2 mi. SE of Akron" and the other is "near Akron". In this case, it was not possible to determine if they represented two separate localities. In another case, thirty-one Porter County records (some represented by multiple preserved specimens) were determined to have come from five sites.

RESULTS

The results of this preliminary historical survey are presented in Table 1. The table has columns for county, year of last observation, number of different sites in a county in which the species has been found since collecting began, and the minimum number of different specimens collected in a county since documentation and collecting began, and source of information (documentation), whether museum specimen, literature record or photograph. The use of a plus (+) after the number of sites indicates that there was another site that could not be differentiated unequivocally from other sites due to lack of specific locality details. The use of a plus after the number of specimens indicates that more specimens were reported, but were not included because they were anecdotal or questionable for some reason. An example

Table 1.

Sistrurus catenatus catenatus in Indiana

County	Last Observed	No. Sites	No. Individuals	Documentation
Allen	1983	3+	7	UMMZ 132824
Carroll	1993	1+	8+	ISU 1880
Cass	1963	1	1	newspaper story
Delaware	1943	1	15	UMMZ 117535 Cooper (1944)
Fulton	1970	1+	2	UMMZ 174365
Hamilton	pre 1892	1	1	USNM 17950 Hay (1892)
Hendricks	pre 1892	1	1	Hay (1892)
Jackson	1986	1	1	NHD, unconfirmed
Jasper	1938	1	5+	Grant (1936) Swanson (1939)
Johnson	?	1	1	Minton (1972)
Kosciusko	1988	6	15	FMNH 135031
LaPorte	1992	5	11	CAS 4012
LaGrange	1990	8+	13	UMMZ 128958-59
Lake	1980's	2	2	newspaper story
Marshall	1990	6+	6+	UMMZ 101863 Adler (1960)
Montgomery	1956	1	1	UMMZ 117536
Newton	1988	1	1	NHD, unconfirmed
Noble	1992	6	8+	UMMZ 111893
Porter	1987	5	40+	CAS 384-92
Pulaski	1987	4	4	CM 7749
St. Joseph	1986	2	2	USNM 104521
Starke	1986	1	1	SAM 239
Steuben	1986	6	7	UMMZ 110540
Sullivan	?	1	1	Minton (1972) unconfirmed
Wabash	1952	3	3	UMMZ 107924
Wells	1908	1	1	CM 1271
Whitley	1903	1	1	CM 1984
27 counties		71+	159+	
NHD=Natural Heritage Program database record				

might be a report of a landowner who claimed to have killed about one snake annually during a ten period. This record would count as one rather than ten specimens.

Sistrurus catenatus catenatus has been reported from twenty-seven Indiana counties. Three of these county records are unconfirmed. During the last decade, it has been reported from fifteen counties. The greatest number of reports are from the three northern tiers of counties. From the late nineteenth century to the present, *Sistrurus catenatus catenatus* has been reported from over seventy-two different sites in Indiana. During this time period, over 159 specimens have been collected or observed from all sites. *Sistrurus catenatus catenatus* occurs primarily in the following natural regions of Indiana, as defined by Homoya, Abrell, Aldrich and Post (1985): Northwestern Morainal, Northern Lakes, Grand Prairie and Central Till Plain.

An analysis such as the one presented here must be interpreted carefully. By looking at the Porter County line in Table 1, one could infer that the species is common there. This is not the case. A comparison of the number of *Sistrurus catenatus catenatus* collected in Porter County during two decades illustrates this point. Nineteen specimens of *Sistrurus catenatus* were collected at three sites from 1930 to 1939, whereas three specimens were found at two sites from 1980 to 1989. All three of the latter specimens were found on roads. Two of them were found dead.

The three 1930's sites remain in a natural albeit transformed state. Although currently under federal or state protection, these sites have been altered by drainage, adjacent industrial development, succession and/or detrimental vegetation changes (Wilcox, Apfelbaum and Hiebert 1984). One of the most detrimental impacts occurred in 1926 with the building of a drainage ditch that drained 20,000 acres of land east of Gary (Franklin and Schaeffer 1983). The same area was affected in the 1960's by the development of a large industrial complex (Franklin and Schaeffer 1983). These changes were at the western limit of *Sistrurus catenatus catenatus* distribution in Porter County.

The reason for the preponderance of specimens collected in Porter County in the first half of this century is its proximity to Chicago and the popularity of the northern part of the county with professional and amateur naturalists of the day.

The brief historical review presented here is not a substitute for an intensive field survey to determine the current distribution of *Sistrurus catenatus catenatus* in Indiana.

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