ILLINOIS
NATURAL
HISTORY
SURVEY

The Ground Skink, *Scincella lateralis*, in Illinois: Range and Possible Recent History

Ralph W. Axtell and Carol A. Bryant

Illinois Natural History Survey
Biological Notes 142

September 2006

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ABSTRACT

The Illinois distribution of *Scincella lateralis* is portrayed on a shaded relief map. From map portrayal, this lizard appears distributionally uncommon and probably relictual in the north, common and distributionally continuous in the south. Some northern populations may be nearing local or regional extinction, while southern populations are considered secure. We speculate that northern range expansion probably took place during the warmer, drier Holocene "Xerothermic" interval from ca 8,000 to ca 4,000 years BP. The current range in Illinois cannot be interpreted to support a recent (ca 100 year) Global Warming Hypothesis, but it can be interpreted to support some regional cooling after 4000 years BP, and later (from ca 1650 until about 1850 AD.)

INTRODUCTION

As with RWA's work on Texas lizards, this project was initiated to garner most Illinois lizard locality information that has accumulated over the past 200 years, and to expand our understanding of the actual areal distribution of the taxa involved. Such information cannot come from county distribution maps. With this information, we should be able to propose hypotheses for both the historic occupation and the current population status of lizards within the state. Hopefully it will also lead to more directed range investigations and serve as a verified baseline from which future distributional studies can proceed.

METHODS

We contacted several museums in the United States and requested their Illinois *Scincella lateralis* locality records, collectors, and dates of collection. With this information, we converted all localities to geographic coordinates (lat -long.) and elevations using USGS 1:24,000 scale maps or computer sites. Site error in this process was, in most cases, probably no more than one to three kilometers from the actual point of collection. These coordinates were then converted to decimal degrees, and Research System's IDL software was used to plot the points (as dots) on a shaded relief map elaborated by Ray Sterner of the Applied Physics Laboratory, Johns Hopkins University. As far as we know, none of the coordinates below were generated with a GPS instrument.

Scincella lateralis (Say)
Ground Skink (see Fig. 1)

Scincus lateralis Say 1823:324–325. Original description (a footnote in James 1823).
Lygosoma lateralis Duméril and Bibron 1839:719. New combination.
Oligosoma laterale, Cope 1875:44. New combination.
Leiolopisma laterale, Jordan 1899:201. New combination.
Scincella laterale, Mittleman 1950:19. New combination and new generic name proposed.
Scincella lateralis, Greer 1974:7. Gender agreement change.
Synonymy above shows the variety of names used over time and is not intended to be complete.

Type— A specimen (holotype) was originally placed in the "Philadelphia Museum" (= Peale Museum, not the Philadelphia Academy of Sciences) by Thomas Say (Say 1823), with no number reported. The disposition of this specimen, if it still exists, is currently unknown. Cope (1900:624) erroneously considered and reported USNM 3152, collected on the "Arkansas River" (no state given) by Samuel W. Woodhouse as the type.

Type locality— "Banks of [the] Mississippi River below Cape Girardeau, Missouri" (As far as we can determine, this statement first appeared in Stejneger and Barbour [1917], and it was presumably initiated by them, but without comment. It did not appear in the original description, and we have not found it in any prior publication.). Most subsequent workers have interpreted this to mean "near" Cape Girardeau in Missouri, but this interpretation is questioned. Robert Reynolds of the National Museum and the senior author are investigating this problem.

Taxonomic Status—The species is considered monotypic. See Brooks (1975) for comment on variation and most earlier references.

Orientation and Synthesis of Illinois Distribution—(Interpretations based on map patterns, published literature, and knowledge of Illinois environments). A diurnal, terrestrial, subheliothermic (= secretive), insectivorous (scurry and grab predator), biparental, oviparous lizard belonging to the genus

Scincella in the family Scincidae (Greer, 1974). Warm season temperatures are probably more important for distributional limitation within Illinois, than is precipitation. White and Jacobs (1968, 30-year record) show a 180 frost free day line at approximately the northern edge of the current distribution. Warm season (April to mid October) precipitation varies from ca 35 cm (14 in.) in the north to ca 37 cm (15 in.) in the south, with a slightly higher concentration from late March to June. East-west precipitation is even less variable across the state. Areas inhabited are now generally in deciduous forest regions (see Küchler 1964), which generally have considerable leafy ground cover. The lizards feed and sun as they move between leafy patches on or near the forest floor (Fig.2). They seek burrows or rock cover when body temperatures approach levels at which normal activity is hampered. Grassland areas in the state (most of which have now been converted to agriculture) were probably never inhabited. Historically, the Embarras, Little Wabash, Saline, Cache, and Big Muddy River basins appear to have been populated in the east, while parts of the Mississippi and Illinois River basins were populated in the west. Strangely, there is no evidence that the Kaskaskia River basin has ever been populated. By using the term "river basin" we do not imply that *Scincella* is a floodplain denizen, for in Illinois, it appears to shun flat areas, even though fairly extensive floodplain forested zones are still present locally. The only known floodplain site in the list below is at Fults (Monroe Co.), but we presume that this material came from the bluff east of Fults rather than from the village itself.

Figure 1. The ground skink, *Scincella lateralis*, from Young County, Texas. Photo courtesy of Troy D. Hibbitts, Texas Herpetological Society.

Figure 2. Habitat of *Scincella lateralis* (in, around, and under logs) Clark Co., Illinois. (Photo courtesy C. Drew Foster, Santa Barbara Zoological Gardens).

Note that an interesting range discontinuity appears in the western Shawnee Hills of southern Illinois. It includes both eastern Union and western Johnson counties (see map, Fig. 3). This could be an actual range gap or an artifact of minimal collecting in the region.

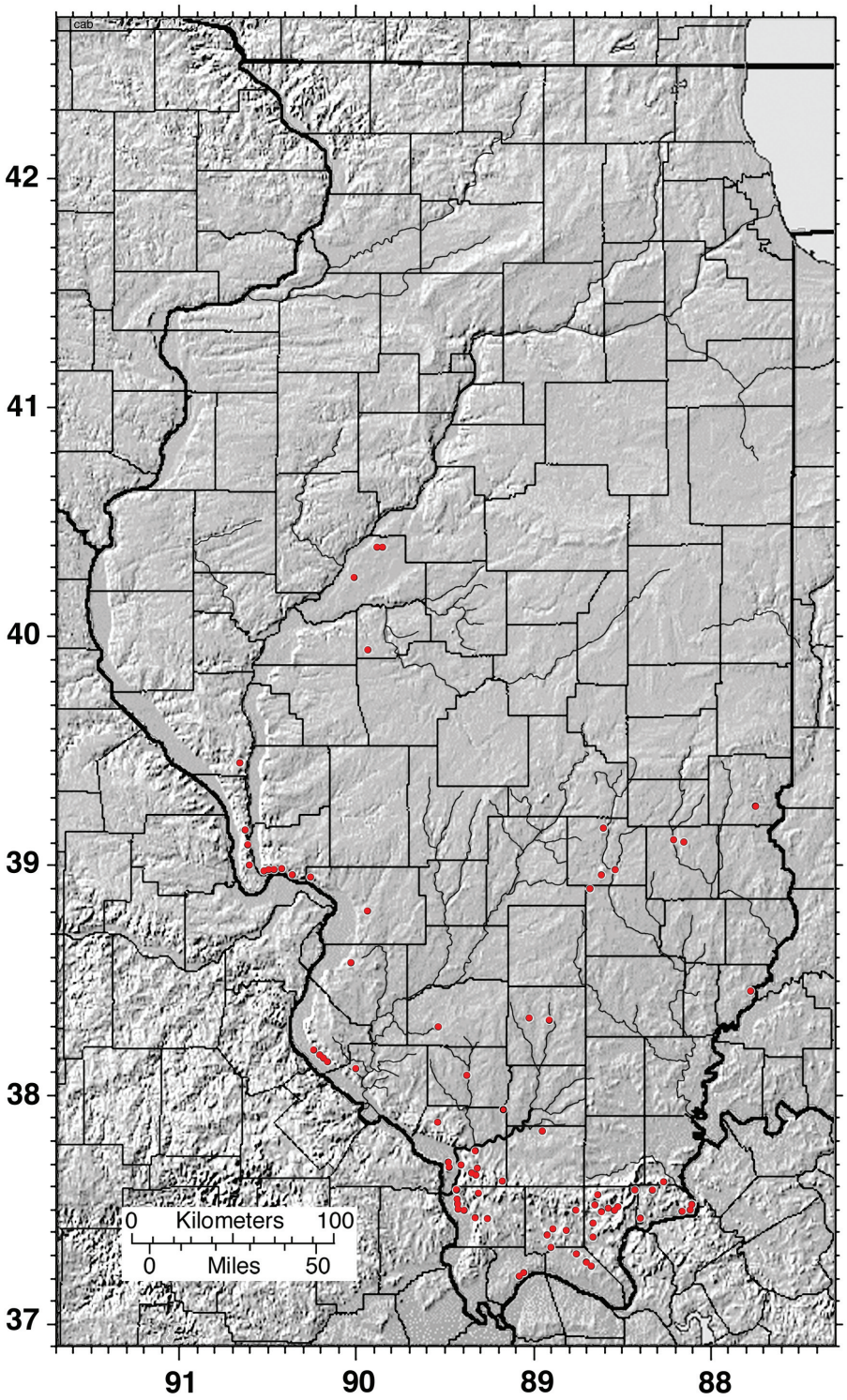

Figure 3. Shaded relief map of Illinois (courtesy, Ray Sterner with modifications by CAB) showing known distribution (red dots) of vouchered *Scincella lateralis*.

Presumed Barriers to Gene Flow and Holocene History—If this skink is absent from floodplains in Illinois (and by extension adjacent states as well), the widest of these floodplains must have presented formidable barriers when *Scincella* populations first moved northward into the state. The source of these founding populations remains an interesting unanswered question, but one that might be answered by DNA analysis of surrounding populations in adjacent states. We doubt that any founders could have come from direct crossovers, but rather favor a hypothesis of flood dispersal from sites along waterways upstream in adjacent states (Missouri or Kentucky).

We speculate that much (if not all) of the more recent Holocene northward range expansions took place during the warmer, drier, "Xerothermic" period (from ca 8,000 to ca 4,000 years BP; Winkler et al. 1986). Subsequently (ca 4,000 BP to present), and particularly during the 'Little Ice Age' (ca 1650 to 1850 AD, Brugam and Swain 2000), most of these earlier populations appear to have become regionally fragmented, with small, disjunct relicts continuing to persist over fairly extensive areas. Many of these disjuncts seem to be associated with limestone outcrops or sand areas (see Holman and Arai 1962). The recent discovery (2002) of subtantial populations near Mill Creek in southeastern Clark County by Drew Foster and Steve Mullin of Eastern Illinois University, along with several old records in the upper Embarras and Little Wabash basins in the Effingham region, tends to substantiate the much older (1880) Wabash Co. (Mt. Carmel, USNM 12057) record between these northern relicts and the Shawnee Hills populations in extreme southern Illinois.

Dispersal Mode and Distributional Status—The map indicates that past dispersal has been mainly riparian (parallel to drainage lines), with populations usually occurring along adjacent upland areas with sandy or rocky (sandstone and limestone) substrates. Heated rocks probably extend daily activity 15 or more minutes in areas farther north (pers. obs.). We consider the current distributional status in Illinois as contractive in the west and essentially static in the south and east (the Clark Co. population may be expanding.). This would not support (at least regionally) a recent global warming hypothesis.

Population Density—Within areas of occurrence where the authors have observed animals, population density seemed quite low. One or two individuals were seen, under the best of conditions, during several observational hours in the field. However, both Smith (1961) and Phillips et al. (1999) considered this lizard abundant in southern Illinois, and Foster and Mullin (see above) reported many individuals of both sexes and all age/size classes in their recent Clark County survey.

Earliest IllinoisVoucher—A specimen (now missing) in the U.S. National Museum of Natural History (USNM 3111) taken by Robert Kennicott from "Southern Illinois," in 1857 or early 1858 (cataloged on 21 July 1858), appears to be the earliest museum voucher from the state.

Fossil Records in Illinois—None known.

Erroneous, Questioned, and Historic Records—The following records are considered erroneous (collection or museum number, with reasons in parentheses): **Cumberland Co.**—Rose Hill (UIMNH 56112-3; no Rose Hill has been found in Cumberland Co., but a Rose Hill is present in Jasper Co., the next county to the south). Most authors have cited Peters' (1942) Cumberland Co. paper as evidence of *Scincella* occurrence in that county, but Peters (1942:183) clearly stated: "Several species are known to occur in the counties immediately surrounding Cumberland, which have not been collected here yet." Peters then listed *Leiolopisma unicolor* (= *S. lateralis*) as one of those species. **Wayne Co.**—Sam A. Baker State Park (UIMNH 16434-5; no park with this name was found in Wayne County, Illinois; however, there is a Sam A. Baker State Park in Wayne Co. Missouri; thus, we consider this a recording error). Both Cumberland and Wayne counties have been removed from the state county list. **Questioned record**: W Dunlap Lake, Edwardsville (SIUE 2584); this urban habitat is considered unnatural. **Historic records**: The old Mount Carmel, Wabash Co. record (see above), which was not included in Phillips et al. (1999), now appears to be a viable Illinois record. Interestingly, Minton (2001) showed two old southwestern Indiana records from Gibson (no data) and Knox (USNM 10906: Wheatland, in 1881) counties. We consider this further evidence supporting the Mt. Carmel, Illinois record. **Cook Co**.- Aux Plaines River (= Des Plaines River), West Northfield (USNM 5011), and West Northfield (USNM 9302). These two vouchers were credited to Robert Kennicott, and were sent to the Smithsonian Institution in the late 1850s or early 1860s. Two separate records, from the same place, sent at different times, indicates they may not have been erroneous. However, they cannot be explained

without extending the present known range approximately 250 kilometers northward to the Chicago area. Three other Illinois lizards, *Cnemidophorus sexlineatus*, *Eumeces fasciatus*, and *Ophisaurus attenuatus*, all apparently occurred in the Chicago area at some time in the past (Smith 1961; Phillips, et al. 1999), so these Cook Co. records, although viewed with scepticism, could be valid. Schmidt and Necker (1935), and Anton (1999) both considered Kennicott's report (Kennicott 1855) of this lizard in Cook Co. erroneous.

Extinction Prone Populations— The presumed populations in both Mason and Menard counties are well separated from other known Illinois populations, so we consider them isolated northern disjuncts, and probably on their way toward eventual extinction, unless sizable local populations still exist. Similarly, the populations in Calhoun and Pike counties, which are isolated by large rivers (the Mississippi to the west and the Illinois to the east), and the populations in Jersey and western Madison counties, which appear separated from populations farther south by several uninhabited gaps, are also in jeopardy (truncated gene flow). To the east, the presumptive populations in the Embarras and Little Wabash River basins are considered temporal disjuncts also. Records from the Big Muddy basin and two smaller streams to the west may also be relictual, but closer examination in these areas may reveal a more continuous distribution. The newly discovered Clark County population would appear quite viable if the surrounding forested areas are as extensive as 1:24,000 topographic maps indicate. However, we suggest that only the extensive populations in the Shawnee Hills area of extreme southern Illinois appear large and genetically interactive enough to continue for extended periods of occupation in the state.

Map Symbols (Fig. 3)—Red dots with white margins = plotted localities. One dot may represent one or more adjacent sites, and the diameter of each dot covers ca 4.4 km (ca 2.7 miles) of map surface.

Locality Vouchers— Twelve museums and collections were canvassed for the Illinois *Scincella* records used herein (see list below). Seven of these (the remainder had no Illinois records) had records totaling ca 88 localities. An M preceding a locality indicates that the locality appears on the map. An N preceding a locality indicates that it has not been mapped. An asterisk (*) preceding a locality indicates that it is too generalized for accurate mapping, and a question mark (?) indicates that the voucher locality has not been found. An X preceding a locality indicates that the record has not been mapped in the listed county, but has been mapped in an adjacent county where it is listed and marked with an M. Multiple localities less than 4.8 kilometers apart are listed, but do not appear as separate dots on the map. Coordinates of latitude and longitude (those enclosed in brackets), were estimated by the authors (as most records were traditional). This undoubtedly invites some error in site accuracy, but with the map scale used, it is probably minimal. Parentheses enclose localities not estimated. This was done so all localities could be transferred digitally to the landform map. The Year of Collection has been added after the museum acronym. When old collection sites or areas are revisited, such dates can inform future workers of occupational longevity if the organism is still present, or about when the organism disappeared if it is no longer present. Users of the voucher list are cautioned that some cited localities may be duplicates based on distances derived from different base points. Some original citations may have been slightly modified so that a population center, highway, road junction, or stream appears first; this is then followed by distances and other descriptive information.

Abbreviations used—BP = before present; ca = circa; cont'd = continued; Cr = creek; N,S,E,W = north, south, east and west; jct = jct; km = kilometer(s); m = meter(s); mi = miles; nr = near; IL = Illinois state highways; rec. = recreation; R = river; RR = railroad; US = federal highways.

LOCALITY VOUCHERS

Calhoun Co.

M	Hardin [mapped at 39°09'25"N - 90°37'30"W, 140 m]	UIMNH—1950
M	" " , 1 mi W [mapped at 39°09'10"N - 90°38'20"W, 226 m]	UIMNH—1950
M	" " , 8.1 km S - 0.5 km W bridge (38°05'10"N - 90°37'10"W, 207 m)	SIUE—1983
M	Meppen Catholic Church, 0.25 km N - 0.1 km W (38°59'57"N - 90°36'22"W, 160 m)	SIUE—1983

Clark Co.		
M	T09N-R12W, sec. 5, S of Joe's Fork, Mill Cr. [mapped at 39°15'35"N - 87°44'50"W, ca 168 m]	INHS 18494—2002
Clay Co.		
M	Edgewood, 3.5 km SW on S side IL 37 nr RR [mapped at 38°53'55"N - 88°41'26"W, 165 m]	INHS—1998
Cook Co. (Historic records; have been questioned)		
N	Aux Plaines River [= Des Plaines R], West Northfield	USNM—1859-60?
N	West Northfield	USNM—1859-60?
Cumberland Co. (deleted from state list)		
X	Rose Hill [mapped in Jasper Co.]	UIMNH—1942
Effingham Co.		
M	Effingham, 4 mi NW [mapped at 39°09'36"N - 88°36'45"W, 180 m]	INHS—1954
M	Hill, 4 mi N [mapped at 38°58'45"N - 88°32'36"W, 150 m]	INHS—1960
M	Mason [mapped at 38°57'15"N - 88°37'30"W]	INHS—1947
Gallatin Co.		
M	Pounds Hollow Lake [mapped at 37°37'N - 88°16'25"W, 152 m]	INHS—1947, SIUC—1953
Hardin Co.		
M	Battery Rock, 3.8 km E Lamb [mapped at 37°31'52"N - 88°04'55"W, 137 m]	TCWC—1949
M	Cave-in-Rock, 2 mi N [mapped at 37°29'20"N - 88°10'10"W, 168 m]	UIMNH—1949
M	" ", 3.5 mi E [mapped at 37°29'35"N - 88°07'10"W, 168 m]	INHS—1953
M	Kane Creek [mapped at Cane Creek, 37°32'28"N - 88°06'40"W, 158 m]	UIMNH—1950
M	Karbers Ridge [mapped at 37°34'47"N - 88°20'05"W, 184 m]	INHS—1950
M	Lamb, 2.5 mi E [mapped at 37°30'37"N - 88°05'30"W, 116 m]	UIMNH—1950
M	Rosiclair, 2 mi N - 3 mi W [mapped at 37°27'38"N - 88°24'20"W, 137 m]	UIMNH—1950
Jackson Co.		
M	Campbell Lake Swamp [mapped at 37°56'27"N - 89°10'36" W, ca 113 m]	SIUC—1940
M	Cedar Creek, T10S - R2W, NE 1/4, Sec 17 [mapped at 37°39'27"N - 89°20'56"W]	SIUC—1963
M	Etherton, 0.25 mi S, jct IL127 [mapped at 37°40'55"N - 89°19'20"W, 122 m]	SIUC—1963
M	Fountain Bluff [mapped at 37°42'N - 89°29'15"W]	UIMNH—1954
M	Giant City State Park, 0.5 mi E [mapped at 37°37'17"N - 89°10'38"W, 198 m]	UIMNH—1954
*	Kincaid Ridge	SIUC—1951
M	Murphysboro [mapped at 37°45'05"N - 89°20'05"W]	INHS—1942
M	" ", 10 mi SW [mapped at 37°41'02"N - 89°28'45"W, 122 m]	INHS—1977
M	Natural Bridge Park [mapped at Pomona Natural Bridge, 37°38'54"N - 89°20'05"W]	SIUC—1951
M	IL 151, 3 mi W of, near Ava Cave [mapped at 37°52'35"N - 89°32'43"W]	SIUC—1965
M	Swallow Rock [mapped at 37°41'30"N - 89°24'20"W]	UIMNH—1948
M	(37°42'17"N - 89°28'43"W)	SIUE—1969
Jasper Co.		
M	Rose Hill [mapped on Lick Creek at 39°06'18"N - 88°09'23"W, 172 m]	INHS—1942
M	" ", 3 mi W [mapped at 39°06'45"N - 88°12'55"W]	INHS—1942, UIMNH—1948

Jefferson Co.

M	Mt.Vernon Reservoir, 2 mi N - 0.5 mi E [mapped at 38°19'15"N - 88°55'W]	SIUC—1963
M	Woodlawn [mapped at 38°20'05"N - 89°01'45"W, 140 m]	INHS—1957

Jersey Co.

M	Grafton, 0.7 mi N - 2.9 mi W [mapped at 38°59'15"N - 90°29'20"W]	SIUE—1963
M	" ", 1 mi W on IL 100 [mapped at 38°58'25"N - 90°28'15"W]	SIUE—1963
M	" ", 1.1 mi N on IL 100 (38°59'N - 90°25'40"W)	SIUE—1971
M	Grafton Ferry, near; T6N, R13W, Sec. 12 [mapped at 38°58'05"N - 90°29'45"W]	INHS—1994
M	jct Elsah Rd & River Highway, 0.8 km N - 0.75 km W (38°57'31"N - 90°22'20"W, 168 m)	SIUE—1976
M	Pere Marquette State Park, S part of Trail 19 [mapped at 38°58'25"N - 90°31'30"W, 168 m]	SIUC—1991
M	(38°58'32"N - 90°30'07"W)	SIUE—1965
M	(38°58'35"N - 90°28'20"W)	SIUE—1969
M	(38°58'42"N - 90°31'57"W)	SIUE—1967

Johnson Co.

M	Cedar Creek, T12S - R4E, Sec 3 [mapped at 37°29'50"N - 88°45'32"W, 134 m]	UIMNH—1964
M	Forman [mapped at 37°20'10"N - 88°54'15"W, 122 m]	INHS—1947, SIUC—1960
X	Olmsted [mapped in Pulaski Co.]	SIUC—1953
M	Vienna [mapped at 37°25'N - 88°54'W, 122 m]	INHS—1947, UIMNH—1950
M	" ", 3 mi SW [mapped at 37°22'55"N - 88°55'43"W]	SIUC—1964
M	" ", 4 mi E [mapped at 37°24'35"N - 88°49'22"W, 135 m]	INHS—1949

Madison Co.

M	(38°48'15"N - 89°56'15"W) W of Dunlap Lake, Edwardsville [questioned record]	SIUE—1963
M	(38°56'45"N - 90°16'W)	SIUE—1965

Mason Co.

M	Havana, 3.5 mi SE [mapped at 40°15'15"N - 90°01'14"W, ca 148 m]	INHS—1968
M	Sand Ridge State Forest [mapped at campground at ca 40°23'25"N - 89°52'W, 152 m]	INHS—1975
M	T22N - R7W, NE 1/4, Sec 4 [mapped at 40°23'27"N - 89°53'14"W, ca 154 m]	INHS—1961

Massac Co.

M	jct IL 145 & IL 146, 8 mi S [mapped at 37°15'20"N - 88°40'28"W]	UIMNH—1964
M	New Columbia [mapped at 37°18'23" - 88°45'50"W, 122 m]	INHS—1950
M	Round Knob, 3 mi E [mapped at 37°16'N - 88°42'23"W, 152 m]	UIMNH—1948

Menard Co.

M	Tallula [mapped at 39°56'35"N - 89°56'35"W, 183 m]	INHS—1985

Monroe Co.

M	Fults [mapped at 38°10'N - 90°12'30"W, 128 m]	UIMNH—1957
M	" ", 3 mi N [mapped at 38°11'35"N - 90°14'50"W, 128 m]	INHS—1949
M	" ", 3 mi S [mapped at 38°08'40"N - 90°10'W, 125 m]	INHS—1949
M	" ", Nature Preserve sign, 0.8 mi S on Bluff Rd [mapped at 38°09'23"N - 90°11'27"W, 122 m]	SIUC—1991
M	Valmeyer, 12 mi S on Bluff Road [mapped at 38°09'40"N - 90°11'45"W, 213 m]	SIUE—1963

Perry Co.

M	Pinckneyville [mapped at 38°04'55"N - 89°23'05"W, 128 m]	INHS—1972

Pike Co. (New county record)

M	Pearl RR crossing, 1.1 km S - 3 km W (39°26'58"N - 90°39'42"W, 165 m)	SIUE 2846, 47—1982

Pope Co.

M	Bell Smith Springs [mapped at 37°31'10"N - 88°39'29"W]	SIUC—1963
M	" ", State Park [mapped at BSS Rec.Area; 37°31'10"N - 88°39'29"W]	SIUC—1965
M	Burden Falls [mapped 37°33'50"N - 88°38'32"W]	SIUC—1960
M	Dixon Springs [mapped at 37°22'50"N - 88°40'22"W]	INHS—1947
M	Eddyville [mapped at 37°30'12"N - 88°34'50"W]	INHS—1948
M	" ", 3 mi E or R6E - T12S, Sec 10 [mapped at 37°29'53"N - 88°32'26"W]	SIUC—1971
M	Golconda [mapped at 37°21'45"N - 88°29'07"W, 122 m]	INHS—1947
M	Hayes Creek Canyon [mapped at 37°29'15"N - 88°37'15"W]	SIUC—1995
M	Herod [mapped at 37°34'58"N - 88°26'08"W]	INHS—1935, SIUC—1951
M	Indian Kitchen [mapped on Lusk Creek at 37°30'39"N - 88°31'35"W, 176 m]	SIUC—1964
M	Widemann Forest, Dixon Springs Exper. Station [mapped at 37°26'05"N - 88°40'W]	UIMNH—1963

Pulaski Co.

M	Olmsted [mapped at 37°10'44"N - 89°05'W]	SIUC—1953
M	" ", 2 mi N [mapped at 37°12'25"N - 89°04'55"W, 137 m]	INHS—1953

Randolph Co. (New county record)

M	Ruma, 1.5 mi SW [mapped near Camp Creek at 38°06'49"N - 90°00'44"W, ca 140 m]	SIUE 2845—1974

Richland Co.

N	No specific locality (county record without verification)	Smith (1961)

St. Clair Co. (New county record)

M	jct IL 161 & Old Lincoln Trail, 0.7 km S - 0.4 km E [mapped at 38°34'38"N - 90°02'07"W, 173 m]	SIUE 2885—1961

Union Co.

M	Alto Pass [mapped at 37°34'05"N - 89°18'50"W, 243 m]	UIMNH—1931
M	Anna-Jonesboro State Park [mapped at 37°27'30"N - 89°16'10"W]	SIUC—1951
M	Jonesboro, 4 mi W [mapped on Green Creek at 37°27'17"N - 89°19'57"W, ca 114 m]	UMMZ—1947
*	Pine Hills	SIUC—1957
M	" ", grass behind Cabin # 1 [mapped at 37°32'28"N - 89°26'15"W, ca 117 m]	SIUC—1970
M	" ", next to Otter Pond [mapped at 37°32'23"N - 89°26'18"W]	SIUC—1961
M	Pine Hills Road, T11S - R3W, Sec 33 [mapped at 37°30'50"N - 89°26'07"W]	UIMNH—1960
M	" ", 1.1 road mi E jct with IL 3 [mapped at 37°31'03"N - 89°25'52"W, 134 m]	USNM—?
M	Wolf Lake [mapped at 37°30'20"N - 89°25'30"W, 122 m]	UIMNH—1949
M	" ", 2 mi E [mapped at 37°29'45"N - 89°24'10"W, 122 m]	UIMNH—1954
M	37°35'06"N - 89°26'22"W, 152 m	SIUE—1974

Wabash Co.

M	Mount Carmel [mapped on Greathouse Creek at 38°26'23"N - 87°45'53"W, 137 m]	USNM—1880

Washington Co.

M	Elkton (on fence post?) [mapped at 38°17'35"N - 89°32'45"W, 143 m]	SIUC-1963

Wayne Co. (deleted from state list)

N	Sam A. Baker State Park [erroneous record]	UIMNH—1950

Williamson Co.

*	Big Muddy River near Herrin	SIUC—1940
M	Stiritz [mapped at 37°50'22"N - 88°57'13"W, 122 m]	SIUC—1939

No county identified

N	Southern Illinois	UMMZ—1857or 8
N	" "	USNM—1857or 8

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