

SOME DISTRIBUTIONAL AND ECOLOGICAL RECORDS OF KANSAS REPTILES

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The present contribution is the result of collecting activity and research beginning as early as 1923 and extending forward to the present time. During the years 1923 and 1927, while I was a student at Kansas State College, a report on the "Lizards of Kansas" was prepared, and since only county records were presented in this work, the unpublished more exact locality data on Kansas lizards are presented here in order that they may be made permanently available to working herpetologists. It is to be noted in this connection that a seemingly large number of the previous locality records on Kansas reptiles are no more than county reports.

During the academic years 1931-32 and 1932-33, while on the teaching staff of Southwestern College, I have taken the opportunity to make various collecting excursions through sections of Kansas, and to encourage my students to make general collections, in order that our knowledge of Kansas reptiles might be advanced, and the results to date (March, 1933) are incorporated herein.

During the summer of 1932, while I was studying at the Division of Reptiles, I was permitted to examine the Kansas reptiles in the United States National Museum through the kindness of Dr. Leonard Stejneger and Miss Doris M. Cochran. The reptiles of the Museum of Kansas State College have been studied during the present academic year through the courtesy of Dr. Robert K. Nabours, and the lizards in the collection of the Museum of Kansas University were examined in 1926-27 through the kind permission of Mr. C. D. Bunker.

The specimens that have passed through my hands have been widely distributed both to museums and to individuals. The leading museums to which specific specimens have been given are indicated in the following report, but those examples sent to individuals (or observed dead on the road and positively identified) are not so indicated. Following the name of the museum is the name of the collector and the date of collection.

The friends and correspondents from whom I have received specimens and records are as follows: Ivan R. Burket, A. J. Cheatum, L. M. Clausen, F. F. Crevecoeur, Stephen T. Egan, Gerald G. Grout, M. J. Harbaugh, H. J. Harnly, Minna E. Jewell, A. R. Miller, William Nauerth, Felix Nolte, Gabriella Pratt, W. J. Robinson, H. H. Schwardt, C. A. Smith, William R. Thompson, G. A. Whitney, and A. P. Williams.

1. Trans. Acad. Sci. St. Louis, 26:1-81, figs. 1-14, 1928.

The students in my class at Southwestern College who have supplied specimens mentioned in this report are—Victor Baltzell, Madelyn Cochrum, Keith Corp, Lawrence Day, Clayton Gerboth, Lyle Glenn, Luther Hoyle, Robert Kelly, Don Milliken, Merlin Trumbull, and Norval Woodworth. To all of these I am deeply grateful.

Besides the collectors indicated in the two above lists, the following names appear in connection with the museum data at hand: Samuel Army, Vernon Bailey, R. H. Beemer, H. Brandt, B. B. Breese, S. T. Brooks, W. H. Burt, F. C. Burtis, W. T. Cole, C. R. Collins, Arthur Davis, L.R.Dice, Fred P. Drew, B.F. Dutcher, Lieut. Eustis, Howard Fisk, H. K. Gloyd, B. F. Goss, E. R. Hall, Leo F. Hilger, Victor Householder, Julius Hurter, J. D. Irwin, Isic Jones, Vernon Mann, S. C. Mason, R. L. Moodie, Robert K. Nabours, Dr. Newton, J. B. Norton, E. A. Pope-noe, Tom Pugh, Joe Reyburn, J. N. Rose, C. S. Rudd, Mr. Shamel, T. H. Sheffer, E. P. Smith, Hobart M. Smith, W. T. Smith, D. H. Sprong, J. Stirling, Thomas Stirling, R. A. Stirton, E. H. Taylor, J. K. Townsend, T. E. White, Wayne B. Whitlow, J. T. Willard, J. W. Woodworth, and L. F. Youse.

In the following distributional tables the initials of collectors are omitted, except when they are necessary to distinguish those bearing the same surname. Conventional abbreviations of the names of museums appear in the text, but the museums now holding specimens listed in the distributional tables are given numbers as follows:

1. Museum de l'Histoire Naturelle Basel
2. Collection of Frank N. Blanchard
3. British Museum of Natural History
4. California Academy of Science
5. Field Museum of Natural History
6. Kansas State College Museum
7. Kansas University Museum
8. Museum of Zoology, University of Michigan
9. Zoologischen Staatssammlung zu München
10. Museum of Comparative Zoology
11. Museum of Vertebrate Zoology, University of California
12. United States National Museum
13. United States National Zoological Park.

LIZARDS

Crotaphytus collaris (Say)

A collared lizard from Cowley County (U. S. N. M. 88109) is remarkable because it shows a rudimentary collar that is composed mostly of restricted dark spots. Ordinarily the two collar bars are

well developed on each shoulder in Kansas specimens. Another specimen ate a Sonoran skink (*Eumeces obsoletus*) at Kansas State College on September 18, 1927. A large number of exact locality records are at hand for this lizard as follows:¹

- ANDERSON: Garnett (White, July 26, 1926) 7
 5 1-2 miles Southwest of Garnett (White, June 6, 1926) 7
 BARBER: 5 miles S. W. Sun City (Householder, July 18, 1912) 7
 BUTLER: Beaumont (July 18, 1912) 7
 CHASE: Cottonwood Falls (Thompson, September 20, 1926)
 CHAUTAUQUA: Cedarvale (Bailey, July 12, 1892) 12
 Camp Ta-la-hi 4 mi. S. E. Cedarvale (C. E. Burt, April 30, 1932) 12
 6 mi. S. E. Sedan (C. E. Burt, June 2, 1932) 12
 CLARK: Ashland (Burket, May 22, 1926)
 COFFEY: Pottawatomie (Taylor, August 25, 1910) 7
 COWLEY: Arkansas City August 10, 1926) 7
 4 mi. S. E. Arkansas City (C. E. Burt, April 11, 1932) 4
 9 mi. S. E. Dexter (C. E. Burt, April 30, 1932) 9
 Southwestern College campus (Woodworth, May 1, 1932) 12
 3 mi. E. Winfield (C. E. Burt, April 17, 1926) 12
 6 mi. E. Winfield (Baltzell, May 7, 1932) 11.
 3 mi. N. E. Winfield (Hoyle, July 19, 1932) 12
 6 mi. N. E. Winfield (Hoyle, May 4, 1932) 3
 4 mi. S. Winfield (C. E. Burt, April 9, 1932) 9
 11 mi. S. E. Winfield (C. E. Burt, April 17, 1925)
 3 mi. W. Winfield (Trumbull, May 13, 1932)
 ELK: Elk River (Moodie, June 27, 1912) 12
 Pawpaw Creek near Elk River (Householder, July 7, 1912) 12
 ELLSWORTH: Horsethief Canyon (Harnly, 1925) 12
 GEARY: Fort Riley (Brandt) 12
 GREENWOOD: Fall River (July 7, 1912) 7
 Salt Creek (July 17, 1912) 7
 HARPER: Anthony (Householder, July 21, 1916) 7
 LINCOLN: Lincoln (Robinson, September, 1926)
 MARION: Florence (Householder, July 24, 1912) 12
 MARSHALL: 5 mi. S. W. Waterville (C. E. Burt, April 16, 1927)
 MITCHELL: Glen Elder (Miller, September 1926)
 MONTGOMERY: Independence (August 7, 1926) 7
 Wayside (Whitlow, August 4, 1925) 7
 NEOSHO: 1-2 mi. No. of Morehead (C. E. Burt, July 28, 1926)
 POTTAWATOMIE: E. Rocky Ford P. P. (C. E. Burt, Sept. 24, 1926)
 RILEY: 2 mi. S. Manhattan (C. E. Burt, April 27, 1927)

1. In this and the following tables the items are county, locality, collector and date in parentheses and ending with a number designating the museum in which the specimen is preserved.

- Wildcat Creek W. Manhattan (C. E. Burt, 1925) 12
 RUSH: 3 mi. W. Shaffer (C. E. Burt, May 15, 1926) 12
 WILSON: Dunn (Williams, July 27, 1926)
 7 mi. N. W. Neodesha (C. E. Burt, July 27, 1926)

Holbrook's maculata maculata (Girard)

Three of these swifts were found to be hibernated in a post-hole in a barren sandy area near Dodge City on March 29, following a cold period. Present records for the subspecies are listed below.

- BARBER: Sun City (Householder, July 10, 1916) 7
 CLARK: Ashland (Burket, May 2, 1926)
 Englewood (Sheffer, July 18, 1902) 6
 DICKINSON: Abilene (H. M. Smith, July 21, 1929) 12
 Carlton (T. Stirling, June 16, 1914) 7
 EDWARDS: Trousdale (Householder, July 5, 1916) 7
 ELK: Longton (July 11, 1912) 7
 ELLSWORTH: Horsethief Canyon (Harnly, 1925)
 FORD: 3 mi. E. Dodge City (Trumbull, March 29, 1932) 3
 GRANT: Doby (Cheatum, September 1, 1926) 12
 HAMILTON: 5 mi. N. E. of Syracuse (Ross) 12
 HARVEY: 10 mi. N. W. of Halstead (C. A. Smith, 1932) 12
 LANE: Pendemis (August 26, 1926) 7
 LOGAN: Elkader (Moodie, July 16, 1911) 7
 Oakley (Jones, August 8, 1896) 6
 McPHERSON: Battle Hill (C. E. Burt, May 14, 1926)
 Twin Mounds (C. E. Burt, May 2, 1926) 12
 OSBORNE: Alton (Clausen, July 20, 1926)
 OTTAWA: 4 mi. S. W. Minneapolis (C. E. Burt, May 29, 1926)
 PRATT: Cairo (Dutcher, June 28, 1892) 12
 RAWLINS: 27 mi. N. W. Atwood (Hall, July 3, 1922) 7
 RENO: Medora (sand dunes) (Gloyd, July 4, 1929) 12
 STAFFORD: Great Salt Marsh (C. E. Burt, May 1, 1927) 6
 WOODSON: Neosho Falls (Goss) 12

Sceloporus undulatus consobrinus (Baird and Girard)

In some specimens of this subspecies, the dorsal spots are highly concentrated, but in others these spots are more transversely elongate. The back is either blue gray or brown in ground color and all specimens have four distinct lateral stripes.

The following reports are available for this spiny swift:

- BARBER: Sun City (Sheffer, July 13, 1905) 6
 COWLEY: Arkansas City (August 12, 1926) 7
 Winfield (Kelly, May 13, 1932) 9
 ELLSWORTH: Horsethief Canyon (Harnly, 1925)

- HARVEY: 10 mi. N. W. Halstead (C. A. Smith, 1932) 12
 LANE: Pendemis (August 26, 1926) 7
 LOGAN: Elkader (Moodie, 1911) 7
 McPHERSON: Crazy Ridge, W. Lindsborg (C. E. Burt, May 8, 1926)
 Twin Mounds E. Lindsborg (C. E. Burt, May 2, 1926) 12
 RAWLINS: 27 mi. N. W. Atwood (Hall, July 3, 1922) 7
 8 mi. S. W. Atwood (Hall, July 1, 1922) 7
 12 mi. N. E. McDonald (Sprong, July 29, 1923) 7
 RENO: Medora (Gloyd, July 4, 1929) 12
 SALINE: Brookville (H. M. Smith, July 21, 1929) 12
 SEDGWICK: Ninnescah River near Clearwater (Whitney, 1932) 12

***Sceloporus undulatus undulatus* (Latreille)**

A specimen of this subspecies from Fort Riley, GEARY COUNTY (U. S. N. M., J. K. Townsend) has no lateral stripes and shows weak undulating bars on the back, so it cannot be identified as the western subspecies *consobrinus*.

***Phrynosoma douglassii hernandesi* (Girard)**

There is a specimen of the short-horned lizard in the museum of the Kansas State Teachers College at Hays, ELLIS COUNTY, that was collected locally in 1907.

***Phrynosoma cornutum* (Harlan)**

Horned lizards are common in the Kansas prairies, where they may occur either about rocky ledges or sandy areas. According to Mr. C. A. Smith, a female taken at Halstead laid 20 eggs before dying in captivity. Specimens have been obtained as follows:

- ALLEN: Moran (Whitlow, August, 1924) 7
 BARBER: Sun City (Householder, July 6, 1916) 7
 BOURBON: Fort Scott (Pratt, 1926)
 BUTLER: Beaumont (July 18, 1912) 7
 CHAUTAUQUA: 3 mi. S. E. Cedarvale (Hoyle, August 21, 1932) 12
 CLARK: Ashland (Burket, May 2, 1926)
 COWLEY: Arkansas City August 12, 1926) 7
 6 mi. S. E. Cambridge (Hoyle, May 12, 1932)
 Southwestern College Campus (Gerboth, April 20, 1932) 11
 2 mi. N. E. Winfield (C. E. Burt, April 23, 1932) 9
 DICKINSON: Carlton (T. Stirling, June 16, 1914) 7
 ELK: Pawpaw Creek (July 17, 1912) 7
 ELLSWORTH: Horsethief Canyon (Harnly, 1925)
 GEARY: Fort Riley (Drew) 12
 HARVEY: Halstead (C. A. Smith, 1932)
 LABETTE: Bartlett (Householder, July 13, 1915) 7

- LINCOLN: Lincoln (Robinson, September, 1926)
 MITCHELL: 7 mi. S. E. Scottsville (C. E. Burt, July 4, 1923)
 MONTGOMERY: Wayside (Whitlow, August 12, 1924) 7
 MORTON: 12 mi. N. W. Richfield (C. E. Burt, August 23, 1932) 12
 OSBORNE: Alton (Clausen, July 23, 1926) 6
 OTTAWA: Minneapolis (Grout, July 21, 1926) 12
 PRATT: Cairo (Dutcher) 12
 RILEY: Keats (Nauerth, July 25, 1926)
 2 mi. S. Manhattan (C. E. Burt, April 27, 1927)
 Wildcat Creek W. Manhattan (C. E. Burt, May 19, 1926)
 WILSON: Dunn (C. E. Burt, July 27, 1926)

Ophisaurus ventralis (Linne)

The glass-snake is apparently much less common in the prairie states than it used to be, for I have not collected a specimen in Kansas since 1926. Kansas examples represent the striped color-pattern phase of the species. The following reports are available:

- ANDERSON: Glenloch (Taylor, August, 1910) 7
 BOURBON: Fort Scott (Eustis) 12
 DOUGLAS: 7 mi. S. W. Lawrence (Pugh, May 31, 1926) 7
 1 mi. W. Lawrence (Stirton, 1923) 7
 Rock Creek (Householder, October, 1912) 7
 ELK: Longton (July 11, 1912) 7
 GEARY: Fort Riley (Brandt) 12
 LABETTE: Cherryvale (July, 1911) 7
 LEAVENWORTH: 7 mi. N. E. Lawrence (W. H. Burt, May 21, 1926) 7
 LINN: Mound City (Brooks, June, 1923) 7
 MONTGOMERY: Wayside (Whitlow, August 4, 1924) 7
 NEOSHO: 1 mi. N. Thayer (Williams, 1926)
 POTTAWATOMIE: St. George (Davis) 6
 RILEY: Stag Hill S. W. Manhattan (Jewell, October 16, 1924)
 Stockdale (C. E. Burt, September 20, 1925)
 Wildcat Creek W. Manhattan (C. E. Burt, May 6, 1926)
 SHAWNEE: Richland (Heyl) 7
 WASHINGTON: 3 mi. S. E. Haddam (C. E. Burt, June, 1926)
 WILSON: 1 mi. N. Neodesha (Williams, 1926)

Cnemidophorus sexlineatus sexlineatus (Linne)

On the afternoon of March 6, 1933, one young and two adults of this subspecies and a collared lizard were removed by Luther Hoyle from under a deeply imbedded large rock in Cowley county. All of these lizards were covered with a black deposit or scab of earth and all were limp and in a state of complete hibernation when taken. In fact the temperature of their bodies was colder than that of sur-

rounding surface objects, such as rocks, which were handled at the time.

A six-lined race-runner that was placed in a cage with an adult *Terrapene ornata* on May 2, 1932, was soon seized and devoured by the box-turtle.

Many of these lizards are found in shallow pits under flat rocks in prairie ledges on cool days in the spring, a high percentage having their tails nicely curled in one or more circling loops. Frightened examples of this type may not have enough heat energy to resort to the characteristic speed of the species in an attempt to escape, so they often try to bluff their way out of the difficulty by backing into rock crevices, with their faces turned outwards and jaws opened—probably both for purposes of impression and possible attack. The same type of behaviour is often seen in chilled collared lizards.

The present reports of the occurrence of this form may be listed as follows:

- CHAUTAUQUA: Camp Ta-la-hi 4 mi. S. E. Cedarvale (C. E. Burt, April 30, 1932) 12
 COWLEY: 1 mi. N. Winfield (C. E. Burt, May 1, 1932) 12
 2 mi. N. E. Winfield (C. E. Burt, April 23, 1932) 10
 6 mi. N. E. Winfield (C. E. Burt, May 2, 1932) 12
 HARVEY: 10 mi. N. W. Halstead (C. A. Smith, 1932) 12
 RENO: Medora (sand dunes) (H. M. Smith, June 21, 1931) 6
 SALINE: Brookville (H. M. Smith, July 21, 1929) 12
 SEDGWICK: 1 1-2 mi. S. Clearwater (Whitney, 1932)

Leiopisma laterale (Say)

These diminutive brown-backed ground skinks are common in eastern Kansas in the wooded districts. The specimens examined may be listed as follows:

- ANDERSON: Garnett (July 26, 1926) 7
 BOURBON: Fort Scott (Eustis) 12
 Marmatan (Householder) 12
 CHAUTAUQUA: Camp Ta-la-hi 4 mi. S. E. Cedarvale (C. E. Burt, April 30, 1932) 9
 CHEROKEE: School Creek near Galena (W. H. Burt, Sept. 6, 1926) 7
 COWLEY: Silver Creek 11 mi. S. E. Winfield (C. E. Burt, Apr. 17, '26)
 DOUGLAS: 10 mi. W. Lawrence (Youse, May 10, 1925) 7
 ELK: 2 mi. N. W. New Albany (C. E. Burt, July 16, 1926)
 GREENWOOD: 1 mi. S. E. Fall River (C. E. Burt, July 23, 1926) 12
 MONTGOMERY: Independence (Taylor, August 9, 1926)
 RILEY: Manhattan (Popenoe, January, 1896) 6
 WILSON: New Albany (C. E. Burt, July 16, 1926) 12

***Eumeces anthracinus* (Baird)**

One of these rare skinks was secured about 3 miles north of Baxter Springs, CHEROKEE COUNTY, by Hobart M. Smith on April 4, 1931, after it was seen darting among the rocks and leaves of a sparsely wooded hillside. The specimen is now in the collection of the Kansas State College.

***Eumeces fasciatus* (Linne)**

This rather sly skink inhabits the relatively moist woodlands of eastern Kansas, where it is active on sunny days. Our present records of its occurrence in this area may be summarized as follows:

ANDERSON: Garnett (Taylor, July 26, 1926) 7
 ATCHISON: 7 mi. S. Atchison (Nolte, May 19, 1926)
 CHAUTAUQUA: Camp Ta-la-hi 4 mi. S. E. Cedarvale (C. E. Burt, April 30, 1932) 3
 DONIPHAN: Doniphan Lake (W. H. Burt, August 23, 1925) 7
 DOUGLAS: 3 mi. W. Lawrence (W. H. Burt, July 16, 1926) 7
 ELK: 2 mi. N. W. New Albany (C. E. Burt, July 16, 1926) 12
 GREENWOOD: 1 mi. E. of Fall River (C. E. Burt, July 23, 1926)
 LEAVENWORTH: 7 mi. N. E. Lawrence (W. H. Burt, May 12, 1926) 7
 MONTGOMERY: Cherryvale (Shamel, May, 1930) 12
 SEDGWICK: Wichita, 7
 SHAWNEE: Indian Creek (Popenoe, 1895) 6
 WILSON: Verdigris River bluffs 3 mi. N. Neodesha (C. E. Burt, June 27, 1926) 12

***Eumeces obsoletus* (Baird and Girard)**

The Sonoran is given to burrowing. Therefore, it is much more likely to be found under imbedded rocks than such forms as *Crotaphytus collaris* and *Sceloporus undulatus consobrinus*. In fact *Eumeces obsoletus* appears to be more adept at burrowing than the terrestrial *Cnemidophorus sexlineatus sexlineatus*, as evidenced by its appearance in deeper tunnels under rocks when the ground is soft enough to permit burrowing activity. Typically, the Sonoran Skink is an inhabitant of the prairie ledge formations, but one example that was observed repeatedly on the Campus of Southwestern College during April, 1932, lived in a hole in the ground at the base of a large tree, and now and then another individual was seen to run into a small hole in the ground in a grassy lot a few blocks away, where no rocks or other solid objects were evident.

The following records are available for *Eumeces obsoletus*:

ANDERSON: Garnett (July 26, 1926) 7
 5 1-2 mi. S. W. Garnett (White, June 6, 1925) 7

- BARBER: Sun City (Householder, July 13, 1916) 7
- BUTLER: Beaumont (July 18, 1912) 7
 2 mi. S. W. Haverhill (C. E. Burt, July 21, 1926) 12
- COWLEY: Arkansas City (August 12, 1926) 7
 4 mi. S. E. Arkansas City (C. E. Burt, April 11, 1932) 4
 9 mi. S. E. Dexter (C. E. Burt, April 30, 1932)
 New Salem (C. E. Burt, May 8, 1932)
 Southwestern College Campus (Milliken, April 21, 1923) 12
 3 mi. E. Winfield (C. E. Burt, May 17, 1926) 12
 6 mi. E. of Winfield (Corp, May 7, 1932)
 1 mi. N. Winfield (C. E. Burt, May 1, 1932) 1
 2 mi. N. E. Winfield (Hoyle, April 23, 1932) 10
 6 mi. N. E. Winfield (Hoyle, July 19, 1932) 12
 4 mi. S. Winfield (C. E. Burt, April 9, 1932) 13
 1 mi. W. Winfield (Hoyle, June 6, 1932) 12
- DICKINSON: Carlton (J. Stirling, June 16, 1911) 7
- DOUGLAS: Kansas University Campus (Breese, December 13, 1892) 7
 N. W. outskirts Lawrence (C. E. Burt, May 20, 1927) 12
 1 mi. W. of Pleasant Grove (Fisk, September 21, 1924) 7
 Rock Creek at Clinton (June 9, 1912) 7
- ELK: Elk River (July 11, 1912) 7
 Howard (July 17, 1912) 7
- GEARY: Ft. Riley (Brandt) 12
- HAMILTON: Syracuse (Cheatum, September, 1925)
- JEFFERSON: Midland (April 1, 1912) 7
 Williamstown (April 22, 1924) 7
- LEAVENWORTH: 7 mi. N. E. Lawrence (W. H. Burt, May 20, 1926) 7
- LOGAN: Oakley (Jones, September 8, 1896) 6
- MARION: Florence (July 24, 1912) 7
- MARSHALL: 3 mi. S. W. Irving (H. M. Smith, September 15, 1929) 6
 2 mi. N. E. Waterville (C. E. Burt, June 12, 1926) 11
- MCPHERSON: Battle Hill (C. E. Burt, May 14, 1926)
 Marquette (C. E. Burt, May 1, 1926)
- MONTGOMERY: Independence (August 7, 1926) 7
 Wayside (Whitlow, August 4, 1924) 7
- OSAGE: Long Creek (Householder, June 28, 1912) 7
 Quenemo (Householder, June 14, 1912) 12
- OTTAWA: "Rock City" 4 mi. S. W. Minneapolis (C. E. Burt, May 29, 1926)
- POTTAWATOMIE: St. Marys (Egan, 1925)
- RILEY: 4 mi. S. W. Manhattan (C. E. Burt, May 28, 1926)
 Hackberry Glen near Manhattan (Schwardt, May 15, 1924)
 Prospect Hill near Manhattan (Dice, July 27, 1927) 6
 Wildcat Creek W. Manhattan (C. E. Burt, May 27, 1927) 12
- WASHINGTON: Barnes (C. E. Burt, June 12, 1926) 5
 5 mi. S. E. Haddam (C. E. Burt, June 5, 1925)

6 mi. W. Waterville (C. E. Burt, June 10, 1926)
 WILSON: Dunn (C. E. Burt, July 27, 1926)

Eumeces septentrionalis (Baird)

The basic color pattern of this species is the same in all examples, being as follows: flanks clouded; sides with two narrow light stripes, a dark band above each; the wide vertebral region above these markings, light in color and divided into three parts (light streaks) by two narrow dark bands. The individual dark bands and light lines or streaks vary greatly in definition, width and purity of color, especially in the wide vertebral area.

This relatively rare species occurs in various localities in the prairie states. So far, all unusual Kansas Skinks that I have examined have been this form rather than *multivirgatus*. The present reports for *septentrionalis* follow:

ATCHISON: Atchison (Nolte, June 1, 1926)
 DOUGLAS: Lawrence (Beemer, May 1, 1925) 7
 10 mi. W. Lawrence (Youse, May 10, 1925) 7
 POTTAWATOMIE: St. Marys (Egan, 1925)
 Onaga (Crevecoeur, May 23, 1926) 12
 WOODSON: Neosho Falls (Goss) 12

SNAKES

Carphophis amoena vermis (Kennicott)

The following reports are at hand for the worm snake:

BOURBON: Fort Scott (Eustis) 12
 MONTGOMERY: Cherryvale (Shamel, 1930) 12
 POTTAWATOMIE: (Gloyd, June 16, 1929) 12
 RILEY: Manhattan (Eustis, September, 1925) 12

Diadophis punctatus arnyi (Kennicott)

Ring-necked snakes of this subspecies are definitely gregarious and it is not uncommon to secure from three to five individuals under one flat rock in favorable local habitats, where they appear to select situations which average slightly moister than those preferred by *Tantilla gracilis gracilis*, but both forms may occur together. *Diadophis punctatus arnyi* inhabits prairies, especially along rocky ravines and road cuts, and specimens are also secured at the edge of woods, although the form is definitely much less arboreal in Kansas than its allied subspecies (*punctatus* and *edwardsii*) are in the eastern United States. A large example of *arnyi* from Cowley County had a total length of 352 millimeters, the tail measuring 66. The present reports of its occurrence follow:

- ANDERSON: Hyatt (Army) 12 (Type specimen)
 CHAUTAUQUA: Camp Ta-la-hi 4 mi. S. E. Cedarvale (C. E. Burt,
 April 30, 1932) 3
 COWLEY: 4 mi. S. E. Arkansas City (Trumbull, April 11, 1932) 12
 5 mi. N. W. Cedarvale (C. E. Burt, April 30, 1932)
 W. outskirts of Winfield (C. E. Burt, April 23, 1932) 2
 1 mi. N. Winfield (C. E. Burt, May 1, 1932) 12
 1 mi. N. E. Winfield (C. E. Burt April 13, 1932) 5
 2 mi. N. E. Winfield (C. E. Burt, April 23, 1932) 3
 6 mi. S. Winfield (Hoyle, June 1, 1932) 12
 1 mi. S. Winfield (C. E. Burt, May 13, 1932) 9
 4 mi. S. Winfield (C. E. Burt, April 9, 1932) 2
 4 mi. W. Winfield (C. E. Burt, May 13, 1932) 2
 MARSHALL: Irving (Harbaugh, October 1, 1932) 6
 McPHERSON: 7 mi. S. E. Lindsborg (C. E. Burt, May, 1926) 10
 MORRIS: Diamond Springs (Rudd, October 14, 1917) 6
 OTTAWA: 6 mi. S. W. Minneapolis (Grout, July 27, 1926)
 POTTAWATOMIE: 3 mi. S. Garrison (Harbaugh, October 1, 1932) 6
 RILEY: 6 mi. S. Manhattan (Harbaugh, April 24, 1931) 6
 Wildcat Creek W. Manhattan (C. E. Burt, April 4, 1926) 12
 SALINE: Brookville (H. M. Smith, October 19, 1930) 6
 WILSON: Neodesha (C. E. Burt, October 14, 1926)

Heterodon contortrix (Linne)

This hog-nosed snake has been secured as follows:

- GEARY: Fort Riley (Woodworth) 12
 HAMILTON: (Hurter, 1910) 12
 HARVEY: 10 mi. N. W. Halstead (C. A. Smith, 1932) 12
 RILEY: Kansas State College Campus (Harbaugh, September, 1932) 6
 ROOKS: (July, 1885) 6
 SEDGWICK: 6 mi. W. Clearwater (Whitney, 1932) 12

Heterodon nasicus (Baird and Girard)

The following distributional records are available for this hog-nosed snake:

- CHEYENNE: 5 mi. W. McDonald (C. E. Burt, August 5, 1932)
 FINNEY: 6 mi. N. Garden City (C. E. Burt, August 28, 1932) 12
 5 mi. W. Holcomb (C. E. Burt, August 28, 1932)
 GEARY: Fort Riley (Brandt) 12
 HAMILTON: (Hurter, 1910) 12
 HARVEY: 10 mi. N. W. Halstead (C. A. Smith, 1932) 12
 PRATT: Cairo (Dutcher, August 2, 1892) 12
 Pratt (Cheatum, May 1, 1929) 12

RENO: 1 1-2 mi. S. W. Medora (Harbaugh, October 1, 1932) 6
 SHERIDAN: (May 4, 1906) 12
 WALLACE: (July, 1885) 6

***Opheodrys aestivus* (Linne)**

The rough green snake has been obtained at Oswego, LABETTE COUNTY (U. S. N. M. 15648, Dr. Newton; and at Neosho Falls, WOODSON COUNTY (U. S. N. M. 5235, B. F. Goss).

***Coluber constrictor flaviventris* (Say)**

The blue-racer is specialized for swiftness, so when it is located on the prairie it usually rushes through the grass rather than under rocks or into debris. A specimen observed in Labette County on June 2, 1932, contained eggs. The following records are available:

BOURBON: Xenia (Gloyd, May 12, 1928) 12
 CHAUTAUQUA: 6 mi. S. E. Sedan (C. E. Burt, June 2, 1932) 12
 COWLEY: Southwestern College Campus (C. E. Burt, October 17, 1932) 12
 4 mi. E. Winfield (C. E. Burt, April 13, 1932) 12
 6 mi. E. Winfield (Corp, April 23, 1932) 11
 6 mi. N. E. Winfield (Hoyle, October 7, 1932) 12
 2 mi. S. E. Winfield (Hoyle, May 7, 1932) 12
 5 mi. S. E. Winfield (C. E. Burt, May 16, 1932) 12
 DOUGLAS: Wash Creek (Moodie) 12
 GEARY: Fort Riley (Irwin) 12
 HARVEY: 10 mi. N. W. Halstead (C. A. Smith, 1932) 12
 LABETTE: 1 mi. S. Edna (C. E. Burt, June 2, 1932)
 MARION: 2 mi. S. W. Lost Springs (C. E. Burt, October 16, 1932)
 MARSHALL: 5 mi. N. Cleburne (C. E. Burt, October 16, 1932)
 Irving (Gloyd, April 13, 1929) 12
 MIAMI: 5 mi. N. La Cygne (Mann, April 18, 1929) 12
 POTTAWATOMIE: Cedar Creek (C. E. Burt, September 23, 1924) 12
 RILEY: Manhattan (Jewell, September 1, 1928) 12
 Stag Hill S. W. Manhattan (Dice, July 4, 1917) 6
 Wildcat Creek W. Manhattan (Harbaugh, September 1932) 6
 WALLACE: (July, 1885) 6
 WASHINGTON: 1 mi. S. W. Haddam (C. E. Burt, August 12, 1924)

***Masticophis flagellum flagellum* (Shaw)**

This is the black whip-snake of eastern Kansas, where it is not as common as the ordinary black snake (*Elaphe obsoleta obsoleta*). A typical example (M. C. Z., C. E. Burt, Apr. 30, 1932) was secured from under a large prairie rock at Camp Ta-la-hi 4 miles southeast of Cedarvale, CHAUTAUQUA COUNTY.

***Masticophis flagellum flavigularis* (Hallowell)**

The following records are at hand for the whip-snake of western Kansas: 2 miles southwest of Shields, LANE COUNTY (M. C. Z., C. E. Burt, August 28, 1932); Cairo, PRATT COUNTY (U. S. N. M. 44552, Vernon Bailey, July 29, 1892); and SEWARD COUNTY (K. S. C. 286, T. H. Sheffer, July 21, 1905).

***Elaphe laeta* (Baird and Girard)**

The example of this snake from Anderson County that is listed below is the type specimen of *Coluber rhinomegas*, which Cope described as a new species in 1860.

Elaphe laeta has been taken as follows:

ANDERSON: Hyatt (Army) 12
 DOUGLAS: Wash Creek (Moodie) 12
 GEARY: Fort Riley (W. T. Smith) 12
 MONTGOMERY: Cherryvale (Shamel, 1930) 12
 RILEY: Manhattan (Harbaugh, September, 1932) 6

***Elaphe obsoleta confinis* (Baird and Girard)**

This phase may prove to be nothing more than a peculiar mendelian variation in the general population of *obsoleta* when all the facts are known, for it shows none of the ecological or geographical isolation that generally characterizes recognizable subspecies. Both the more or less black color phase of *obsoleta* and the blotched pattern of *confinis* occur in Kansas specimens, and there is no apparent correlation between the number of scale rows on the body and the type of coloration. The same is true of eastern specimens. Therefore, I am provisionally identifying and recognizing *confinis* on the basis of its coloration alone.

A male example, that was kindly identified as *confinis* by Dr. Frank N. Blanchard, was secured 1 1-2 miles east of Valeda, LABETTE COUNTY (U. S. N. M. 85539, C. E. Burt, June 2, 1932). It has 25 scale rows at the middle of the body, 232 ventral plates, 84 subcaudal scales and 31 dorsal blotches.

A second individual from 1 mile south of Garrison, POTTAWATOMIE COUNTY (K. S. C., M. J. Harbaugh, Oct. 1, 1932) was of moderate size and exhibited the full color pattern of *confinis*. It had 27 scale rows at the middle of the body.

***Elaphe obsoleta obsoleta* (Say)**

Black snakes with the characteristic black pattern ascribed to this subspecies occur in eastern Kansas. The present records follow:

GEARY: Fort Riley (Brandt) 12
 FRANKLIN: Ottawa (Gloyd, August 30, 1927) 12
 HARVEY (10 mi. N. W. Halstead (C. A. Smith, 1932) 12
 JEFFERSON: (Moodie, June 7, 1912) 12
 MARSHALL: Oketo (September, 1928) 12
 RILEY: Manhattan (Mason, 1888) 6

The example from Harvey County was taken at the edge of some sandhills. It has 27 scale rows at the middle of the body and the dorsal blotches are obscure, but not entirely obliterated. Thus, the specimen, which is medium-sized is a scutellational and color pattern intermediate between the apparent "phases" of *Elaphe obsoleta* described as *obsoleta* and *confinis*.

***Arizona elegans elegans* (Kennicott)**

One of these snakes was taken near Hutchinson, RENO COUNTY, in 1932 by William T. Cole (U. S. N. M.).

***Pituophis sayi sayi* (Schlegel)**

The following distributional data are available for the common prairie bullsnake:

COWLEY: Southwestern College campus (C. E. Burt, June 1, 1932) 12
 1 mi. E. Winfield (Day, September 24, 1932) 12
 2 mi. E. Winfield (Hoyle, June 1, 1932) 12
 6 mi. N. E. Winfield (Hoyle, April 25, 1932)
 5 mi. N. W. Winfield (Hoyle, May 29, 1932) 12
 2 mi. S. Winfield (C. E. Burt, September 19, 1932) 12
 2 mi. S. E. Winfield (C. E. Burt (October 14, 1932) 12
 DECATUR: Norcatur (C. E. Burt, August 5, 1932)
 Oberlin (C. E. Burt, August 5, 1932) 12
 DICKINSON: 9 mi. N. Herington (C. E. Burt, October 16, 1932)
 DOUGLAS: Rock Creek (Moodie, June 9, 1912) 12
 ELLIS: 1 mi. N. Schoenchen (C. E. Burt, August 28, 1932)
 GEARY: Ft. Riley (Brandt) 12
 GRANT: 6 mi. N. Ulyssess (C. A. Smith, 1932) 12
 HAMILTON: 1 mi. W. Mayline (C. E. Burt, August 28, 1932) 3
 HARVEY: 10 mi. N. W. Halstead (C. A. Smith, 1932) 12
 KEARNY: 1 mi. E. Deerfield (C. E. Burt, August 28, 1932) 10
 1 mi. E. Lakin (C. E. Burt, August 28, 1932) 10
 LANE: 5 mi. N. Dighton (C. E. Burt, August 28, 1932)
 MARSHALL: 5 mi. N. Cleburne (C. E. Burt, October 16, 1932)
 MARION: 2 mi. N. Marion (C. E. Burt, October 16, 1932)
 RILEY: Manhattan (Burtis, May, 1895) 6
 ROOKS: 4 mi. S. Plainville (C. E. Burt, August 28, 1932)
 3 mi. E. Stockton (C. E. Burt, August 28, 1932)

- SCOTT: 4 mi. E. Scott City (C. E. Burt, August 28, 1932)
 SEDGWICK: 1 mi. S. W. Clearwater (G. A. Whitney, 1932) 12
 STAFFORD: 2 mi. W. Macksville (Trumbull, 1932) 12
 SUMNER: Conway Springs (G. A. Whitney, 1932)
 WALLACE: (July, 1885) 6
 WASHINGTON: W. outskirts of Haddam (C. E. Burt, Aug. 12, 1924)

***Lampropeltis calligaster* (Harlan)**

Prairie king snakes are often found in pastures and along roadways, as well as about rock ledges, but they are not as abundant as the bull snakes. The anal plate of one example (U. S. N. M. 88770) is half way divided by a longitudinal suture from in front. Specimens have been secured as follows:

- COWLEY: Southwestern College Campus (C. E. Burt, May 6, 1932) 12
 6 mi. E. Winfield (Corp, April 23, 1932) 11
 1 mi. N. Winfield (C. E. Burt, April 23, 1932) 10
 6 mi. N. E. Winfield (Hoyle, June 2, 1932) 12
 ELLIS: 5 mi. S. Martin (C. E. Burt, August 28, 1932)
 GEARY: 2 mi. S. W. Ogden (C. E. Burt, October 16, 1932)
 KEARNY: 8 mi. W. Lakin (C. E. Burt, August 28, 1932) 12
 LABETTE: 1 mi. E. Valeda (C. E. Burt, June 2, 1932)
 4 mi. E. Valeda (C. E. Burt, June 2, 1932) 12
 MARSHALL: 3 mi. S. W. Irving (Harbaugh, April 19, 1931) 6
 PRATT: Cairo (Dutcher) 12
 RILEY: Manhattan (Popenoe, 1893) 6
 WOODSON: Neosho Falls (Goss) 12

***Lampropeltis getulus holbrooki* (Stejneger)**

Salt and pepper snakes are found about the prairie ledges of Kansas. Specimens have been obtained as follows:

- COWLEY: 2 mi. N E. Winfield (C. E. Burt, October 22, 1932) 12
 GEARY: Fort Riley (Brandt) 12
 JEFFERSON: (Moodie) 12
 ROOKS: 2 mi. S. W. Woodston (C. E. Burt, June 28, 1932) 12

***Lampropeltis triangulum gentilis* (Baird and Girard)**

A specimen in the collection of C. A. Smith, from Hugoton, STEVENS COUNTY (1932), is assignable to this subspecies; and another (K. S. C. 277, Leo. F. Hilger, Aug., 1914) from Mount Hope, SEDGWICK COUNTY, has been placed here by Blanchard.

***Lampropeltis triangulum sypila* (Cope)**

The coral king-snake of Eastern Kansas occurs about prairie ledges occasionally. A specimen from Cowley County has 29 white

cross bands on the body and 8 on the tail, and the black annuli that border these bands are partially confluent ventrally, especially anteriorly, so the example is not an intergrade with the western gentilis, which Blanchard has reported from Mount Hope, Sedgwick County—a short distance to the northwest.

Specimens of sypila are available as follows: 6 miles northeast of Winfield, COWLEY COUNTY (U. S. N. M. 88769, Luther Hoyle, June 2, 1932); and Manhattan, RILEY COUNTY (K. S. C. 283-84, S. F. Little).

***Sonora semiannulata* (Baird and Girard)**

This snake is found under flat prairie rocks in much drier situations than those selected by *Diadophis punctatus arnyi*. The body of most Kansas specimens tends to be gray or brown, with or without a dark spot on the top of the head. The present records for the form are as follows:

BARBER: Sun City (Sheffer, July 3, 1905) 6

CHAUTAUQUA: Camp Ta-la-hi 4 mi. S. E. Cedarvale (C. E. Burt, April 30, 1932) 3

COWLEY: 9 mi. S. E. Dexter (C. E. Burt, April 30, 1932) 3
6 mi. S. Winfield (C. E. Burt, April 9, 1932) 4

***Natrix grahamii* (Baird and Girard)**

One of these watersnakes from Junction City, GEARY COUNTY (K. S. C. 48) has a row of median dark spots on the posterior third of the series of ventral plates.

A second specimen that was collected near the little Arkansas River at Halstead, HARVEY COUNTY (U. S. N. M. 88792, C. A. Smith, 1932) had 19 scale rows at the middle of the body, seven upper labials and nine lower ones, and two preoculars and two postoculars. Like the individual from Geary County, it had a single row of median black spots on the posterior third of the ventral series, and a double row of black spots was noted on the subcaudals.

***Natrix sipedon sipedon* (Linne)**

This is the common water snake or (false) water mocassin of Kansas. It is especially abundant under rocks and logs near streams and ponds where it rests during sunny days, most of the feeding activity taking place at night or in the evening. Specimens have been secured as follows:

CHAUTAUQUA: Camp Ta-la-hi 4 mi. S. E. Cedarvale (Hoyle, August 8, 1932) 12

- COWLEY: 6 mi. N. E. Winfield (Hoyle, October 17, 1932) 12
 2 mi. S. E. Winfield (Hoyle, June 1, 1932) 12
 5 mi. S. E. Winfield (C. E. Burt, May 16, 1932) 12
 GEARY: Fort Riley (Brandt) 12
 GREENWOOD: Salt Creek (Moodie, June 7, 1912) 12
 MARSHALL: Irving (Gloyd, April 27, 1929) 12
 PRATT: Cairo (Bailey, June 29, 1892) 12
 RILEY: Manhattan (Nabours, July 5, 1917) 6
 Pillsbury Crossing S. of Manhattan (H. M. Smith, May 21, 1931) 6
 Wildcat Creek W. Manhattan (C. E. Burt, May, 1925) 12
 RUSSELL: (Moodie) 12
 WOODSON: Neosho Falls (Goss) 12

Natrix sipedon transversa (Hallowell)

Although this snake appears to be differentiated from *sipedon* in some localities (such as those in Kansas) morphological confusion is to be noted in the characters of specimens of the *sipedon* complex from the South and East, so the determination of the proper status of the present cognomen (as well as that of *erythrogaster*) awaits a detailed study of the *sipedon* aggregation throughout its known range.

Taylor has recently suggested that *transversa* is "unquestionably specifically distinct from *sipedon*" (in Kansas), and I find the same relationship existing between the spiny swifts (*Sceloporus undulatus undulatus* and *S. undulatus consobrinus* in this state. However, the characters of the latter forms merge in apparent intergradation in the state of Texas, which lies nearer to the presumed point of phylogenetic origin of these lizards, so I believe that it is proper to regard them as subspecies. It is thus suggested that the analysis of comprehensive data on *sipedon* and *transversa* might reveal a like relationship in support of Blanchard's treatment of the two forms, although this is not to be interpreted as a foregone conclusion on my part.

A specimen of *transversa* has been collected at Abilene, DICKINSON COUNTY (K. S. C.).

Storeria dekayi (Holbrook)

These little brown snakes have been taken at Ottawa, (U. S. N. M. 89175, H. K. Gloyd, Nov. 4, 1922), FRANKLIN COUNTY; and at Manhattan (U. S. N. M. 89176, H. K. Gloyd, Jan. 11, 1928), and on the bluffs just above Wildcat Creek just west of Manhattan (K. S. C., M. J. Harbaugh, Oct. 1932), in RILEY COUNTY.

***Thamnophis lineatus* (Hallowell)**

Dunn is followed in considering the genus *Tropidoclonion* a synonym of the genus *Thamnophis*. As a garter-snake, *lineatus* is a diminutive form with habits similar to those of the young of the larger species of the genus. In the spring individuals are occasionally found under the flat rocks of prairie ledges. At no time have I observed them to be as abundant as *Tantilla gracilis gracilis* and *Diadophis punctatus arnyi* of this same general habitat. Specimens have been secured as follows:

COWLEY: 4 mi. S. E. Arkansas City (C. E. Burt, April 11, 1932) 4
 9 mi. S. E. Dexter (C. E. Burt, April 30, 1932) 3
 Winfield (Hoyle, November 13, 1932) 12
 6 mi. N. E. Winfield (Hoyle, May 4, 1932) 1
 RILEY: Manhattan (Mason, May 9, 1888) 6
 WOODSON: Neosho Falls (Goss) 12

***Thamnophis radix radix* (Baird and Girard)**

A prairie garter-snake, found crushed in the road in Kearny County on August 28, 1932, had fully formed young in the coelom. The following reports are available for the subspecies:

CHEYENNE: E. outskirts St. Francis (C. E. Burt, August 5, 1932) 12
 FRANKLIN: Wellsville (Collins, March 30, 1929) 12
 FINNEY: 3 mi. N. W. Garden City (C. E. Burt, August 28, 1932)
 6 mi. W. Holcomb (C. E. Burt, August 28, 1932) 12
 GEARY: Fort Riley (Brandt) 12
 KEARNEY: 2 mi. E. Deerfield (C. E. Burt, August 28, 1932) 10
 3 mi. W. Deerfield (C. E. Burt, August 28, 1932) 12
 1 mi. E. Lakin (C. E. Burt, August 28, 1932)
 McPHERSON: (Gloyd, July 3, 1929) 12
 NESS: 2 mi. W. Brownell (C. E. Burt, August 28, 1932)
 RILEY: Manhattan (Gloyd, July 23, 1929) 12

***Thamnophis sauritus proximus* (Say)**

This snake has been secured at Ottawa, FRANKLIN COUNTY (U. S. N. M. 89181, Wesley Clanton, March 9, 1927); and at Neosho Falls, WOODSON COUNTY (U. S. N. M. 5237, B. F. Goss).

***Thamnophis sirtalis parietalis* (Say)**

One of these red-sided garter snakes was killed by a road grader in Cowley County on February 28, 1933. It was cut into two sections from a position about 1 1-2 feet in the loose earth where it was buried in a tunnel with its head downward. The present records follow:

- COWLEY: Southwestern College campus (C. E. Burt, Oct. 2, 1932) 12
 1 mi. N. Winfield (Hoyle, February 28, 1933)
 2 mi. W. Winfield (Trumbull, April 21, 1932)
 DICKINSON: 2 mi. S. Herington (C. E. Burt, October 16, 1932)
 FRANKLIN: Ottawa (Gloyd, November 3, 1922) 12
 GEARY: Fort Riley (Irwin, 1867) 12
 MARSHALL: 3 mi. S. W. Irving (Harbaugh, October 1, 1932) 6
 PRATT: Pratt (Cheatum, May, 1929) 12
 RILEY: Wildeat Creek W. Manhattan (C. E. Burt, October 3, 1926) 6
 WASHINGTON: W. outskirts Haddam (C. E. Burt, August 12, 1924)

***Tantilla gracilis gracilis* (Baird and Girard)**

The eastern Kansas specimens of this subspecies that have been critically examined show less than 135 ventral plates, and usually 6 upper labials and 1 postocular. The top of the head is usually brown but it is often black. This latter feature may be a purely mendelian trait that occurs in different degrees of segregation in various districts, but it is scarcely of reliable diagnostic value in differentiating *nigriceps* from *gracilis*.

These brown sand snakes are often found under flat rocks in the prairie ledges during the spring months, and they are frequently in pairs, although they are hardly as gregarious as *Diadophis punctatus arnyi* of the same general biotic community.

The following records are at hand for *gracilis*:

- CHAUTAQUA: Camp Ta-la-hi 4 mi. S. E. Cedarvale (C. E. Burt, April 30, 1932) 12
 COWLEY: 4 mi. S. E. Arkansas City (C. E. Burt, April 11, 1932) 12
 5 mi. N. W. Cedarvale (C. E. Burt, April 30, 1932) 12
 9 mi. S. E. Dexter (Milliken, April 30, 1932) 12
 Southwestern College campus (C. E. Burt, Sept. 23, 1932) 12
 4 mi. E. Winfield (C. E. Burt, April 13, 1932) 10
 1 mi. N. Winfield (Hoyle, May 1, 1932) 1
 6 mi. N. E. Winfield (Hoyle, June 2, 1932) 12
 4 mi. S. Winfield (C. E. Burt, April 9, 1932) 4
 3 mi. S. E. Winfield (Hoyle, April 7, 1932) 5
 4 mi. W. Winfield (Trumbull, April 13, 1932) 12
 POTTAWATOMIE: 3 mi. S. Garrison (Harbaugh, 1932) 6

***Tantilla gracilis nigriceps* (Kennicott)**

One of these snakes from Fort Riley, GEARY COUNTY (U. S. N. M. 4755, H. Brandt), has 140 ventral plates, 2 postoculars, 7 upper labials, and a brown head; and another from HAMILTON COUNTY (U. S. N. M. 58714, J. Hurter, 1910) shows the same variation, with

the exception that there are 152 ventral scutes. Still another individual from 1 mile east of Lakin, KEARNY COUNTY (U. S. N. M. 86915, C. E. Burt, Aug. 28, 1932), varies in having 157 ventrals and a deep black spot on the top of the head. It is interesting to note that the number of ventral scales is less in the Geary County specimen, which may be in the belt of confusion of *nigriceps* and *gracilis* in Kansas, if they do actually intergrade here.

***Agkistrodon mokasen* Beauvois**

Some copperhead snakes were found near Winfield in oily water, and the scales were so covered with oil that the body was darkened to a shade rather comparable with the ground color of the dark phase of the cottonmouth (*piscivorus*) of the southeastern United States.

Records for the copperheads follow:

- BOURBON: Xenia (Gloyd, May 14, 1927) 12
 COWLEY: 7 mi. N. E. Winfield (Hoyle, June 2, 1932) 12
 1 mi. S. Winfield (Hoyle, May 12, 1932) 12
 DOUGLAS: Wash Creek (Moodie) 12
 FRANKLIN: Ottawa (Gloyd, April 27, 1926) 12
 GEARY: Fort Riley (Irwin) 12
 MARSHALL: Irving (Gloyd, May 24, 1929) 12
 3 mi. S. W. Irving (Harbaugh, October 1, 1932) 6
 MIAMI: 5 mi. N. La Cygne (Mann, April, 1931) 12
 RILEY: Manhattan (H. M. Smith, 1928) 12
 Wildcat Creek W. Manhattan (Harbaugh, September, 1932) 6

***Sistrurus catenatus catenatus* (Rafinesque)**

According to M. J. Harbaugh of Kansas State College, the tracks of one of these small rattlesnakes were followed for about 100 yards in the sand dunes of Reno County near Medora, and in the end the snake was located near a cactus clump in a sunning position. When approached the individual was very hostile and began to strike forward when its watchers were still seven feet away. The observations were made at about 2:30 p. m. on Oct. 1, 1932.

An example that was located under a flat rock in Cowley County on April 23, 1932, repeatedly took refuge under this rock as the stone was flipped over several times. I have previously reported this same behavior in a collared lizard (*Crotaphytus collaris*).

This subspecies has been taken as follows:

- COWLEY: 2 mi. N. E. Winfield (C. E. Burt, October 23, 1932)
 6 mi. N. E. Winfield (Hoyle, June 2, 1932) 12
 5 mi. N. W. Winfield (C. E. Burt, September 28, 1931) 12
 RENO: 7 mi. S. W. Medora (Harbaugh, October 1, 1932) 6
 RILEY: Manhattan, 6

STAFFORD: Little Salt Marsh (C. E. Burt, April 30, 1927)

WABAUNSEE: (Willard) 6

***Crotalus confluentus confluentus* (Say)**

The following records of the occurrence of the prairie rattlesnake are at hand:

ELLSWORTH: 3 mi. S. Ellsworth (C. E. Burt, May 1, 1927)

LANE: 3 mi. N. Dighton (C. E. Burt, August 28, 1932)

LOGAN: (July, 1885) 6

WALLACE: (Sheffer, August, 1903) 6

***Crotalus horridus* (Linne)**

According to a report from M. J. Harbaugh, he observed a den of about 25 of these timber rattlesnakes on October 1, 1932, at a place known as the "Devil's Backbone", which is located on a slope about 75 feet above a creek at a point 3 1-2 miles northwest of Irving, MARSHALL COUNTY. There were many rock crevices in the numerous boulders of this vicinity, and at one place the den of buzzing rattlers was located. Due to the protection afforded by their habitat, only 5 of these snakes could be captured. An additional specimen (K. S. C.) was taken on the same date under a rock 3 miles southwest of Irving.

A dissected female of this present species on exhibition at the Kansas State College Museum (z-4728), shows 14 eggs in the coelom. It was collected 8 miles north of Manhattan, RILEY COUNTY, on March 5, 1930.

TURTLES

***Sternotherus odoratus* (Latreille)**

A musk turtle was secured 3 1-2 miles west of Baxter Springs, CHEROKEE COUNTY (U. S. N. M., C. E. Burt, Apr. 25, 1932) in a prairie pond that had some aquatic vegetation growing in it.

***Kinosternon flavescens* (Agassiz)**

One of these turtles was found basking in the sun as it rested in the algae-filled shallows at the edge of a small pond on the eastern outskirts of St. Francis, CHEYENNE COUNTY (U. S. N. M. 86906, C. E. Burt, afternoon of Aug. 5, 1932.) When disturbed it tried to escape by racing to deeper water, but it was caught in a dip net. Other reports are as follows: sand dunes at Medora, RENO COUNTY (K. S. C., Hobart M. Smith, June 21, 1931); 1 mile southwest of St. John, STAFFORD COUNTY (U. S. N. M. 87023, Lyle Glenn, Sept. 1,

1932); and TREGO COUNTY (K. S. C. 361, S. C. Mason, 1888.)

***Chelydra serpentina* (Linne)**

Snapping turtles have been taken from ponds and streams as follows:

CHEROKEE: 1-2 mi. N. Cravensville (C. E. Burt, April 25, 1932) 12

COWLEY: Island Park at Winfield (Hoyle, May 6, 1932) 12

Black Creek 1 mi. S. E. Winfield (Hoyle, Sept. 10, 1932)

Badger Creek 7 1-2 mi. S. E. Winfield (Hoyle, July 4, 1932) 12

RILEY: Manhattan (Popenoe, July, 1894) 6

***Terrapene carolina triunguis* (Agassiz)**

Several box-turtles of this sub-species were collected on the road adjacent to prairie land and woods on the morning of June 2, 1932. These were secured as follows:

CHAUTAUQUA: 2 mi. W. Peru (C. E. Burt, June 2, 1932) 12

MONTGOMERY: 5 mi. E. Tyro (C. E. Burt, June 2, 1932) 12

2 mi. W. Tyro (C. E. Burt, June 2, 1932) 12

***Terrapene ornata* (Agassiz)**

One of these box-turtles that was being kept alive in the laboratory, seized an adult specimen of the six-lined race-runner (*Cnemidophorus sexlineatus sexlineatus*) in its jaws and ate the lizard voraciously, shortly after that hapless creature was introduced into the cage.

Terrapene ornata is very common in the prairies of Kansas, where its dried shells often remain long after the death of their possessors. Individuals often take shelter under rocks in the prairie ledges, but others dig shallow burrows in the ground in which some dry grass may or may not appear.

Specimens were taken or observed as follows:

BUTLER: 2 mi. S. Augusta (C. E. Burt, August 31, 1932) 8

5 mi. S. Burns (C. E. Burt, October 16, 1932)

CHAUTAUQUA: 1 mi. W. Niotaze (C. E. Burt, June 2, 1932) 12

4 mi. S. Sedan (C. E. Burt, June 2, 1932) 12

1 mi. E. Wauneta (C. E. Burt, June 2, 1932)

CHEROKEE: 1-2 mi. N. Cravensville (C. E. Burt, April 25, 1932)

1 mi. W. Melrose (C. E. Burt, April 25, 1932) 12

COWLEY: 7 mi. W. Cedarvale (C. E. Burt, June 2, 1932) 12

2 mi. S. Rock (C. E. Burt, October 16, 1932)

3 mi. E. Winfield (C. E. Burt, May 21, 1932) 12

5 mi. N. Winfield (Hoyle, August 16, 1932)

2 mi. N. E. Winfield (C. E. Burt, April 23, 1932) 12

6 mi. N. E. Winfield (Hoyle, June 2, 1932) 12

- 10 mi. N. E. Winfield (C. E. Burt, April 13, 1932)
 DICKINSON: 3 mi. N. E. Woodbine C. E. Burt, May 16, 1932) 12
 LABETTE: 1 mi. S. Bartlett (C. E. Burt, June 2, 1932) 12
 1 mi. E. Valeda (C. E. Burt, June 2, 1932)
 4 mi. E. Valeda (C. E. Burt, June 2, 1932) 12
 MONTGOMERY: 2 mi. E Caney (C. E. Burt, June 2, 1932) 12
 MORTON: 7 mi. W. Richfield (C. E. Burt, August 28, 1932) 12
 ROOKS: (July, 1885) 6

***Graptemys geographica* (Le Sueur)**

A small turtle (K. S. C. 374), which apparently belongs to this species, was secured near Manhattan, RILEY COUNTY, by J. B. Norton, in July, 1897.

***Chrysemys picta bellii* (Gray)**

On December 3, 1932, an adult painted turtle (U. S. N. M 88658) was found by Luther Hoyle 5 miles north of Winfield, COWLEY COUNTY. The individual was in a state of hibernation as it was removed from a hole in the mud bank of Timber Creek near the mouth of Cedar Creek, but became active after considerable handling and absorption of warmth.

Other examples of this subspecies may be listed as follows:

- COWLEY: Black Creek 2 mi. S. E. of Winfield (Hoyle, May 28, 1932)
 12
 OTTAWA: (Mason, 1888) 6
 RILEY: Manhattan (E. P. Smith) 6

***Pseudemys elegans* (Wied)**

One of these turtles was seined from a pond in the open prairie 1-2 mile north of Cravensville, CHEROKEE COUNTY (U. S. N. M., C. E. Burt, April 25, 1932). Other records are: 3 1-2 miles north of Winfield on the Walnut River, in COWLEY COUNTY (U. S. N. M. 88619, Luther Hoyle, June, 1932); and OTTAWA COUNTY (K. S. C. 382, S. C. Mason, 1888).

***Amyda spinifera* (Le Sueur)**

A young soft-shelled turtle was secured by Madelyn Cochrum in a small stream 1 1-2 miles east of Winfield, COWLEY COUNTY, on February 22, 1932 (Mich.). Other specimens were taken in WAL-LACE COUNTY (K. S. C. 384-385) by the Scientific Expedition of July, 1885, from Kansas State College.