A REPORT ON THE OCCURRENCE OF THE WESTERN DIAMONDBACK RATTLESNAKE *Crotalus atrox* IN KANSAS

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Introduction

The Western Diamondback Rattlesnake, *Crotalus atrox*, is a large rattlesnake, reaching 2 m in length, whose range may extend into a small portion of south-central Kansas (Smith, 1956; Collins, 1982). Identifying characteristics include a brown to gray ground color, 24 to 45 dark, light-bordered diamond or hexagon-shaped blotches running along the dorsal surface, and a distinctly marked tail consisting of large alternating black and white bands (Ernst, 1992).

Distribution and habitat is described by Ernst (1992). *Crotalus atrox* ranges from west-central Arkansas, through eastern and south-central Oklahoma, most of Texas except the Panhandle, west through central and southern Arizona and New Mexico to southeastern California and south into Mexico. This species occurs in a variety of arid or seasonally dry habitats such as deserts, grasslands, shrublands, scrub woods, riparian oak groves, or open coniferous forests. Within these habitats they are usually found among scattered rocks and boulders, or rock outcrops with crevices.

*Crotalus atrox* may have a peripheral range along the southwest and south-central border of Kansas (Hall and Smith, 1947; Smith, 1956, Collins, 1982, Riedle, pers. obs.). There has been evidence of introduced populations of the species in the
central and southeastern portions of the state (Hall and Smith, 1947; Smith, 1956; Riedle, pers. obs.).

**Introduced Populations**

Hall and Smith (1947), documented two individuals of C. atrox, and one individual of Western Rattlesnake, *Crotalus viridis*, in southeastern Kansas. One specimen of C. atrox was found 6 miles west of Pittsburg in Crawford County, and the other specimen was collected 1 mile north of Weir in Cherokee County. The specimen of C. viridis was collected 7 miles west of Pittsburg, near Fleming in Crawford County. Hall and Smith (1947) also collected one individual of C. atrox from Greene County in southwest Missouri. These individuals probably represented an introduced population of both C. atrox and C. viridis.

Based on these observations, Smith and Kohler (1977) listed C. atrox as endemic extinct species in extreme eastern Kansas, meaning that the species was established outside its natural range, but now is extinct. Both C. atrox and C. viridis occupy open arid type climates, whereas southeastern Kansas and southwestern Missouri are representatives of the Ozark Plateau, a more humid environment. For C. atrox these records are 150 miles north of their natural range (Hall and Smith, 1947). *Crotalus viridis* does not occur any farther east in Kansas than Republic County in the north-central part of the state (Collins, 1993).

On 29 September through 1 October 1995, the Kansas Herpetological Society held a field trip at the Horse Thief
Canyon Area near Kanapolis Reservoir in Ellsworth County, Kansas. On the night of 29 September, one individual of *C. atrox* was collected by Emily and Michael Moriarty. This represents the fourth specimen of *C. atrox* collected in Horse Thief Canyon since 1991. All other individuals were collected and killed by Kansas Department of Wildlife and Parks employees. (Kurt Grimm, Kansas Department of Wildlife and Parks, pers. com.).

The Ellsworth County specimens probably represent introduced individuals. Kanopolis Reservoir is 125 miles north of their current range, but this species could possibly survive in Ellsworth County. The habitat is open arid grassland with a lot of rocky bluffs present. Extremely cold weather may play a factor in controlling their population, though, Gloyd (1940) mentioned an introduced population of *C. atrox* in Vernon County, Wisconsin that survived for several years.

Means of Introduction

One of the main means of introduction of this species into the state is the release of pets. In the last few decades, keeping reptiles as pets has become an ever-increasing trend. Rattlesnakes especially have become very popular novelty items. One of the leading pet distributors, Glades Herps Incorporated, listed seven species of rattlesnakes for sale in their September 1995 price list. Prices range from $20 to $60 for North American species of rattlesnakes.

There is a documented record of an exotic species of rattlesnake being found in Leavenworth County, Kansas on 24 May
1980 (Collins, 1993). The species in question was a Mojave Rattlesnake *Crotalus scutulatus*, which is native to southwestern Texas, southeastern New Mexico, southern Arizona, and central and northern Mexico (Ernst, 1992).

Introduced specimens of *C. atrox*, are also coming from the rattlesnake round-ups currently being held in Texas and Oklahoma. I know of eight individuals of *C. atrox* which have been brought into Kansas and donated to colleges, universities, or zoos. In the instances I am aware an individual had obtained the snake at a rattlesnake round-up with the intention of keeping it as a pet. Then, after a period of time, the owner tired of the rattlesnake and tried to dispose of it. Through correspondence with herpetologists from the Tulsa Zoo and Living Museum in Tulsa, Oklahoma, and the Sedgewick County Zoo in Wichita, I learned that these institutions frequently receive unwanted snakes acquired from round-ups.

**Possible Natural Populations**

Collins (1982) stated that there may be suitable habitat for *C. atrox* in south-central Kansas in the Barber and Comanche County area along the Oklahoma border. Webb (1970) documented this species 10 miles from the Kansas border in Alfalfa County, Oklahoma. John Breukelman collected three individuals from Woods County, Oklahoma 3/4 of a mile from the Barber County, Kansas border (Hall and Smith, 1947). Smith (1956, 1995 pers. com.) also mentioned anecdotal information from local landowners in the Barber, Comanche, and Clark County, Kansas areas stating that *C.*
atrox was occasionally seen.

In October 1994, a specimen of C. atrox was donated to the Division of Biological Sciences at Emporia State University. According to information given by the collector, the snake was captured in Barber County, Kansas near the town of Medicine Lodge (Riedle, pers. obs.).

Current Status

The current status of C. atrox in Kansas is undetermined. Smith (1956) included C. atrox as part of the state's herpetofauna. Collins (1982) and Reichard et. al. (1995) listed C. atrox as a species of possible occurrence in Kansas, with the most likely place of occurrence being the Barber and Comanche County area. Collins (1993) stated that C. atrox was no longer a viable candidate for listing as a species of possible occurrence in Kansas. When asked about the current status of C. atrox in Kansas, Hobart Smith, University of Colorado, Boulder, stated that he still believes C. atrox is part of the state's herpetofauna.

Recommendations and Considerations

Steps should be taken to survey the Barber and Comanche County area in south-central Kansas. It would be helpful to know if this species does naturally occur in Kansas. Also, efforts should be made to monitor reports of observations of C. atrox in other areas of Kansas, such as the one in Ellsworth County (Wilson and Porras, 1983).

Other studies should also be undertaken to study interactions and competition between C. atrox and C. viridis to
study what effects, if any, the introduction of *C. atrox* will have if introduced into Kansas (Wilson and Porras, 1983). There are areas of overlap between these two species in north-central Oklahoma (Ernst, 1992), which could provide a site for this type of study.

If possible, restrictions should be placed on *C. atrox* and other non-native species being brought into Kansas from rattlesnake round-ups in other states. Based on the information that I have gathered here, out of state rattlesnake round-ups is where the majority of *C. atrox* may be originating from.

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**Literature Cited**


