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Distribution and Taxonomic Status of Tarantulas in Arkansas (Theraphosidae: *Aphonopelma*)

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Abstract

The genus *Aphonopelma* (Theraphosidae) is marked by a dearth of distributional data and a problematic taxonomy. To develop occurrence information for the genus in Arkansas, I conducted a citizen-science based survey augmented by field work and examination of museum collections. Results of these efforts yielded a significant amount of data that enabled the construction of a county level map of *Aphonopelma* distribution in Arkansas; a resource hitherto unavailable. Three *Aphonopelma* species have been described as occurring in Arkansas: *A. baergi*, *A. hentzi*, and *A. odelli*. Specimens were collected from Arkansas and Oklahoma to evaluate taxonomic and historical issues concerning the three species. Morphologically, the specimen series examined comprised a relatively homogeneous group most similar to descriptions of *A. hentzi*. In light of comparison with specimens examined for this study, species descriptions of *A. baergi* and *A. odelli* are marked by such taxonomic uncertainty as to challenge their validity and presence in Arkansas.

Introduction

Tarantulas (Theraphosidae) are among the largest and most recognizable spiders in North America. Over 50 species have been described as occurring in the United States, all within the genus *Aphonopelma* (Platnick 2008). North of Mexico, representatives of the genus range from California into Nevada, Utah, Colorado, and Kansas, southward into Arizona, New Mexico, and Texas. Portions of Missouri, Arkansas, and Louisiana represent the eastern limits of the genus.

The south-central region of the United States (Arkansas, Louisiana, Oklahoma, and Texas) contains 18 *Aphonopelma* species (Smith 1995). Taxonomy of this group of spiders is problematic. Most recognized *Aphonopelma* species in the United States were described by Chamberlin and Ivie (1939), Chamberlin (1940), and Smith (1995) from small numbers of specimens. As a result, consideration of individual variation within and among populations was limited.

Several of the characters cited in the past as comprising species-level distinctions (Chamberlin and Ivie 1939, Chamberlin 1940, Smith 1995) have since been shown to be of little indicative value (Prentice 1997). Use of dubious characters now calls into question the validity of several *Aphonopelma* species.

Three tarantula species have been reported as occurring in Arkansas, *A. hentzi* Girard 1854, *A. baergi* Chamberlin 1940, and *A. odelli* Smith 1995. *Aphonopelma hentzi* was the first tarantula species described in the United States (Girard 1854, Smith 1995). Chamberlin (1940) describes *A. hentzi* as the most common tarantula “along the valley of the Red River in Arkansas and Oklahoma, etc.” With the designation of several additional *Aphonopelma* species across the region, including *A. baergi* and *A. odelli*, Smith (1995) later redefined the range of *A. hentzi* as limited to northern and central Oklahoma. This range reduction may not be justified, however. Given the aforementioned issues, it is not clear what *Aphonopelma* species actually occur in Arkansas.

Detailed information is also lacking regarding distribution of the genus across the state. Several species are still known only from their type locality and nowhere else. A problematic taxonomy coupled with a dearth of distributional data hampers efforts to conserve *Aphonopelma* species; a group of potential conservation concern. Like many other invertebrates, tarantulas have received little attention from the conservation community (Skerl 1999).

Although no *Aphonopelma* species is currently listed as endangered or threatened at the federal or state level, other tarantula genera in North America contain members who are of conservation concern. A number of *Brachypelma* species in Mexico have declined due to collection for the pet trade and habitat destruction (Locht et al. 1999). The long life spans, delayed sexual maturity, and limited dispersal abilities characteristic of tarantulas may make them especially vulnerable to such factors (Janowski-Bell 2001).

The objectives of this study were to define *Aphonopelma* distribution across Arkansas and to examine morphological variation in a preliminary effort to evaluate the taxonomic status of species listed as occurring in the state.

Materials and Methods

Distribution

In order to assess the distribution of tarantulas rapidly at a state-wide level, I developed a citizen-science effort called the Arkansas Tarantula Survey. The survey's objective was to solicit tarantula sightings from individual across the state. The survey followed the general methodology of a citizen-based effort conducted in Missouri to map tarantula distribution (Janowski-Bell 2001). The Missouri effort proved successful in generating useable distributional data over a large geographical area in a short amount of time with limited monetary expenditure.

To acquire citizen observations of tarantulas, I created a website which described the purpose of the survey, detailed how individuals could participate, and provided tools for tarantula identification. I also developed printed materials in the form of full color posters that contained information about the survey. These posters were mailed to personnel at select state parks, state wildlife management areas, national wildlife refuges, and national forests in Arkansas with the request that they be posted in areas accessible to the public. To further publicize the survey, I sought media attention through dissemination of press releases to news outlets and contacted newspaper reporters across the state.

The survey was open for public reporting from February 2004 to December 2004. That time span covers the active period for *Aphonopelma* species in Arkansas, particularly the dispersal of adult males during the fall breeding season (Baerg 1958). Individuals were asked to submit tarantula sightings either online through a web-based reporting form, e-mail, telephone, or postal service. A "sighting" was defined as the observation of an individual tarantula within a given area at one point in time. Survey participants were asked to provide their contact information, the location and date of their sighting, and a description of the spider they observed.

All tarantula sightings submitted to the survey were carefully evaluated. Particular attention was paid to descriptive information provided by respondents. In some cases, individuals would describe spiders that were obviously not tarantulas. Such sightings were omitted from the database. Sightings that lacked descriptive information of the spider observed were removed. Some individuals submitted observations of tarantulas made prior to the 2004 reporting period, those were not included either. Citizen sightings deemed valid were mapped at the county level. To augment citizen reports of tarantulas, I also conducted

field surveys and searched museum collections for specimens.

Morphology

Morphological measurements of collected specimens were made in mm using a dial caliper, ± 0.01 mm. Attention was focused on taxonomic characters found by Prentice (1997) to have high discriminatory value for both sexes. Leg and pedipalp measurements were made on the left side of all specimens. Trochanters and coxae were measured from their ventral aspect. All other leg measurements were taken dorsally. Carapace length was taken with anterior and posterior margins in the same horizontal plane. Carapace length is considered to be the best indicator of overall size in *Aphonopelma* species (Prentice 1997). Extent of metatarsal scopulation was evaluated by using maximum extent of complete metatarsus I scopula as the proximal point for measurement in metatarsi II-IV. Palp length was calculated by adding the lengths of the femur, patella, and tibia only. Spermathecae and emboli were illustrated with aid of a stereomicroscope. All collected specimens were stored in 80% ethanol and deposited into the Arthropod Museum at the University of Arkansas.

Results and Discussion

Distribution

The citizen-survey resulted in the submission of 523 observations. Of that total, 393 observations were deemed valid sightings of tarantulas. The majority of sightings were submitted via the web-based reporting form. The first observations of tarantulas by survey participants were submitted in March 2004. In Arkansas, tarantulas are known to unseal their burrows, following overwintering, from mid-February throughout May (Baerg 1958). Number of tarantula sightings reached one of two peaks for the year in May 2004. Based on descriptions of tarantulas reported during May, most observed individuals were either females or immature males. A small number of adult males were observed as well. Observance of sexually mature males during early spring suggests either overwintering or an early maturation (Janowski-Bell and Horner 1999). Numbers of observed tarantulas declined throughout the summer months (June through August). Reported sightings increased again in September 2004.

Based on participant descriptions, the majority of tarantulas observed during September and October 2004 were adult males. Late summer into early fall in Arkansas is when sexually mature male *Aphonopelma*

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leave their burrows and wander in search of mates (Baerg 1958). Once male *Aphonopelma* molt into sexually mature adults, they exhibit certain morphological traits that readily distinguish them from immatures and adult females (Baerg 1958). Adult males are almost black, with a few brown hairs on the abdomen. The carapace is a copper to gold color and the legs are quite long. Following large numbers of sightings in October 2004, observations declined into November 2004. The final sighting for the survey period was reported on 7 November 2004.

Field surveys and examination of museum collections resulted in the acquisition of 39 specimens from Arkansas and 3 from Oklahoma. Specimen localities are given below. Localities from the citizen-science survey, along with records from collected specimens, are mapped at the county level for Arkansas (Figure 1). Locations of collected specimens are listed below:

USA: ARKANSAS: *Ashley County*, Crossett, 1♂, 6 October 2004. *Boone County*, Green Forest, 1♂, 4 October 2004. *Carroll County*, Eureka Springs, 1♀, 22 May 2002. *Clark County*, Arkadelphia, 1♂, 10 October 1996; Arkadelphia, 1♂, 20 October 1997; Arkadelphia, 1♂, 17 October 1999; Jackmount, 1♂, 20 October 1997. *Cleburne County*, Heber Springs, 1♂,

26 September 2004. *Franklin County*, Altus, 1♂, 27 November 2004. *Garland County*, Hot Springs, 1♂, 16 October 1997; Hot Springs, 1♂, 28 October 1999; Hot Springs, 1♂, 28 November 1999. *Hempstead County*, Hope, 1♂, 6 October 1999. *Hot Spring County*, Bismarck, 1♂, 29 November 1999. *Howard County*, Cossatot State Park-Natural Area, 1♂, 20 October 2004. *Izard County*, Horseshoe Bend, 1♂, 18 May 2006. *Logan County*, Mount Magazine, 1♂, 7 October 2004. *Madison County*, Bear Hollow Natural Area, 1♀, 18 September 2004. *Nevada County*, Prescott, 1♂, 10 November 1991. *Pope County*, Russellville, 1♂, 16 May 1999. *Pulaski County*, Little Rock, 1♂, 2 June 2004; Maumelle, 1♀, 26 May 2004. *Saline County*, Bauxite, 3♂1♀, 17 October 2004; Benton, 1♂, 16 September 1997; East End, 1♂, 21 May 2004; East End, 1♂, 15 June 2004; Glenrose, 1♀, 2 September 2004. *Sebastian County*, Fort Smith, 1♂, 20 September 2004; Fort Smith, 1♂, 27 September 2004; Fort Smith, 1♂, 16 October 2004. *Montgomery County*, Story, 1♂, 9 September 2004. *Washington County*, Fayetteville, 1♂2♀, 21 August 2004; Springdale, 1♂, 16 September 2004. *White County*, Otte, 1♀, 6 September 2004. OKLAHOMA: *Garfield County*, 1♂, 7 June 2004. *Le Flore County*, Pawhuska, 1♂, 14 September 2004. *Osage County*, Pocola, 1♂, 27 September 2004.

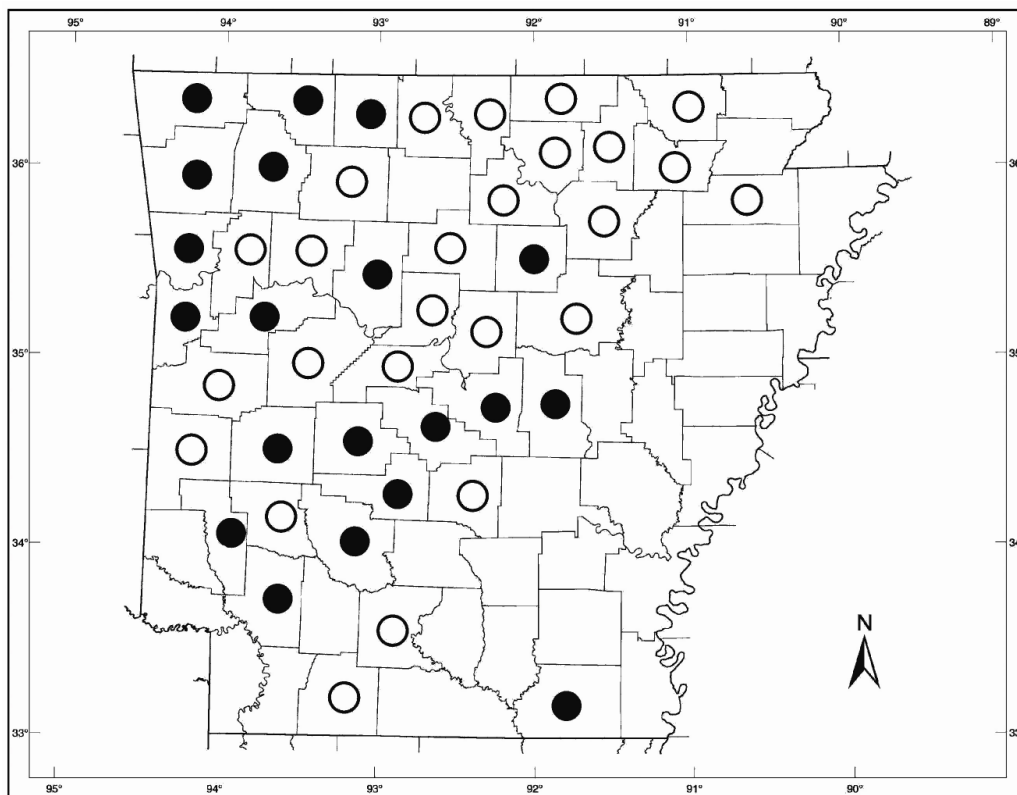


Figure 1. Distribution of *Aphonopelma* in Arkansas. Solid circles represent counties for which both a voucher specimen and sight observation exist. Open circles signify those counties with sight records only.

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Most tarantula observations submitted by participants were clustered around population centers within the state. Tarantulas were most often reported from a respondent's private property. Since observations were clustered, less densely populated areas of the state may not have been as well sampled. While this bias does impose limits on the data, the use of citizen observations in this case made it possible to generate distributional data over a very short time frame and at a low cost. While certainly incomplete in scope, generating comparable distributional data through a more formalized effort would have required significant expenditures of both time and financial resources.

Morphology

A total of 8 adult females and 26 adult males were secured from Arkansas. Three adult males were obtained from localities within the putative range of *A. hentzi* in Oklahoma as well. A small number of specimens were found in museum collections, but due to varying states of condition, were not included in the morphological assessment. Type specimens of *A. baergi* (American Museum of Natural History), *A. odelli* (Oklahoma State University), and *A. hentzi* (Oklahoma State University) were not examined.

Larger numbers of males than females were obtained as the former leave their burrows upon maturity and wander in search of females making them more conspicuous and hence easier to collect. Adult females are more difficult to locate, as they are more sedentary in comparison to males.

Adult female and male *Aphonopelma* from Arkansas, and adult males from Oklahoma, form a relatively homogenous group in terms of carapace and leg lengths (Table 1). Range values established for these measurements overlap significantly especially as far as males from Arkansas and Oklahoma are concerned. On average, scopulation covered roughly one-third of metatarsus IV for all specimens collected from Arkansas and Oklahoma. Specimens of both genders were also typified by undivided scopula and hairlike setae on the prolateral face of coxa I.

Spermathecal structure for all female specimens examined exhibited little variation (Figure 2). All 8 specimens possessed spermatheca separated and with capitate bulbs, typical of the genus *Aphonopelma* (Prentice 1997). Spermathecae did exhibit slight variability in height but were marked by an overall structural consistency.

Male emboli displayed little variation as well for specimens collected from Arkansas and Oklahoma (Figure 3). All males displayed slender emboli with weakly developed apical and prolateral inferior keels at the distal tip.

The legs of adult males from Arkansas and Oklahoma were clothed in black pubescence. Abdomens were characterized by short black hairs interspersed with longer brown setae. The carapace of males ranged from light brown to copper in coloration. The legs of adult females ranged from dark brown to black in color. The abdomens of females were generally covered in dark brown setae while carapaces were light brown in color.

Table 1. Carapace, leg, and metatarsal values for Arkansas and Oklahoma *Aphonopelma* along with values for holotype and paratype specimens (means, SD). LC = carapace length, LAI, LAII, LAIII, LAIV = length of legs I, II, III, and IV, ScMIV (%) = percent scopulation of metatarsus IV.

	Arkansas ♀ [n = 7]	AR ♂ [n = 26]	OK ♂ [n = 3]	<i>A. hentzi</i> [holotype ♂]	<i>A. hentzi</i> [paratype ♀]	<i>A. baergi</i> [holotype ♀]	<i>A. odelli</i> [holotype ♀]
LC	16.72-19.74 (18.35, 1.09)	12.03-18.36 (15.00, 1.33)	15.88-17.51 (16.66, 0.82)	15.00	20.00	36.00	21.00
LAI	51.35-63.54 (59.15, 4.46)	52.38-67.30 (60.39, 3.97)	63.83-68.25 (65.70, 2.29)	48.00	47.00	82.80	47.00
LAII	50.84-61.83 (54.84, 4.14)	48.47-67.23 (57.74, 3.92)	61.60-64.30 (62.65, 1.45)	46.00	44.00	73.70	43.00
LAIII	49.14-58.55 (52.99, 3.60)	46.70-64.49 (54.46, 3.67)	57.07-61.44 (58.84, 2.30)	42.00	40.00	71.30	41.00
LAIV	55.90-67.03 (62.38, 5.05)	54.05-75.50 (64.99, 4.57)	66.22-71.96 (69.19, 2.88)	52.00	51.00	81.80	51.00
ScMIV (%)	30-40 (37.50)	30-47 (37.65)	30-44 (34.67)	35	--	--	52

Distribution and Taxonomic Status of Tarantulas in Arkansas (Theraphosidae: *Aphonopelma*)**Status of *Aphonopelma baergi***

Aphonopelma baergi was described by Chamberlin (1940) from a single adult female taken from the collection of William J. Baerg, a noted figure in North American arachnology (Peck 1981). The type locality is Fayetteville, Washington County, Arkansas. No other localities for the species have been published. Although the type specimen of *A. baergi* was purportedly taken from Baerg's own Fayetteville, Arkansas study site, evidence suggests otherwise (Smith 1995).

Chamberlin (1940) states that the species is "readily distinguishable from others known from the United States by its large size, coloration, and the spacing and proportions of the eyes." The *A. baergi* type specimen is atypically large, with a carapace length of 36 mm. Smith (1995) cites the carapace length of the type specimen as 28 mm. Chamberlin (1940) does reference an immature female as being taken from the same locality as the type. Smith (1995) must have examined the immature specimen instead of the actual type. This proposition is supported by the fact that leg lengths cited by Smith (1995) for the *A. baergi* type are significantly less than those described by Chamberlin (1940). In light of that, measurements provided in Table 1 for *A. baergi* are based on values from Chamberlin (1940).

Baerg (1958) lists carapace measurements of 3 adult females from his Fayetteville study site as between 17 to 21 mm. The average carapace length of 2 adult females taken from within Fayetteville, Arkansas for

this study was 19.40 mm. The average carapace length for 6 additional adult females collected elsewhere in Arkansas was 18.2 mm. The average carapace length for 8 south-central United States *Aphonopelma* species with female types is 20.10 mm; carapace lengths taken from Smith (1995). The female paratype of *A. hentzi* has a reported carapace length of 20 mm (Smith 1995). The measurements cited for adult (Chamberlin 1940) and immature individuals (Smith 1995) are clearly outside the normal size range for *Aphonopelma* in the south-central United States.

While carapace length is a relatively objective taxonomic character, the other characters highlighted by Chamberlin (1940) as distinguishing *A. baergi*, coloration and spacing and proportions of eyes, are more subjective in nature. The coloration of *A. baergi* was described by Chamberlin (1940) as "deep chocolate brown, nearly black. Long hairs of legs mostly similar color, but in part, on posterior pairs more especially rust-colored. Long setae of abdomen rust colored." While this color pattern could roughly approximate that of specimens found in Arkansas, it could also be applied to a number of other species across the south-central United States. The use of coloration in and of itself can be quite subjective and dependent upon time since last molt (Prentice 1997). In addition, differences in the spacing and proportion of eyes, cited by Chamberlin (1940) as defining characters for a number of *Aphonopelma* species, have been found to be highly variable and to constitute artificial differences (Prentice 1997).

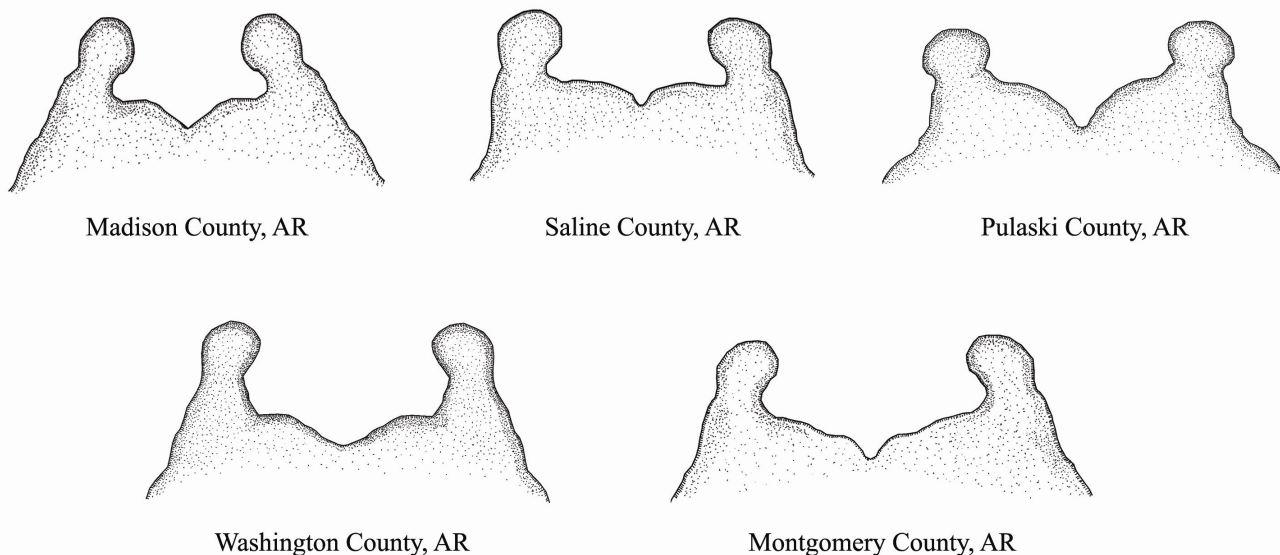


Figure 2. Representative spermathecae of female *Aphonopelma* collected in Arkansas.

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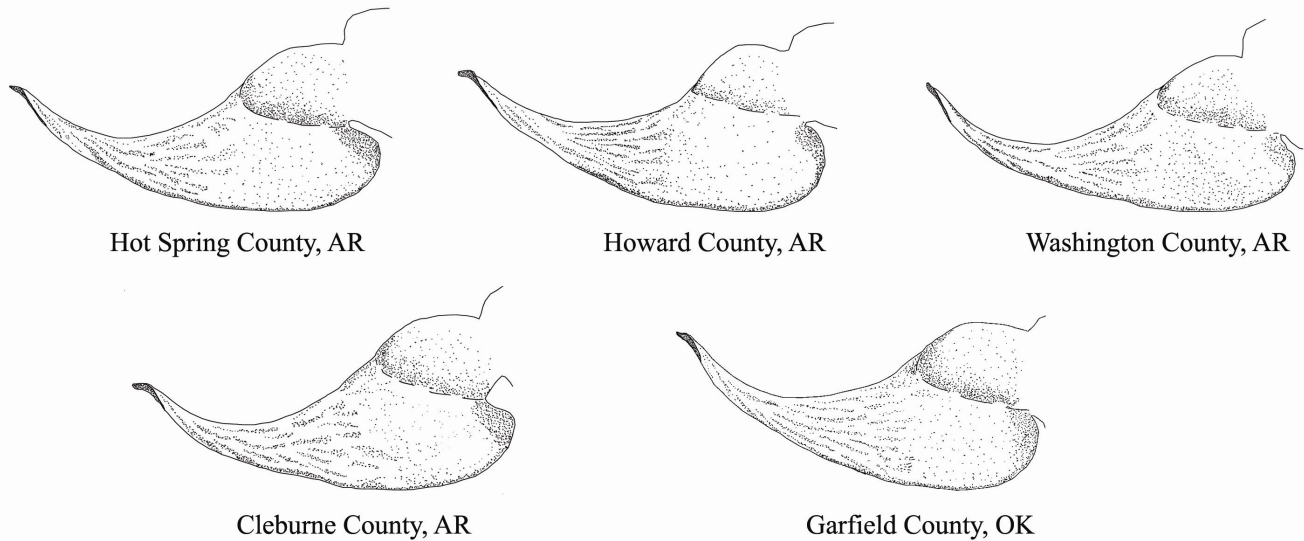


Figure 3. Representative emboli of male *Aphonopelma* collected in Arkansas and Oklahoma.

For the adult *A. baergi* type, Chamberlin (1940) estimated scopulation as covering approximately one-quarter of metatarsus IV. Conversely, Smith (1995) illustrates scopulation extending to nearly half (40%) of metatarsus IV on the immature specimen. The specimens examined for this study exhibited a relatively wide variation in metatarsal IV scopulation (Table 1). I found variation in this character as great for male and female specimens collected from the same locality as those from different locales. Review of larger numbers of specimens obviously allows for greater consideration of individual variation both within and among populations.

Chamberlin (1940) did not describe the spermatheca of *A. baergi*. Smith (1995) examined this structure, in what must be assumed was the immature specimen, and noted that it possessed a single fused spermatheca, a trait characteristic of the genus *Brachypelma* (Locht et al. 1999). The genus *Aphonopelma* is typified by paired spermatheca separated and with capitate bulbs (Prentice 1997). Smith (1995) concluded that the specimen “is patently not a mid-west grassland Theroaphosid” and that it “has all the taxonomic characteristics of the genus *Brachypelma*.” Smith (1995) postulated that Baerg may have accidentally labeled a *Brachypelma* specimen collected from Mexico, a country in which Baerg had travelled and collected, as an *Aphonopelma* from his Arkansas study site.

The use of spermathecal structure for defining *Aphonopelma* species has been cautioned (Prentice 1997) but is relevant here as the *A. baergi* type deviates

so strongly from the generic norm. None of the females examined for this effort possessed a fused spermatheca, rather all possessed separated twin seminal receptacles. These spermathecae were compared to descriptions and illustrations of the female paratype of *A. hentzi* from Smith (1995). Comparisons indicate that the spermathecae of females from Arkansas are similar to those illustrated by Smith (1995) for *A. hentzi* and *A. odelli*; basal segment narrow and high with two oval seminal receptacle heads with tapering necks. My results support the supposition that the *A. baergi* type specimen is strongly atypical of any known *Aphonopelma* species in the United States and is probably a mislabeled specimen taken from a locality outside of the United States.

Status of Aphonopelma odelli.

Smith (1995) described *A. odelli* from a single female collected in McCurtain County, Oklahoma. The distribution of *A. odelli*, as described by Smith (1995), is “centred on the Ouachita forest region of south east Oklahoma and western and central Arkansas.” Smith’s (1995) assertion that *A. odelli* ranges into Arkansas is based on a female specimen, housed in the American Museum of Natural History (AMNH), that purportedly shares a specific structural characteristic in common with the McCurtain County type. According to Smith (1995), the AMNH specimen was collected from Imboden, Arkansas. That specific locality is problematic as Imboden is in Sharp County, situated in the Central Plateau of the Ozark

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Highlands, many kilometers to the northwest of the Ouachita Mountains (Woods et al. 2004).

The species primary distinguishing features are listed by Smith (1995) as shortened seminal receptacles of the spermatheca and extent of scopulation on metatarsus IV. As stated above, no significant variations in spermathecal structure were noted among the specimens collected in Arkansas for this effort. The spermatheca of *A. odelli*, as illustrated by Smith (1995), is within the range of variation exhibited by the specimens I examined and is similar to that illustrated for the female paratype of *A. hentzi* (Smith 1995).

Smith (1995) described metatarsus IV of *A. odelli* as being scopulate over half its length. A feature, which Smith (1995) states, separates this species from *A. hentzi* in which one third of metatarsus IV is scopulate. Percentage of scopulation on metatarsus IV for female specimens collected during this study from Arkansas averaged 37.5%. The upper range values established for metatarsal IV scopulation generated here (Table 1) approach what could be considered nearly half. There was no geographic relationship among specimens I examined in terms of extent of metatarsal IV scopulation; individuals from widely separated locations within Arkansas shared identical values. My results suggest that the characters used by Smith (1995) do not constitute sufficient criteria to define the *A. odelli* type as a species distinct from *A. hentzi*. Rather, the specimens examined by Smith (1995) most likely display variation of traits at the individual rather than species-level.

Status of *Aphonopelma hentzi*

Aphonopelma hentzi was described by Girard (1854) from specimens collected along the route of Randolph B. Marcy's exploration of the Red River (Marcy 1854). Girard's description of this species is of limited value in terms of determining what constitutes *A. hentzi*. Further confounding the issue is that the final disposition of Girard's type specimen is unknown (Smith 1995). Smith (1995) later designated a male neotype and a female paratype for the species using specimens collected from central Oklahoma.

In an attempt to assess the actual location of Girard's type, Smith (1995) states that "we only have a very approximate idea of the likely location site" and that "My own view is that the material was collected in 1851...in the region of McLain County in late August." The current male neotype and female paratype of *A. hentzi* were collected from Garfield County, Oklahoma. Smith (1995) also designated specimens from Cherokee, Pawnee, Payne, and Tulsa Counties, Oklahoma as *A. hentzi*.

Contrary to Smith (1995), if one examines Girard (1854), he writes that the type specimen of *A. hentzi* was collected on 17 May 1852 during Marcy's Red River expedition. Girard (1854) states that the type was taken "on an open, barren prairie between Camps 2 and 3." According to Marcy (1854), the expedition was to begin at "...the mouth of Cache Creek (the initial point of reconnaissance upon Red River)." Cache Creek empties into the Red River in what is today Cotton County in southwestern Oklahoma. The expedition arrived at its starting point, the mouth of Cache Creek, on 13 May 1852 and established camp.

The party departed 16 May 1852, travelled a little over 14 miles between Cache Creek and the Red River, and established a second camp near "a small affluent of the west fork of Cache Creek." During that same day, Marcy noted that the Wichita Mountains were clearly observable 25 to 30 miles to the north. On 17 May 1852, the expedition travelled 11 additional miles, and again camped near Cache Creek, their third camp. Based on the distances travelled between Cache Creek and the Red River and the reference to the Wichita Mountains, Girard's type specimen was collected somewhere in Cotton County, Oklahoma.

The male neotype and female paratype designated for this species by Smith (1995) do provide a basis for comparison with data reported here. Smith (1995) described and illustrated the embolus of the male neotype *A. hentzi* as a "typical tapering embolus" with a "small shallow keel at apex." A key feature Smith (1995) noted in delineating those species with male types was variation in the basal division of the palpal bulb. Prentice (1997) reported minor variation in this structure for Mojave Desert *Aphonopelma* and reported what variation did exist was as great intraspecifically as interspecifically. As a result, Prentice (1997) considered variation in this character to be of doubtful indicative value for species delineations.

The emboli of all male *Aphonopelma* examined herein (Figure 2) exhibited little structural variation in structure, including the basal division. A comparison of these emboli to the illustration of the embolus of *A. hentzi* from Smith (1995) yielded no substantive differences. Comparisons of spermathecal structure to that illustrated by Smith (1995) for *A. hentzi* likewise exhibited little variation. Smith (1995) estimated scopulation as covering approximately one third of the male neotypes' metatarsus IV; a value consistent with the specimens collected during this study.

Conclusions

The use of a citizen-science based survey proved effective for generating usable distributional data for

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tarantulas in Arkansas. With little cost, a significant amount of information was obtained over a short time frame. This data provided the first opportunity to map the distribution of *Aphonopelma* across the state.

The taxonomic portion of this work was not intended to be exhaustive, but rather to simply focus on specific taxonomic traits listed by others as defining *Aphonopelma* species in Arkansas. Certain factual errors within these species descriptions also needed to be addressed. Based on the series of specimens I examined, *Aphonopelma* in Arkansas are a morphologically cohesive group. Individuals did exhibit variation in certain traits but not to such a degree as to represent species-specific differences.

The presence of *A. baergi* in Arkansas and its status as a valid species are in doubt. The type specimen possesses traits that set it apart from any other known *Aphonopelma* species in the United States. Further, specimens collected near that species type locality were more similar to descriptions of *A. hentzi* in Smith (1995).

Based on my review of several specimens, the characters cited as defining *A. odelli* from other *Aphonopelma* species are most attributable to individual variation. Traits described for *A. odelli* do not differ markedly from those observed in recently collected material in Arkansas and Oklahoma, which in turn are similar to what is considered to be *A. hentzi* by Smith (1995). The limited sample size used to describe *A. odelli* severely hampered consideration of individual variability and inadvertently resulted in the application of artificial characters. Thus, the validity of *A. odelli* as a distinct species is also much in doubt. Based on my review of Arkansas and Oklahoma specimens, all material I examined should best be diagnosed as *A. hentzi*.

Acknowledgments

I would like to thank the hundreds of Arkansans who took part in this citizen-science study. Their efforts were critical to this effort.

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