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THE NEARCTIC JUMPING SPIDERS OF THE GENUS *ADMESTINA* (ARANEAE: SALTICIDAE).*

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INTRODUCTION

The genus *Admestina* contains three Nearctic species. A southern species, *A. archboldi*, occurs between the 25th and 30th parallels and runs west to Texas. A northern species, *A. wheeleri*, is found along the 45th parallel and stretches west to North Dakota. A third species, *A. tibialis*, spans the gap in between—from Florida to Connecticut (Map 1).

These jumping spiders are small, less than 4.5 mm in length. The smallest species, *A. archboldi*, is between 2 and 3 mm. Specimens are collected by beating branches of pine, willow, elm, oak, and chokecherry. Alternatively, sweeping bark with a soft brush can dislodge them from within crevices (*pers. comm.*, Robert L. Edwards).

Very little is known of their biology or behavior. Females have been found guarding egg sacs, containing between 4 and 19 eggs. The egg sacs have been found under bark, and in one case, in a gall on an oak tree. Their small size and flattened prosoma allow these spiders to hide by squeezing into narrow gaps, which may explain why so few have been collected.

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METHODS AND MATERIALS

The following museums graciously loaned the spiders necessary for this study, whose curators I thank for their assistance:

- AMNH American Museum of Natural History, NY, N. Platnick, L. Sorkin;
- FSCA Florida State Collection of Arthropods, FL, G. B. Edwards;
- MCZ Museum of Comparative Zoology, MA, H. W. Levi;
- USNM National Museum of Natural History, Smithsonian Institution, Washington, D.C., J. Coddington;
- ZMB Zoologisches Museum an der Humboldt Universität, Berlin, M. Moritz.

I would like to thank T. Eisner for his photograph as well as H. W. Levi, W. P. Maddison, and an anonymous reviewer for commenting on the manuscript. Thanks also go to E. Brainerd for the use of her digitizer.

At least one specimen from each locality was photographed with a Panasonic® WV-1500X video camera attached to a compound microscope. The camera fed analogue video signals into a VTR monitor to assist in focussing. Images were captured using a MacVision™ digitizer and stored on a Macintosh™ computer. The computer allows relatively inexpensive pictures to be rapidly reproduced on sheets of paper using a dot-matrix printer.

Thirty-three of these printed sheets of male spiders were spread across a large table. Each sheet depicted three pictures of the same specimen: a lateral view of the palp; a dorsal view of the prosoma; and a lateral view of the first leg. Observing all specimens simultaneously allows them to be easily grouped according to similar appearance. Traits important to differentiating species can be distinguished from those that correspond to mere intraspecific variation. The technique used here is analogous to placing all specimens under the microscope and studying their anatomical differences concurrently.

The males were resolved into three different species and the corresponding females were studied in order to uncover their distinguishing anatomical traits. Although *A. tibialis* was separated from the rest, the intraspecific variation within these remaining

females made it difficult to distinguish *A. wheeleri* from *A. archboldi*. Unraveling this problem demanded clearing the copulatory organs with Hoyer's medium and drawing spermathecal ducts.

The width of the epigyna and pedipalps and the length of the leg articles were measured using a microscope with a built-in reticule. The length of a leg article was taken from its most distal points. When measuring pedipalps, care was taken to ensure that all palps rested in the same position in order to reduce measurement error. Palps were arbitrarily deemed at a proper angle when the tibial apophysis appeared flat and a vertical line on the reticule ran through the center of the embolus and passed to the left of the palp's posterior point (see dotted line in figure on Map 2a). The geographic variation in genital width was best understood using MapMaker™ software to chart relative sizes over a map of the United States (Map 2).

RESULTS AND DISCUSSION

The three species of *Admestina* distinguish themselves almost entirely on the structure of their genitalia: *A. archboldi*, *A. wheeleri*, and *A. tibialis*. The last species was first described by Koch (1848), based on a male specimen from Pennsylvania which is presently in such poor condition that it cannot be identified with certainty. Later *A. wheeleri* was described from Wisconsin, but synonymized with *A. tibialis* shortly thereafter (Peckham and Peckham, 1888, 1894, 1909). Given the state of disrepair of Koch's holotype, it is difficult to evaluate the validity of Peckham's synonymy. For what is largely a matter of convenience, I have opted to presume that Koch's original specimen was not the species described by the Peckhams. Notice that *A. wheeleri* has never been collected in Pennsylvania, and the geographic ranges of the two species suggest that one is slightly more likely to find *A. tibialis* in this state. Thus the name *A. wheeleri* should be retained.

It remains difficult to distinguish *A. archboldi* from *A. wheeleri* because their anatomical differences are barely noticeable. The embolus on the palp of *A. archboldi* spirals more sharply than that of *A. wheeleri*, and the cymbium of the former is relatively smaller. When cleared in clove oil, the palps reveal slight differences in the design of their seminal ducts (Figs. 9, 16). Cleared

epigyna show differences in the relative shape of their spermathecae (Figs. 7, 8, 12–15).

Probably the most striking difference between the two species is their size disparity: the southern species resembles a miniature replica of the northern. Arguably, these two forms may constitute one species which restricts its appearance to the two extreme ends of a putative geographic cline. Geographic variation exhibiting an increase of size with latitude is common among many invertebrates, as the rabbit tick *Haemaphysalis leporispalustris* exemplifies (Thomas, 1968).

However, if *A. archboldi* and *A. wheeleri* constituted a single species with clinal variation, then I would expect its sister species, *A. tibialis*, to show the same geographic trend. This corresponding trend is expected because presumably the latter species, which is morphologically similar to the former, submits to approximately the same set of selective pressures as its closest sister species.

In fact, *A. tibialis* shows no such clinal variation. Neither males nor females south of North Carolina show significant differences in genital width or length from those north of North Carolina. In contrast, the same parameters in *A. archboldi* are significantly



Plate 1. *Admestina archboldi*, female (photo T. Eisner).

smaller than in *A. wheeleri* ($p < 0.001$; see Appendix, Table 1 and Map 2). These parameters carry particular importance because differences in genital size are more likely to ensure reproductive isolation than differences in other body parts. Thus, I am led to believe that *A. archboldi* and *A. wheeleri* are separate and distinct species.

Admestina Peckham and Peckham

Plate 1

Admestina Peckham and Peckham, 1888: 78. Type species by monotypy, *A. wheeleri* Peckham and Peckham, 1888. The gender of the generic name is feminine (Bonnet, 1955: 158).

Diagnosis. The tibia of leg I is thickened in both sexes and has no more than 1 ventral macroseta. The ocular quadrangle is less than half the length of the distinctly flattened prosoma. The anterior end of the sternum narrows to a blunt point.

Description. The prosoma in *Admestina* is elongated and dorso-ventrally flattened. Its width is between 1/2 and 2/3 the length of the prosoma at 2/3 along its length from the anterior end. The width at this point falls between 1/2 and 2/3 the length of the prosoma. The median furrow is inconspicuous and located particularly far from the eye quadrangle. All species have a single tooth on the retromargin of the chelicerae and two (with the larger located distally) on the promargin.

Anterior median eyes are subcontiguous. The distance between the posterior median eyes corresponds to almost twice that separating these eyes and the anterior lateral eyes. The distance separating the posterior median eyes and the posterior lateral eyes equals or is slightly greater than the distance separating the latter and the anterior eye row.

The dorso-ventral thickness of the tibia on leg I is generally 3/4 its length, although this value varies anywhere from 2/3 to 5/6. This same leg is always the stoutest, and its tibia in females may or may not have a single ventral macroseta. Males almost never have this macroseta. The legs of a live spider are almost translucent, with black annuli distal to each joint. In alcohol the translucence turns into an opaque white or yellow.

The opisthosoma is longer than the prosoma, especially in gravid females. Its dorsal surface has a conspicuous scutum in the males of *A. tibialis* and *A. wheeleri*, although the markings remain approximately the same in both sexes of all species: white with a median black band that is broken into at least six lateral branches (Plate 1). This pattern is not unlike that found in *Pityohyphantes* (Linyphiidae).

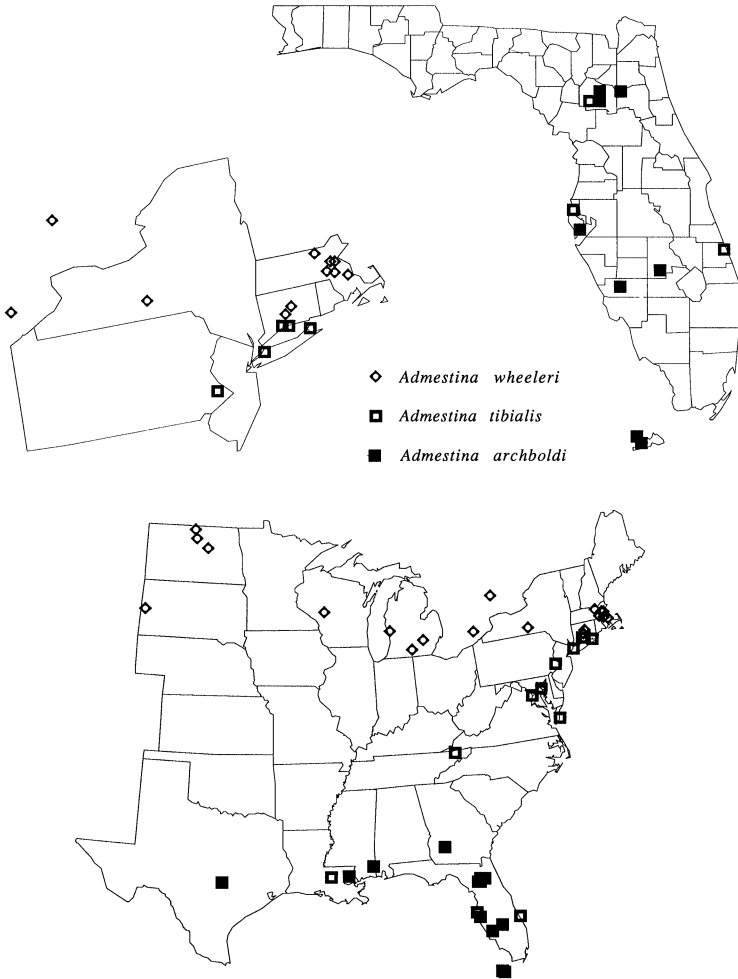
The black prosoma appears gray when dry because it is covered with white pubescence. This covering is uniform, with the exception of two denser collections of setae that form white spots and are located just medial to the posterior median eyes. Under alcohol the prosoma turns reddish brown, except for the ocular area, which remains dark brown to black.

Natural History. Little is known of *Admestina's* behavior. Although a male has been gathered walking on the ground at night, specimens are generally collected by beating branches. Females lay few eggs (4 to 20) in a particularly narrow retreat constructed within a crevice on the bark of a tree.

Misplaced Species. Galiano (1987) moved *Admestina bitaeniata* Simon, 1902: 28, male, into a new genus called *Admesturius*. Additionally, she moved *Admestina insularis* Banks, 1902: 66 into the genus *Helvetia* (Galiano, 1989).

Key to *Admestina* species

- 1 Male embolus about twice as long as thick (Fig. 3). Female openings large, about twice their diameters from the genital groove (Fig. 4)*tibialis*
- Male embolus about four times as long as thick (Figs. 2, 6). Female openings smaller, about four times their diameters from the genital groove (Figs. 1, 5).....2
- 2(1)Male palp wider than 0.2 mm (Map 2a) or female epigynum wider than 0.33 (Map 2b)*wheeleri*
- Male palp narrower than 0.2 mm or female epigynum narrower than 0.33.....*archboldi*



Map 1. Distribution of *Admestina* species.

Admestina tibialis (Koch)

Figures 3, 4, 10, 11; Map 1

Maevia tibialis C. L. Koch, 1848: 78, m. holotype from Pennsylvania in ZMB, examined. Roewer, 1954: 1185. Bonnet, 1955: 159.

Diagnosis. The female is easily distinguished by the enlarged openings of her epigynum (Figs. 4, 11). The male palp carries a thickened embolus (Fig. 3), which corresponds with the female's enlarged epigynal openings. The dorsal surface of the male's abdomen has a scutum that is more heavily sclerotized than in either of the other *Admestina* species.

Description. A female specimen from Pennsylvania measured 3.8 mm in total length. The prosoma was 1.4 mm, 0.8, and 0.72 in length, width, and height respectively. The following describes the length of her leg segments in millimeters:

	I	II	III	IV
Femur	0.56	0.48	0.48	0.65
Patella	0.38	0.28	0.24	0.32
Tibia	0.36	0.28	0.31	0.42
Metatarsus	0.20	0.20	0.24	0.32
Tarsus	0.23	0.22	0.24	0.32

The female always has one ventral macroseta on tibia I.

A male specimen from Pennsylvania measured 3.1 mm in total length. The prosoma was 1.3 mm, 0.8, and 0.6 in length, width, and height respectively. The following describes the size of his leg segments in millimeters:

	I	II	III	IV
Femur	0.57	0.46	0.46	0.66
Patella	0.40	0.28	0.22	0.31
Tibia	0.38	0.30	0.30	0.40
Metatarsus	0.20	0.19	0.24	0.31
Tarsus	0.24	0.22	0.24	0.26

Natural History. Specimens in Florida have been collected from pine trees. A female in Connecticut was found guarding her egg

sac hidden in the bark of an elm tree. The sac contained 4 eggs (Kaston, 1948). Females have been collected between March and September. Males are mostly found between August and December (Fig. 10, Ring 2).

Distribution. Eastern United States from Connecticut to Florida (Map 1).

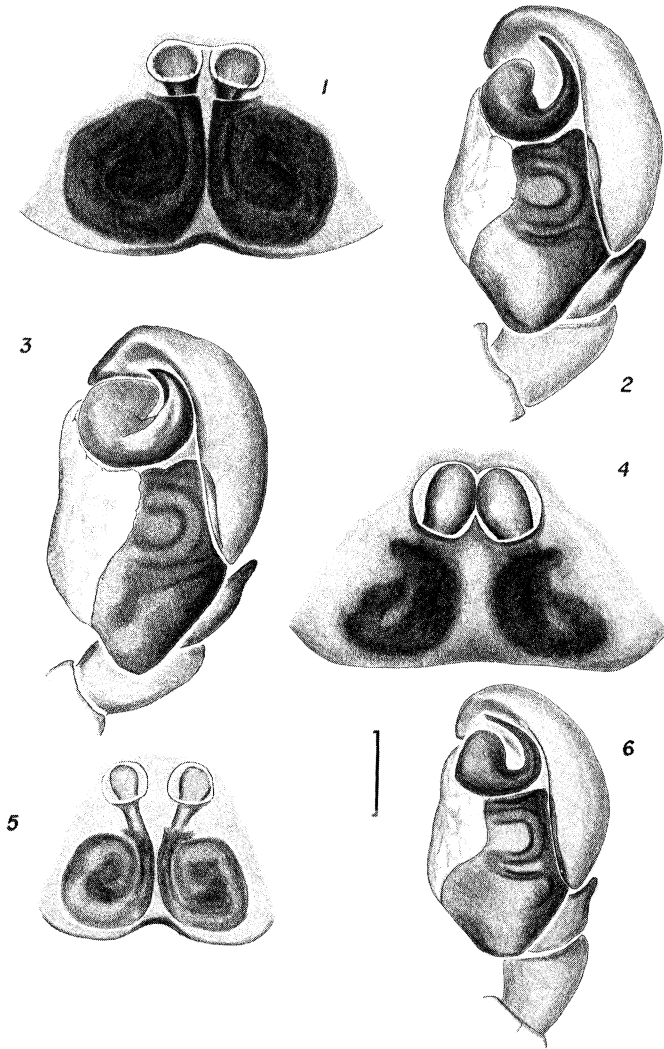
Records. CONNECTICUT: Westville, 23 June 1938, f. (D. S. Riggs, USNM). Branford, 1940, 15 June 1936, f. (B. J. Kaston, USNM). NEW YORK: Orient Beach State Park, 23 Sept. 1962, f. (W. Ivie, AMNH); Sea Cliff, m., f. (N. Banks, MCZ). PENNSYLVANIA: Bucks Co., Horseshoe Bend, Neshaminy Creek NE of Jamison, 15 June 1957, m., f. (W. Ivie, AMNH). MARYLAND: Bay Ridge, m. (N. Banks, MCZ). VIRGINIA: Falls Church vial, m. (N. Banks, MCZ); Falls Church, m. (R. V. Chamberlin, MCZ); Revell's Island, 18 June (R. V. Chamberlin, MCZ). TENNESSEE: Stony Point, 20 Aug. 1939, m. (R. V. Chamberlin, AMNH). LOUISIANA: Baton Rouge, f. (N. Banks, MCZ). FLORIDA, Alachua Co., Gainesville: 22 Nov. 1926, m. (AMNH); Lake Alice, hanging from pine tree, 25 Oct. 1978, m. (G. B. Edwards, FSCA); 14 Apr. 1984, f. (G. B. Edwards, FSCA); potted plant under oak, 28 Nov. 1975, m. (J. C. E. Nickerson, FSCA); Dunedin, 15 Mar. 1927, m., f. (W. S. Blatchley, MCZ); St. Lucie Co., Bluefield, on *Pinus* sp., 14 Aug. 1983, m. (K. Hibbard, FSCA).

Admestina wheeleri Peckham and Peckham

Figures 1, 2, 7, 8, 10; Map 1, 2

Admestina wheeleri Peckham and Peckham, 1888: 78, pl. 1, fig. 58; pl. 5, fig. 58, m. holotype from Wisconsin in MCZ, examined. Banks, 1892; 78, pl. 2, fig. 34, f. Peckham and Peckham, 1894: 120, pl. 11, fig. 6, m. Emerton, 1909: 227, pl. 11, fig. 6, f. *Admestina tibialis*:- Peckham and Peckham, 1909: 510, pl. 42, fig. 3-3b, m., f., incorrect synonymy. Kaston, 1948: 472, pl. 94, figs. 1740-1744, m., f. Roewer, 1954: 1185. Bonnet, 1955: 159.

Diagnosis. The female has an epigynum with smaller openings than *A. tibialis* (Fig. 1, 7-8), and is distinguished from *A. archboldi* by its larger size (Map 2). Cleared epigyna reveal two coils of spermathecal ducts. The relative size of these compared with the



Figures 1-2, *Admestina wheeleri* Peckham and Peckham. 1, epigynum, ventral. 2, palp, retrolateral.

Figures 3-4, *Admestina tibialis* (Koch). 3, palp, retrolateral. 4, epigynum, ventral.

Figures 5-6, *Admestina archboldi* new species. 5, epigynum, ventral. 6, palp, retrolateral.

Scale line, 0.1 mm.

separation of the epigynal openings proves to be greater than that of *A. archboldi*. The male palp is larger than that of *A. archboldi* (Map 1), and carries a thin, needle-like embolus (Fig. 2). The dorsal surface of his abdomen has a scutum that is less heavily sclerotized than in *A. tibialis*.

Description. A female specimen from Wisconsin measured 4.3 mm in total length. The prosoma was 1.5 mm, 1.0, and 0.7 in length, width, and height respectively. The following describes the length of her leg segments in millimeters:

	I	II	III	IV
Femur	0.64	0.52	0.53	0.71
Patella	0.4	0.33	0.26	0.39
Tibia	0.36	0.33	0.35	0.52
Metatarsus	0.24	0.24	0.28	0.38
Tarsus	0.25	0.25	0.28	0.31

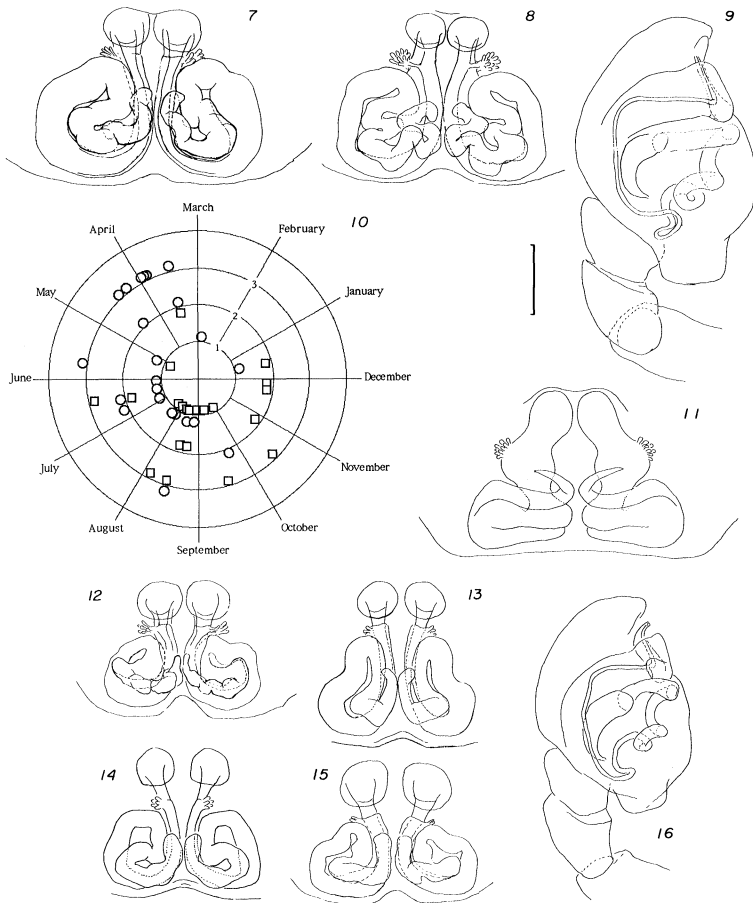
The female may or may not have one ventral macroseta on tibia I. The occurrence of this feature varies from population to population, although most lack this macroseta.

A male specimen from Ithaca measured 3.3 mm in total length. The prosoma was 1.4 mm, 0.9, and 0.6 in length, width, and height respectively. The following describes the length of his leg segments in millimeters:

	I	II	III	IV
Femur	0.67	0.51	0.54	0.69
Patella	0.42	0.3	0.27	0.32
Tibia	0.46	0.35	0.32	0.46
Metatarsus	0.23	0.21	0.24	0.32
Tarsus	0.24	0.24	0.26	0.28

The male always lacks macrosetae on tibia I.

Natural history. Wallace collected an egg sac from Michigan containing 19 eggs. Spiders have been collected following the beating of willow, dead oak, and dead chokecherry branches in North Dakota. Females can be gathered between May and August. Males are collected between July and September (Fig. 10, Ring 1).



Figures 7–8, *Admestina wheeleri* Peckham and Peckham, cleared epigyna, ventral. 7, specimen from Wisconsin. 8, specimen from Massachusetts.

Figure 9, *Admestina tibialis* (Koch), cleared palp, prolateral.

Figure 10, Seasonal occurrence of *Admestina* Peckham and Peckham. Squares, males. Circles, females. Ring 1, *Admestina wheeleri* Peckham and Peckham. Ring 2, *Admestina tibialis* (Koch). Ring 3, *Admestina archboldi* new species.

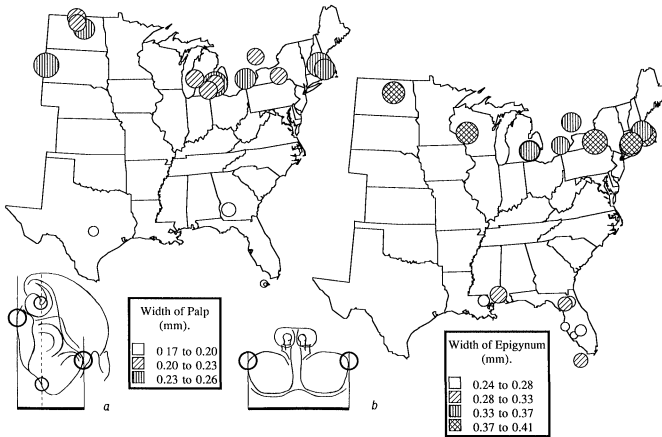
Figure 11, *Admestina tibialis* (Koch), cleared epigynum, ventral.

Figures 12–15, *Admestina archboldi* new species, cleared epigyna, ventral. 12, specimen from Louisiana. 13, specimen from Florida Keys. 14, specimen from Highlands Co., FL. 15, specimen from Alachua Co., FL.

Figure 16, *Admestina archboldi* new species, cleared palp, prolateral. Scale line, 0.1 mm.

Distribution. Northern United States and southern Canada; from Maine to North Dakota (Map 1).

Records. ONTARIO: Niagara Co., Long Beach., 10°C., 4 May 1975, m. (just molted), f. (W. P. Maddison, FSCA); Turkey Point, 24 Aug. 1956, m., f. (A. M. Nadler, AMNH). MASSACHUSETTS: Middlesex Co., Pepperell, 15 Sept. 1976, m. (H. W. and F. Levi, MCZ); Cambridge, on fences, 4 June 1923, f. (J. H. Emerton, MCZ); Holliston, 10 June 1923, f. (J. H. Emerton, MCZ); Sharon, 9 Aug. 1902, m. (E. B. Bryant, MCZ); Waltham, 26 June 1906, f. (MCZ); Monponsett, 12 June 1912, f. (J. H. Emerton, MCZ). CONNECTICUT: Rocky Hill, 15 Dec. 1948, f. (L. Gonthier, USNM); Meriden, 26 Feb. 1961, f. (J. F. Lienisch, USNM). NEW YORK: Ithaca, f. (E. B. Bryant, MCZ); Ithaca, 31 June 1909, m. (E. B. Bryant, MCZ). MICHIGAN: Muskegon Co., 13 Aug. 1945, m. (Chickering, MCZ); Livingston Co., E. S. George Reserve, 21 Jul. 1954, 22 Jul. 1954, 23 Jul. 1954, 26 Jul. 1954, 23 Aug. 1954, 15 Aug. 1954, 25 Aug. 1951, m.m., f.f. (H. K. Wallace, FSCA); Homer, spruces and pines, 16 Aug. 1933, m. (Chickering, MCZ). WISCONSIN: Jackson Co., Black River Falls by U.S. 3, 25 June



Map 2a. Geographic variation of width of palp in male *Admestina wheeleri* Peckham and Peckham and *Admestina archboldi* new species.

Map 2b. Geographic variation of width of epigynum in female *Admestina wheeleri* Peckham and Peckham and *Admestina archboldi* new species.

1966, f. (L. Pinter, MCZ). NORTH DAKOTA: Bottineau Co. Gorge at Bottineau, beating dead oak., 30 Aug. 1962, m. (R. L. Post, R. D. Gordon, AMNH); McHenry Co., 11 Sept. 1963, m. (R. L. Post and R. D. Gordon, AMNH); Benson Co., 14 Aug. 1963, m., f. (R. L. Post, AMNH). SOUTH DAKOTA: Lawrence Co. 5 mi. N Spearfish, 28 Sept. 1968, m. (B. Cutler, FSCA).

Admestina archboldi new species

Plate 1, Figures 5, 6, 10, 12–16; Map 1, 2

Holotype. Female holotype from the Archbold Biological Station in Highlands Co., Florida, 26 Mar. 1989 (W. H. Piel) in MCZ. The species is named after the founder of the Archbold Biological Station where the holotype was collected.

Diagnosis. The female epigynum looks very much like that of *A. wheeleri* (Fig. 5). The major difference lies in the relative length of the two spermathecal coils compared to the size and separation of the openings (Figs. 12–15). This parameter is noticeably smaller in *A. archboldi*. The male genitalia likewise resemble miniature versions of those of *A. wheeleri*. The embolus differs in shape, being bent somewhat sharper (Fig. 6). From a lateral aspect of the palp one notices that the embolus of *A. archboldi* protrudes farther relative to the cymbium than it does in *A. wheeleri* (Fig. 16). Also, the seminal tube seen in cleared palps of *A. archboldi* shows one less loop (Fig. 16). The dorsal scutum is barely noticeable compared to the other two species.

Description. The female measures 2.5 mm in length. The prosoma is 1.2 mm, 0.7, and 0.5 in length, width, and height respectively. The following describes the length of her leg segments in millimeters:

	I	II	III	IV
Femur	0.47	0.4	0.4	0.55
Patella	0.28	0.24	0.21	0.27
Tibia	0.28	0.26	0.24	0.35
Metatarsus	0.18	0.17	0.2	0.29
Tarsus	0.19	0.18	0.22	0.27

Females have one ventral macroseta on tibia I.

The male measures 3.1 mm in length and its prosoma 1.2 mm, 0.2, and 0.6 in length, width, and height respectively. The following describes the length of his leg segments in millimeters:

	I	II	III	IV
Femur	0.56	0.44	0.4	0.56
Patella	0.36	0.26	0.21	0.27
Tibia	0.35	0.24	0.26	0.34
Metatarsus	0.15	0.18	0.22	0.26
Tarsus	0.2	0.2	0.2	0.27

The male always lacks macrosetae on tibia I.

Natural history. The holotype was recovered from narrow (<2 mm in diameter) silk-lined galleries in a gall on an oak tree. About 6 or 7 eggs were found arranged in rows in different sections of the tunnels. The remains of a previous ecdysis indicated that the specimen had lived there for some time. Females have been collected in March and April. Males can be collected August through October (Fig. 10, Ring 3).

Distribution. Southeastern U.S., extending as far west as Texas and as far north as Georgia (Map 1).

Paratypes. GEORGIA: Dougherty Co., 2 mi. E Pretoria on hwy. 62, Kiokee Creek. Cypress swamp, walking on ground at night, full moon, 17 Sept. 1978, m. (P. M. Choate, FSCA). FLORIDA: Alachua Co., San Felasco Hammock mesophytic understory, 13 Apr. 1980, f. (G. B. Edwards, FSCA); Alachua Co., 4 mi. N Cross Creek on hwy. 325, 22 May 1981, f. (G. B. Edwards, FSCA); Alachua Co., Gainesville, FDA Division of Plant Industry, 27 Mar. 1985, f. (W. P. Maddison, MCZ); St. Petersburg, 8 Apr. 1933, f. (H. K. Wallace, FSCA); Highland Co., Archbold Biological Station. Beating oak and other scrub trees, 30 Mar. 1985, females (W. P. Maddison, MCZ); Highland Co., Archbold Biological Station near Lake Placid, from *Quercus* gall, 28 Mar. 1989, f. (W. H. Piel, MCZ); Highland Co., Archbold Biological Station near Lake Placid, 6 Dec. 1959, f. (A. M. Nadler, AMNH); Charlotte Co., Punta Gorda, 15 Mar. 1941, f. (Ramstadt, AMNH); Monroe Co., Key E-2, east side of Upper Snipe Key, Lower Keys, 12 June

1966, m. (D. Simberloff, E. O. Wilson, MCZ); Monroe Co., Island J1 Lot# J-64, 13 Aug. 1969, f. (D. Simberloff, FSCA); Monroe Co., Island J1 Lot# J-64, 13 Aug. 1969, m. (D. Simberloff, FSCA); Key E-6, Johnson Key, Mangroves, Lower Keys, 2 Aug. 1966, m. (D. Simberloff, E. O. Wilson, MCZ). MISSISSIPPI: Lucedale, 15 Mar. 1930, f. (Dietrich, AMNH). LOUISIANA: Covington, f. (N. Banks, MCZ). TEXAS: Travis Co., Austin, 15 Oct. 1967, m. (D. Simon, FSCA).

SUMMARY

The genus *Admestina* Peckham and Peckham contains three species described here, *A. tibialis* (Koch), *A. wheeleri* Peckham and Peckham, and a new species, *A. archboldi*. The first two species names had previously been incorrectly synonymized by the Peckhams. The last two are problematic because they are allopatric and almost identical, with the exception of minor differences in genital morphology, abdominal sclerotization, and size. Distinguishing these species was best assisted by a video digitizer and computer. This technology allowed the variation within the genus to be better recorded and understood. Additionally, software designed to graph data onto maps helped to express geographic variation.

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APPENDIX

Table 1. Student t-test comparing mean length and width of spider genitalia in specimens north versus south of the thirty-fifth parallel. Units are in reticule squares, where 1 unit = 0.04 mm.

Parameter	Latitude						t-stat.	P
	> 35°N			< 35°N				
	mean	n	SD	mean	n	SD		
<i>A. tibialis</i> , female gen. width	9.9	7	0.58	9.5	3	0.61	-1.1	0.31
<i>A. tibialis</i> , female gen. length	8.3	7	0.52	8.2	3	0.52	-0.2	0.85
<i>A. tibialis</i> , male gen. width	6.6	6	0.67	6.1	5	0.51	-1.4	0.20
<i>A. tibialis</i> , male gen. length	9.9	6	0.38	9.7	5	0.69	-0.4	0.67
<i>A. wheeleri</i> and <i>A. archboldi</i> , female gen. width	9.1	16	0.52	6.9	13	0.54	11.2	<0.001
<i>A. wheeleri</i> and <i>A. archboldi</i> , female gen. length	7.4	16	0.33	6.1	13	0.39	9.8	<0.001
<i>A. wheeleri</i> and <i>A. archboldi</i> , male gen. width	5.9	16	0.44	4.6	5	0.27	6.2	<0.001
<i>A. wheeleri</i> and <i>A. archboldi</i> , male gen. length	9.9	16	0.46	8.1	5	0.31	8.0	<0.001



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