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# IDENTITY AND PLACEMENT OF SPECIES OF THE ORB WEAVER GENUS *ALCIMOSPHENUS* (ARANEAE, TETRAGNATHIDAE)

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**ABSTRACT.** Species placed in the genus *Alcimosphenus* are examined. *Alcimosphenus licinus* Simon 1895 is redescribed and validated. *Alcimosphenus bifurcatus*, *A. rufoniger*, *A. boringuenae*, *Acusilas rufonigra* and *A. r. maculata* are placed in synonymy. *Alcimosphenus rubripleuris* Mello-Leitão is transferred to *Leucauge* and redescribed.

**Keywords:** Greater Antilles, species placement, Tetragnathidae

When consulted about the correct specific name for species within the genus *Alcimosphenus* Simon 1895, the common, orange-red orb weaving spider of the Greater Antilles, I found two specific names listed in Roewer (1942), and six in the World Spider Catalog (Platnick 2004). Simon's (1895) Latin description of the genus is short and indicates that specimens of *A. licinus* Simon 1895 from Jamaica and Santa Dominica may come with a forked posterior tip. In 1910, Petrunkevitch described *A. bifurcatus* from Jamaica but indicated that they were immature and smaller in size than *A. licinus* Simon. The name *A. bifurcatus* suggests forked, and it may be assumed that the name referred to specimens with a forked tail rather than a simple tail. That the species has a forked tail is confirmed in Petrunkevitch's (1930) key to Puerto Rican tetragnathids, which separates the two species, *A. licinus* with a pointed tail from *A. bifurcatus* with a forked tail. Again only immatures of *A. bifurcatus* were found, with forked tails, this time one from Mayagüez, Puerto Rico. In the same year Franganillo Balboa described a species from Cuba placed in *Acusilas* Simon 1895 (Araneidae). Later Franganillo (1936), placed it in *Alcimosphenus*, presumably not having seen Petrunkevitch's descriptions; it differed from *A. licinus*, having only a single tip. Although no male had been collected previously, Archer (1951) placed *Alcimosphenus* into the Araneidae close to *Arachnura* based on the description of a male in his collection (without locality). He later (Archer 1958) referred to the described male as coming from South America (no locality). Mello-Leitão (1947) described *A. rubripleurus* from the state of Paraná, Brazil. (It is often difficult to associate tetragnathids males with females even when collected close to the collecting site of the female, and examination of the Mello-Leitão specimen, which I examined, showed that it belongs in *Leucauge* White 1841). In 1958 Archer reported finding a mature female of *A. bifurcatus*, at last, from Hardwar Gap in Jamaica. He illustrated, poorly, its epigynum and that of *A. licinus*. Later in 1965, Archer found a female in Puerto Rico, with a barely visible tail division and slightly different epigynal proportions and gave it a new name, *A. borinquenae*.

Having now examined the original specimens of *A. licinus*, apparently the first time they have been examined since Simon, I found them to come from Jamaica, and all eight syntypes have forked tails (Figs. 1, 3). Two syntypes of *A. rufonigra* Franganillo 1930 from Cuba exist, each showing the single tip. Archer's male, belonging to the AMNH, was unavailable (presumably lost?), but judging from the description of the palpus, the primitive illustration, and its presumably red color and tail, it was a species of *Alpaida* O.P.-Cambridge 1889.

Simon, like many other 19th century authors, did not mark specimens as types and did not indicate the date collected on his labels. When borrowing from the Simon collection one can only hope that the original specimens, the types, have been sent. Scharff (pers. comm.) indicates that in examining the

catalog of the Paris collection, he found that specimens exist other than the ones examined.

On examining the contents of the 28 vials of *Alcimosphenus* of the MCZ collection, many with several specimens, I found that some are with a forked tail tip, some with a single tip. The forked tail specimens came mostly from Jamaica, but one immature was from Cuba; Petrunkevitch (1930) had one from Puerto Rico. There is considerable geographic variation of the proportions of the epigynum, the black patches, and the tail shape, but I find it difficult to separate specimens into different species using the epigynum. No males have ever been found, although I searched unsuccessfully for males in Puerto Rico and the collections of the American Museum.

Both *Leucauge* and *Alcimosphenus* differ from all other tetragnathids by having two parallel rows of trichobothria on the fourth femur, which appears to represent a synapomorphy. *Alcimosphenus* differs from *Leucauge* by having the anterior eye row straight; whereas *Leucauge* has the anterior eye row recurved (Simon 1895). According to Petrunkevitch (1930), *Alcimosphenus* differs by having the abdomen red and legs short; in *Leucauge* the abdomen is not red and the legs are longer. *Alcimosphenus* belongs in the family Tetragnathidae, judging by the shape of the endites (Fig. 4) and its superficial similarity to *Leucauge*, and had always been placed in Tetragnathidae before Archer (1951).

Griswold et al. (1998) and Hormiga et al. (1995) in their cladistic studies separate Araneidae from other araneoid families including Tetragnathidae by loss of the aciniform brush of the posterior median spinnerets, the peripheral position of the spigot of the cylindrical gland on the posterior lateral spinnerets and the use of the inner leg tap of the first leg used to determine the next point of attachment of the viscid web spiral. Tetragnathidae, in turn, is separated from other araneoid families by the conductor that wraps around the embolus, the presence of an embolus-tegulum membrane and the loss of the median apophysis of the male palpus. All characters are considered synapomorphies.

Abbreviations for museums where types are deposited: AMNH, American Museum of Natural History, New York; IESC, Instituto de Ecologia y Sistemática, La Habana, Cuba; MCZ, Museum of Comparative Zoology, Cambridge; MHNC, Museu de História Natural ''Capão da Imbuia'', Curitiba, Brazil; MNHN, Museum National d'Histoire Naturelle, Paris; YPM, Peabody Museum, Yale University, New Haven.

## TAXONOMY

### Family Tetragnathidae Menge 1866
### Genus *Alcimosphenus* Simon 1895

*Alcimosphenus* Simon 1895: 931.

**Type species.**—*Alcimosphenus licinus* Simon 1895, by monotypy.

**Description.**—As the genus has now become monotypic, the species description can be used.

### *Alcimosphenus licinus* Simon 1895
Figs. 1–7

*Alcimosphenus licinus* Simon 1895: 931; Simon 1897: 871; Petrunkevitch 1910:210; Petrunkevitch 1930:263, figs. 115, 116; Roewer 1942:999; Platnick 2004.

*Alcimosphenus bifurcatus* Petrunkevitch 1910:211, plate 21, fig. 8; Petrunkevitch 1930:264, figs. 117, 118; Roewer 1942:998; Platnick 2004. NEW SYNONYMY.

*Acusilas rufonigra* Franganillo Balboa, 1930:70. NEW SYNONYMY.

*Acusilas rufonigra maculata* Franganillo Balboa 1930:70. NEW SYNONYMY.

*Alcimosphenus rufoniger*: Franganillo Balboa 1936: 87, fig. 42; Platnick 2004.

*Alcimosphenus boringuenae* Archer, 1965:131, fig. 4; Platnick 2004. NEW SYNONYMY.

**Type specimens.**—*Alcimosphenus licinus*: 4 female, 4 immature syntypes, Jamaica (MNHN, no. 15818), examined. [Syntypes originally from Jamaica and Santa Dominica.]

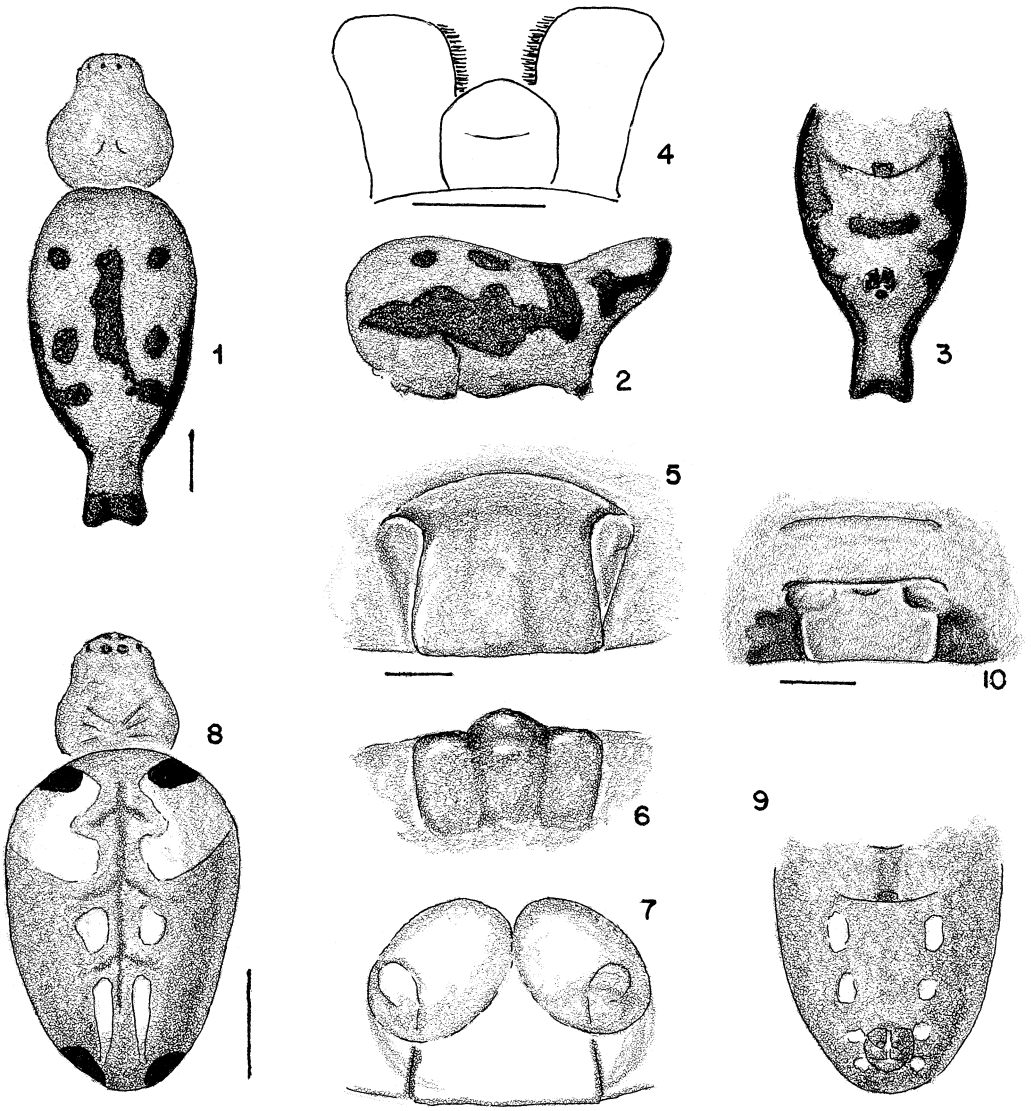
*Alcimosphenus bifurcatus*: immature holotype, Port Antonio and Castleton, Jamaica (YPM), not examined.

*Acusilas rufonigra*: 2 female syntypes, Loma del Gato, Sierra Maestra, Cuba (IESC), examined.

*Acusilas rufonigra maculata*: 1 specimen, Loma del Gato, Sierra Maestra, Cuba (depository unknown), not examined.

*Alcimosphenus boringuenae*: female holotype, Collazo Falls, east of Sebastian, Puerto Rico (AMNH), examined.

**Other specimens examined.**—Specimens from Cuba, Hispaniola, Jamaica, Puerto Rico, St Croix and Montserrat were examined. Si-




Figures. 1–10.—*Alcimosphenus licinus* Simon. 1. Carapace and abdomen, dorsal; 2. Abdomen, lateral; 3. Abdomen, ventral; 4. Labium and endites; 5–7. Epigynum; 5. Ventral; 6. Posterior; 7. Ventral, cleared. 8–10. *Leucauge rubripleurus* (Mello-Leitão). 8. Carapace and abdomen, dorsal; 9. Abdomen, ventral; 10. Epigynum, ventral. Scale lines, 1.0 mm; of genitalia 0.1 mm; Fig. 4 = 0.5 mm.

mon (1897) recorded this species from St Vincent and Trinidad.

**Description.**—*Female (syntype of A. licinus from Jamaica):* Carapace orange, chelicerae, labium, endites, sternum, coxae orange. Legs black. Abdomen orange with black patches (Figs. 1–3). Carapace flat with two curved thoracic grooves (Fig. 1). Labium wider than long, with large lip, endites longer than wide, distally swollen, much wider than at base (Fig. 4). Posterior eye row straight. Eyes small and subequal. Lateral eyes adjacent to each other. Total length 9 mm. Carapace 2.6 mm long, 2.5 wide in thoracic region, 1.5 wide in cephalic area. First femur 3.3 mm, patella and tibia 4.1, metatarsus 3.5, tarsus 1.2. Second patella and tibia 3.3 mm, third 1.8. Fourth femur 3.6 mm, patella and tibia 3.0, metatarsus 2.8, tarsus 1.0.

**Variation.**—The size of adult females is 6–

10 mm total length. The illustrations were made from a female syntype of *A. licinus* from Jamaica, Fig. 7 from several non-type specimens. The internal genitalia are lightly sclerotized and no structures are distinctly visible.

The forked tail (Figs. 1, 3) is found in Jamaica specimens, although some from Jamaica have a pointed tail. Puerto Rican specimens available have a median groove at the tip. One immature specimen from Cuba had a forked tail and one small specimen from Jamaica had the tips facing in opposite directions.

The most marked specimens, with dorsal, lateral and ventral marks came from Jamaica; those from other islands generally had lateral black patches and black tail but lacked dorsal and ventral marks. The Cuban syntypes of *A. rufoniger* have a dorsal black patch on the abdomen. The Puerto Rican specimens have a wider abdomen and shorter tail and appeared better fed.

The differences in epigynal proportions between specimens with forked and pointed tails reported by Archer were not found, but Puerto Rican specimens had the sides of the epigynum slightly shorter in length than in specimens from other islands. Unlike other tetragnathids, the spermathecae are not sclerotized and are indistinct in the cleared epigynum (Fig. 7).

**Relationships.**—The shape of carapace (Fig. 1) and that of the abdomen (Figs. 1–3) and the rows of trichobothria on the fourth femur suggests a close relationship with *Leucauge*.

**Note.**—*Acusilas rufonigra maculata* differs by the black pattern on the abdomen. Franganillo Balboa does not report on this form again in his more comprehensive paper on Cuban spiders (Franganillo Balboa 1936).

Genus *Leucauge* White 1841
*Leucauge rubripleurus* (Mello-Leitão 1947)
NEW COMBINATION
Figs. 8–10

*Alcimosphenus rubripleura* Mello-Leitão 1947:239, figs. 6, 7.

**Type specimens.**—Female lectotype (here designated), two female paralectotypes, Rio de Areia, Paraná, Brazil (MHNC, no. 2521–2523), examined. A lectotype was designated because the epigyna of the syntypes differed slightly.

**Description.**—*Female (lectotype):* Carapace and chelicerae light yellow. Labium and endites gray, sternum grayish orange-brown. Legs yellowish with distal ends of femora gray. Abdomen gray with two pairs of black patches and patches of silver dorsally (Fig. 8) and ventrally (Fig. 9). The gray areas are presumed to have been red when described by Mello-Leitão (1947).

Posterior median eyes slightly larger than others, which are subequal. Anterior median eyes 0.9 diameters apart, 1.3 diameters from laterals. Posterior eyes 0.9 diameters apart, 1.2 from laterals. Total length 5.2 mm. Carapace 1.7 mm long, 1.7 wide. First femur 3.9 mm, patella and tibia 4.5, metatarsus 3.4, tarsus 1.1. Second patella and tibia 3.2 mm, third, 1.4, fourth 2.2.

This species has an epigynum that is superficially similar to that of *Alcimosphenus licinus* (Fig. 10). The preserved specimen has gray, silver and black markings on the abdomen.

It is placed here in *Leucauge* because it lacks the *Alcimosphenus* tail and the abdomen appears similar to that of other *Leucauge* species (Figs. 8, 9); also the legs are relatively longer than those of *Alcimosphenus*.

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