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**Art. XIX.—The American Bembecidæ: Tribe Stizini.**

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**By W. H. Patton.**

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STIZINI.

Labrum exserted, entire. Submedial cell of the posterior wings extending far beyond the medial cell on the externo-medial nervure. Intermediate tibiæ armed with two spines at the apex. Ocelli perfect; the posterior ocelli smaller than the anterior one.

Group. SPHECIID.

Marginal cell lanceolate, extending beyond the tip of the third submarginal. Submarginal vein beneath the second submarginal cell flexed to meet the first recurrent nervure, the latter inserted nearly in a line with the portion of the submarginal vein beyond. Submedial cell of the posterior wings broad and terminated by a sinuous transverse nervure. ♀, Spurs of the posterior tibiæ greatly enlarged; a subtriangular enclosure on the dorsal valve of the abdomen. ♂, A single spine at the apex of the abdomen; sixth ventral segment elongate and acute, hiding the seventh ventral; pleural lobes of the seventh segment not distinct.

SPHECIUS Dahlb. (1843).

Syn. *Hogardia* Lepel. (1845).

*Stizus* Smith (nec Latr.).

Type: *Sphecius speciosus* (Drury) Dahlb.

Head well rounded out behind the eyes; the axes of the eyes parallel, the inner margin slightly excavated above. Clypeus subtriangular, the upper corner squarely cut off, the lower edge slightly rounded out on each side and sinuated in the middle. Labrum with its length not half as great as its breadth. Mandibles stout, very unequally bidentate. Antennæ of similar form in the two sexes, thickened towards the tip, the third joint equalling in length the two following taken together, the antennæ of the male not armed with spines, and the apical joint neither lengthened nor excavated. The 4th to the 13th joints of the male antennæ with a narrow groove beneath. Legs stout, the pulvillus large. Legs of the female very strongly spinose; joints of the anterior tarsi not produced at the tip, fringed externally with spines which are not half as long as the apical joint of the tarsus; the two basal joints of the intermediate tarsi produced at the tip externally, the process terminating in a stout spine; basal joint of the posterior tarsi long; the spurs of the

posterior tibiæ flattened and dilated, the inner spur curved and almost or quite equalling the basal joint of the tarsus in length. Legs of the male not so stout and not so spinose; basal joints of the intermediate tarsi not produced, the basal joint not dilated and not excavated; the spurs of the posterior tibiæ not half as long as the basal joint of the tarsus. Tip of the abdomen of the female with a well defined, elongated dorsal area. Eighth ventral segment of the male armed with a stout, curved spine, the tip of which is usually exerted, the rest of the eighth segment concealed, but both the dorsal and ventral arcs form chitinous plates. The claspers of moderate size. Apex of the abdomen in both sexes acute.

Say, in describing *grandis*, pointed out the fact that that species, together with *speciosus*, should be set apart from *Stizus* proper, and gave, as a character to separate the two groups, the absence of a spine at the tip of the abdomen in the males of the larger species. Say's figure of *grandis* ♂ represents the abdomen in a contracted state. It is therefore probable that the spine, being withdrawn, was overlooked by him; for the central spine is large in *Sphecius*, but is capable of being withdrawn out of sight, as are also the three spines of *Stizus uncinatus*. Both Dahlbom and Lepeletier separated the genera on account of differences in venation.

Unless the Australian *Stizus pectoralis* Smith (C. H. B. M. iv, p. 337, ♀, and Cruise Curaçoa, pl. xlv, f. 6, 1873) belongs here, this genus appears to be exclusively American.

*Sphecia* Hübner (1816) does not seem sufficiently like "*Sphecius*" to invalidate the latter name by its priority; but if it did, *Hogardia*, and not *Stizus*, should be used.

## 1. SPHECIUS SPECIOSUS.

*Sphex speciosus* Drury, Exotic Ins. ii, 71, t. 38, f. 1, ♀ (1773).

*Vespa tricineta* Fabr., Ent. Syst. ii, 254 (1793); Syst. Piez. 254 (1804).

*Stizus speciosus* Lepel. et Serv., Encycl. Méth. x, 496, t. 382, f. 6, ♀ (1825).

*Stizus speciosus* Westwood's Ed. Drury, Ex. Ins. ii, 77, pl. xxxviii, f. 1, ♀ (1837).

*Stizus speciosus* Blanchard, Dict. Univ. d'Hist. Nat., Atlas, vol. ii, Hym. pl. 2, f. 3, ♂, f. 7, ♀ (1849).

*Stizus speciosus* Smith, Cat. H. B. M. iv, 336 (1856).

*Stizus speciosus* Pack., Proc. E. S. P. vi, 442, ♀ (1867).

*Stizus speciosus* Walsh, Am. Ent. i, 129, f. 103, and ii, 87, f. 57, ♂ (1869-70).

*Stizus speciosus* Wood, Ins. Abroad, 473, f. 252, ♂, f. 253, ♀.

*Sphecius speciosus* Dahlb., Hym. Eur. i, 154, ♀ (1843), and i, 480, ♀ (1845).

*Hogardia speciosa* Lepel., Hym. iii, 290 (1845).

Var. b. *Stizus grandis* Say, West. Quart. Rep. ii, 77 (1823), and Am. Ent. p. 3, pl. 2, f. 1, ♀, f. 2, ♂.

*Stizus grandis* Pack., Proc. E. S. P. vi, 442, ♀ (1867).

*Stizus grandis* Riley, First Ann. Rep. Ins. Mo. 27, f. 12, ♀ (1869).

*Stizus grandis* Walsh, Am. Ent. i, 8, f. 3, ♀, and 129, f. 102, ♀ (1869).

Var. c. *Stizus fervidus* Cress., Trans. Am. E. S. iv, 223, ♀ (1872).

The species is found from Connecticut to Texas. After repeated comparisons of specimens, I am unable to find any specific characters for

separating *grandis* and *fervidus* from *speciosus*; and I have no doubt that the same remark will apply to *Nevadensis* and *Hogardii*, and perhaps to *spectabilis*. At any rate, no specific characters are pointed out in the descriptions of those species sufficient to establish a distinction. The color of the body varies from black to ferruginous, and the yellow bands of the abdomen vary in number, size, and shape, but the type is the same in all. The claspers in the males of the four varieties are identical.

Var. *d. convallis*.—♀, Ferruginous, antennæ except two or three of the basal joints, mandibles except at base, and tarsal claws except at base, black. Wings colored as in *speciosus*. A small yellow spot on each side of the second segment of the abdomen. Inner spur of posterior tibiæ no longer than the outer spur, and not reaching the tip of the first tarsal joint. In *speciosus*, the inner spur usually reaches to the tip of the first tarsal joint, and slightly surpasses the outer spur. Length 1.25 in.—♂, Differs in having a yellow spot on each side of the first, second, and third segments of the abdomen, the spots on the second and third segments almost united; four yellow spots on the second ventral segment faintly connected to form a band; the breast marked with black, and the labrum, clypeus, and tubercles tinged with yellow. Length 1 in.—Yosemite Valley, Cal. (Mr. F. V. McDonald).

Walsh had no good reason (Am. Ent. i, 162, Apr. 1869) for changing the name of the African *Stizus grandis* Lepel. to *St. gigas*. At the time the African species was described, Say's *grandis* did not belong to the genus *Stizus*. Walsh's genus *Stizus* is not the same as Lepeletier's. Indeed, Walsh incorrectly referred his new species *brevipennis* to his own genus *Stizus*. At present, moreover, *Stizus grandis* Say, having become a synonym of *speciosus*, cannot conflict with any other species.

I have observed this wasp dragging its prey, the *Cicada pruinosus* Say. The Cicada, paralyzed by the sting of the wasp, was placed upon its back with the wings folded. The wasp, standing over it, caught hold of the bases of the wings with the claws of her intermediate tarsi, and, walking upon her anterior and the tips of her posterior tarsi, dragged the Cicada head foremost over the ground, the intermediate tarsi of the wasp extending from the bases of the wings to the eyes of the Cicada. Proceeding in this manner, and with an occasional flutter of the wings if harassed, she ascended a small evergreen tree, probably to attain an elevation from which to take flight, and was there lost to view.

## 2. SPHECIUS NEVADENSIS.

*Stizus Nevadensis* Cress., Trans. A. E. S. v, 99, ♂ (1875); Rep. U. S. Survey West of the 100th Meridian, v, 716, pl. 33, f. 1, ♂ (1876).

Habitat: *Nevada* and *Utah*.

## 3. SPHECIUS HOGARDII.

*Stizus Hogardii* Latr., Gen. Crust. et Ins. iv, 100, t. 13, f. 12, ♀ (1804).

*Stizus Hogardii* Lepel. et Serv., Encycl. Méth. x, 496, ♀ (1825).

*Stizus Hogardii* Smith, C. H. B. M. iv, pl. viii, f. 4, ♀ (1856).

*Stizus Hogardii* Cress., Proc. E. S. P. iv, 145, ♂ ♀ (1865).

*Stizus Hogardii* Pack., Proc. E. S. P. vi, 443, ♀ (1867).

*Hogardia rufescens* Lepel., Hym. iii, 289, t. 28, f. 5, ♀ (1845).

*Hogardia rufescens* Guer., La Sagra's Hist. Cuba, vii, 320 (1857).

Habitat: *Cuba, St. Domingo.*

#### 4. SPECIUS SPECTABILIS.

*Stizus spectabilis* Tasch., Zeit. ges. Nat. xlv, 360, ♂ ♀ (1875).

Habitat: *Brazil.*

#### Group. STIZI.

Marginal cell ovate-lanceolate, not extending as far as the third submarginal cell. Submarginal vein not flexed to meet the first recurrent nervure; the first recurrent nervure curved at the apex and inserted at an angle. Submedial cell of posterior wings terminated by a straight transverse nervure. ♀, Spurs of posterior tibiæ not dilated, reaching only to the middle of the first tarsal joint. ♂, Three spines, or only one, at the apex of the abdomen; the sixth ventral segment transverse; pleural lobes of the seventh segment separated by an incision and a suture from the tergum.

#### MEGASTIZUS n. g.

Type: *Stizus brevipennis* Walsh.

Eighth ventral segment of the male forming a broad, tridentate spine. Basal joint of intermediate tarsi not dilated and not excavated. Labrum with its length not half as great as its breadth. Submedial cell of the posterior wings narrow, extending no more than its own breadth beyond the origin of the transverse medial nervure.—Head well rounded out behind the eyes; axes of the eyes parallel, the inner margin very slightly excavated above. Face broader than in *Speicius*; clypeus transverse, hexagonal, the upper side straight, the lower side excavated. The piece between the clypeus and the antennæ longer than in *Speicius*, but not keeled as in *Stizus*. Mandibles short and stout, very unequally bidentate. Antennæ slender, thickest at the ninth joint, which is shorter than any other excepting the second; third joint arcuated, as long as the fourth and fifth taken together. The antennæ of the male unarmed, the apical joint slender like the preceding joints, much excavated beneath, the apex subtruncate; the antennæ not grooved and not pitted beneath; longer than in the female. Body robust, abdomen of the male elongate and surpassing the wings. Thorax short, metathorax vertically truncate; the base of the abdomen subtruncate and sessile. Legs stout, the pulvillus large. Anterior tarsi short, joints two to four transverse; anterior tarsi of the female slightly dilated exteriorly, but the joints not produced at the tip, fringed externally with spines equalling the fifth joint in length. Intermediate tarsi simple in both sexes, strongly spinose in the female. Spurs of the posterior tibiæ not half as long as the first tarsal joint. Sixth dorsal segment of the female suddenly nar-

rowed just before the tip, the disk of this narrowed portion bounded laterally and posteriorly by a raised line, otherwise there is no dorsal area. Seventh ventral segment of the male triangular; the dorsal segment large and arched, its border rounded and very slightly sinuate, the pleural pieces beneath large, subtriangular. The eighth dorsal segment of the male large and well formed, but conecaled; the eighth ventral represented (in the type) by a large and flat tridentate spine. The claspers very large and complex.

### 1. MEGASTIZUS BREVIPENNIS.

*Stizus brevipennis* Walsh, Am. Ent. i, 162, ♂ (April, 1869).

*Larra Brendeli* Taschenberg, Zeit. gesammten Nat. xlv, 361, ♂ (1875).

To Mr. S. W. Williston we are indebted for the discovery of the female of this species. In coloration it differs from the male only in having the third and the last joints of the antennæ mostly ferruginous and the tenth and eleventh joints spotted with ferruginous beneath, and in having the spots upon the scutellum of larger size.—Taken in Northwestern Kansas, Sept. 15th. The species varies slightly. The tegulæ and the stripe above them vary from yellow to ferruginous, the scutellum and base of postscutellum are sometimes tinged with ferruginous, the spots upon the venter vary in size, and two spots are often present on the second segment, the bands upon the third and fourth dorsal segments vary in width and may be either continuous or interrupted.

Habitat: *Illinois*, Walsh and Brendel; *Kansas*, Williston and Snow; *Texas*, Heiligbrodt.

### 2. MEGASTIZUS TEXANUS.

*Stizus texanus* Cress., Trans. Am. Ent. Soc. iv, 222, ♂ ♀ (1872).

Habitat: *Texas*.

### SPHECIENUS n. g. (*Sphceius*, εἶνος).

Syn. *Sphceius* A. Costa (nec. Dahlb.).

Type: *Sphceienus nigricornis* (*Stizus nigricornis* Duf.).

Eighth ventral segment of the male armed with one stout spine. Terminal joint of the male antennæ elongate, arcuate. Basal joint of the intermediate tarsi of the male excavated beneath and dilated. Labrum semicircular. Submedial cell of posterior wings broad.—Not an American genus.

### BEMBECINUS Costa (F. Nap., Expla. Plates, Aug. '59).

Syn. *Bembecinus* and *Stizomorphus* A. Costa, Fauna Naples, Text (Feb. 1859).

Type: *Bembecinus tridens* (*Bembecinus meridionalis* Costa and *Stizomorphus tridens* Costa, *Vespa tridens* Fabr.).

Eighth ventral segment of the male tridentate. Two of the terminal joints of the male antennæ armed with a spine beneath. Submedial cell of the posterior wings narrow, extending no more than its own breadth beyond the origin of the transverse medial nervure.—Not an American genus.

## STIZUS Latr. (1802).

Syn. *Larra* Sm. (nec Latr.).

*Bicyrtes* Lepel.

Type: *Stizus tridentatus* (*Crabro tridentatus* Fabr., *Stizus bifasciatus* Latr.).

Eighth ventral segment of the male tridentate; *i. e.*, armed with three spines. Male antennæ unarmed; the apical joint excavated beneath, not elongate. Labrum with the length two-thirds of the breadth. Sub-medial cell of the posterior wings narrow, extending much more than its own breadth beyond the origin of the transverse medial nervure.—Head transversely flattened posteriorly, the cheeks behind the eyes being obsolete or in a plane with the occiput. Eyes distant on the vertex, converging beneath, the inner margin very slightly excavated above. Clypeus subquadrate, the breadth a little greater in the female, the length in the male; the sides somewhat rounded, both the upper and lower margins excavated. A slight carina between the antennæ. Mandibles slender, pointed, entirely unarmed in either sex. Apical joints of the male antennæ pitted beneath. Legs slender, the pulvillus small. Anterior tarsi of the female slightly dilated, the basal joints produced at the tip externally; ciliate externally with spines, which equal the fifth joint in length. Dorsal valve of the female without enclosure, pointed; dorsal valve of the male shorter and obtuse, depressed and not large. Eighth ventral segment of the male with only the tips of the spines prominent; claspers small and slender.

Smith (C. H. B. M. iv, 337, 1856) quotes *Stizus* from Latreille's Gen. Crust. et Ins. iv (1804), and states that *Stizus Hogardii* was Latreille's type, but erroneously, for it was in 1802 that Latreille, in his Hist. Nat. vol. iii, established the genus *Stizus*, and gave *bifasciatus* and *rusticornis* as species under it, without mentioning *Hogardii*. In 1805, Hist. Nat. vol. xiii, Latreille added *tridens* to the genus.

Klug, in the Symbolæ Physicæ, Insecta, vol. v (1829), without defining the genus, treats of species of *Stizus* under the generic name *Larra*, erroneously quoting Fabricius as the authority for the latter genus.

Smith also gives *Larra vespiformis* as the type of *this* genus; but that species is not mentioned by Latreille, and if it should prove to be generically distinct from *bifasciatus* would belong to a new genus. *Stizus uncinatus* Say is the American representative of *bifasciatus*. Some of the species here catalogued will require to be placed in distinct genera.

## 1. STIZUS UNICINCTUS.

*Stizus uncinatus* Say, West. Quart. Rep. ii, 77 (1823); Am. Ent. 4, pl. 2, f. 3 and 4, ♂ (1824).

*Larra uncinata* Cress., Proc. Ent. Soc. Phila. iv, 472 (1865).

*Larra uncinata* Paek., Proc. Ent. Soc. Phila. vi, 444, ♂ ♀ (1867).

Habitat: *Kansas, Colorado, Utah, New Mexico, Texas.*

## 2. STIZUS SERVILLII.

*Bicyrtes Servillii* Lepel., Hym. iii, 53, ♀ (1845).

*Larra Servillii* Smith, C. H. B. M. iv, 350 (1856).

Habitat: *Philadelphia.*

## 3. STIZUS MONEDULOIDES.

*Larra moneduloides* Smith, C. H. B. M. iv, 346, ♂ ♀ (1856).

Habitat: *Florida*.

## 4. STIZUS CINGULATUS.

*Larra cingulata* Smith, C. H. B. M. iv, 340, ♀ (1856).

Habitat: *Brazil*.

## 5. STIZUS DUBIUS.

*Larra dubia* Smith, C. H. B. M. iv, 343, ♂ (1856).

Habitat: *Villa Nova, Brazil*.

## 6. STIZUS AGILIS.

*Larra agilis* Smith, Ann. and Mag. Nat. Hist. (4), xii, 402 (1873).

Habitat: *Ega, Brazil*.

## 7. STIZUS BICINCTUS.

*Larra bicincta* Tasch., Zeit. ges. Nat. xlv, 364, ♀ (1875).

Habitat: *Mendoza, Argentine Republic*.

Bull. v, 3—2