

NEW SPECIES OF *HELICOPSYCHE*
(TRICHOPTERA, HELICOPSYCHIDAE)¹

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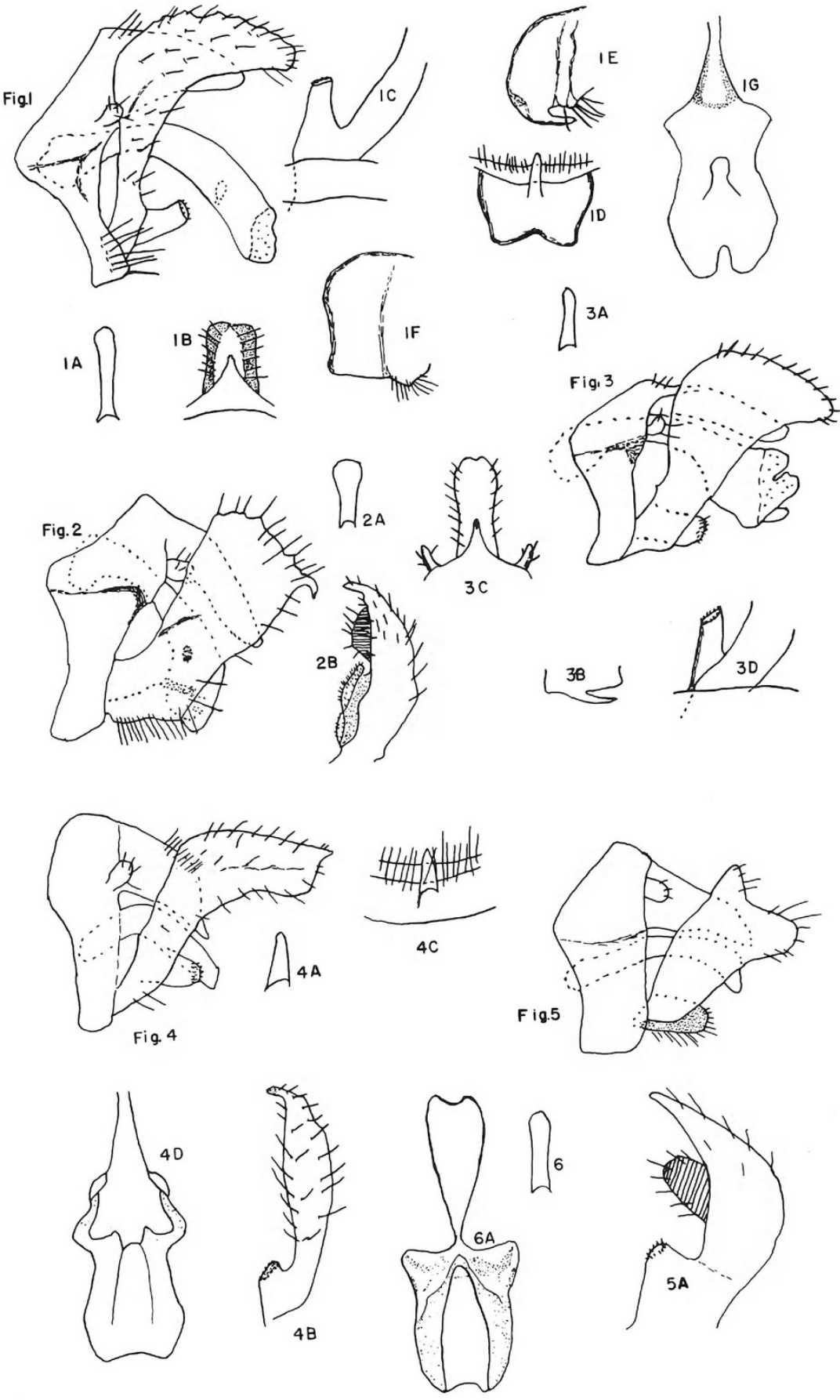
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Members of the genus are worldwide in distribution with the majority of species in the subtropical and tropical regions. Of the approximate 60 species which have been described, only 4 species are known from North America north of Mexico: *borealis*, *mexicana*, *piroa* and *limnella*. It is probable that several northern Mexican species will be taken in portions of Arizona, New Mexico and Texas. The well known larvae may be found in clear, well aerated streams and congregates of 100 or more prepupae and pupae may occasionally be found. In the females the bursa copulatrix presents specific characters which should be illustrated when associated with the male. In the males those species that have no mesal lobe on sternum 6 are rare; in contrast, the presence of a mesal lobe in described females is rare. Future descriptions should record the presence or absence of this structure. In this paper five new species are described, one from southern California and four from Mexico and Central America. Length is given from head to tip of the wings. Deposition of types is indicated under each species.

***Helicopsyche lewalleni*, new species**

Resemblance to *piroa* Ross, *vergelana* Ross and *tapada* Denning is apparent in the contour of the clasper and its mesobasal lobe. The species belongs to the group in which the females possess a mesal lobe on sternum 6. Diagnostic characters: claspers with base long, narrow, mesobasal lobe slender; phallus long and arcuate.

Male.—Length 6 mm. Antennal scape slightly longer than next three segments. Spurs 2-2-4, prominent, setose (in *vergelana* spurs are 1-2-4). Cerci small, ovate. Mesh-like reticulation present on sterna 3, 4; cephalic and caudal margins of sternum 6 dark brown, left pleuron with minute ovate translucent area along brown pigmented line; mesal lobe (Fig. 1A) lightly pigmented, elongate, length exceeds width of segment. Cephalic margins terga 5-9 dark brown, mesal excision broad, shallow. Genitalia as in Fig. 1. Sternum 9 narrow, bifurcated brown lateral apodeme indicates margin of



tergum 9; dorsal margin tergum 9 projected caudad (Fig. 1B). Tergum 10 convex from dorsal aspect, lateral margins parallel, row of erect setae present on dorsolateral margins, apex minutely emarginate in holotype, not in paratype. Clasper base elongate, dorsal margin crenulated, arcuate, apex obtuse; mesobasal lobe, ventral aspect (Fig. 1C), long, truncate apex bearing dense, brownish spicules, apex and mesal margins dark brown. Phallus curved ventrocaudad, phallobase enlarged, apex only slightly enlarged, distal margin semimembranous; viewed laterally a brown pigmented internal sclerite discernible (Fig. 1); phallus normally reposes in concave tergum 10.

Female.—Length 6 mm. General color and structure similar to male. Mesh-like reticulation present on most of sterna 3–4, sterna 3–6 densely setose; cephalic margins sterna 3, 4 dark brown; sternum 5 brown, margins dark brown; sternum 6 cephalic margin brown, narrow excision, mesal lobe subacute, projected beyond margin (Fig. 1D); from lateral aspect (Fig. 1E) mesal lobe directed caudad, acuminate; sternum 9 cephalic margin dark brown; tergum 7 cephalic margin with deep narrow excision. Lateral aspect, sterna 3–6 caudal margin produced ventrad, dense setation (Fig. 1F). Bursa copulatrix from ventral aspect as in Fig. 1G.

Holotype.—Male, El Salvador: La Libertad, light trap, west bank Rio Chilama, 20 February 1969, Larry L. Lewallen. Allotype. Female (damaged), same data as for holotype. Paratype. Male, same data as for holotype.

Types to be deposited in Academy of Sciences, Golden Gate Park, San Francisco, California.

This species named in honor of the collector, Larry L. Lewallen, State Department of Health, Fresno, California.

***Helicopsyche villegasi*, new species**

Related to *planata* Ross, differing from it and others as follows: sharply curved apex of claspers directed ventral, narrow mesobasal lobe of clasper; sharply declivent tergum 10; distally enlarged phallus.

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Figs. 1–6. Fig. 1. *Helicopsyche lewalleni*, male genitalia, lateral. 1A, mesal lobe sternum 6, ventral aspect; 1B, tergum 9, 10, dorsal aspect; 1C, clasper mesobasal lobe, ventral view; 1D, female, sternum 6, ventral aspect; 1E, female, sternum 6, lateral view; 1F, female, sternum 5, lateral; 1G, bursa copulatrix, ventral. Fig. 2. *Helicopsyche villegasi*, male genitalia, lateral; 2A mesal lobe sternum 6, ventral; 2B, clasper, mesobasal lobe, ventral. Fig. 3. *Helicopsyche temora*, male genitalia, lateral; 3A mesal lobe sternum 6, ventral; 3B, mesal lobe sternum 6, lateral; 3C, tergum 10, dorsal; 3D, clasper, mesobasal lobe, ventral. Fig. 4. *Helicopsyche rentzi*, male genitalia, lateral. 4A, mesal lobe sternum 6; 4B, clasper, mesobasal lobe, ventral; 4C female, sternum 6, ventral; 4D, female, bursa copulatrix, ventral. Fig. 5. *Helicopsyche sinuata*, male genitalia, lateral; 5A, clasper, mesobasal lobe, ventral. Fig. 6. *Helicopsyche mexicana*, male, mesal lobe, sternum 6, ventral; 6A, female, bursa copulatrix, ventral.

Male.—Length 8 mm. General color ochraceous. Antennal scape slender, equal in length to next 5 segments. Sterna 3, 4 with mesh-like reticulation; sternum 6 mesal lobe clavate, length approximately three-quarters width of segment, luteous (Fig. 2A). Terga 2–9 cephalic and lateral margins dark brown, mesal excisions shallow; tergum 8 heavily pigmented. Genitalia Fig. 2. Sternum 9 gradually widened to the brown pigmented lateral apodeme; cephalic margin tergum 9 oblique, dorsal margin declivent. Cerci small, ovate. Tergum 10 projecting ventrad; distinct inverted brownish Y-shaped line on dorsum; distal margin oblique. Clasper dorsal margin serrate, acute apex curved ventrad; mesobasal lobe extends caudad slightly beyond margin; from ventral aspect (Fig. 2B), mesobasal lobe narrow, apex arcuate and bearing dark brown spicules, mesal margin brownish. Phallobase enlarged, median portion narrow and cylindrical, apex large, curved ventrad.

Holotype.—Male, Mexico; 4 km W of Nochistlan, Zacatecas, 22–23 September 1975, 1930 m, Rio de Nochistlan, at dam named Presade, “Los Tuzas,” Baldomera Villegas.

Type deposited in Entomology Department, University of California, Davis, California.

This species named in honor of Mr. Baldomera Villegas, University of California at Davis who collected this interesting specimen.

***Helicopsyche temora*, new species**

This species belongs to the *selanderi* Ross, *tapadas* Denning complex. Diagnostic characters: clasper with lateral and dorsal margin broadly rounded, apex obtuse; oblique apex of mesobasal lobe of clasper; apex of ventrad curved phallus greatly enlarged.

Male.—Length 5.5 mm. General color luteous. Sterna 3, 4 with mesh-like reticulation. Terga 2–6 subquadrate, cephalic margins dark brown, wide shallow excisions. Antennal scape enlarged, curved dorsocaudad, length equal to next 4 segments. Mesal lobe sternum 6 yellowish, elongate, about two thirds width of segment from ventral aspect (Fig. 3A), acuminate from lateral aspect (Fig. 3B). Genitalia Fig. 3. Sternum 9 narrow, cephalic margin somewhat convex, tergal margin indicated by brown lateral apodeme; tergum 9 narrowed dorsad, projected caudad. Cerci inconspicuous, ovate. Tergum 10 convex, lateral margins parallel, single row erect setae along lateral margins (Fig. 3C); from lateral view, tergum gradually narrowed to rounded apex (Fig. 3). Clasper mesal margin with short angulation, dorsal margin broadly arcuate, apex obtuse (subacute in one paratype). Mesobasal lobe about equal width throughout, apex oblique, spiculated; mesal and apical margins brown, ventral aspect (Fig. 3D). Phallus curved ventrad, apex enlarged, distal portion semimembranous (Fig. 3).

Holotype.—Male. Mexico: 6.4 km (4 mi) SW of Temoris, Chihuahua 1500

m (4900'), 6 August 1968, R. C. Gardner, C. S. Glaser, T. A. Sears. Paratypes. 2 males. Same data as for holotype.

Types deposited Entomology Department, University of California, Davis.

***Helicopsyche rentzi*, new species**

This species bears little resemblance to other described species. Diagnostic characters: ventrad projected tergum 10; ventral angled phallus; straight dorsal margin of clasper; narrow mesobasal lobe of clasper.

Male.—Length 5 mm. General color luteous. Antennal scape equal in length to next 4 segments. Mesh-like reticulation on sterna 3, 4, 5 cephalic margins brown; terga cephalic margins brown, excisions wide, shallow. Mesal lobe on sternum 6 non-pigmented, about half width of segment (Fig. 4A). Genitalia, Fig. 4. Sternum 9 narrow, in absence of a pigmented lateral apodeme, demarcation of tergum 9 difficult to discern. Cerci small, elongate. Tergum 10 directed sharply ventrad, apex subacute; from dorsal view distal half not discernible due to sharp ventral angulation; the setose semicircular lateral area best viewed from lateral aspect. Clasper base narrow; greatly enlarged dorsal portion with ventral and dorsal margins subparallel; apex attenuated, subacute, black; a brown pigmented line discernible in cleared specimens on lateral surface (Fig. 4); from ventral aspect (Fig. 4B), mesal lobe narrow, apex obliquely truncate with dense, brown spicules. Phallus angled abruptly ventrad.

Female.—Length 5.5 mm. Color, general structure similar to male. Sterna 3, 4 with mesh-like reticulation; all cephalic margins of sternites dark brown. Sternum 6 with lightly pigmented subacute mesal lobe, about half width of segment; distal margin bearing dense brown setae (Fig. 4C). Sternum 8 with submarginal narrow band of dense dark brown setae; tergites deeply excised, cephalic margins dark brown, especially on terga 5, 6, 7, 8. Tergum 11, dorsal aspect, with elongate brownish lobes densely setate. Bursa copulatrix, ventral aspect, as in Fig. 4D.

Holotype.—Male, Costa Rica: Guanacosta, Finca La Pacifica, 10 miles north Canas, 10 February 1969. David C. Rentz. Allotype. Female. Same data as for holotype.

Type to be deposited in Academy of Sciences, Golden Gate Park, San Francisco, California.

Named in honor of Dr. David C. Rentz, who has collected many very interesting Trichoptera.

***Helicopsyche sinuata*, new species**

This species is remarkably different from the four species known from North America north of Mexico. Diagnostic characters: phallus curved

slightly ventrad; large, wide mesobasal lobe and sinuous dorsal margin of clasper; mesal lobe of sternum 6 absent.

Male.—Length 4.5 mm. General color ochraceous. Spurs long, slender. Antennal scape short, robust, subequal to next 3 segments. Cerci ovate, dorsad of lateral apodeme. Sterna 3, 4, 5 with mesh-like reticulation; sternum 6 mesal lobe absent. Genitalia, Fig. 5. Sternum 9 practically same width throughout, lateral margin produced to obtuse angle. Tergum 10, lateral aspect (Fig. 5), narrowed distally, from dorsal aspect, apex minutely bilobate. Clasper gradually expanded dorsad from base, dorsal margin with antero-dorsal and postero-dorsal lobes, setation light; from ventral aspect (Fig. 5A), clasper curved mesad, apex acuminate and acute; from this view the postero-dorsal lobe is discernible. Phallus projected caudad slightly beyond tergum 10, curved gradually ventrad to subacute apex.

Holotype.—Male, California: San Bernardino County, Sheep Creek Canyon, 5 May 1950, A. L. Melander. Saul Frommer, Entomology Department, University of California, Riverside (pers. comm.) states; "Sheep Creek Road joins Hwy. 138 south of Phelan, Sheep Creek is west of the road."

Type to be deposited Entomology Department, University of California, Riverside.

Helicopsyche mexicana Banks

This species is widely distributed from Frijole, Texas (Ross, 1944) to southern Utah and California into Mexico. New records are: Washington County, Utah, Leeds Canyon, July 1964, W. J. Hanson (Utah State University); Los Angeles County, California, Graveyard Canyon, 9 May 1970, J. A. Honey (Los Angeles County Museum of Natural History).

Male.—Sterna 3, 4 with mesh-like reticulation; sternum 6 mesal lobe luteous, short (Fig. 6) usually about half the length of the sternite. The contour of the clasper, especially the dorsal margin, is quite variable.

Female.—Sternum 4, 5 with mesh-like reticulation. Caudal margins sterna 6, 7 with dense blackish setae. From ventral aspect, the darkly pigmented margin of the bursa copulatrix are discernible in cleared specimens, (Fig. 6A). This species is widely distributed in Arizona and is the dominant helicopsychid in that state.

Literature Cited

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Footnote

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SCIENTIFIC NOTE

A NOTE ON THE ANTHICIDAE OF KAUAI, HAWAII

During a 1976 visit to Kauai, the author and his wife noted on several occasions numbers of anthicids on the inner sides of shop windows and on adjacent walls. A small series of the animals was collected (2 mi SE Lihue; 27–28 November 1976; D. K. and J. T. Young) and subsequently determined to be *Stricticomus tobias* (Marseul) (specimens deposited in the collection of the author as well as that of the Bishop Museum in Honolulu). To the author's knowledge, this represents the first Hawaiian record of the cosmopolitan *tobias* outside Oahu, as well as the first anthicid to be recorded from the island of Kauai. A check through the collections of the Bishop Museum (conducted by G. A. Samuelson) and the Hawaii Department of Agriculture (conducted by S. Y. Higa) for additional unpublished records yielded but a single Kauaian anthicid, this having been identified as *A. floralis* (Linnaeus). Additionally, Dr. Samuelson was able to locate data cards on file at the Bishop Museum which listed *S. tobias*, *A. vexator* Werner, and *Thicanus annectens* (LeConte) from Kauai, though these records could not be confirmed by specimens. The *tobias* and *annectens* samples were recorded as having been taken in "salt marshes nr. sea level."

The association of *S. tobias* with shop display windows leads me to suggest that artificial lighting served as the stimulus for attraction, an idea supported by other collection records which list the species as having been taken from light trap samples (Werner, 1961, *Psyche* 68: 70–72; Werner, 1966, *Proc. Hawaiian Ent. Soc.* 19: 310–316). Extensive baiting with cantharidin, a positive stimulus for the attraction of numerous species of anthicids (Chandler, 1976, *Pan-Pac. Ent.* 52: 179–180; Young, unpublished notes) proved fruitless in several habitat types on Kauai.

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Denning, D. G. and Blickle, R. L. 1979. "New species of *Helicopsyche* (Trichoptera, Helicopsychidae)." *The Pan-Pacific entomologist* 55(1), 27-33.

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