

## FIRST SPECIES OF *HESPEROPILIO* (OPILIONES, CADDOIDEA, CADDIDAE) FROM SOUTH AMERICA

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**ABSTRACT.** This paper describes the first South American species of *Hesperopilio* Shear 1996, a genus previously known from a single species, *H. mainae* Shear 1996, from Western Australia. The new species is known from a single adult female and is one of the largest and most colorful species of the superfamily Caddoidea. The generic diagnosis of *Hesperopilio* is emended to accommodate information from the new species.

**RESUMEN.** En el presente artículo se describe la primera especie sudamericana de *Hesperopilio* Shear 1996, un género previamente representado por una sola especie, *H. mainae* Shear 1996, de Western Australia. La nueva especie se conoce de una sola hembra adulta y es de las más grandes y más coloridas de la superfamilia Caddoidea. La diagnosis genérica de *Hesperopilio* se enmienda para acomodar la información de esta nueva especie.

**Keywords:** *Hesperopilio*, Opiliones, harvestman, Chile, systematics, South America, new species

Until recently, the acropsopilionine faunas of the Australian Region (*Acropsopilio* Silvestri 1904, *Austropsopilio* Forster 1955, *Hesperopilio* Shear 1996, *Tasmanopilio* Hickman 1957), South Africa (*Caddella* Hirst 1925) and the New World (*Acropsopilio*) displayed little generic overlap, with the principal exception being the presence of *Acropsopilio* in the Australian Region, the Americas and Japan. However, a new species from the “Australian” genus *Austropsopilio* was recently discovered in southern South America (Cokendolpher & Maury 1990; Shultz & Cekalovic 2003), thus further increasing the similarity of acropsopilionine faunas of the two continents. This paper continues this trend by describing a new South American species of *Hesperopilio*, a genus formerly known from one species from Western Australia, *H. mainae* Shear 1996. The new species is substantially larger and more colorful than the Australian species, and its discovery further highlights the close biogeographic connection between the Australian and South American opilion faunas.

The material examined for this study is lodged in the American Museum of Natural History, New York (AMNH).

### SYSTEMATICS

#### *Hesperopilio* Shear 1996

*Hesperopilio* Shear, 1996: 456.

**Type species.**—*Hesperopilio mainae* Shear 1996, by original designation.

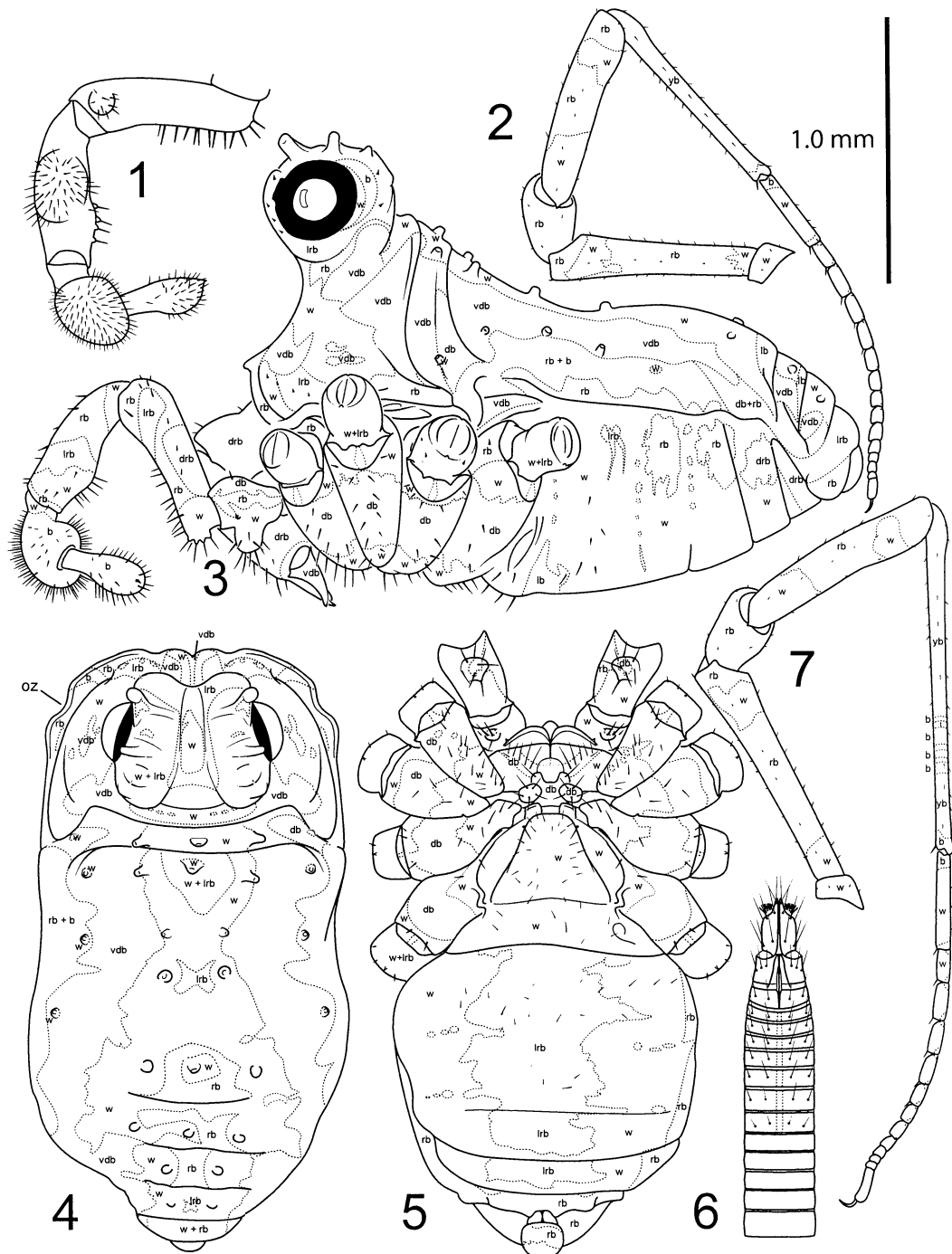
**Emended generic diagnosis.**—Caddidae with ocularium large, broad, not projecting beyond anterior margin of carapace; ocularium with broad median furrow, each carina with longitudinal row of five variably developed protuberances. Female palpal femora without ventral apophyses but with midventral row of stout spines; patella with prolaterally spinose. Ovipositor with terminal apparatus composed of three bilaterally paired apical segments and shaft composed of 10 or 12 unpaired segments.

#### *Hesperopilio magnificus* new species

Figs. 1–7

**Type data.**—Holotype female: CHILE: Provincia Chiloé: Isla Grande de Chiloé, Chepu (42°00'S, 73°58'W), 14 January 2002, Tomás Cekalovic (AMNH).

**Etymology.**—The species is named for its magnificent coloration and comparatively large size.



Figures 1–7.—*Hesperopilio magnificus*, adult female, holotype: 1. Right pedipalp, prolatral aspect; 2. Right leg I, retrolateral aspect; 3. Body, left lateral aspect; 4. Body, dorsal aspect; 5. Body, ventral aspect; 6. Ovipositor, ventral aspect; 7. Right leg III, retrolateral aspect. Abbreviations: OZ = ozopore; b = brown; db = dark brown; lb = light brown; lrb = light reddish brown; rb = reddish brown; vdb = very dark brown; w = white, yb = yellowish brown. Scale bar applies to all figures.

**Diagnosis.**—*Hesperopilio magnificus* is the first species of its genus known from South America. At. 2.3 mm long, the holotype is substantially larger than female *H. mainae* (1.6 mm) (Shear 1996) and has a much more complex coloration (Figs. 2–5, 7), including an asymmetrical white “hour glass” dorsal figure bordered by dark brown bands; dorsal transverse rows of white tubercles; and white and reddish-brown striped legs. The prolateral spine field of the palpal patella is inflated in *H. magnificus* (Fig. 1); the patella-tibia joint operates so as to bring the prolateral surfaces of the patella and tibia in apposition rather than the ventral surfaces (Fig. 1); the tibia is greatly inflated (Figs. 1, 3); the tarsus is proportionally larger in *H. magnificus* (subequal to tibia) (Figs. 1, 3); the palpal claw is greatly reduced (Fig. 3). The carinal tubercles of the ocularium vary greatly in size, the second being the largest, followed by the third; the remainder are reduced to low bumps. The ovipositor shaft has more unpaired segments (12 instead of 10 in *H. mainae*) and there are more setae (12 or 8) per seta-bearing segment than in *H. mainae* (6).

**Description of female holotype.**—Dorsal surface: Anterior margin with shallow median emargination (Fig. 4). Ozopores located at level of coxa I, open laterally, indicated dorsally by wide, shallow emargination. Surfaces of carapace slope upward steeply to form dorsal “peak” on which ocularium is mounted (Fig. 3). Ocularium large; width, including lenses, over one-half width of carapace; wide, shallow median furrow; carinae with two pairs of large transverse ridges terminating laterally with dorsolaterally projecting, blunt-ended processes; smaller ridges between and posterior to large ridges (Figs. 3, 4). Metapeltidium with one transverse row of tubercles and dorsal surface of opisthosoma with seven segmentally arranged, transverse rows of tubercles (Fig. 4). First (metapeltidial) and second (first opisthosomal) rows with five tubercles (one median, two medial, two lateral), rows 3 and 4 with four tubercles (two medial, two lateral), row 5 with three tubercles (one median, two medial) and two lateral white spots may correspond to lateral tubercles, row 6 with three (one median, two medial), and rows 7 and 8 with two tubercles (medial only). First four tergal somites of the opisthosoma not demarcated externally except by patterns of tu-

bercles and coloration, tergite 5 distinguished anteriorly by incomplete transverse groove, tergites 6, 7, 8 + 9 and anal operculum demarcated by transverse grooves.

Ventral surface: Epistomal lobe (“labrum”) short, blunt (Fig. 5). Coxapophysis I with white, transverse lateral portion and brown medial portion with row of six long setae. Labium with thin, transparent distal portion and sclerotized brown basal portion terminating in pair of setae. Coxapophysis II with white, transversely oriented basal portion terminating in brown lobe with ‘crown’ of six setae. Coxa III without coxapophysis, extending medially to base of distal lobe of coxapophysis II. Coxa IV without coxapophysis, extending antero-medially to level of coxa III; margin adjacent to operculum with one large seta; coxa terminating anteriorly under the genital operculum with small, medially projecting lobe. There is a pair of ventrally projecting rectangular processes between the labium and anterior margin of genital operculum that appears to represent a portion of the *arculi genitales*. Coxa I with about 20 setae, coxae II-IV with eight or fewer setae. Genital operculum narrowing gradually toward slightly rounded anterior margin; surface with about 15 scattered setae. Ventral surface of opisthosoma with a few scattered setae, otherwise smooth; segmentation indicated by rows of sigilla. Preanal sternite with posterior median notch.

*Chelicera:* Proximal segment mottled brown, red-brown and white, with a few scattered setae. Second segment mottled brown and white with about 20 setae, most arranged in an imperfect longitudinal row on the anterior surface. Cheliceral fingers dark brown, inner margins toothed.

*Palp:* The palp is illustrated in Figs. 1–2, 5. Trochanter with large, blunt process projecting from distal ventral surface, terminating in crown of about seven macrosetae. Femur: cylindrical, expanded slightly at distal end; proximal ventral end with rounded prominence; proximal two-thirds of ventral surface with imperfect longitudinal row of about 12 stout macrosetae; distal prolateral surface with blunt-ended process terminating in crown of about nine macrosetae; otherwise surface with a few scattered setae. Patella: subequal to femur; middle third of prolateral surface greatly expanded to form sub-hemispherical promi-

nence with numerous, evenly spaced, glandular macrosetae; distal half of ventral surface with imperfect line of four stout, tubercle-based macrosetae; otherwise with a few scattered setae, especially on dorsal and distal retrolateral surfaces. Tibia: proximally narrower than adjacent patella, makes sharp dorsal bend at one-quarter of length and expands in diameter distally; distal three-quarters of prolateral surface expanded to form large hemispherical prominence covered with numerous, evenly spaced glandular macrosetae; otherwise surface with a few scattered setae. Tarsus: narrow proximally but expanded distally; distal half of prolateral surface expanded into a rounded prominence with about 40 glandular macrosetae; distal half of retrolateral surface with numerous, distally projecting microsetae and a few scattered larger setae.

*Legs:* Only leg I and leg III from the right side were attached to the holotype specimen (Figs. 2, 7); all other legs missing.

*Coloration:* Dorsal surface with prominent flat-white central figure beginning anteriorly as median stripe on ocularium and continuing posteriorly to anal operculum (Fig. 4). Central figure broad (about one-third width of body) posterior to ocularium, gradually narrows posteriorly reaching narrowest point (about one-fifth width of body) at third row of tubercles; figure broadens posteriorly to almost full width of body at posterior margin of tergite 5; figure substantially narrower on tergite 6 and gradually narrows to the anal operculum. Central figure with asymmetrically shaped, median islands of light reddish brown, associated with median and medial white tubercles. Central figure bordered laterally by dark brown longitudinal bands with irregular margins. Dark bands begin anteriorly along an irregular line that begins medially at the base of the ocularium and extends posterolaterally to a level near the anterior margin of coxa III; dark bands narrow posteriorly as their lateral borders move progressively away from the lateral margins of the body. Dark bands bordered laterally by an ill-defined band of mixed light brown and reddish brown, with reddish brown dominating at the lateral periphery. White lateral tubercles form a curved longitudinal row along the border of the dark and mixed brown-reddish brown bands. A narrow strip of reddish brown continues anteriorly around the margin of the carapace. An irregular trans-

verse, opalescent-white band crosses the carapace anterior to the ocularium, two thin fingers of which project anteriorly to either side of the anterior emargination separated by a dark brown median line and bordered laterally by two dark brown islands. The opalescent-white band contains dark brown islands which appear to indicate sites of muscle attachment. A large black band encircles each lens; the band projects slightly anteriorly. A white area borders the black band posteriorly, remaining lateral portions of ocularium light reddish brown; mid-dorsal portion of ocularium is white with irregular, light-reddish-brown island.

Ventral surface of opisthosoma, including genital operculum, mostly flat white, interrupted laterally by islands of reddish brown and medially by a very irregular light reddish-brown central figure and transverse rows of sigilla. Preanal sternite uniformly reddish brown. Coxae with broad dark brown bands separating proximal and distal white regions. Medial surfaces of stomotheca white, except for basal plate of labium, terminus of coxapophysis of leg II and region of coxapophysis of leg I bearing row of long setae. "Lips" of coxapophysis of palp and leg I and distal portion of labium translucent.

*Ovipositor:* Long, dorsoventrally flattened (Fig. 6), dorsal and ventral surfaces similar, terminal apparatus with three bilaterally paired segments, shaft with 12 unpaired segments. Ultimate paired segment elongate, heavily pigmented (brown), with well-developed sensory organ inserted on distolateral concavity; each segment with one basal ring of six socketed setae, one distal ring of six socketed setae and three medial apical socketed setae. Each sensory organ domelike with about 20 seta-like projections. Penultimate paired segment heavily pigmented, each with ring of five socketed setae; segment divided medially by "lips" of ovipore. Antepenultimate paired segment similar to shaft segments but divided medially. Shaft segments decreasing in pigmentation proximally, thin longitudinal membranes along each lateral surface divides each segment into dorsal and ventral plates; dorsal and ventral plates of distal eight shaft segments and antepenultimate paired segment with two pairs of socketed setae. Shaft segments with setae also with reduced pigmentation along midline of dorsal and ven-

tral surfaces giving the superficial impression that the plates are divided. Apparent seminal receptacles present at level of proximal margin of terminal shaft segment; obscured by dark cuticle of segment but appearing as transverse dark band, associated with a pair of thin-walled sacs that project proximally to the level of shaft segment 3.

Adult male and immatures: Unknown.

**Distribution.**—Known only from the type locality.

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