

NEW SPECIES OF ISOMETOPINAE (HEMIPTERA: MIRIDAE)
FROM MEXICO, WITH NEW RECORDS FOR PREVIOUSLY
DESCRIBED NORTH AMERICAN SPECIES

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Abstract.—Four new species of Miridae *Corticoris pallidus*, *C. pinto*, *C. pubescens*, and *Myiomma keltoni* are described from Mexico. The adult of *C. pinto* is illustrated and the fifth-instar nymph is described; a revised key to the genus *Corticoris* is provided; and new records are given for seven previously described North American Isometopinae.

Most, if not all, isometopine bugs (Hemiptera: Miridae) are predatory and, therefore, are potentially important biocontrol agents. Wheeler and Henry (1978) reviewed the feeding habits of the Isometopinae, studied the biology of four eastern North America species, and showed that *Corticoris signatus* (Heidemann) and *Myiomma cixiiforme* (Uhler) preyed on obscure scale, *Melanaspis obscura* (Comstock). Recently, Ghauri and Ghauri (1983) provided a record of their new genus and species *Totta zaherii* preying on tea scale, *Fiorinia theae* Green, in northern India.

Taxonomic work for the New World taxa has been summarized (Henry, 1977, 1979, 1980; Henry and Herring, 1979). Ghauri and Ghauri (1983) included in their paper a key to the world genera, but, unfortunately, they overlooked my key to the New World genera and descriptions of three new genera (Henry, 1980), Schuh's (1976) establishment of the subfamily Psallopinae to accommodate *Psallops* Usinger, and the transfer of *Isometocoris* Carvalho and Sailer from Isometopinae to Psallopinae (Henry and Maldonado, 1982).

In this paper I describe three new species of *Corticoris* McAtee and Malloch and one new *Myiomma* Puton. The adult of *C. pinto*, new species, is illustrated and the fifth-instar nymph described; a revised key to the genus *Corticoris* is provided; and additional distribution and/or host records are given for seven previously described species found in North America.

The following abbreviations are used for institutions cited in this paper: BRI (Biosystematic Research Institute, Agriculture Canada, Ottawa); UCR (University of California, Riverside); and USNM (U.S. National Museum of Natural History, Washington, D.C.).

Corticoris pallidus Henry, NEW SPECIES

Holotype female.—Length 2.36 mm, width 1.12 mm, general coloration black with hemelytra pale, except for basal half of clavus; pubescence short, recumbent,

and white to brownish. *Head*: Width 0.58 mm, vertex 0.18 mm, ocelli 0.12 mm apart; uniformly shiny black; eyes emarginate posterior to ocelli. *Rostrum*: Length 1.10 mm, extending nearly to base of ovipositor. *Antenna*: Segment I, length 0.10 mm, pale yellowish brown, slightly darker basally; II, 0.52 mm, brownish black, apical $\frac{1}{5}$ white; III, 0.18 mm, brownish black, apex white; IV, 0.14 mm, fusiform, brown. *Pronotum*: Length 0.36 mm, basal width 0.96 mm; shiny black; lateral margins flattened; posterior margin nearly straight; calli raised, smooth, and shiny with a deeply impressed line behind each; disc deeply and evenly punctate. Mesoscutum and scutellum uniformly black; scutellum weakly punctate. *Hemelytron*: Whitish, basal $\frac{1}{2}$ of clavus black; apex of clavus and quadrate mark on apex of corium fuscous; middle of cuneus and posterior $\frac{1}{2}$ of embolium shaded with brown; membrane translucent brown, veins whitish. *Venter*: Abdomen brown, first segment brownish yellow laterally; thoracic area shiny black; ostiolar evaporative area brown, whitish on anterior raised area. *Legs*: Coxae brown, paler apically; femora dark brown, apices whitish; tibiae brown, apices whitish; tarsi and claws brown.

Male.—Unknown.

Type data.—Holotype ♀: 24 mi. W. La Ciudad, Durango, Mexico, 7000', 21 July 1964, L. A. Kelton coll. (BRI).

Remarks.—*Corticoris pallidus* is remarkably similar to *C. pulchellus* in the coloration of the dorsum (Henry and Herring, 1979; Fig. 3), except the fuscous mark of the corium is larger and more nearly quadrate on *pallidus*. These two species do differ significantly in the coloration of the antennae, legs, and venter. The second antennal segment (except for a subapical fuscous band), legs, and abdomen on *pulchellus* are uniformly whitish; on *pallidus* the second antennal segment is brownish black with the apex white, the femora and tibiae are brown with the apices whitish, and the abdomen is brown.

Corticoris pinto Henry, NEW SPECIES

Fig. 1

Holotype female.—Length 2.12 mm (range of 5 paratypes, 2.16–2.32 mm); width 1.08 mm (1.04–1.12). *Head*: Width 0.58 mm (0.56–0.58), vertex 0.20 mm (0.20–0.22), ocelli 0.12 mm apart (0.10–0.12); shiny black, with area between vertex and tylus pale yellow. *Rostrum*: Length 1.16 mm (1.14–1.20). *Antenna*: Segment I, length 0.08 mm (0.10–0.14), white, black on basal $\frac{1}{2}$ of ventral aspect; II, length 0.54 mm (0.54–0.56), white at apex and on dorsal aspect, ventral aspect black or fuscous; III, length 0.18 mm (0.18–0.20), black; IV, length 0.14 mm (0.12–0.14 mm), black. *Pronotum*: Length 0.34 mm (0.34–0.38), basal width 0.92–0.94; whitish, with wide region anterior to raised calli black; strongly and evenly punctate. Scutellum and mesoscutum black; scutellum granulate and transversely rugose. *Hemelytron*: White, with basal $\frac{1}{2}$ of clavus, one irregular band across apical $\frac{1}{3}$ of embolium and corium and apex of clavus, and narrow band through middle of cuneus black; membrane smoky brown. *Venter*: Undersurface of thorax shiny and mostly black, with xyphus, coxal cleft, and anterior and dorsal margin of propleura, whitish; abdomen whitish with basal area and posterior margins of segments fuscous. *Legs*: Femora white with distinct subapical fuscous bands; tibiae whitish on dorsal surface, fuscous ventrally; tibiae and claws fuscous.

Male.—Unknown.

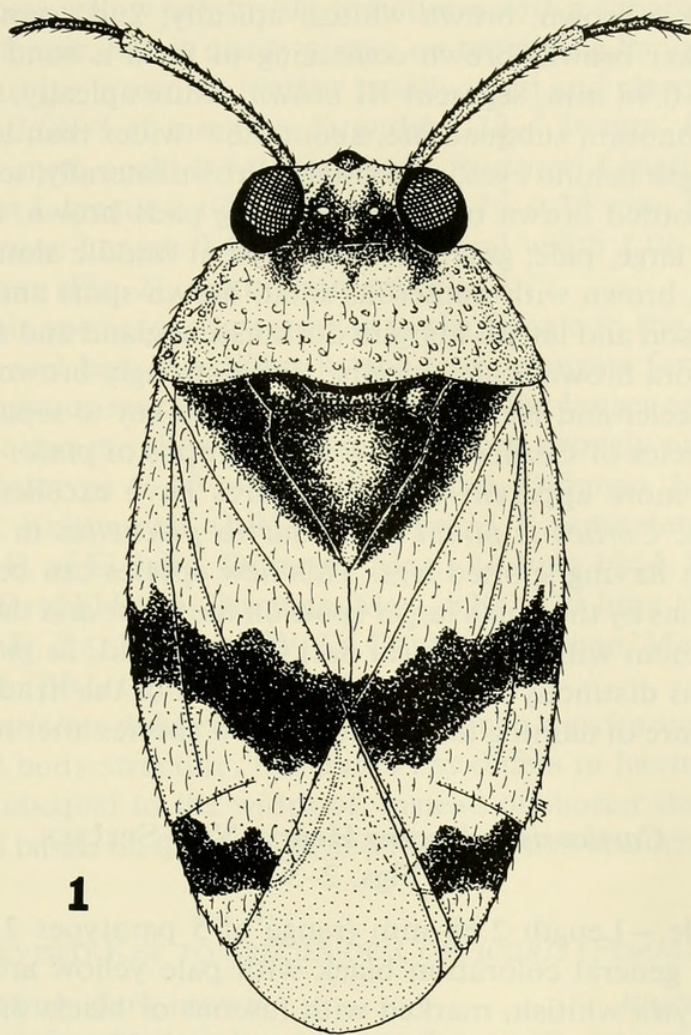


Fig. 1. *Corticoris pintoï*, n. sp., dorsal habitus of holotype female.

Type data.—Holotype ♀: Mexico, Baja Calif. Sur., 31 rd. km W. of Vizcaino, ca. 27°29'N, 113°44'W, 26 Mar. 1980, John D. Pinto coll., taken beating *Fouquieria* sp. (Fouquieriaceae) [branches thickly covered with lichen] (U.S. National Museum of Natural History (USNM) Type No. 75742). Paratypes: 7 pinned ♀ (1 adult, 8 5th instars, and 1 4th instar in alcohol); same data as for holotype (California Academy of Sciences, San Francisco, UCR, USNM).

Remarks.—In Henry and Herring (1979), *Corticoris pintoï* will key to couplet 5 with *libertus* (Gibson) and *mexicanus* Henry and Herring. It can be separated from *libertus* and *mexicanus* by the overall white coloration (Fig. 1) with the mostly black head, black anterior mark on the pronotum, black scutellum, the one black band across the apical $\frac{1}{3}$ of the hemelytron and one across the cuneus, and the long 2nd antennal segment that is subequal to the width of the head.

Fifth-instar nymph.—Length 1.88–2.04 mm ($n = 5$), width 1.04–1.16 mm, form elongate oval, generally pale grayish brown, strongly mottled and speckled with darker brown. Head width subequal to length of 2nd antennal segment, tylus acutely produced into short tubercle, vertex pale, slightly wider than dorsal width of an eye, frontal area with a brown U-shaped line, area between anterior margin of eye, side of tylus, and base of 1st antennal segment dark brown. Antenna pale,

mottled with darker brown, brown whitish apically; 2nd segment pale brown, mottled with darker brown, brown coalescing to form a band next to whitish apex, length 0.40–0.48 mm; segment III brown, white apically; segment IV uniformly brown. Pronotum subquadrate, about $3.6 \times$ wider than long, dark brown through entire length behind eyes, pale grayish brown laterally; scutellar area dark brown basally, mottled brown on apical $\frac{1}{2}$; wing pads brown, interrupted with paler spots and a large, pale, grayish-brown area at middle along costal margin. Abdomen grayish brown with numerous small brown spots and a row of larger spots between meson and lateral margin; dorsal scent gland and surrounding spot dark brown. Femora brown, pale apically; tibiae strongly brown spotted.

Remarks.—Wheeler and Henry (1978) provided a key to separate the nymphs of two eastern species of *Corticoris*. Now that nymphs of *pinto*i are available for study, it is even more apparent that immatures have excellent characters for separating species. *Corticoris pinto*i is similar to *pulchellus* in dorsal markings and to *signatus* in having spotted legs. This new species can be separated from the latter two species by the much larger spots on the tibiae and the brown-mottled 2nd antennal segment with a subapical dark-brown band. In *pulchellus* and *signatus* segment II is distinctly shorter than the width of the head.

I have the pleasure of naming this attractive new species after its collector, John D. Pinto (UCR).

Corticoris pubescens Henry, NEW SPECIES

Figs. 2–3

Holotype female.—Length 2.68 mm (range of 5 paratypes 2.44–2.76), width 1.36 (1.16–1.36), general coloration black with pale yellow areas on head and pronotum; hemelytra whitish, marked with fuscous or black. *Head*: Width 0.66 mm (0.64–0.68), vertex across ocelli 0.26 mm (0.24–0.26), ocelli 0.14 mm (0.12–0.14) apart; shiny black with area behind and just in front of ocelli and narrow inner margins of eyes pale yellowish; eyes emarginate to posterior margin of head behind ocelli. *Rostrum*: Length 1.26 mm (1.24–1.36), extending to base of ovipositor. *Antenna*: Segment I, length 0.12 mm (0.10–1.12), white with a fuscous band around middle; II, 0.64 mm (0.60–0.66), brown to fuscous on ventral aspect and apical $\frac{1}{4}$ of dorsal aspect, basal $\frac{3}{4}$ of dorsal aspect pale or whitish; III, 0.18 mm (0.20), fuscous; IV, 0.14 mm (0.14–0.16), fuscous. *Pronotum*: Length 0.44 mm (0.40–0.44), basal width 1.06 mm (0.96–1.04), smooth, shiny black with anterior angles, posterior angles, narrow basal margin, and posterior mesal part of disc pale yellowish; disc shiny and sparsely and finely punctate; calli raised with a wide, deeply impressed line behind calli; lateral margins flattened and somewhat recurved; posterior margin emarginate on either side of meson; pubescence long and thickly set, setae much longer than spaces separating their bases, especially long setae bridging gap over impressed line behind calli. Mesoscutum and scutellum black, with narrow apical margin of scutellum pale yellow. *Hemelytron*: Whitish with a larger fuscous to black area at middle of corium; pubescence pale or white, long, and dense, setae longer than distance between their bases; cuneus whitish with inner apical margin fuscous; membrane smoky brown, veins paler. *Venter*: Abdomen brown with the apical 3 segments paler; sternum black; propleuron black with anterior and posterior margins pale yellowish; xyphus black with ventral margin pale yellow. *Legs*: Coxae pale yellow or

whitish; femora pale yellow or whitish, sometimes with a subapical fuscous band, especially on profemur, bands nearly absent on remaining femora or broken into indistinct spots; tibiae brownish, darker basally; tarsi and claws brown.

Male.—Length 3.06–3.16 mm (n = 3), width 1.32–1.36 mm. *Head*: Width 0.68 mm, vertex 0.24 mm, ocelli 0.14 mm apart. *Rostrum*: Length 1.22–1.30 mm. *Antenna*: Segment I, length 0.10–0.12 mm; II, 0.76–0.78 mm; III, 0.16 mm; IV, 0.12 mm. *Pronotum*: Length 0.42–0.44 mm, basal width 1.06–1.08 mm. *Genitalia*: Left paramere (Fig. 2); right paramere (Fig. 3).

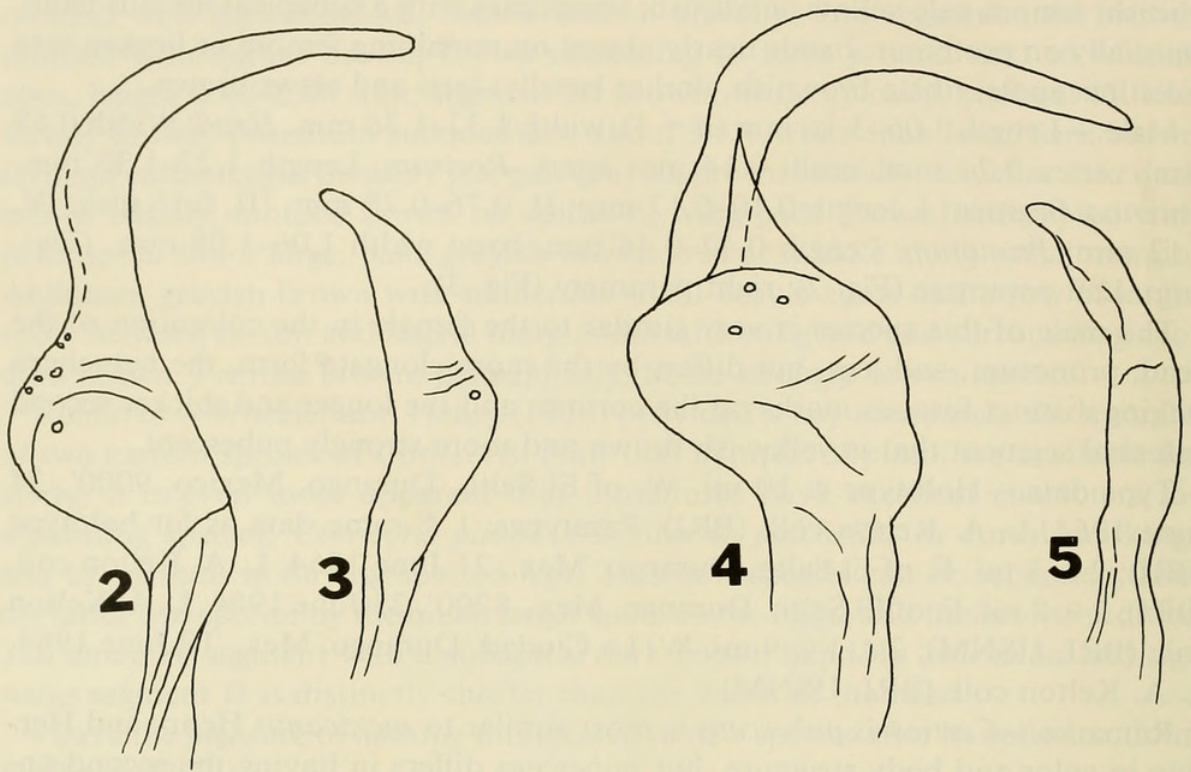
The male of this species is very similar to the female in the coloration of the head, pronotum, and legs, but differs by the more elongate form, the hemelytra lacking distinct fuscous marks on the corium, and the longer and thicker second antennal segment that is yellowish brown and more strongly pubescent.

Type data.—Holotype ♀: 10 mi. W. of El Salto, Durango, Mexico, 9000', 24 June 1964, L. A. Kelton coll. (BRI). Paratypes: 1 ♂, same data as for holotype (BRI); 2 ♀, 3 mi. E. of El Salto, Durango, Mex., 21 June 1964, L. A. Kelton coll. (BRI); 2 ♀, 8 mi. E. of El Salto, Durango, Mex., 8200', 25 June 1964, L. A. Kelton coll. (BRI, USNM); 2 ♂, 1 ♀, 9 mi. W. La Ciudad, Durango, Mex., 10 June 1964, L. A. Kelton coll. (BRI, USNM).

Remarks.—*Corticoris pubescens* is most similar to *mexicanus* Henry and Herring in color and body structure, but *pubescens* differs in having the second antennal segment subequal to the width of, instead of shorter than, the head, less distinct subapical bands on the femora, and the abdomen uniformly brown instead of banded.

REVISED KEY TO SPECIES OF *CORTICORIS* (FEMALES)

- 1. Dorsum uniformly dark brown *unicolor* (Heidemann)
- Dorsum not uniformly dark brown, hemelytra with extensive pale areas 2
- 2. Corium largely pale or whitish with only a small fuscous mark at apex ... 3
- Corium pale testaceous or whitish, but with large fuscous or black patches or bands 4
- 3. Legs and abdomen uniformly pale or white; second antennal segment whitish with a black subapical band *pulchellus* (Heidemann)
- Legs and abdomen not uniformly pale or white, instead femora dark brown with apices pale and abdomen brown; second antennal segment brownish black with the apex pale or white *pallidus*, new species
- 4. Head and pronotum uniformly black 5
- Head and pronotum with extensive white, yellow, or yellowish brown areas 6
- 5. Second antennal segment pale on dorsal aspect; vertex as wide or wider than an eye; apex of cuneus fuscous or black *signatus* (Heidemann)
- Second antennal segment mostly brown, paler on basal 1/2 and apex; vertex much narrower than an eye; apex of cuneus pale *infuscatus* Henry and Herring
- 6. Scutellum uniformly whitish or yellowish brown *libertus* (Gibson)
- Scutellum black, sometimes pale at apex 7
- 7. Base of vertex and tylus black; pronotum pale or whitish except narrowly fuscous on and in front of calli (Fig. 1) *pintoii*, new species



Figs. 2-5. Parameres of isometopines. *Corticoris pubescens*: 2, left paramere; 3, right paramere. *Myiomma keltoni*: 4, left paramere; 5, right paramere.

- Vertex pale or yellowish; pronotum with extensive fuscous or black areas 8
- 8. Length of second antennal segment shorter than width of head; each femur with a wide, black, subapical band; abdomen pale or yellowish with anterior margin of each segment fuscous (banded) *mexicanus* Henry and Herring
- Length of second antennal segment subequal to width of head; front femur with a distinct, fuscous or black, subapical band, bands becoming obsolete on middle and hindfemora; abdomen brown with genital segments paler brown *pubescens*, new species

***Myiomma keltoni* Henry, NEW SPECIES**

Figs. 4-5

Holotype male.—Length 3.56 mm (paratype male ca. 3.40 mm; membrane damaged), width 1.32 mm (1.24), general coloration dull to shiny black. *Head*: Width 0.60 mm (0.60), vertex across ocelli 0.16 mm (0.18), ocelli 0.08 mm (0.08) apart; uniformly shiny fuscous to black, except for the narrow, yellowish side of head behind eyes; scattered with erect setae on frons. *Rostrum*: Length 1.16 mm (1.04), extending just beyond metacoxae. *Antenna*: Segment I, length 0.10 mm (0.08), fuscous; II, 0.82 mm (0.80), greatest diameter 0.10 mm (0.10), black with apex whitish, thickly set with recumbent black setae, setae pale on apex; III, 0.20 mm (0.18), black; IV, 0.16 mm (0.18), black. *Pronotum*: Length 0.44 mm (0.40), basal width 1.10 mm (1.12); shiny black, weakly transversely rugose; basal margin emarginate on either side of meson; mesoscutum black with lateral ridges paler;

scutellum black and transversely rugose. *Hemelytron*: Mostly dull black with inner $\frac{1}{2}$ of corium and apical $\frac{1}{2}$ of clavus more brownish or grayish black, set with erect, black, bristlelike setae; embolium shiny black with base pale or whitish; cuneus shiny black with basal margin white to yellowish white; membrane fumate. *Venter*: Shiny fuscous to black; ostiolar evaporative area white. *Legs*: Uniformly fuscous to black, except for paler brown or yellowish apical $\frac{1}{3}$ of tibiae. *Genitalia*: Left paramere (Fig. 4); right paramere (Fig. 5).

Female.—Length 3.12 mm, width 1.28 mm. *Head*: Width 0.58 mm, vertex 0.16 mm, ocelli 0.10 mm apart. *Rostrum*: Length ca. 1.30 mm (bent). *Antenna*: Segment I, length 0.08 mm; II, 0.80 mm; III, 0.26 mm; IV, 0.16 mm. *Pronotum*: Length 0.38 mm, basal width 1.08 mm.

The female of this species is very much like the male in the overall black coloration with the same pale markings. Females differ in the more grayish-brown corium and clavus, the more distinct pale apices of the tibiae, a pale-yellow apex on the scutellum, and the distinctly more slender second antennal segment.

Type data.—Holotype ♂: San Cristobal, Chiapas, Mexico, 16-17-VII-1969, L. A. Kelton coll. (BRI). Paratypes: 1 ♂, 1 ♀, same data as for holotype (BRI, USNM).

Remarks.—*Myiomma keltoni* will run to couplet 3 of my key (Henry, 1979) with *cixiiforme* and *fusiiforme* based on the overall blackish coloration and large size. This attractive species can be separated from both of the latter by the lack of white along inner margins of the eyes (or a white spot on the frons), the brownish, rather than black, corium and clavus, the pale area at the base of the embolium, and the more slender second antennal segment.

I am naming this species after its collector, Leonard A. Kelton (BRI), who has been very kind in lending specimens of Miridae, including many of the Isometopinae used in this study.

NEW RECORDS FOR PREVIOUSLY DESCRIBED SPECIES

Corticoris infuscatus Henry and Herring.—This species was described from single females collected in the states of Mexico and Oaxaca, Mexico (Henry and Herring, 1979). I have identified a third female taken in Jilotepec, Mexico, Mex., 2-IX-1969, by L. A. Kelton (BRI).

Corticoris signatus (Heidemann).—This species was described from Texas (Heidemann, 1908) and later reported from the District of Columbia, Florida, and Pennsylvania (summarized by Henry and Herring, 1979). I have identified the following specimens which represent new country records for Canada and Mexico, and a new state record for North Carolina: *Canada*: 1 ♀, Vineland, 22-VII-1963, L. A. Kelton, on hickory (in crevices of bark) (BRI); 4 ♂, 8 ♀, Vineland Sta., 27 Jul. 1964, W. L. Putnam, on "Plumbark." *Mexico*: 1 ♀, 23 mi. W. Durango, Durango, 7500', 26 June 1964, L. A. Kelton (BRI). *United States*: 2 ♂, 7 ♀, Raleigh, Wake Co., North Carolina, 26 May 1981, D. L. Stephan, on trunk of *Acer rubrum* L. infested with *Melanaspis tenebricosa* (Comstock) (USNM).

Corticoris unicolor (Heidemann).—This species was described from Arizona (Heidemann, 1908) and later reported from Durango, Mexico (Henry and Herring, 1979). I have identified 1 additional female taken 25 miles south of Durango, Durango, Mexico, Hwy 45, 24 Jul. 1964, by L. A. Kelton (BRI).

Lidopus heidemanni Gibson.—This species was described from Texas (Gibson, 1917) and later reported from Florida, Illinois, North Carolina, Tennessee, and

Tamaulipas (near Soto la Marina), Mexico (Henry, 1979). The following are new state records for Mexico: 1 ♂, 11 km N Autlan, Jalisco, Jul. 30–Aug. 1, 1978, taken at light, Plitt and Schaffner (USNM); 1 ♀, 5 mi. S. Monterrey, Nuevo Leon, 16-VII-1963, H. and A. Howden (BRI); and 1 ♂, Orizaba, Veracruz 12–22 Aug. 1961, R. and K. Dreisbach (USNM-Knight coll.).

Myiomma cixiiforme (Uhler).—This species was described from the District of Columbia, Maryland, and West Virginia (Uhler, 1891) and later reported from Delaware, Florida, New York, Pennsylvania, Texas, Virginia, and Quebec (summarized by Henry, 1979). I have examined the following specimens which represent a new province record for Canada and a new country record for Mexico: *Canada*: 9 ♀, Niagara, Ontario, 25-VII-1963, L. A. Kelton, on hickory [in crevices of bark] (BRI); 7 ♀, Vineland, Ont., 22-VII-1963, L. A. Kelton, on hickory; 1 ♀, Vineland Sta., Ont., 27 Jul. 1964, W. L. Putnam, on "Plumbark" (BRI); 1 ♀, Ottawa, Ont. 17-VII-1953, J. F. McAlpine, on "Bleeding Elm." *Mexico*: 1 ♂, 1 ♀, Nuevo Leon, S/Manzano, June 1980, I. Trevino (USNM).

Myiomma fusiforme Henry.—This species was described from a single female collected in Durango, Mexico (Henry, 1979). I have identified an additional female collected 8 miles east of El Salto, Durango, Mexico, at 8200', 25 June 1964, by L. A. Kelton (BRI).

Wetmorea notabilis McAtee and Malloch.—This species was described from a single female taken in the Dragoon Mts., Arizona (McAtee and Malloch, 1924) and later reported from Oracle, Arizona and Puebla (northwest of Acatlan), Mexico (Henry, 1980). Recently, I examined two females collected 18 miles NW of Guadalahara, Jalisco, Mexico, in a pine-oak area, 30-IV-1961, by Howden and Martin (BRI). These specimens represent a considerable southern range extension and a new state record for *notabilis*.

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