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## **Ellychnia of Western North America (Coleoptera: Lampyridae)<sup>1</sup>**

J. W. Green studied the genus *Ellychnia* for over 10 years before finally deciding that the majority of its members were irreconcilable. At the end of this time, he kindly (?) turned them over to me, hoping against hope that a fresh approach by another student might resolve the group. Since then I have similarly spent over 10 years in an attempt to understand these creatures. The work, to date, has been rather futile as far as the species from eastern North America are concerned. The western species, other than the encroaching eastern species, make a rather coherent group with fairly recognizable species. It is with this group that the present paper is concerned.

The encroaching eastern species will perforce have to be treated as species complexes, with more or less meager notes on their distribution in the region involved. I hope, sometime in the future, to be able to resolve these complexes.

The area of study is the United States west of the eastern slopes of the Rocky Mountains.

It must be noted that the widths and conformation of the pronotal vittae, when present, are quite variable, as are the tegmina of the male aedeagae. To wit, the drawings are not accurate for all the specimens of a species. There are, however, certain characteristics or groups of characteristics in each species that appear to be valid. These will be noted in the key and stressed in the descriptions.

There is often considerable variation in the size and shape of the pronotal vittae, to the extent that some specimens of some species may and do overlap some specimens of other species, but all features combined should confirm the species that the student has at hand. A fairly good series of a species from any given locality should be more readily determinable than a single specimen.

The internal margins of the parameres, as viewed ventrally, may or may not be strongly eroded, this within the species. This is more true of some species than others. The amount of sinuation or curvature of the parameres, as well as their thicknesses, will vary to a certain extent. Similar variations will be found in the shapes and sizes of the sclerotized ventro-basal processes of the median lobe.

Whereas the pronota are usually subelliptical in shape, with the anterior angles obsolete, considerable variation within the species is to be found. The figures of the pronotal shapes are thus not reliable. The object of the figures is more to indicate the usual shapes of the vittae.

<sup>1</sup> This study was supported by National Science Foundation Grant GB-6283X.

## Genus *Ellychnia* LeConte

Body texture firm. Head vertical when retracted; front scarcely more produced than eyes. Clypeus not strongly sclerotized throughout, partly membranous apically, merging with the membranous labrum, usually with a membranous articulation. Mandibles regularly narrowed to apex, excluding the internal basal enlargement. Eyes small and distant. Mentum small and more or less convex, semimembranous or feebly sclerotized, elongate trapezoidal. Gulae semimembranous, greatly abbreviated, transverse. Antennae usually not strongly compressed, slender, third segment elongate, similar to fourth, apical segment without a minute apical appendage. Pronotum roughly semi-elliptical, anterior angles entirely obliterated, posterior angles well defined and sub-rectangular, lateral and anterior margins broadly and more or less shallowly reflexed. Hypomera open anteriorly. Both sexes alate and non-luminous. Epipleurae moderately wide and well defined. Abdominal spiracles dorsal, not visible from below. Legs short, stout and compressed, fourth tarsal segment only lobed beneath. Median lobe of aedeagus with sclerotized ventro-basal processes.

### Key to Subgenera

1. In known species, orange-red pronotal vittae confined to sides of central convex part of pronotum; sclerotized ventro-basal processes of median lobe united into a single large sub-circular disc.—subgenus *Greeneana* Fender nov.

Subgenotype: *Ellychnia* (*Greeneana*) *bivulnerus* Green

- 1' Yellowish to roseate pronotal vittae, when present, largely extending on to explanate lateral margins of pronotum or confined thereto; sclerotized ventro-basal processes of median lobe, although often abutting, distinct entities.—subgenus *Ellychnia* s. str.

Subgenus *Greeneana* Fender nov.

*Ellychnia* (*Greeneana*) *bivulnerus* Green

(Plate I, Fig. 1. Plate II, Figs. 1a, 1b, 1c)

*Ellychnia bivulnerus* Green. 1949. Trans. Amer. Entomol. Soc., 75:1-2, Pl. 1, Fig. 1.

Black. Each side of pronotal disc with a large oval orange-red spot that attains neither the base nor reflexed lateral margins; inner half to third of hypomera orange-red; eighth abdominal sternite with a small whitish spot on each side near the lateral margin. Pubescence dark brown to black on black areas, aureous on pale areas, very sparse, fine and inconspicuous on pronotum and beneath, more coarsely closely so on elytra. Elongate-oval. Length-width dimensions: 7.5 x 3.5 mm. to 8.5 x 4 mm.

Male. Head shining, finely, sparsely punctate, a median longitudinal impressed line between eyes; antennae compressed beyond second segment. Pronotum transverse, semicircular; anterior and lateral margins widely, shallowly reflexed and closely, coarsely punctured; convex median part shining and very finely, sparsely punctured. Scutellum subtriangular, sides concavely converging to broadly rounded apex; closely, coarsely punctured. Elytra finely closely granulate basally, becoming more coarsely so apically. Metasternum shining, finely, moderately sparsely punctured. Abdominal sternites two to eight less shining, more closely punctured, apical margin of eighth sternite broadly, shallowly emarginate, apex of the emargination obtuse-angulate. Aedeagus in ventral view, with median lobe corneus with a small ovate subapical orifice; ventro-basal processes as lateral enlargements in the usual position, forming a rather large plate.

Female. Not seen.

Green's type was collected in the Patagonia Mountains, Arizona, July 20, 1940, by D. J. and J. N. Knull and is in the collection of Ohio State University. Green also had paratypes from the type locality and the Huachuca Mountains, all collected on July 20th. One specimen, a male, has been studied from Miller Canyon, Huachuca Mountains, Cochise County, Arizona, 6000 feet, August 3, 1952, collected by H. B. Leech and J. W. Green.

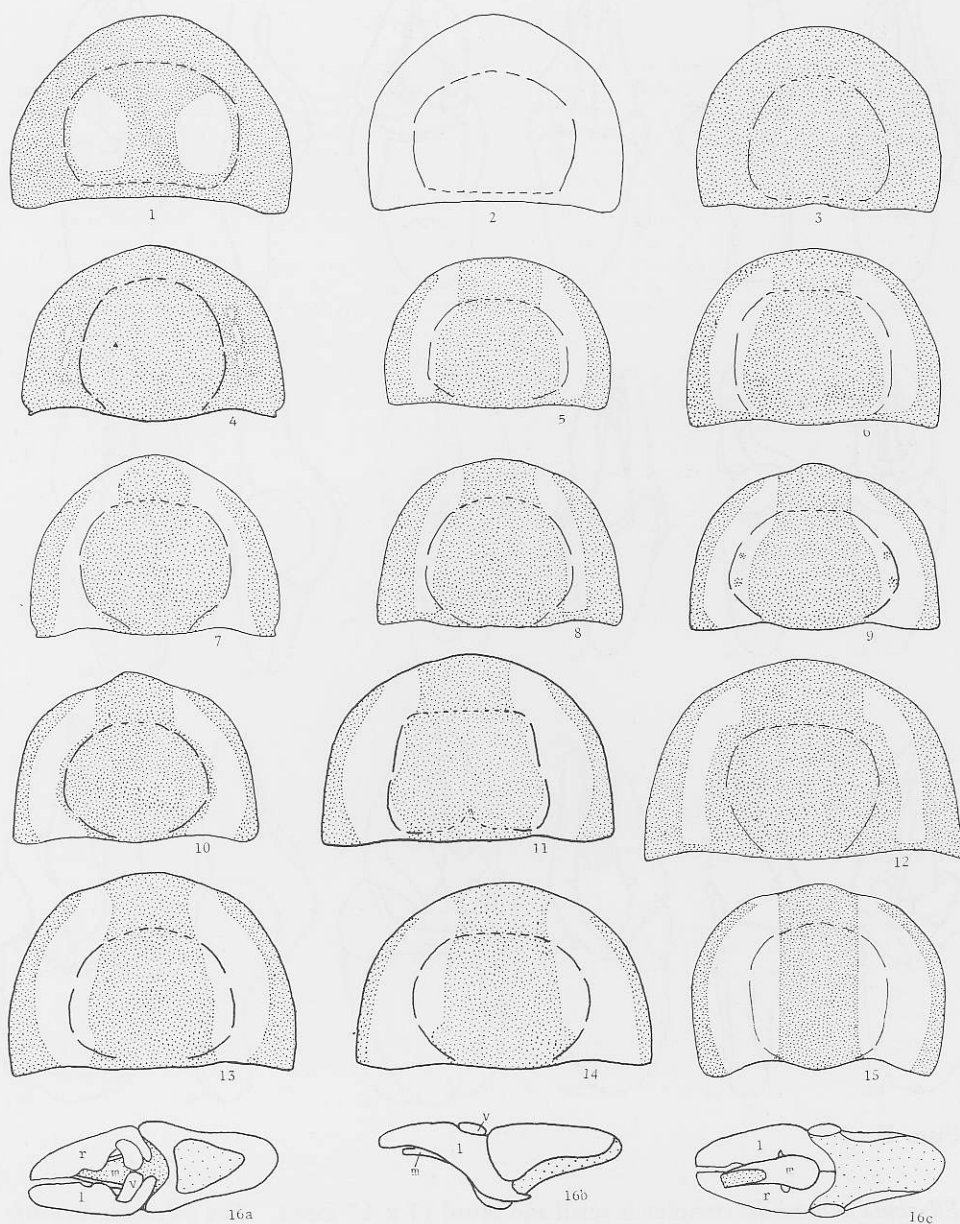


Plate I.

Subgenus *Ellychnia* s. str.  
Eastern complexes

These complexes can usually be recognized by the cupreous to aureous pubescence that usually gives them a "dusty" appearance; by the pronotal vittae usually narrowed and often obscured medially. The *Ellychnia corrusca* complex is usually comprised of moderately large species (9 to 13.5 mm.) with more or less strongly costate elytra. The

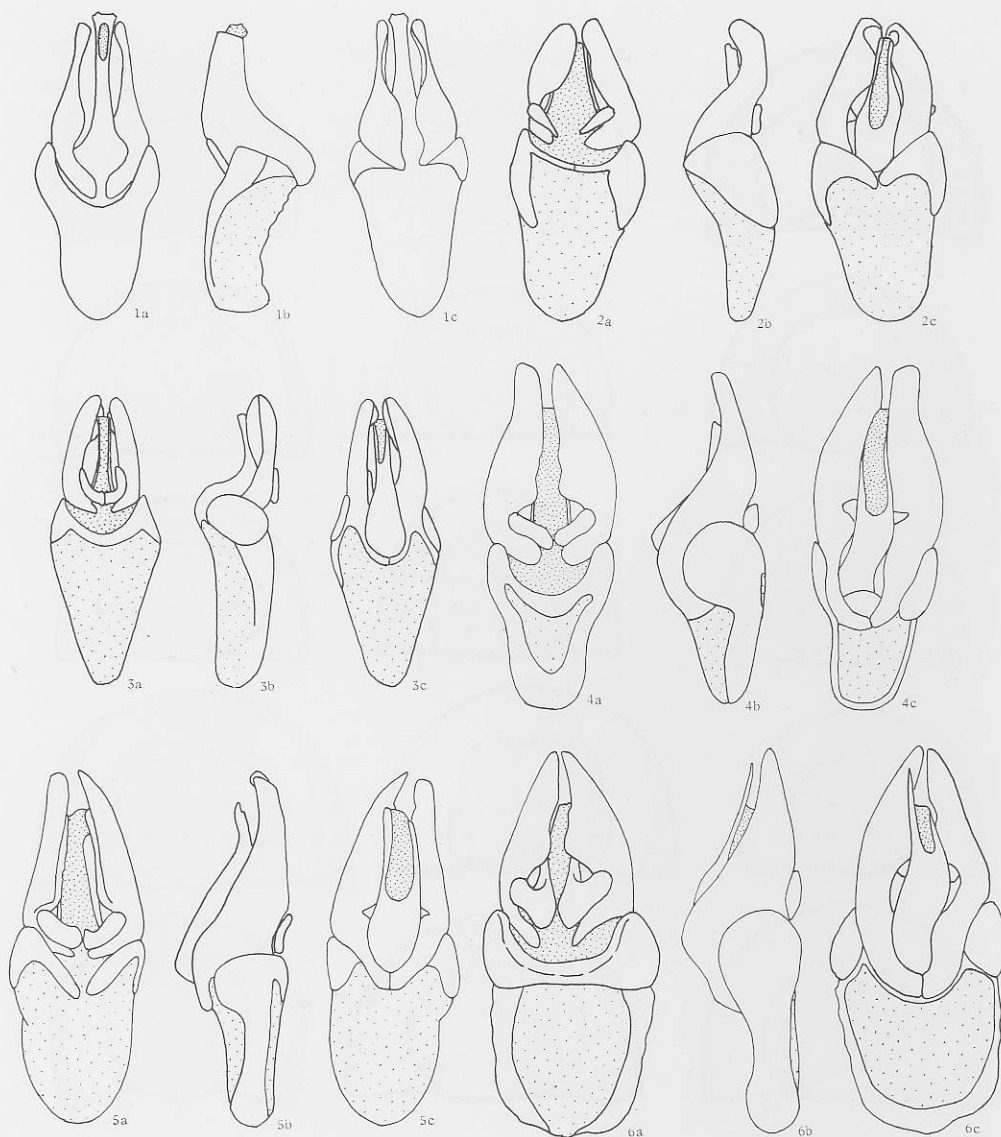


Plate II.

*Ellychnia autumnalis* complex is small and broad (7 x 4.7 mm.). The *Ellychnia lacustris* complex is small and narrow (7.5 x 3 mm.).

Members of these eastern complexes have been seen from 4.5 to 15 mm. long and all sizes between. In all sizes, specimens have been seen with the elytra rather strongly costate or with the costae obliterated. There seems to be nothing consistent about them in any portion of their range.

LeConte (1881) records *E. corrusca* Fabricius from Colorado. I have seen a female that would key to this species from the Chiricahua Mountains, Arizona. The *E. autumnalis* (?) complex extends from western Montana and Calgary, Canada, through eastern British Columbia to Matanuska and Rampart, Alaska. These usually have the costae

feeble to obliterated. Specimens of moderately small size and assignable to either complex have been seen from eastern British Columbia, as has been one male from Spokane, Washington. It would seem that the latter was an adventitious specimen or possibly mislabeled.

*Ellychnia (Ellychnia) flavicollis* LeConte  
(Plate I, Fig. 2. Plate II, Figs. 2a, 2b, 2c)

*Photinus flavicollis* LeConte. 1868. Trans. Amer. Entomol. Soc. 2:53.

*Ellychnia flavicollis* LeConte. 1881. Trans. Amer. Entomol. Soc. 9:32.

*Photinus flavicollis* Olivier, E. 1910. Junk Coleop. Catal., Pars 9, p. 28.

*Lucidota flavicollis* Leng. 1920. Catal. Coleop. Amer. n. Mex. p. 141.

Piceous to black. Prothorax and last two abdominal sternites flavous, in some specimens the antepenultimate sternite flavous, becoming infusate basally. Pubescence above, black on black areas and aureous on flavous areas, cinereous, fine and depressed beneath. Length-width dimensions: 7 x 3.5 mm. to 9 x 4.5 mm.

Male. Head moderately finely punctured; antennae somewhat compressed beyond second segment. Pronotum nearly elliptical, anterior margin widely, shallowly reflexed, sides widely, more deeply reflexed anteriorly, becoming explanate at hind angles, all these areas coarsely punctured, basal margin guttered and with a narrow band of coarse punctures; convex median part shining, finely, sparsely punctured. Scutellum ligulate, coarsely, rather sparsely punctured. Elytra finely granulate, each with a feeble discal costa. Metasternum and abdominal sternites finely punctured, the punctures separated by about three or four times their individual diameters. Ninth sternite ligulate, somewhat impressed medially, finely, more sparsely punctured. Aedeagus as viewed ventrally: Left paramere oval in apical half; right paramere straight with sinuate inner margin, apices of both rounded, parameres approximate near tips; ventro-basal processes of median lobe spatulate in only male at hand.

Female. Similar to male. Eighth abdominal sternite nearly semicircular with a triangular apical notch, finely sparsely punctured basally, becoming more closely punctured apically.

LeConte recorded this species from New Mexico and Colorado. Nine specimens were studied for this description from Texas and the following New Mexico localities: Sapitan Mountains, Jemez Mountains, Jemez Springs, Las Vegas H. S. and "New Mexico."

*Ellychnia (Ellychnia) simplex* LeConte  
(Plate I, Fig. 3. Plate II, Figs. 3a, 3b, 3c)

*Pyropyga simplex* LeConte. 1884. Trans. Amer. Entomol. Soc., 13:20.

*Lucidota simplex* Olivier, E. 1910. Junk Coleop. Catal., Pars 9, p. 17.

*Lucidota simplex* Leng. 1920. Catal. Coleop. Amer. n. Mex., p. 141.

*Ellychnia simplex* Green. 1948. Trans. Amer. Entomol. Soc., 74:69.

Black. Lateral margins of eighth abdominal sternite narrowly testaceous. Pubescence black, short, moderately fine, suberect and inconspicuous. Elongate-oval. Length-width dimensions: 6 x 3.25 mm. to 8 x 4.25 mm.

Male. Head finely, closely punctate; an impunctate, slightly elevated interantennal ridge; antennae rather strongly compressed beyond second segment. Pronotum semielliptical, anterior and lateral margins widely, shallowly reflexed, more deeply so on lateral margins, reflexed areas scabrous punctate; convex median part finely scabrous, with a very indistinct median longitudinal impressed line. Scutellum subtriangular, sides sinuately converging to broadly rounded apex, coarsely punctured. Elytra finely closely granulate, each with an evident costa. Metasternum shining, finely, sparsely punctured. Abdominal sternites two to eight feebly shining, finely, rather sparsely granulate-punctate, apical margin broadly concave; ninth sternite shining, ligulate, with a broad, shallow median impression, finely, sparsely punctured. Aedeagus in ventral view: parameres digitate and apically incurved, each with an internal dorsally directed flange; ventro-basal sclerotized processes of median lobe falcate.

Female. Unseen.

This description is from a single male collected at Miller Canyon, Huachuca Mountains, Arizona, July 7, (no year), H. A. Wenzel, from the J. W. Green collection.



*Ellychnia (Ellychnia) obscurevittata* Fender

(Plate I, Figs. 4, 16a, 16b, 16c)

*Ellychnia obscurevittatus* Fender (auct. laps.). 1961. Univ. Wash. Pub. Biol., 16(3): 39.

Black. Roseate pronotal vittae obscure, frequently interrupted somewhere along length, less than half as wide as black lateral margin, two-thirds or less length of pronotum. Hypomera narrowly roseate internally. Pubescence inconspicuous, fine, short and depressed, black on black areas and aureous on roseate areas. Elongate-oval. Length-width dimensions: 9 x 4.75 mm. to 10 x 6 mm.

Male. Vertex of head finely, closely punctured, punctures separated by about their individual diameters, usually without a vertical impression; antennae tapering to tips, somewhat compressed beyond second segment, more evidently so from segments three through six. Pronotum roughly semicircular, minutely dentate near basal angles, basal margin broadly, shallowly bisinuate, lateral and apical margins broadly, shallowly reflexed and coarsely punctured, basal margin with a narrow band of coarse punctures; median convex part shining, finely, moderately sparsely punctured, punctures usually separated by four or five times individual diameters towards the base, more closely so anteriorly. Scutellum subtriangular, sides concave, tip rounded, finely, closely punctured with interspersed coarse punctures. Elytra finely, closely granulate, a subsutural and two discal costae more or less evident on each. Metasternum shining, finely, moderately closely punctured, punctures usually separated by about two to three times their individual diameters. Abdominal sternites somewhat shining, finely, closely punctured with scattered small granules on basal six segments; seventh and eighth sternites a little more sparsely punctured; eighth sternite with apical margin widely, deeply bisinuate; ninth sternite ligulate, shallowly impressed medially, finely sparsely punctured. Aedeagus in ventral view: Parameres approximate in apical half; left paramere digitate, straight, the apex rounded, feebly expanding to basal indentation; right paramere subtriangular, apex angulate towards inner side.

Female. Similar to male. Pronotal vittae usually a little broader and more conspicuous but nowhere near as much so as related vittate species. Eighth abdominal sternite subtriangular, sides narrowly sinuate, converging to apex, apex with a narrow V-shaped notch.

This species is, to date known only by the type series, three males and one female, collected at Breast Mountain, Klamath County, Oregon.

*Ellychnia (Ellychnia) granulicollis* Fender

(Plate I, Fig. 5. Plate II, Figs. 4a, 4b, 4c)

*Ellychnia granulicollis* Fender. 1961. Univ. Wash. Pub. Biol. 16(3):40.

Black. Roseate pronotal vittae usually attaining apical margin, sometimes attaining basal margin, at middle a little wider than lateral black margin. Hypomera roseate with lateral margins moderately widely black. Pubescence inconspicuous, fine, short and depressed, black on black areas and aureous on roseate areas. Elongate-oval. Length-width dimensions: 9 x 5 mm. to 10 x 5.25 mm.

Male. Head with vertex finely, closely punctured, sometimes with a longitudinal median impression; antennae somewhat compressed beyond second segment, tapered to tip. Pronotum roughly semicircular, hind angles sharply rounded; lateral and anterior margins widely shallowly reflexed and coarsely punctured, basal margin coarsely, more narrowly punctate; convex median part finely, closely granulate-punctate as viewed with pronotum flat and light source anterior and above, granules separated by much less than their individual diameters, more coarsely granulate basally, median narrow impunctate line impressed. Scutellum subtriangular, sides concave, apex rounded; finely, closely punctured, without interspersed coarse punctures. Elytra finely, closely granulate, with a sub-sutural and two discal costae evident on each. Metasternum shining, finely, sparsely punctured. Abdominal sternites two to six and basal half of seventh finely, closely punctured, eighth sternite and apical half of seventh more sparsely punctured; apex of eighth sternite broadly, deeply bisinuate; ninth sternite ligulate, shallowly impressed medially, finely, sparsely punctured. Aedeagus in ventral view: Parameres approximate in apical two-thirds; right paramere subtriangular, apex sharply rounded; left paramere subdigitate, lateral margin sinuate.

Female. Similar to male. Eighth abdominal sternite subtriangular, sides sinuately converging to apex, apex with a deep subtriangular notch, apex of notch sharply rounded.

This species was described from the following Oregon localities: Fort Klamath, Klamath County; Klamath Falls, Klamath County; Upper Klamath Lake, Klamath

County. Additional specimens have been examined from Montana: 14 miles south of Swan Lake, Lake County, 3200 feet, June 14, 1967, Loren Russell; Seeley Lake, Missoula County, 3500 feet, June 15, 1967, Loren Russell. Oregon: Grayback Forest Camp, Siskiyou National Forest, June 1967, K. M. & W. M. Fender.

*Ellychnia (Ellychnia) irrorata* Fender, new species

(Plate I, Fig. 6. Plate II, Figs. 5a, 5b, 5c)

Black. Pronotum with roseate to yellowish sublateral vittae, attaining neither basal nor apical margins, may be wider than or narrower than lateral black margins. Hypomera roseate to yellowish with lateral margins more or less widely black. Pubescence aureous on pale areas, black on black areas of pronotum and elytra, cinereous on body beneath, fine, sparse and inconspicuous. Elongate-oval. Length-width dimensions: 7.5 x 3.75 mm. to 11 x 5.5 mm.

Male. Head with vertex finely, closely punctured; antennae rather strongly compressed beyond second segment. Pronotum roughly semicircular, apical and lateral margins broadly, shallowly reflexed and coarsely punctured; convex median part finely, closely granulate, sometimes becoming shiny and finely punctured towards sides, median longitudinal line elevated, may be more or less eroded. Scutellum subtriangular, sides concave, converging to broadly rounded apex, finely, closely punctured with interspersed sparser, coarse punctures. Elytra finely closely granulate, with no evidence of costate. Metasternum shining, finely, sparsely punctured. Abdominal sternites two to eight feebly shining and finely, sparsely punctured, eighth a little more sparsely so; eighth sternite with the apical margin broadly, moderately deeply bisinuate; ninth sternite ligulate, finely, sparsely punctured, with a broad, shallow median impression. Aedeagus in ventral view: Parameres remote towards base, closer apically; left paramere subdigitate, slightly bent out apically, the tip rounded; right paramere falcate, apically bent in, with an internal flange towards base; ventro-basal processes of median lobe subreniform.

Female. Similar to male. Eighth abdominal sternite subtriangular, sides sinuately converging to apex, apex with a V-shaped notch.

Holotype male, allotype female and one male paratype, White Mountains, Arizona, July 4, 1933, Parker lot 107. Paratypes (all Arizona): same locality as types, 2 males, July 5, 1945; one male, July 25, 1944; one male, July 8, 1933, all Parker lots; one male, S. Fork Camp, White Mountains, June 22, 1947, C. P. Alexander; one female, Miller Canyon, Huachuca Mountains, July 7, 1907, H. A. Kaeler; one male, same, July 6, 1907; one male, Huachuca Mountains, July 1, 1933, Bryant lot 424; three females, Santa Catalina Mountains, September 15, 1938, Bryant lot 21; one male, same, July 18, 1938, Bryant lot 43; one male and one female, same, May 24, 1938, Bryant lot 275; one female, Bear Wallow Camp, Santa Catalina Mountains, 8000 feet, June 26, 1956, C. P. Alexander; two males, Palmerlee, Cochise County, June 14 (no year, no collector). Types in the collection of the California Academy of Sciences.

*Ellychnia (Ellychnia) alexanderi* Fender, new species

(Plate I, Fig. 7. Plate II, Figs. 6a, 6b, 6c)

Black. Pronotum with roseate sublateral vittae, attaining both apical and basal margins, frequently extending (rather narrowly) laterally along apical margin, narrowed in median portions, medially about as wide as the black lateral margins. Hypomera roseate with lateral margins rather narrowly black. Pubescence black on black area and aureous on roseate areas, fine, short, decumbent and inconspicuous. Elongate-oval. Length-width dimensions: 7.5 x 3.5 mm. to 10.5 x 5 mm.

Male. Head dull, finely, closely punctured; antennae somewhat compressed beyond second segment. Pronotum dull to feebly shining, roughly elliptical, lateral and anterior margins broadly, rather shallowly reflexed and coarsely punctured, sides becoming explanate at hind angles; basal margin with a narrow band of coarse punctures; convex median portion finely, closely punctured, punctures usually separated by about their individual diameters, this usually difficult to see, usually with an elongate median elevated line, the line punctate. Scutellum subtriangular, sides sinuately converging to rounded apex, very finely, closely punctured, with interspersed sparse coarse punctures. Elytra finely, closely granulate, with two or three more or less elevated discal costae. Body beneath dull. Metasternum finely, closely punctured. Abdominal sternites two to eight finely granulate-punctate; apical margin of eighth sternite broadly, moderately deeply bisinuate; ninth sternite ligulate, shining, not impressed medially, finely, sparsely punctured. Aedeagus in ventral view: Both parameres subtriangular, the right paramere more widely so, tips acutely rounded; ventro-basal processes of median lobe sub-reniform, displaying unusually well their connection with the median lobe.

Female. Similar to male. Eighth abdominal sternite sub-elliptical, sides somewhat sinuate before apex, apex with a narrow, moderately deep U-shaped notch, surface of segment shining, coarsely, sparsely punctured basally, becoming finely, closely so apically.

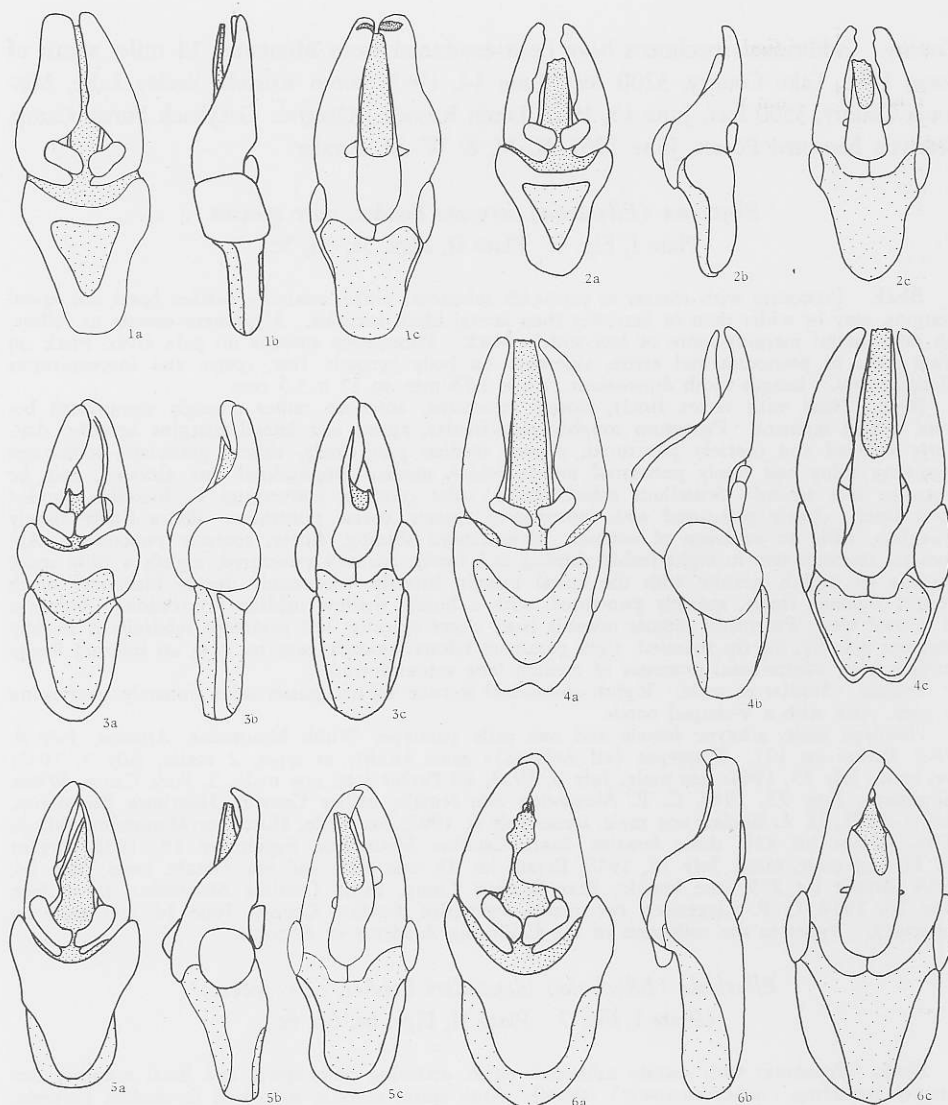


Plate III.

Holotype male, allotype female and three male paratypes, Oak Creek Canyon, Arizona, June 8, 1957, C. P. Alexander. Paratypes: One male, same data but collected June 24, 1958; two males and three females, Todd Lodge, Oak Creek Canyon, Arizona, May 9, 1950, Grace H. and John L. Sperry; one female, Oak Creek Canyon, Yavapai County, Arizona, October 7, 1951, E. L. Kessel; one male, West Creek, Pike National Forest, Colorado, June 24, 1955, C. P. Alexander; one male, Mesa Verde, June 28, 1955, C. P. Alexander; one male, Boulder, Colorado, September 4, 1893, H. Soltan; one female, Liberty, Utah, June 4, 1938 (on Salix), G. F. Knowlton and G. S. Stains. Types in the collection of the California Academy of Sciences.

It is my pleasure to name this species for my great friend and the species principal collector, Dr. C. P. Alexander.

*Ellychnia (Ellychnia) greeni* Fender  
(Plate I, Fig. 8. Plate III, Figs. 1a, 1b, 1c)



Black. Pronotum with roseate sublateral vittae medially about as wide as lateral black margin, usually not quite attaining basal margin, the basal margin usually darker than apical margin at vittae, vittae without indications of black maculae. Hypomera roseate to narrowly black lateral margins. Pubescence fine, short, decumbent and inconspicuous, black on black areas, aureous on roseate areas. Elongate-oval. Length-width dimensions: 9.5 x 5 mm. to 13 x 7 mm.

Male. Vertex of head finely granular, usually without an interocular impression; antennae moderately compressed beyond second segment, tapering slightly to tips. Pronotum shining, more or less semicircular, lateral and anterior margins widely, shallowly reflexed, front less deeply so, lateral margins becoming nearly explanate at sharply rounded hind angles, reflexed areas coarsely punctured; median convex part finely, closely punctured, punctures separated by little more than their individual diameters. Scutellum subtriangular, sides sinuate to rounded apex, finely, closely punctured with interspersed sparse, coarse punctures. Elytra finely, closely granulate, usually with subsutural and two discal costae fairly evident, sometimes somewhat elevated. Metasternum shining, finely, closely punctured, punctures usually separated by about twice their individual diameters. Abdomen shining, sternites two to eight finely, closely granulate-punctate, punctures separated by less than their individual diameters; apex of eighth sternite broadly deeply bisinuate; ninth sternite ligulate and finely, sparsely punctured, shallowly impressed medially. Aedeagus usually rather slender in lateral view; in ventral view: Parameres approximate for nearly apical half, short and stout; right paramere subtriangular with apex rounded; left paramere subdigitate, outer side rather strongly sinuate, apex rounded; ventro-basal processes of median lobe usually reniform, short and stout.

Female. Similar to male. Seventh sternite a little less closely punctured than preceding sternites; eighth sternite still less closely punctured, subtriangular, sides sinuately converging to apex, apex with a narrow U-shaped notch.

The holotype of this species was collected at Peavine Ridge near McMinnville, Oregon, the allotype at Dayton, Oregon. The species is common in western parts of British Columbia, Washington, Oregon and northern California.

*Ellychnia (Ellychnia) facula* LeConte

(Plate I, Figs. 9, 10. Plate III, Figs. 2a, 2b, 2c)

*Ellychnia facula* LeConte. 1854. Proc. Acad. Nat. Sci., 7:17.

*Ellychnia facula* LeConte. 1857. Rept. of Expd. and Surv. Miss. to Pac., 12(3):48. 1860.

*Photinus facula* Olivier, E. 1910. Junk Coleop. Catal. pars 9, page 28.

*Lucidota facula* Leng. 1920. Catal. Coleop. Amer. n of Mex. Page 146.

*Ellychnia facula* Fender. 1961. Univ. Wash. Pub. Biol. 16(3):40.

Black. Pronotal roseate vittae wider and bimaculate near the inner margin or narrower and with maculae connate with or at least evidenced by the bilobed extension of the median black area into the vittae. Hypomera yellow with lateral margins more or less widely black. Prosternum becoming pale towards sides. Pubescence black on black areas and aureous on pale areas, fine, short, depressed and inconspicuous. Elongate-oval. Length-width dimensions: 8 x 3.75 mm. to 12 x 5.5 mm. Somewhat slender, usually a little over twice as long as wide.

Male. Head finely, closely punctured above eyes; antennae fairly strongly compressed beyond second segment. Pronotum transversely semicircular, anterior and lateral margins broadly, shallowly reflexed, more deeply so on lateral margins, these margins coarsely punctured; basal margin guttered nearly to middle and with a narrow band of coarse punctures; convex median part finely, closely punctured, punctures usually separated by about their individual diameters. Scutellum subtriangular, sides feebly sinuate to broadly rounded apex, finely, closely punctured with interspersed coarse, sparse punctures. Elytra finely, closely granulate, usually with one feebly elevated discal costa and sometimes a short subsutural costa. Metasternum moderately shining, finely, closely, punctured. Abdominal sternites two to eight dull, finely, moderately closely punctured to finely granulate-punctate; eighth sternite usually a little less closely punctured, apical margin broadly, deeply bisinuate; ninth sternite ligulate, shallowly, broadly impressed medially, more sparsely, coarsely punctured than preceding sternite. Aedeagus in ventral view: Parameres subdigitate, arcuate, remote to near the more or less rounded apices.

Female. Similar to male. Eighth abdominal sternite triangular, sides sinuate to apex, apex with a rather narrow V-shaped notch.

This species is rather common in southeast British Columbia, eastern Washington, western Montana, Idaho and eastern Oregon.

*Ellychnia (Ellychnia) captiosa* Fender, new species

(Plate I, Fig. 11. Plate III, Figs. 3a, 3b, 3c)

Black. Pronotal sublateral vittae yellowish, often with roseate tints towards inner side in male, roseate with apical ends yellowish in female, vittae much wider than black lateral margins and attaining apical margin but not always the basal margin. Hypomera yellowish with lateral margins rather narrowly black. Prosternum yellowish, becoming black medially. Pubescence black on black areas, aureous on pale areas, inconspicuous, fine, short and depressed. Elongate-oval. Length-width dimensions: 9 x 4.25 mm. to 12 x 5.5 mm.

Male. Head finely, closely punctured; antennae feebly compressed beyond second segment. Pronotum roughly semi-circular, anterior and lateral margins broadly, shallowly reflexed, sides becoming explanate at sharply rounded hind angles, these margins coarsely punctured; basal margin with a narrow band of coarse punctures; median convex area finely punctured, punctures separated by from one to two times their individual diameters basally, becoming more closely so anteriorly. Scutellum subtriangular, sides concave, converging to broadly rounded apex, finely, closely punctured with interspersed sparse, coarse punctures. Elytra finely, closely granulate, without costae. Metasternum finely punctured, punctures separated by about twice their individual diameters medially, by their diameters at sides. Abdominal sternites two through eight finely, closely granulate-punctate; apical margin of eighth sternite broadly, moderately deeply bisinuate; ninth sternite ligulate, finely, sparsely punctured, with a shallow, broad median impression. Aedeagus in ventral view: Right paramere with an impressed sinuate seam, continued on right ventro-basal process of median lobe, the paramere broadly spatulate; left paramere narrowly spatulate, at rest usually crossing over the right; ventro-basal processes subreniform.

Female. Similar to male. Eighth sternite triangular, sides sinuately converging to apex, apex moderately broadly, moderately deeply, triangularly notched.

Holotype male, allotype female and eight male and four female paratypes, Sage Hen Creek near Hobart Mills, Nevada County, California. July 10-12, 1953, John D. Latin. Types in the collection of the California Academy of Sciences.

*Ellychnia (Ellychnia) hatchi* Fender

(Plate I, Figs. 12, 13. Plate III, Figs. 4a, 4b, 4c)

*Ellychnia hatchi* Fender. 1961. Univ. Wash. Pub. Biol., 16(3):39.

Black. Roseate sublateral vittae of pronotum either narrower than black lateral margin and attaining neither basal nor apical margins to much wider than lateral black margin and extending to both apical and basal margins. Hypomera roseate with lateral margins more or less widely black. Pubescence black on black areas and aureous on pale areas, fine, short, depressed and inconspicuous. Elongate-oval. Length-width dimensions: 10.5 x 6 mm. to 16 x 9 mm.

Male. Head transversely impressed between eyes, impression wide and shallow, finely, closely punctured in front of impression, finely, sparsely punctured in and behind impression; antennae moderately compressed beyond second segment, often becoming nearly terete apically. Pronotum shining, roughly semicircular, lateral and anterior margins broadly, moderately deeply reflexed, less deeply so on anterior margin, reflexed areas and narrow basal band coarsely punctured; convex median part finely, closely punctured anteriorly, punctures usually separated by about their individual diameters, finely, sparsely punctured behind, punctures separated by three to four times individual diameters. Scutellum subtriangular, sides nearly straight to arcuate, converging to broadly rounded apex, finely, closely punctured with interspaced coarse, sparse punctures. Elytra finely, closely granulate, a discal costa and sometimes a subsutural costa very feebly indicated, not elevated. Metasternum finely, moderately sparsely punctured with isolated random clumps of denser punctures. Abdominal sternites two to seven finely, rather closely punctured; eighth sternite with apex widely, moderately deeply bisinuate, finely, more sparsely punctured; ninth sternite ligulate, shallowly impressed medially, impression usually very sparsely punctured, elevated margin more closely, coarsely so. Aedeagus in ventral view: parameres remote, subdigitate, apically curved in, tips rounded, more acutely so on right paramere.

Female. Similar to male. Eighth abdominal sternite subtriangular, sides sinuate, converging to tip, apex with a moderately wide V-shaped notch.

The types of this species were collected at Charleston, Coos County, Oregon. The species is comparatively common west of the Cascade Mountains of British Columbia, Washington, Oregon and the western portions of northern California, being especially common on the western slopes of the Coast Range and along the coast.

Small examples may be confused with *E. greeni* which usually has the elytral costae more prominent. Also, it usually has the pronotal vittae either extended to both the basal and apical margins or not attaining either, whereas *E. greeni* usually has the vittae extending to the apical margin with the basal margin more or less widely black.

*Ellychnia (Ellychnia) californica* Motschulsky

(Plate I, Fig. 14. Plate III, Figs. 5a, 5b, 5c)

*Ellychnia californica* Motschulsky. 1853. Etudes Entomol., Page 3. 1854.

*Ellychnia californica* LeConte. 1881. Trans. Amer. Entomol. Soc., 9:32.

*Photinus californicus* Olivier, E. 1910. Junk Coleop. Catal., pars 9, page 27.

*Lucidota californica* Leng. 1920. Catal. Coleop. Amer. n. of Mex., page 141.

*Lucidota fenestralis* Essig. 1926. Insects West. Nor. Amer., page 386.

*Ellychnia californica* Fender. 1961. Univ. Wash. Pub. Biol., 16(3):38.

Black. Roseate sublateral vittae of pronotum usually broad, much broader than narrow lateral black margins, sides of median black stripe nearly straight and more or less divergent to basal fifth of pronotum, there intruding into rosy area as a semicircular lobe. Hypomera roseate with lateral margins narrowly black. Sides and apices of eighth abdominal sternite usually narrowly testaceous. Pubescence black on black areas and aureous on pale areas, depressed, fine, short and inconspicuous. Elongate-oval. Length-width dimensions: 9.5 x 5 mm. to 16 x 8.5 mm.

Male. Head above shining, finely, closely punctured, usually with a transverse interocular impression that may or may not extend to the eye sockets; antennae compressed beyond second segment, more strongly so apically. Pronotum roughly semicircular, lateral and apical margins widely, shallowly reflexed and coarsely punctured; median convex part finely, closely punctured anteriorly, more sparsely so behind. Scutellum subtriangular, sides concavely converging to rounded apex, finely, moderately closely punctured with interspersed larger punctures. Elytra finely, closely grauate, each with feeble indications of a discal and subsutural costae. Metasternum shining, finely, sparsely punctured, punctures separated by about four times their individual diameters. Abdominal sternites two to seven feebly shining, each segment finely punctured in basal half and finely granulate in apical half; eighth sternite shining, finely, moderately closely punctured, apical margin broadly, deeply bisinuate; ninth sternite ligulate, broadly shallowly impressed medially, finely, very sparsely punctured. Aedeagus with left paramere arcuately incurved, digitate, angulately bent up near rounded tip; right paramere falcate, incurved, tip acute in dorsal view; in ventral view: left paramere with or without a basal internal lobe; right paramere usually gradually narrowed beyond ventro-basal processes; ventro-basal processes of median lobe subreniform, varying in breadth.

Female. Similar to male. Eighth abdominal sternite broadly impressed towards each side, subtriangular, sides sinuately converging to narrowly triangularly notched apex, finely punctured, punctures separated by three or four times their individual diameters.

This species is found throughout California, but seems to be more common from Sacramento south to the San Bernardino Mountains.

Following his description of *E. californica*, Motschulsky described an *Ellychnia lateralis* from a specimen, or specimens, that he says he was told came from Africa but that he believed to be from America. The pronotal vittae were narrower in this species. There is no way of knowing what Motschulsky had before him or from where it came.

*Ellychnia (Ellychnia) megista* Fender, new species

(Plate I, Fig. 15. Plate III, Figs. 6a, 6b, 6c)

Black. Pronotum with broad sublateral roseate vittae extending from basal to apical margin, median black area parallel to subparallel sided from apex to feebly expanded base, black lateral margin very narrow. Hypomera pink with lateral margins narrowly black. Pubescence inconspicuous, fine, short and depressed, black on black areas and aureous on rosy areas. Elongate-oval. Length-width dimensions: 13.5 x 6 mm. to 18 x 7.5 mm.

Male. Antennae compressed beyond second segment, usually a little more strongly so apically, third segment a little longer than wide, nearly twice as long as second. Pronotum roughly elliptical, broader than long, lateral and apical margins broadly, shallowly reflexed and coarsely punctured; convex median part finely indiscriminately punctured, punctures usually

separated by about their individual diameters. Scutellum subtriangular, sides concave, apex rounded to somewhat truncate, similarly punctate to pronotal disc but with interspersed coarse, sparse punctures. Elytra finely, closely granulate, costae obliterated to feebly indicated towards sides. Metasternum a little more coarsely punctured, punctures usually separated by nearly twice their individual diameters. Abdominal sternites two to eight finely, closely granulate, apex of eighth broadly, deeply bisinuate; ninth sternite ligulate, apex narrowly incised, concave beneath, finely, sparsely punctured. Aedeagus in ventral view: Parameres each with a large basal internal lobe just in front of ventro-basal processes of median lobe; in dorsal view: sclerotized lateral margins of median lobe elbowed inwardly near apex.

Female. Similar to male. Eighth abdominal sternite broadly impressed near each side, subtriangular, sides sinuately converging to apex, apex with a U-shaped notch, surface finely, sparsely punctured.

Holotype male, Santa Cruz, California, June 2, 1919, E. P. VanDuzee. Allotype female, Santa Barbara and vicinity, California, May 5, 194(?), F. E. Winters. Paratypes (81 from the following localities, all California): Guadeloupe, Santa Cruz, Santa Paula, Arroyo Seco Canyon, Pasadena, Los Angeles, Los Angeles County, Aizusa, San Jose, Tulare, Sierra Madre. Types in the collection of the California Academy of Sciences.

#### Key to Species of Subgenus *Ellychnia*

1. Pubescence grayish brown giving a "dusty" appearance.
  - Eastern species ..... *corrusca*, *autumnalis* and *lacustris* complexes
- 1'. Pubescence black, body without a dusty appearance ..... 2
- 2(1'). Pronotum unicolored ..... 3
- 2'. Pronotum bicolored ..... 4
- 3(2). Pronotum flavous ..... *flavicollis* LeConte
- 3'. Pronotum black ..... *simplex* LeConte
- 4(2'). Sublateral vittae of pronotum obscure, two-thirds or less the pronotal length, less than half the width of the black lateral margin, often interrupted along its length ..... *obscurivittata* Fender
- 4'. Sublateral vittae of pronotum evident, not interrupted along its length ..... 5
- 5(4'). Convex median part of pronotum closely granulate, at least in anterior half, granules separated by less than their individual diameters ..... 6
- 5'. Convex median portion of pronotum usually finely punctured, if granulate in anterior half, granules separated by more than their individual diameters ..... 7
- 6(5). Pronotal vittae attaining anterior margin of pronotum, sometimes attaining basal margin ..... *granulicollis* Fender
- 6'. Pronotal vittae attaining neither the basal or apical margins of pronotum .. *irrorata* Fender
- 7(5'). Luster dull with ninth sternite of male and eighth sternite of female shining to pronotum feebly shining with other portions the same ..... *alexanderi* Fender
- 7'. At least the convex median part of pronotum and the metasternum shining ..... 8
- 8(7'). Elytra usually with two or three evident and more elevated costae ..... 9
- 8'. Elytral costae obliterated or vaguely indicated, not elevated ..... 10
- 9(8). Pronotal vittae without indications of maculae near or connate with the inner margin, vittae usually not attaining basal margin ..... *greeni* Fender
- 9'. Pronotal vittae bimaculate near inner margin, maculae often closely connate with median black area but at least evidenced by encroachment of black into the vittae ..... *facula* LeConte
- 10(8'). Lateral margins of black median area of pronotum arcuate ..... 11
- 10'. Lateral margins of black median area of pronotum straight throughout most of length ..... 12
- 11(10). Size usually smaller, 9 to 12 (average 10.25) mm., pronotal vittae yellowish, often with rosy tints towards the inner side in the male, rosy with anterior end yellowish in female; right paramere of male aedeagus with a sinuate indented seam on the ventral surface, this continued on right ventro-basal process of median lobe ..... *capitosa* Fender
- 11'. Size usually larger, 10.5 to 16 (average 13.1) mm., pronotal vittae usually roseate throughout; right paramere and right ventro-basal process of median lobe without a sinuate indented seam ..... *hatchi* Fender
- 12(10'). Sides of median black area of pronotum straight, diverging from apex to base, with a small antebasal lobe extending into roseate area ..... *californica* Motschulsky
- 12'. Sides of median black area of pronotum straight and nearly parallel to the base where they are slightly extended ..... *megista* Fender



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## Explanation of Plates

Plate I. Figures 1-15, pronota of *Ellychnia*. 1. *El. bivulnerus* Green. 2. *El. flavicollis* LeConte. 3. *El. simplex* LeConte. 4. *El. obscurevittata* Fender. 5. *El. granicollis* Fender. 6. *El. irrorata* Fender. 7. *El. alexanderi* Fender. 8. *El. greeni* Fender. 9. *El. facula* LeConte. (wide vittae with maculae isolated). 10. same. (narrow vittae with maculae not isolated). 11. *El. captiosa* Fender. 12. *El. hatchi* Fender. (narrow vittae). 13. same. (wide vittae). 14. *El. californica* Motschulsky. 15. *El. megista* Fender. Figure 16. Aedeagus of male of *Ellychnia obscurevittata* Fender. (a—ventral aspect, b—lateral aspect, c—dorsal aspect) (v—ventro-basal process of median lobe, r—right paramere, l—left paramere, m—median lobe).

Plate II. Figures 1-6, Aedeagae of males of *Ellychnia*. (a—ventral aspect, b—lateral aspect, c—dorsal aspect). 1. *El. bivulnerus* Green. 2. *El. flavicollis* LeConte. 3. *El. simplex* LeConte. 4. *El. granicollis* Fender. 5. *El. irrorata* Fender. 6. *El. alexanderi* Fender.

Plate III. Figures 1-6, Aedeagae of males of *Ellychnia*. (a—ventral aspect, b—lateral aspect, c—dorsal aspect). 1. *El. greeni* Fender. 2. *El. facula* LeConte. 3. *El. captiosa* Fender. 4. *El. hatchi* Fender. 5. *El. californica* Motschulsky. 6. *El. megista* Fender.