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NEW SPECIES OF *CHRYSOBOTHRIS* FROM THE
PACIFIC NORTHWEST^{1, 2}
(COLEOPTERA: BUPRESTIDAE)

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ABSTRACT—The new species described are as follows: *Chrysobothris horningi* from southern Idaho, *C. westcotti* from eastern Oregon, *C. potentillae* from west central Oregon, *C. idahoensis* from southern Idaho, *C. breviloboides* from southern Idaho, *C. beeri* from western Oregon and southcentral Washington and *C. columbiana* from southeastern British Columbia and eastern Washington.

Detailed studies of the Buprestidae in the region encompassing the states of Idaho, Oregon and Washington and the province of British Columbia preparatory to a presentation of the species in the final volume of Hatch's "Coleoptera of the Pacific Northwest" has resulted in the discovery of a number of previously undescribed species. Seven such species belonging to the genus *Chrysobothris* Eschscholtz are described herein in order that their names may become immediately available.

Many individuals have offered specimens for study for which I am very grateful. I am especially indebted to F. M. Beer, Oregon State University; M. H. Hatch, University of Washington; D. S. Horning, Jr., University of California, Davis; M. T. James, Washington State University; H. B. Leech, California Academy of Sciences; and R. L. Westcott, Oregon Department of Agriculture, for their cooperation and assistance.

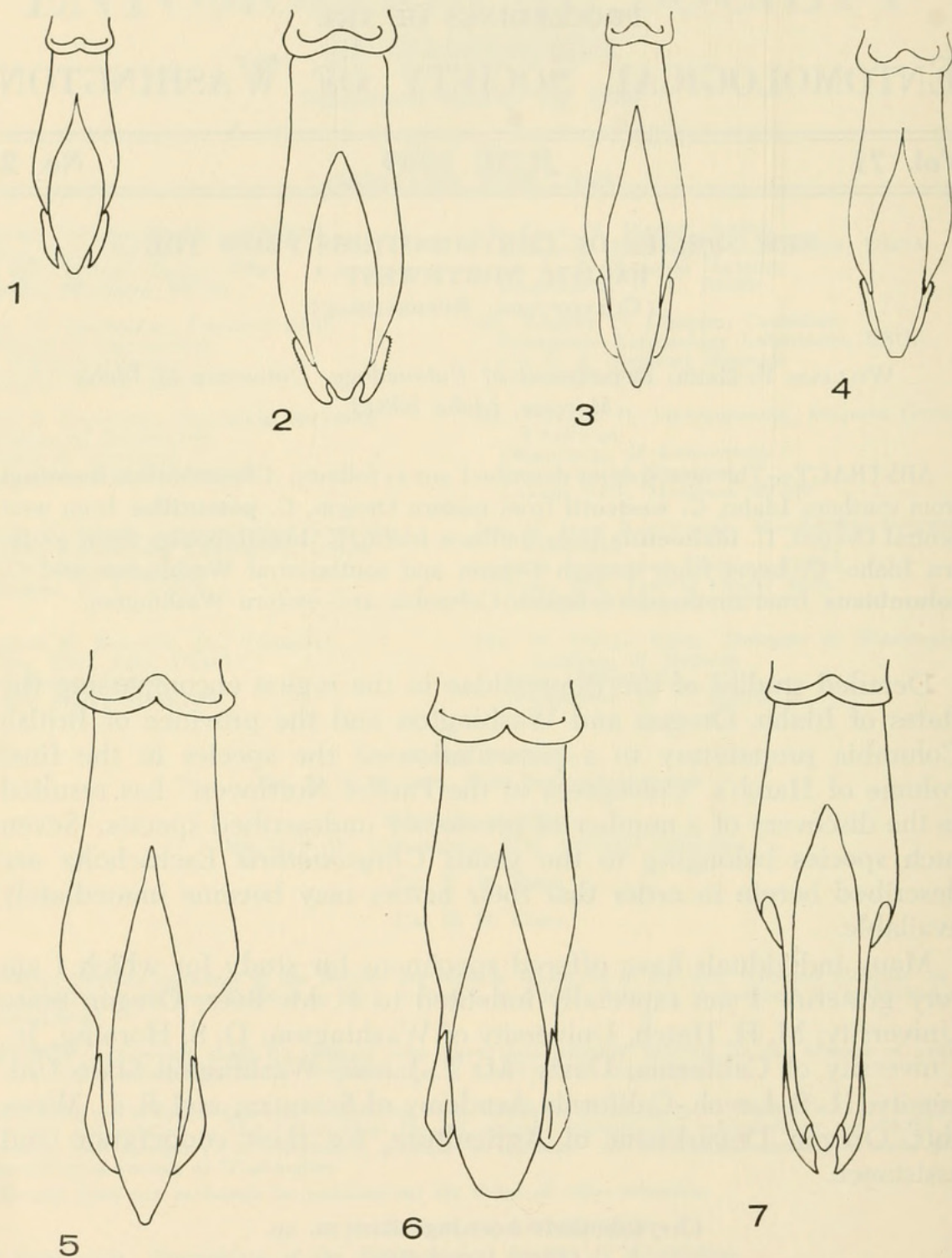
Chrysobothris horningi Barr, n. sp.
(Figs. 1 and 8)

Male: Moderately elongate and convex; black with a faint aeneous tinge, front of head dark blue-green, abdominal sternites strongly shining.

Head rather finely and densely punctured, moderately clothed with short, inconspicuous, subrecumbent, white hairs; vertex with a median, longitudinal integumental line, not carinate; front convex with a faintly indicated, smooth

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Figs. 1-7. Male genitalia of *Chrysobothris* spp., dorsal aspect: 1, *C. horningi*, n. sp.; 2, *C. westcotti*, n. sp.; 3, *C. potentillae*, n. sp.; 4, *C. idahoensis*, n. sp.; 5, *C. breviloboides*, n. sp.; 6, *C. beeri*, n. sp.; 7, *C. columbiana*, n. sp.

callosity on either side of middle; clypeus somewhat roughened except for a small, smooth area at middle, front margin broadly, shallowly emarginate at middle and broadly rounded laterally; antenna serrate from third segment which is approximately twice as long as second segment and slightly longer than the more conspicuously serrate fourth segment, segments four to ten slightly wider than long.

Pronotum convex, one and three-fourths times wider than long, widest behind front; sides subparallel except near front where they are arcuately narrowed and near base where they are sinuately narrowed; hind angles obtuse; lateral margin associated with a narrow, smooth, distinctly arcuate and slightly elevated line that extends from behind anterior margin to posterior margin beneath the side; front margin subtruncate with a very broad, feebly developed median lobe; hind margin broadly, rather strongly lobed at middle; surface rather finely and sparsely punctured, very feebly, transversely strigose between punctures, pubescence indistinct except for a small concentration of short, suberect, white hairs at hind angles.

Elytra approximately one and three-fourths times longer than wide; base of each elytron broadly rounded; sides when viewed from above very slightly widening from humeri to middle and then gradually, arcuately narrowing to apices which are more or less separately rounded, not serrate, but with an indication of a small sutural tooth; each elytron with a small, subbasal pit at middle and a small, subbasal depression near humerus, two very faintly indicated discal foveae present, one in front of middle, the other at about apical third, and four very faintly indicated costae present as follows, a sutural and a discal costa extending from near base to apex, a humeral costa extending from humerus to the faintly indicated apical fovea and a sublateral costa extending from humerus to apex; surface finely, densely punctured basally, becoming faintly, transversely strigose at about basal third, punctures finer and more sparsely placed at middle, and very feebly roughened and scabrous behind apical third, pubescence consisting of uniformly but sparsely placed, very short, suberect white hairs.

Prosternum moderately clothed with rather long, subrecumbent white hairs at middle; front margin with a broad, moderately developed median lobe.

Abdomen finely, shallowly indistinctly punctured, first sternite distinctly punctured, without elevations along sides of sternites one to five but with small smooth spaces; last sternite with lateral margins entire, hind margin broadly, shallowly arcuately emarginate.

Legs blackish; profemur with a broad, blunt triangular tooth at middle which is slightly broken, but not serrate on outer margin; protibia moderately long, arcuate, with a distinct, slightly sinuate, subapical dilation; mesotibia nearly straight, slightly expanded apically; metatibia straight, first segment of metatarsus with a small plantula at apex.

Length, 5.7 mm.; width, 2.2 mm.

Female: Differs from the male by having the front of head coppery, the pubescence more sparsely placed, and with a broad inverted "V"-shaped callosity joining the integumental line of the vertex; pronotum with a coppery cast, more densely punctured; abdomen slightly brassy along sides, last sternite with hind margin broadly rounded, shallowly arcuately emarginate at middle; protibia gradually and very slightly expanded apically, without a subapical deletion.

Length, 7.0 mm.; width, 3.0 mm.

Holotype male and allotype female (California Academy of Sciences, on indefinite loan from the University of Idaho) and one male paratype from Craters of the Moon National Monument, Butte County, Idaho. Holotype collected on June 18, 1965 on cinders (D. S. Horning, Jr.), allotype July 7, 1966 (R. L. Westcott) and the paratype June 23,

1966 from *Eriogonum depressum* Rydberg (W. F. Barr). Paratype in the writer's collection.

This species is most closely related to *C. fragariae* Fisher and runs out to that species in Fisher's key (1942). The small size and black coloration of *C. horningi* readily differentiate it from Fisher's species. In addition, the two species are widely separated geographically. *C. fragariae* is known only from areas adjacent to the lower Columbia River in Oregon and Washington whereas *C. horningi* has been taken only in the Craters of the Moon National Monument in Idaho.

C. horningi apparently is restricted to *Eriogonum depressum* that commonly grows on cinder cones of the Monument. A number of specimens of this fast flying and elusive beetle have been observed on this plant but only three specimens were collected. No specimens of this species have been associated with *E. ovalifolium* Nuttall which may occur in the same habitat.

***Chrysobothris westcotti* Barr, n. sp.**

(Figs. 2 and 9)

Male: Moderately elongate, distinctly convex; blackish, clypeus slightly brassy, elytra with a purplish cast; sides of abdominal sternites shining, brownish.

Head rather finely, densely punctured, more coarsely and irregularly punctured on lower portion of front, densely but inconspicuously clothed with short, sub-recumbent, white hairs; vertex with a weakly indicated, longitudinal, median carina that joins with a pair of indistinct, oblique carinae on upper portion of front to form a "Y"; front convex with a faintly indicated smooth callosity on either side of middle; clypeus with front margin broadly, deeply, triangularly emarginate at middle and broadly rounded laterally; antenna serrate from the third segment which is approximately twice as long as second segment and one and one-third times longer than fourth segment, segments four to ten slightly wider than long.

Pronotum nearly twice as wide as long, widest at middle, convex except sub-flattened medially; sides more or less evenly arcuate except at extreme base; hind angles rectangular; lateral margin associated with a broad, smooth, distinctly arcuate and slightly elevated line that extends from anterior margin to posterior margin beneath the side; front margin very broadly emarginate with a broad, feebly developed median lobe; hind margin strongly lobed at middle; surface sparsely, rather finely punctured on disk, more densely punctured laterally and more coarsely irregularly punctured along sides, somewhat transversely strigose between punctures, especially near base, pubescence indistinct except for a small concentration of short, suberect white hairs at hind angles.

Elytra not reaching apex of abdomen, about one and two-thirds times longer than wide; base of each elytron nearly semi-circularly rounded; sides when viewed from above feebly narrowed at about basal third, broadest behind middle; apices more or less separately, narrowly rounded, not serrate, but slightly irregular and with a small sutural tooth; each elytron with a small subbasal pit and a shallow depression at middle and with a shallow, elongate, subbasal depression at humerus, foveae absent, sublateral costa faintly indicated and sutural costa very faintly indicated behind middle; surface densely, rather finely punctured, becoming more

finely and sparsely punctured apically, uniformly clothed with sparsely placed, short, suberect white hairs.

Prosternum densely clothed with rather long, suberect white hairs at middle; front margin with a broad, well-developed median lobe.

Abdomen rather finely and sparsely punctured, with slightly elevated, elongate smooth areas along sides of sternites one to five; last sternite with lateral margins slightly broken apically but not serrate, hind margin broadly, shallowly, accurately emarginate.

Legs blackish with a faint aeneous luster; profemur with a broad, blunt triangular tooth at middle which is irregularly serrate on outer margin; protibia short, strongly arcuate with a distinct, strongly sinuate subapical dilation; mesotibia nearly straight, evenly but slightly expanded apically; metatibia straight, first segment of metatarsus with a small plantula at apex.

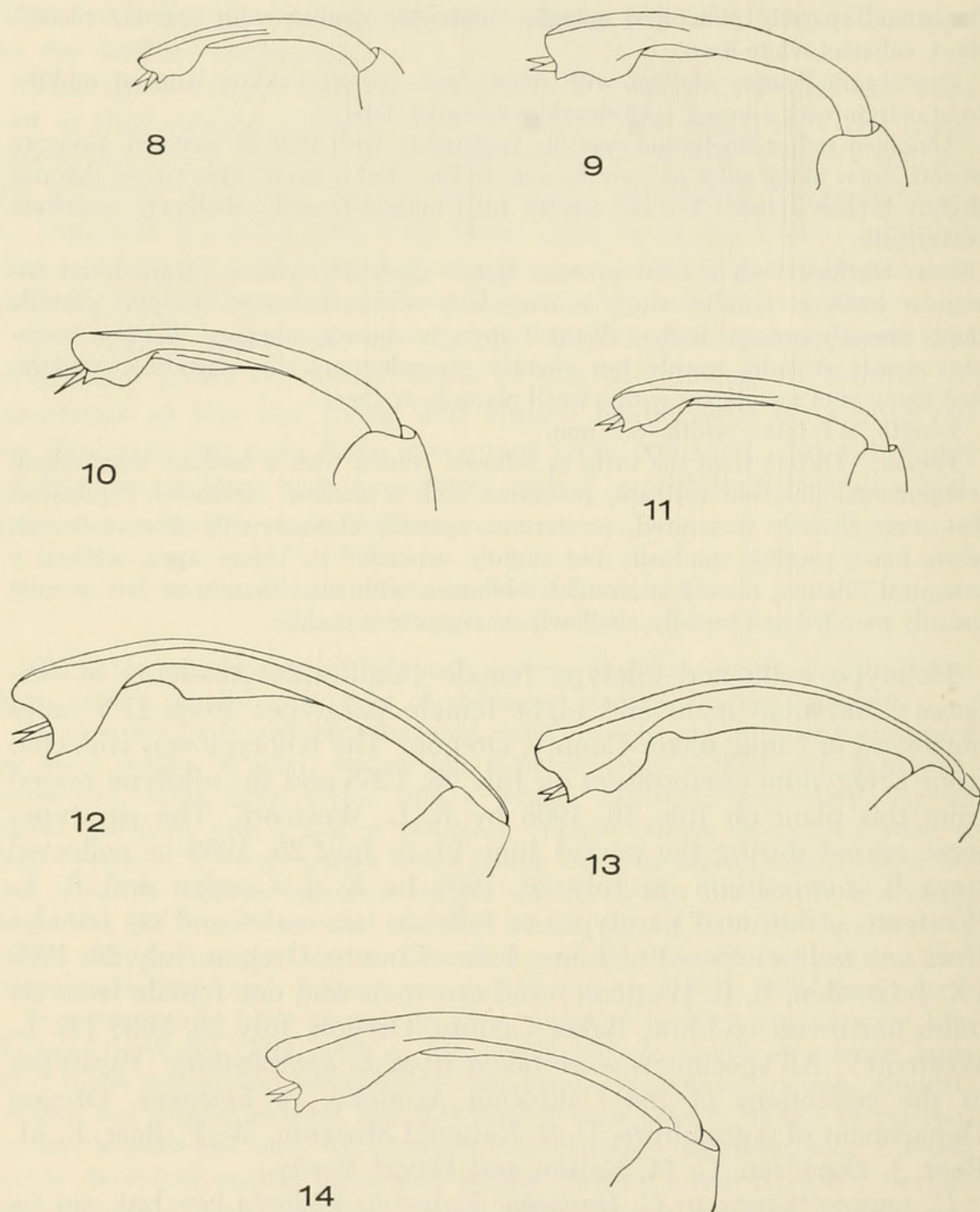
Length, 9.1 mm.; width, 3.7 mm.

Female: Differs from the male as follows: vertex with a median, longitudinal integumental line, not carinate; pronotum with a shallow, sublateral depression, disk more densely punctured; prosternum sparsely clothed with short, suberect, white hairs; protibia gradually but slightly expanded to before apex, without a subapical dilation, mesotibia straight; abdomen with hind margin of last sternite broadly rounded and broadly, shallowly emarginate at middle.

Holotype male and allotype female (California Academy of Sciences) and nine male and eight female paratypes from 11.5 miles northwest of Lime, Baker County, Oregon. The holotype was collected from *Eriogonum compositum* on July 26, 1968 and the allotype reared from this plant on July 26, 1968 by R. L. Westcott. The paratypes were reared during the period June 21 to July 25, 1968 or collected from *E. compositum* on July 26, 1968 by K. J. Goeden and R. L. Westcott. Additional paratypes as follows: six males and six females from one mile southeast of Lime, Baker County, Oregon, July 26, 1968 (K. J. Goeden, R. L. Westcott) and one male and one female from six miles northwest of Lime, Baker County, Oregon, July 26, 1968 (R. L. Westcott). All specimens were taken from *E. compositum*. Paratypes in the collections of the California Academy of Sciences, Oregon Department of Agriculture, U. S. National Museum, W. F. Barr, F. M. Beer, J. Davidson, G. H. Nelson and David Verity.

C. westcotti runs to *C. fragariae* Fisher in Fisher's key but can be recognized by its larger size, more convex appearance, blackish coloration, the denser, more uniformly distributed elytral pubescence and by the shape of the male genitalia.

This species exhibits slight variation in color, in form and in structure. The clypeus may be uniformly darkened or coppery, the apices of the elytra may be conspicuously coppery, the ventral surface may have a brassy luster, the carina of the vertex may be reduced to an integumental line, the disk of the pronotum may be distinctly depressed or uniformly convex, there may be a sublateral depression on the pronotum with the sides somewhat angulate, and the elytra may lack



Figs. 8-14. Protibia of male *Chrysobothris* spp., rear aspect: 8, *C. horningi*, n. sp.; 9, *C. westcotti*, n. sp.; 10, *C. potentillae*, n. sp.; 11, *C. idahoensis*, n. sp.; 12, *C. breviloboides*, n. sp.; 13, *C. beeri*, n. sp.; 14, *C. columbiana*, n. sp.

any indication of costae, but may have one or two pairs of very faintly indicated foveae. A range of 8.1 mm. to 11.8 mm. in length is evident in the type series.

R. L. Westcott has made several biological observations on this species at the type locality. He found the larvae to concentrate their activities in the "leaf crown" of *E. compositum* above the soil surface

with only an occasional specimen in the lower stem. The "leaf crowns" were 90 plus percent infested on September 6, 1968 and usually contained one larva each. The position and boring of the early instar larva suggest that the female oviposits on the "leaf crown" and perhaps inserts the egg on the inner side of the expanded base of the petioles. Overwintering occurs as two larval instars. Pupation takes place inside the "leaf crown" in a larval boring. The larva appears to be in competition with an aegeriid moth larva which usually works in the lower stem and the primary crown.

***Chrysobothris potentillae* Barr, n. sp.**

(Figs. 3 and 10)

Male: Moderately elongate, convex; dark brown, slightly shining, front of head green, areas behind eyes with reddish reflections, abdomen violaceous-brown, strongly shining and with purplish reflections laterally.

Head rather finely, densely punctured, more coarsely and irregularly punctured on lower portion of front, densely but inconspicuously clothed with short, suberect and subrecumbent, white hairs; vertex with a median, longitudinal integumental line, not carinate; front convex, without callosities; clypeus with front margin broadly, deeply, triangularly emarginate at middle and broadly rounded laterally; antenna serrate from third segment which is approximately twice as long as second segment and subequal in length to fourth segment, segments four to ten slightly wider than long.

Pronotum approximately one and three-fourths times wider than long, widest near front, convex except for a slight, median, longitudinal depression; sides subparallel except at front where they are broadly rounded and narrowing and at base where they are sinuately constricted; hind angles subrectangular; lateral margin associated with a rather broad, smooth, distinctly arcuate and slightly elevated line that extends from behind anterior margin to posterior margin beneath the side; front margin subtruncate with a very broad, feebly developed median lobe; hind margin strongly lobed at middle; surface rather finely, densely punctured, more coarsely and irregularly punctured near sides, somewhat transversely strigose between punctures near base, pubescence consisting of scattered, short, suberect, white hairs which become more numerous and longer at hind angles.

Elytra slightly more than one and three-fourths times longer than wide; base of each elytron nearly semicircularly rounded; sides subparallel behind humeri then broadly but feebly expanded to behind middle and then broadly narrowing to apices which are separately rounded, not serrate and which are without a distinct sutural tooth; each elytron with a small, deep, subbasal, circular depression at middle and a shallow, elongate, subbasal depression near humerus, three, weakly developed, greenish discal foveae present, the first behind apical third about in line with the deep subbasal depression, the second behind middle about in line with the subbasal humeral depression and the third in front of apical third about in line with the deep subbasal depression, sutural, humeral and sublateral costae very weakly developed, discal costa not evident; surface finely, densely punctured becoming more shallowly and finely punctured apically, uniformly clothed with rather sparsely placed, short, suberect, white hairs.

Prosternum densely clothed with rather long, subrecumbent white hairs at middle; front margin with a broad, well-developed median lobe.

Abdomen sparsely, shallowly punctured, except finely, densely punctured toward sides; sternites one to five with a slightly elevated, elongate, smooth area near sides; last sternite with lateral margins indistinctly serrate, hind margin nearly semicircularly emarginate.

Legs blackish with a distinct coppery cast; profemur with a broad, but acutely developed triangular tooth at middle, which has the outer margin irregularly serrate; protibia short, arcuate with a well-developed, strongly sinuate, subapical dilation; mesotibia slightly sinuate and slightly expanded apically; metatibia straight, first segment of metatarsus with a small plantula at apex.

Length, 7.9 mm.; width, 3.2 mm.

Female: Differs from the male by having the front of head shining coppery with a pair of indistinct transverse callosities at middle; pronotum with sides very broadly arcuate, hind angles more or less acute; elytra with discal foveae reddish and with sutural, discal, humeral, and sublateral costae faintly indicated; posternum sparsely clothed with short, suberect, white hairs; abdomen with hind margin of last sternite broadly rounded and shallowly emarginate at middle; legs with protibia very gradually expanded apically, without a subapical dilation; mesotibia straight.

Length, 8.8 mm.; width, 3.8 mm.

Holotype male (California Academy of Sciences) and allotype female (Oregon State University) and five male and three female paratypes from Corvallis, Oregon, July 24, 1940 (F. M. Beer). Paratypes in the collections of Oregon State University, W. F. Barr, F. M. Beer and G. H. Nelson. According to Beer the specimens were found on the foliage and stems of *Potentilla* sp. growing on a dry south-facing slope a few miles northwest of Corvallis.

This species is a member of the *fragariae* complex and it runs out in Fisher's key to *C. fragariae* Fisher and *C. oregona* Chamberlin. It can be distinguished from these species by the abdominal sternites being finely, densely punctured laterally, by its usually convex shape, the elytral being more uniformly pubescent, the front of the head of the male being bright brassy green to a brilliant green and by the shape of the male genitalia.

As with most members of the *fragariae* complex, *C. potentillae* shows variation of the pronotum. Some specimens have the sides broadly arcuate to somewhat angulate and broadest near the front or at middle. Also, the disk may lack a longitudinal flattening or a depression. In one specimen the pronotum is conspicuously reddish.

***Chrysobothris idahoensis* Barr, n. sp.**

(Figs. 4 and 11)

Male: Moderately elongate, sub-depressed; dark coppery, feebly shining, front of head and clypeus coppery-green, ventral surface strongly shining with purplish reflections especially near sides.

Head rather finely, densely punctured, more coarsely and very densely punctured

on lower portion of front, densely but inconspicuously clothed with very short, subrecumbent, white hairs; vertex with a median, longitudinal integumental line that joins with a pair of indistinct, oblique, smooth carinae on upper portion of front to form a "Y"; front convex with an elongate, smooth callosity on either side of middle; clypeus irregularly punctured except for a smooth median area, front margin broadly, rather shallowly triangularly emarginate at middle and broadly rounded laterally; antenna conspicuously serrate from fourth segment, third segment weakly serrate and approximately one and one-half times longer than second and fourth segments which are subequal in length, segments four to ten distinctly wider than long.

Pronotum approximately one and three-fourths times wider than long, distinctly widest near front, moderately convex, with a narrow median longitudinal depression and a shallow, circular, sublateral depression; sides broadly, evenly arcuate, except at base where they are sinuately constricted; hind angles more or less acute; lateral margin associated with a smooth, distinctly arcuate and slightly elevated line that extends from anterior margin to posterior margin beneath the side and which is narrow in front and broad at base; front margin subtruncate with a broad, moderately developed, median lobe; hind margin strongly lobed at middle; surface sparsely, rather finely punctured medially, becoming more closely and irregularly punctured laterally, disk with an irregularly elongate, slightly elevated smooth area on either side of median depression, pubescence indistinct, consisting of very short, suberect, white hairs near sides and a small concentration of hairs at hind angles.

Elytra slightly more than one and three-fourths times longer than wide; base of each elytron nearly semicircularly rounded; sides when viewed from above very gradually expanded from humerus to behind middle then broadly, arcuately narrowing to apices which are narrowly, separately rounded and slightly broken with faint indications of coarse serrations, sutural tooth feebly developed; each elytron irregularly contoured, with a small subbasal pit at middle which is associated with a shallow, irregular depression and with a shallow, elongate, subbasal depression at humerus, three discal foveae faintly indicated, the first located at about basal third in line with the subbasal median depression, the second behind middle about in line with the humeral depression and the third at about apical third nearly in line with the subbasal median depression, sutural and sublateral costae moderately distinct behind middle, humeral costa faintly indicated from humerus to behind middle; surface rather finely, densely punctured becoming more finely, sparsely punctured and slightly rugose apically except foveae more finely and densely punctured, pubescence very sparsely placed, consisting of very short, subrecumbent, white hairs along sides and near apex.

Prosternum rather densely clothed with long, subrecumbent, white hairs at middle; front margin with a broad, moderately developed, median lobe.

Abdomen finely, sparsely, shallowly punctured, with slightly elevated, elongate, smooth areas along sides of sternites one to five; last sternite with sides entire, hind margin broadly, shallowly, arcuately emarginate.

Legs dark aeneous with some coppery reflections; profemur with a broad, blunt triangular tooth at apical third, which is feebly serrate on outer margin; protibia arcuate, with a distinct, strongly sinuate, subapical dilation; mesotibia nearly straight, slightly expanded apically; metatibia straight, first segment of metatarsus with a small plantula at apex.

Length, 7.0 mm.; width, 2.7 mm.

Female: Differs from the male by being more strongly shining, coppery; front of head coppery with a faint greenish cast; disk of pronotum uniformly punctured except for the more finely, densely punctured median, longitudinal depression; elytra with sutural, discal, humeral and sublateral costae faintly indicated; prosternum sparsely clothed with short, sumrecumbent, white hairs; abdomen with hind margin of last sternite more or less broadly rounded, broadly but shallowly notched at middle; protibia very gradually expanded apically, without a subapical dilation.

Length, 7.0 mm.; width, 2.8 mm.

Holotype male and allotype female (California Academy of Sciences on indefinite loan from the University of Idaho) and three male and five female paratypes from Alturas Lake, Blaine County, Idaho, August 2, 1964 (R. L. Westcott) on *Eriogonum* sp.; two male and one female paratype from Dollarhide Pass, 25 miles west of Ketchum, Blaine County, Idaho, August 13, 1962 (N. L. Rumpp) and August 1, 1964 (R. L. Westcott) on *Eriogonum* sp.; and one female paratype from Craters of the Moon National Monument, Butte County, Idaho, July 3, 1965 (D. S. Horning, Jr.) on *Eriogonum ovalifolium*. Paratypes in the collections of the California Academy of Sciences, the University of Idaho, W. F. Barr, and R. L. Westcott. Three female specimens assigned to this species but not designated as paratypes are from five miles northeast of Midvale, Washington County, Idaho, July 9, 1952 (W. F. Barr) and six miles west of Twin Springs, Boise County, Idaho, July 4, 1956 (W. F. Barr) on the flowers of *Eriogonum* sp.

This species falls within the *fragariae* complex and is best placed next to *C. oregona* Chamberlin on the basis of the sculpturing of the pronotum and elytra. It can be differentiated from the species in the *fragariae* complex by its usually coppery color, the more sparsely punctured pronotal disk, the more densely and deeply punctured basal fourth of the elytra and by the apically subtruncate median lobe of the male genitalia.

***Chrysobothris breviloboides* Barr, n. sp.**

(Figs. 5 and 12)

Male: Moderately elongate and convex; blackish, front of head yellowish-green, becoming more bronzy on upper portions and black on vertex, pronotum dark purplish in depressed areas, elytra purplish-brown in depressed and densely punctured areas, ventral surface dark purplish, becoming blackish at middle of metasternum and first abdominal sternite, along sides of abdomen and along hind margins of abdominal sternites.

Head rather coarsely, irregularly foveolate-punctate, densely clothed with rather short, subdepressed, white hairs; vertex with a well-developed, longitudinal, median carina; front sub-flattened, upper portion with a small, narrow, median carina which does not join carina of vertex; clypeus with front margin rather broadly, deeply, arcuately emarginate at middle and obliquely subtruncate laterally;

antenna strongly serrate from fourth segment, third segment moderately serrate, nearly twice as long as second segment and one and one-half times longer than fourth segment, segments four to ten about as wide as long, broadly subtruncate along outer margins.

Pronotum about one and two-thirds times wider than long, widest slightly behind middle, slightly convex, irregular, with a pair of smooth, longitudinal callosities on either side of middle that are irregularly joined at base and near front margin and between which is formed a narrow, longitudinal depression and with small, irregular callosities near sides; sides irregularly and broadly arcuate; lateral margin associated with a broad, smooth, arcuate and slightly elevated line that extends from anterior margin to posterior margin beneath the side; front margin very broadly, shallowly emarginate, subtruncate at middle; hind margin broadly lobed at middle; surface densely, rather coarsely punctured between callosities, inconspicuously clothed with a few, fine subrecumbent hairs near hind angles.

Elytra distinctly broader than pronotum, twice as long as wide; base of each elytron nearly semicircularly rounded; sides subparallel from about basal fourth to slightly behind middle, then gradually arcuately narrowing to the separately, narrowly rounded apices; lateral margins coarsely but feebly serrate on apical third; each elytron with a pair of subbasal depressions and with numerous, irregular, slightly elevated smooth spaces which give the surface a somewhat "blotchy" appearance and which are associated with the costae, intervening areas densely, rather coarsely punctured, sutural costa entire and straight, extending from about basal fourth to apex, discal costa irregular, broken and merging with smooth spaces, extending from behind base to near apex, humeral costa weakly developed, broken at middle, sublateral costa irregular, more or less entire, extending from about basal fourth to near apex, pubescence consisting of very sparsely placed, very short, inconspicuous hairs along sides.

Prosternum densely clothed with long, subrecumbent white hairs at middle; front margin with a feebly indicated broad median lobe.

Abdomen with slightly elevated, smooth callosities at sides of each sternite; last sternite with lateral margin entire except for a few small serrations near apex; hind margin broadly, nearly semicircularly emarginate.

Legs dark purplish, outer surface of profemur dark greenish, tibiae more or less blue-black and tarsi dark blue; profemur with a broad, blunt tooth at middle which is serrate on outer margin; protibia strongly arcuate, inner margin slightly expanded at about apical third then broadly, deeply notched, subapical dilation short, abruptly and evenly expanded; mesotibia arcuate, slightly but evenly expanded apically; metatibia straight; metatarsus with a small plantula at apex of first segment.

Length, 11.7 mm.; width, 4.5 mm.

Female: Differs from the male by having the front of the head uniformly purplish; the prosternum less densely pubescent; the abdomen uniformly dark purplish with the last sternite more elongate, the lateral margin conspicuously serrate and the hind margin rather broadly, deeply triangularly emarginate; the protibia not notched and without a subapical dilation.

Length, 12.6 mm.; width, 5.0 mm.

Holotype male and allotype female (California Academy of Sciences on indefinite loan from the University of Idaho) from Craters of the

Moon National Monument, Butte County, Idaho, June 22, 1965 (Carol J. Horning). Paratypes from the same locality as follows: one male June 22, 1965 (D. S. Horning, Jr.) one female July 5, 1965 (D. S. Horning, Jr.); one male July 7, 1965 (D. S. Horning, Jr.); one male July 7, 1966 (R. L. Westcott); one male July 9, 1964 (D. S. Horning, Jr.); two males and two females July 19, 1948 (F. M., F. S. and V. S. Beer); two females, summer 1964 (D. S. Horning, Jr.); and one male summer 1965 (D. S. Horning, Jr.). One additional female paratype from Sunset Crater, Craters of the Moon National Monument, Idaho, June 28, 1965 (D. S. Horning, Jr.). The majority of the specimens were collected or reared from *Pinus flexilis* James. Paratypes in the collections of the University of Idaho, U. S. National Museum, W. F. Barr, F. M. Beer, G. H. Nelson and R. L. Westcott.

C. breviloboides is most closely related to *C. breviloba* Fall but is readily separated from that species. It has the punctured areas of the elytra predominately a dark dull purplish or blackish and the abdomen a dark purplish whereas in *C. breviloba* the punctured areas of the elytra are more extensive and of a shining brown color and the abdomen is more shining and more conspicuously purple. In addition, the male of *C. breviloboides* has the front of the head greenish rather than golden, the protibial dilation is abruptly expanded, rounded, and not sinuate, the protibia has a broad, deep notch before the dilation and the lateral lobes of the male genitalia are much more abruptly expanded and the median lobe narrowly rounded not subtruncate at its apex. The female of *C. breviloboides* is distinguished from the female of *C. breviloba* by having the hind margin of the last abdominal sternite broadly triangularly emarginate rather than narrowly triangularly notched. *C. breviloboides* is known only from the type locality but probably is present in other areas of the Intermountain West where its host plant occurs. *C. breviloba* is known from the central Rocky Mountains and does not range into the Pacific Northwest.

C. breviloboides runs out in Fisher's key to *C. monticola* Fall or *C. trinervia* Kirby depending on one's interpretation of the distinctness of the lobe on the front margin of the prosternum. From the former, *C. breviloboides* is distinguished by the partial development of this lobe, by the color of the front of the head of the male, by the deep notching of the male protibia and by the structure of the median lobe of the male genitalia. From the latter it can be recognized by the coloration of the abdomen, the lack of cupreous elytral apices and the shape of the male genitalia.

***Chrysobothris beeri* Barr, n. sp.**

(Figs. 6 and 13)

Male: Moderately elongate, distinctly convex; blackish with coppery and faint greenish reflections in punctured areas, front of head green, ventral surface shining,

pro- and mesosterna green, metasternum and abdomen purplish except along junctures of abdominal sternites which are coppery green.

Head finely, densely punctured; vertex nearly glabrous with a broad, feebly developed, longitudinal, median carina; front convex, densely but inconspicuously clothed with short, subdepressed, white hairs, with an oblique, elongate callosity on either side of middle; clypeus more finely, densely punctured, front margin broadly, deeply triangularly emarginate at middle and broadly rounded laterally; antenna green except for outer portions of segments four to eleven, strongly serrate from fourth segment, third segment feebly serrate, twice as long as second segment and one and one-half times longer than fourth segment which is triangularly serrate, segments five through ten subequal in width and length, narrowly subtruncate along outer margins.

Pronotum one and three-fourths times wider than long, indistinctly widest behind the front, convex, with a pair of irregular longitudinal callosities on either side of middle that join at base and between which is a narrow longitudinal depression, with a small but distinct depression located behind front margin outside of the median callosities and with a small depression along sides at middle; sides subparallel, broadly rounded at front, obtuse at hind angles; lateral margin associated with a broad, smooth, arcuate carina that extends from anterior margin to posterior margin beneath the side; front margin broadly but feebly emarginate with an inconspicuous, broad, median lobe; hind margin rather narrowly lobed at middle; surface finely, densely punctured, becoming more coarsely punctured towards sides and somewhat transversely strigose basally and laterally, inconspicuously clothed with a few, fine, suberect, short hairs along sides and at hind angles.

Elytra approximately one and three-fourths times longer than wide; base of each elytron broadly rounded; sides broadly but feebly sinuate from humerus to behind middle where they are slightly expanded then gradually arcuately narrowing to the separately narrowly rounded apices; lateral margins finely serrate behind middle; each elytron irregular with a pair of small but distinct, subbasal depressions and large, irregular, somewhat broken, smooth callosities at about basal fourth, at middle and at about apical third, intervening areas finely, densely punctured, sutural costa moderately well-developed and joining the three large callosities, discal costa poorly developed, evident on basal half, interrupted at middle, evident only on apical half in front of apex where it joins with sutural costa to form a "Y," sublateral costa feebly developed; surface clothed with a few, very short and inconspicuous hairs apically.

Prosternum densely clothed with long, subrecumbent, white hairs at middle; front margin with a broad, moderately developed median lobe.

Abdomen finely, sparsely, shallowly punctured, except more coarsely punctured near front angles of sternites two to five; sternites one to four with small, irregular, smooth, raised areas near sides; last sternite without a distinct sublateral ridge, lateral margin serrate, broadly arcuate, hind margin broadly, nearly semicircularly emarginate.

Legs multicolorous, but predominately shining coppery, tarsi dark blue-green; profemur with outer surface green, bearing a broad, blunt tooth at middle which is inconspicuously serrate on outer margin; protibia strongly arcuate, outer surface dark purplish to shining green, inner margin slightly expanded at apical third, then broadly, deeply notched, subapical dilation short, abruptly expanded, sinuate;

mesofemur brassy green on outer surface; mesotibia arcuate, sinuately expanded apically; metatibia straight; metatarsus with a small plantula at apex of first segment.

Length, 10.6 mm.; width, 4.5 mm.

Female: Differs from the male by having the head, the femora, the tibiae and the ventral surface shining coppery except for lateral raised areas of the abdominal sternites which are purple; the prosternum moderately pubescent; the last abdominal sternite more elongate, with the sides vaguely sinuate and the hind margin subtruncate with a broad deflexed plate at middle; the protibia not notched and without a subapical dilation.

Length, 11.8 mm.; width, 5.2 mm.

Holotype male and allotype female (California Academy of Sciences) and two male and one female paratypes from Horse Lake Ranger Station, Lane County, Oregon, September 3, 1955 (F. M. Beer). Additional paratypes as follows: one male from Mt. Ashland, Jackson County, Oregon, July 27, 1962 (F. M. and V. S. Beer); one male from Tiller, Douglas County, Oregon, August 20, 1948 (F. M., F. S. and V. S. Beer); one male from O'Brien, Josephine County, Oregon May 30, 1952 (V. Roth); two males from Crater Lake National Park, Oregon, August 9, 1939 (F. M. Beer); one male from west rim of Crater Lake, Klamath County, Oregon, August 3, 1968 (R. L. Westcott); one female from Lost Prairie, Linn County, Oregon, July 23, 1966 (F. M. Beer); one female from Lava Lake, Deschutes County, Oregon, July 31, 1955 (F. M. Beer); one female from Suttle Lake, Jefferson County, Oregon, July 18, 1962 (F. M. and V. S. Beer); one female from Breitenbush Lake, Marion County, Oregon, August 16, 1942 (F. M. Beer); one female from Stayton, Oregon, June 29, 1946 (F. M. Beer); one female from Mt. Hood, Oregon, 3000-6000 ft., June 22, 1925; one female from Cloud Cap, 6000 ft., Mt. Hood, Oregon, July 16, 1933 (K. E. Gibson); one female from Seattle, Washington, July 5, 1913; one male and one female from Olympic Hot Springs, Washington, July 22, 1938 (F. M. Beer); one male from Mt. Adams, West Klickitat, Washington, 3000', July 1, 1925 (L. A. Morley); one female from Ricksecker Point, Mt. Rainier, Washington, 4400', July 19, 1935; 17 males and four females from Nelson Siding, Kittitas County, Washington, July 28, 1968 (R. L. Westcott); one female from Blackwall, Manning Park, British Columbia, 6000 ft., August 16, 1953 (J. B. McGillis); Paratypes in the collections of the California Academy of Sciences, Canada National Collection, Oregon State University, University of Idaho, U. S. National Museum, W. F. Barr, F. M. Beer, J. Davidson, M. H. Hatch, J. N. Knull, G. H. Nelson, David Verity and R. L. Westcott.

C. beeri shows relationships with *C. sylvania* with which it occurs sympatrically and *C. laricis* with which it occurs allopatrically. It can be distinguished from these species by having the sutural and a discal elytral costae forming a "Y" near the apex, by the distinctive shortened

and blunt lateral lobes of the male genitalia and by the usually subtruncate hind margin of the last abdominal sternite of the female which frequently bears a small angulate lobe at the middle.

An unusual amount of variation has been noted in this species. The small concentration of densely placed punctures at the front angles of the abdominal sternites may be absent, the lateral margins of the last abdominal sternite may be entire, the notching of the male protibia may be much reduced in some populations and the hind margin of the last abdominal sternite of the female may be somewhat scalloped or emarginate with the median lobe absent or very conspicuous and feebly notched. The length of the paratypes ranges from 9 to 12 mm.

***Chrysobothris columbiana* Barr, n. sp.**

(Figs. 7 and 14)

Male: Moderately elongate and convex; blackish, front of head with a faint bluish cast in small depressions on either side of middle, elytra purplish-brown on depressed and densely punctured areas, ventral surface with coppery and bluish reflections, legs with very faint coppery and bluish reflections.

Head rather coarsely, irregularly foveolate-punctate, densely clothed with short, subdepressed, white hairs; vertex with a broad, conspicuous, longitudinal median carina; front slightly convex with a smooth, somewhat transverse and inconspicuous callosity on either side of the middle; clypeus with front margin broadly, deeply, triangularly emarginate at middle and obliquely subtruncate laterally; antenna strongly serrate from fourth segment, third segment feebly serrate, approximately twice as long as second segment and one and one-fourth times longer than fourth segment which is triangularly serrate, segments five to ten slightly longer than wide, narrowly subtruncate along outer margins.

Pronotum slightly more than one and one-half times wider than long, indistinctly widest at middle, convex, with a pair of irregular, longitudinal callosities on either side of middle that are joined near front margin and between which is a narrow, longitudinal depression, additional small, irregular, broken callosities present laterally, a rather broad, shallow but distinct depression located behind front margin outside the median callosities; sides broadly arcuate but more or less subparallel at middle; lateral margin associated with a broad, smooth, distinctly arcuate and slightly elevated line that extends from anterior margin to posterior margin beneath the side; front margin very broadly emarginate with a broad, feebly developed, median lobe; hind margin broadly lobed at middle; surface densely, rather coarsely punctured in median depression, irregularly and transversely foveolate-punctate between callosities, inconspicuously clothed with a few, fine, subrecumbent hairs near hind angles.

Elytra about one and three-fourths times longer than wide; base of each elytron nearly semicircularly rounded; sides subparallel from about basal fourth to slightly behind middle then gradually arcuately narrowing to the separately, narrowly rounded apices; lateral margins coarsely but feebly serrate along apical third; each elytron with a pair of basal depressions, sutural costa indistinct on basal half, moderately distinct on apical half, angulate in front of apex where it indistinctly joins with the discal costa which is indistinct and interrupted, humeral costa also indistinct and interrupted, sublateral costa absent, costae joining a few,

slightly elevated, irregular, smooth callosities; surface densely, rather coarsely punctured between smooth spaces and costae, with a few, very inconspicuous, short hairs along sides.

Prosternum densely clothed with rather long, subrecumbent, white hairs at middle; front margin with a broad, feebly developed, median lobe.

Abdomen finely, shallowly punctured, more coarsely punctured at base of sternite one; sternites one to four without small, elevated callosities along sides but with small, non-punctured areas; last sternite thickened apically, sublateral elevation distinct and strongly serrate, lateral margin conspicuously serrate, hind margin broadly, deeply, arcuately emarginate.

Legs darkened; profemur with a broad triangular tooth at middle which is serrate on its outer margin; protibia strongly arcuate, not notched on inner margin, with a feebly developed, feebly sinuate, elongate subapical dilation; mesotibia arcuate, evenly but slightly expanded apically; metatibia straight; metatarsus with a small plantula at apex of first segment.

Length, 11.2 mm.; width, 4.2 mm.

Female: Differs from the male by having the front of head and ventral surface dark coppery; the prosternum sparsely pubescent; the last abdominal sternite more conspicuously thickened and roughened apically, with the hind margin slightly notched at middle; the protibia without a subapical dilation.

Length, 11.8 mm.; width, 4.9 mm.

Holotype male and allotype female (California Academy of Sciences) from Midday Valley, Merritt, British Columbia (R. Hopping) on *Pinus ponderosa* Lawson. Holotype collected July 23, 1923 and labeled "Exp. 17051, Lot 1066," the allotype August 4, 1923 and "Exp. 17051, Lot 1097." Three male paratypes from type locality July 2, 3 and 11, 1925 (Wm. Matthews) on *Pinus ponderosa* and labeled respectively "17155, lot 32, 33 and 40." One male paratype from Northport, Washington, July 20, 1929 on *Pinus contorta* Douglas and one female paratype from Easton, Washington. Paratypes in the collections of the California Academy of Sciences and W. F. Barr.

The thickened last abdominal sternite and the structure of the male protibia necessitate the placement of this species next to *C. blanchardi*. However, in Fisher's key it runs out to *C. trinervia*. It can be separated from these species on the basis of distribution, by the conspicuous sublateral elevation of the last abdominal sternite, by the more weakly developed elytral costae and by the distinctively shaped male genitalia. *C. columbiana* ranges in length from 11.7 to 14 mm.

The holotype apparently was preserved in a liquid before mounting as indicated by its dull coloration and the matted pubescence on the ventral surface. In a fully colored, but damaged male specimen, the front of the head is distinctly green and the abdomen shining coppery with purplish reflections.

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