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New Pselaphidae from Oregon (Coleoptera)[1]

DONALD S. CHANDLER

Department of Entomology, University of New Hampshire, Durham, New Hampshire 03824.

Abstract.—Three new species from the H. J. Andrews Experimental Forest in central Oregon and four others from western Oregon are described: *Sonoma petersi,* n. sp., *Sonoma cascadia,* n. sp., *Sonoma quercicola,* n. sp., *Sonoma conifera,* n. sp., *Sonoma russelli,* n. sp., *Hylotychus schuhi,* n. sp., and *Oropus micropthalmus,* n. sp.

In the course of characterizing the pselaphid fauna of the H. J. Andrews Experimental Forest in central Oregon, three undescribed species of Pselaphidae were discovered. These species are here described to provide names for a forthcoming paper on the species and habitats of the Pselaphidae of this experimental forest. Four other new species occurring near the experimental forest also are described.

Holotypes of four species were cleared, disarticulated, and mounted in Canada balsam on slides. The other holotypes have the genitalia cleared, placed in microvials, and pinned beneath the specimens. Holotypes are deposited at the University of California, Davis, with paratypes of five of the species being deposited in the Systematic Entomology Laboratory of Oregon State University. All measurements are in millimeters.

I would like to thank Dr. John D. Lattin, Oregon State University, for arranging my visits to Oregon as a participating scientist in the Long Term Ecological Research Program at the H. J. Andrews Experimental Forest. Gary Parsons is thanked for his assistance during my travel in Oregon. Several individuals provided specimens examined in this work, and following their affiliations are the initials of institutions (four letter) or private collections (three letter) where specimens are placed: John D. Lattin, Oregon State University (OSUO); Gary L. Peters, Oregon State University (GLP); Paul J. Johnson, University of Idaho (PJJ); and Lee H. Herman, Jr., American Museum of Natural History (AMNH). Specimens whose deposition are not indicated are in the author's collection. Loren Russell, Oregon Environmental Protection Agency, and the late Joe Schuh, kindly allowed me to examine their collections. J. F. Burger and J. S. Weaver, University of New Hampshire, deserve my appreciation for checking the manuscript.

Sonoma petersi, NEW SPECIES
(Fig. 1)

Length 1.50–1.62. Head with eyes possessing about 48 facets, frontal fovea short, roughly triangular, head with base subtruncate, wider than distance across

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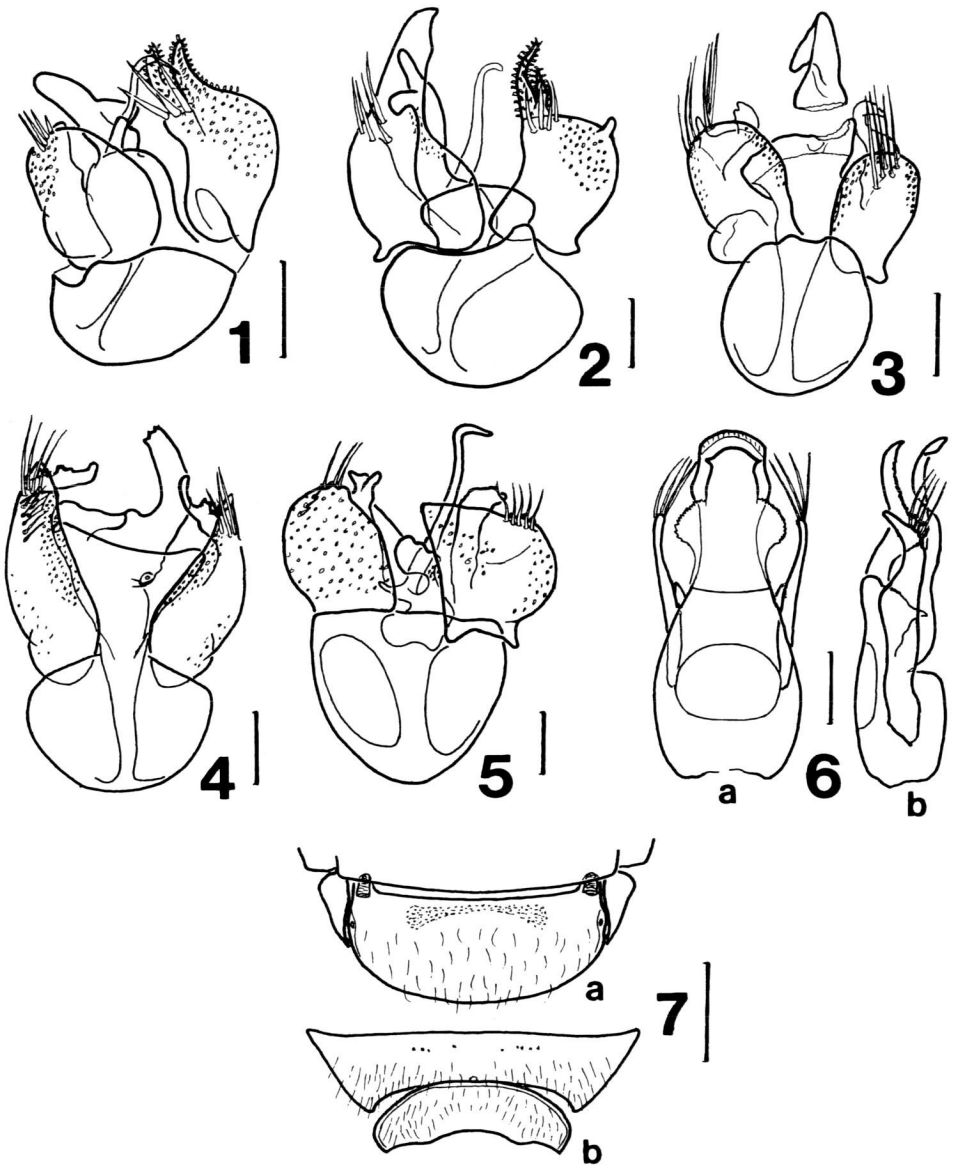

Figures 1–7. Line to right of illustrations equals 0.5 mm. 1. *Sonoma petersi,* n. sp., dorsal view male genitalia. 2. *Sonoma cascadia,* n. sp., dorsal view male genitalia. 3. *Sonoma quercicola,* n. sp., dorsal view male genitalia. 4. *Sonoma conifera,* n. sp., dorsal view male genitalia. 5. *Sonoma russelli,* n. sp., dorsal view male genitalia. 6. *Hylotychus schuhi*, n. sp., male; a. dorsal view genitalia; b. left lateral view genitalia. 7. *Oropus micropthalmus,* n. sp., male; a. dorsal view tergite IV; b. ventral view sternites V and VI.

eyes. Pronotum with median antebasal fovea inserted in deep rectangular impression which extends laterally to medio-lateral antebasal foveae, discal foveae distinct. Tergite I with transverse microsetigerous line.

Males with metatrochanters posteriorly angulate and carinate, metatibiae with

small obscure tubercle on mesal margin near middle; head venter with transverse gular ridge, ridge densely setose on posterior margin and obscuring gular foveae; genitalia with phallobase asymmetrical, shortened on right side, left paramere with two tuberculate conical projections.

Females lack modifications of metatrochanters and metatibiae, and the head venter is simple at the area of the gular foveae; sternite VI apex with rounded midapical lobe deflexed, extending posteriorly just past middle of sternite VII, lobe about one-fourth the apical width of VI.

Male holotype.—Head 0.21 long, 0.25 wide across eyes, pronotum 0.23 long, elytra 0.42 long, genitalia 0.18 long.

Specimens examined, 6. HOLOTYPE male: *Oregon:* Benton Co.: MacDonald Forest, Oak Creek area, II-3-1973, G. L. Peters. Holotype mounted on slide. PARATYPES: 1 male, 3 females, eutopotypical (GLP, OSUO); 1 male, same data except, III-12-1973.

Discussion.—This species is clearly quite close to *corticina* Casey which is found from coastal Oregon into northwestern California. They share the angulate tempora of the head, microsetigerous line of tergite I, and the males with a modified gular area, weak tubercle of the metatibiae, strongly asymmetrical phallobase, and tuberculate processes of the left paramere. The gular area of *petersi* is developed into a transverse ridge obscuring the gular foveae, the discal foveae of the pronotum are distinct, and the median lobe and right paramere of the genitalia are different in form from those of *corticina.* Named for Gary L. Peters, the collector of the type series.

Sonoma cascadia, New Species
(Fig. 2)

Length 1.38–1.47. Head with eyes possessing about 60 facets, frontal fovea lengthily triangular, tempora slightly angulate at head base. Pronotum with deep median antebasal fovea in narrow rectangular impression which extends laterally to medio-lateral antebasal foveae, discal foveae distinct. Tergite I with transverse microsetigerous line.

Male metatrochanters with angulate projection of posterior margin, metatibiae lacking tubercle on inner margin; genitalia with left paramere bearing two tuberculate projections, left paramere elongate, median lobe with thin heavily sclerotized bifurcate spine and more median slender lightly sclerotized spine which is curved at apex.

Female with metatrochanters simple, not angulate; sternite VI with wide evenly rounded apical lobe deflexed and projecting posteriorly to middle of sternite VII, lobe one-half apical width of sternite VI, VII granulate.

Male holotype.—Head 0.18 long, 0.24 wide across eyes, pronotum 0.22 long, elytra 0.45 long, genitalia 0.22 long.

Specimens examined, 2. HOLOTYPE male: *Oregon:* Lane Co.: HJAndrews Exp. For., Road 1508, 1750′, I-24-1981, G. Cassis, site 5, old growth, *Tsuga/Pseudotsuga* litter. Holotype mounted on point. One female not designated paratype bears the data: same locality, 1450′, R.S. 7, V-13-1983, D. S. Chandler, sift rotten Douglas-fir.

Biology.—Collected in conifer leaf litter and a rotten Douglas-fir log in old growth forests at the lower elevations of the experimental forest.

Discussion.—The two tuberculate projections of the left paramere place *cascadia* nearest *corticina* Casey and *petersi,* n. sp. The somewhat angulate basal angles of the head and the smaller right half of the phallobase reinforce this placement. *Cascadia* is perhaps closest to *petersi* by the presence of two processes of the median lobe. Males of *cascadia* are separated by the metatibiae lacking any trace of an inner tubercle, the simple gular area, angulate projection of the metatrochanters, and the long right paramere. Females of these species share the deflexed apical lobe of sternite VI, but in *cascadia* it is half as wide as the apical width of sternite VI, and sternite VII is granulate. The name is derived from the collection of this species in the Cascade Mountains.

Sonoma quercicola, New Species
(Fig. 3)

Length 1.62–1.71. Head with eyes possessing about 80 facets, frontal fovea elongate, widening slightly toward apex, tempora evenly rounded to head base. Pronotum with median antebasal fovea in deep depression which extends laterally to medio-lateral antebasal foveae, discal foveae lacking. Tergite I with transverse microsetigerous line.

Male with metatrochanters posteriorly angulate and carinate, metatibiae with small tubercle on mesal margin near middle; genitalia with each paramere bearing a supplementary tubercle, parameres lightly granulate, median lobe with thick apical hook.

Female with metatrochanters and metatibiae simple, lacking angulations or tubercles; sternite VI bearing a rounded apical lobe which is offset to the right and extends over sternite VII to sternite VIII, sternite VII visible only to left of lobe.

Male holotype.—Head 0.24 long, 0.28 wide across eyes, pronotum 0.30 long, elytra 0.54 long, genitalia 0.18 long, median lobe of genitalia with apex detached but retained in microvial.

Specimens examined, 2. HOLOTYPE male: MacDonald Forest, Oak Creek area, III-12-1973, G. L. Peters, collected by Berlese funnel. Holotype mounted on point. One female not designated paratype with same data as the holotype except, III-6-1973.

Discussion.—The male genitalia are similar to several other species in having granulate parameres bearing supplementary processes, and a large median lobe. The form of these structures is different from that in other known species, and *quercicola* cannot be placed near any at this time. The name is derived from the collection of the specimens along Oak Creek.

Sonoma conifera, New Species
(Fig. 4)

Length 1.71–1.92. Head with eyes possessing about 48 facets, frontal fovea elongate, enlarged at apex, tempora evenly curved to head base. Pronotum with median antebasal fovea in semicircular impression which extends laterally to medio-lateral foveae, discal foveae weakly impressed. Tergite I with transverse microsetigerous line.

Males with metatrochanters posteriorly angulate and carinate, metatibiae lacking mesal tubercle; genitalia with elongate parameres, median lobe well developed.

Females with metatrochanters simple; sternite VI medially produced at apex over VII to reach VIII, medial projection lightly bidentate at apex, projection and area anterior to it lightly granulate.

Male holotype. —Head 0.27 long, 0.33 wide across eyes, pronotum 0.27 long, elytra 0.41 long, genitalia 0.17 long.

Specimens examined, 8. HOLOTYPE male: *Oregon:* Benton Co.: Mary's Peak, 1800′, II-1-1976, L. Russell, sift cedar litter. Holotype mounted on slide. PARATYPES: 1 male, same data except, II-22-1976, sift hemlock litter; 1 male, same data except, 8 mi SE Hwy. 20, III-6-1976, Douglas-fir litter; 1 male, 6.5 mi SW Philomath, III-12-1975, G. L. Peters. Lane Co.: 1 male, HJAndrews Exp. For., Road 1508, 1750′, II-19-1979, G. Cooper, old growth, moss; 1 male, same locality, Road 1506, III-12-1981, G. Cassis, site 8, 1970 clearcut, litter (OSUO). Two females associated with these males are not designated paratypes and bear the data: Lane Co.: HJAndrews Exp. For., Road 359, 4100′, V-13-1984, D. S. Chandler, sift alder litter; same locality, Road 1508, 1750′, I-24-1984, G. Cassis, site 5, old growth, *Tsuga/Psudotsuga* litter (OSUO).

Biology. —Collected primarily in several types of conifer leaf litter, in both old growth and recently clearcut forests

Discussion. —*Conifera* approaches only *Sonoma hespera* Park and Wagner in the stout, relatively simple median lobe of the male genitalia. They differ in the apical armatures of the parameres, and both parameres are of equal length in *conifera.* The name is derived from the primary collection habitat, conifer litter.

Sonoma russelli, New Species
(Fig. 5)

Length 2.22–2.58. Head with eyes possessing about 55 facets, frontal fovea broadly T-shaped, tempora evenly rounded to head base; pronotum with median antebasal fovea encircled by deep depression, lacking medio-lateral antebasal foveae, discal foveae usually distinct but occasionally absent. Tergite I lacking transverse microsetigerous band.

Males with metatrochanters angulate and carinate on posterior margin, metatibiae lacking mesal tubercle; genitalia with supplementary tubercle on each paramere, parameres granulate, median lobe with long thin spine abruptly hooked near apex.

Females with posterior margin of metatrochanters simply curved; sternite VI with rounded lobe on apical margin slightly offset to left, inserted in impression of sternite VII which extends to posterior margin, impression of VII with carinate margins along lobe of VI.

Male holotype. —Head 0.39 long, 0.41 wide across eyes, pronotum 0.39 long, elytra 0.60 long, genitalia 0.29 long.

Specimens examined, 31. HOLOTYPE male: *Oregon:* Benton Co.: Mary's Peak, 1800′, II-1-1976, L. Russell, sift litter around log. Holotype mounted on slide. PARATYPES: 2 males, same data except, I-18-1976, sift alder litter, sift Douglas-fir litter; 8 males, 3 females, same data except, II-1-1976, sift litter around log (4), sift moss (2), sift cedar litter (2), sift hemlock litter (2), sift alder litter (1); 5 males, 2 females, same data except, 1750′, II-16-1976, stump litter (4), sift hemlock litter (3); 1 male, 1 female, same data except, 1700′, III-16-1976, Douglas-fir litter; 2 males, same data except, 2000′, IV-11-1976, moss on logs; 1 male,

Mary's Peak, Funny Bug Notch, 3000′, XII-5-1976, P. J. Johnson, litter (PJJ); 1 female, 10 mi W Philomath, 1700′, XII-5-1976, P. J. Johnson (PJJ); 1 male, 1 female, 14 mi WSW Philomath, NE slope Mary's Peak, 2000′, Chintimini Creek, VII-5-1978, L. & N. Herman, #1604 (AMNH); 2 males, MacDonald Forest, VI-16-1975, L. Russell.

Biology.—This species has been collected in various leaf litters, and rotten wood.

Discussion.—This species and several others share the supplementary tubercles that originate from the granulate parameres of the male genitalia. At this time *russelli* cannot really be placed close to any particular species. The long thin spine of the median lobe is abruptly angulate near the apex, and permits ready recognition. Named for Loren Russell, who has collected many uncommon pselaphids from western Oregon.

Hylotychus schuhi, New Species
(Fig. 6)

Length 1.23–1.32. Males with eyes possessing approximately 32 facets; pro- and mesotibiae with small apical tubercle on inner margin; metasternal area simple; sternite VI broadly impressed medially, distinctly emarginate at apex. Genitalia with dorsal lobe acutely pointed at lateral margins of apex, lateral margins expanded and denticulate anteriorly, ventral lobe with margins slightly expanded before apex, parameres reaching to tuberculate area of dorsal lobe.

Females with eyes possessing about 20 facets; lacking apical tubercles of pro- and mesotibiae.

Male holotype.—Head 0.24 long, 0.21 wide across eyes, pronotum 0.25 long, elytra 0.47 long, genitalia 0.31 long.

Specimens examined, 5: HOLOTYPE male: *Oregon:* Klamath Co.: above Geary Ranch, X-25-1971, J. Schuh, aspen duff at swamp. Holotype mounted on point. PARATYPES: 1 female, same data except, X-26-1971, pine-aspen duff; 1 male, same data except, XI-1-1971, willow duff; 1 female, same data except, XI-6-1972, duff under pine (OSUO); 1 female, Geary Canal, III-17-1972, J. Schuh, mixed duff.

Biology.—Collected in pine, willow, and aspen leaf litters.

Discussion.—Members of *Hylotychus* can only really be compared by the form of the male genitalia, as they are otherwise quite similar. The genitalia is most similar to that of *simplicis* Grigarick and Schuster from the west coast of Oregon by the form of the apices of both dorsal and ventral lobes. The dorsal lobe of *schuhi* separates this species from all others by the laterally denticulate medial expansion. The parameres of *schuhi* are straight, while those of *simplicis* are curved laterally near the apices. Named for the late Joe Schuh, who greatly contributed to the knowledge of the beetle fauna of south-central Oregon.

Oropus micropthalmus, New Species
(Fig. 7)

Length 1.26–1.47. Head with vertex lightly and sparsely punctate, granulate only at lateral margins posterior to eyes. Pronotum with small blunt baso-lateral tooth. Elytra with four basal foveae, innermost discal stria no more than one-

third elytral length, second discal stria two-thirds elytral length. Second tergite 0.6× as long as first.

Males with eyes possessing 7–8 facets; tergite IV with narrow transverse sulcus at base, microsetigerous band medially constricted, lateral lobes expanded posteriorly; sternite IV with long setae originating on anterior margin, sternite V with about 8 pits widely dispersed in transverse row, row interrupted at center.

Females with eyes possessing 5–7 facets; tergite IV smoothly convex at base, not impressed.

Male holotype.—Head 0.22 long, 0.29 wide across eyes, left mandible with 5 teeth on inner margin, right with four teeth, none abruptly larger, pronotum 0.32 long, elytra 0.39 long, tergite I 0.22 long, 0.36 wide, tergite II 0.14 long, sternite IV with four long setae on anterior margin.

Specimens examined, 15. HOLOTYPE male: *Oregon:* Lane Co.: H. J. Andrews Experimental Forest, Watershed 10, XI-15-1972, J. Wernz. Holotype mounted on slide. PARATYPES: all from H. J. Andrews Experimental Forest. 2 males, same data as holotype except, II-26-1973 (GLP); 1 female, same data except, X-5-1972; 1 male, 1 female, Road 134, 1750′, I-24-1984, G. Cassis, site 4, 1975 clearcut, *Pseudotsuga* litter; 2 males, 3 females, Road 320, L502, 2000′, II-21-1981, G. Cassis, site 6, 1959 clearcut, *Pseudotsuga* litter (OSUO); 1 female, Road 320, 2000′, II-21-1981, G. Cassis, site 7, old growth, *Pseudotsuga* litter (OSUO); 1 female, Road 1506, III-12-1981, G. Cassis, site 8, 1970 clearcut, litter (OSUO); 1 male, 1 female, Road 1507, 2000′, III-25-1981, G. Cassis, site 10, old growth, *Tsuga* litter.

Biology.—Adults were collected in *Tsuga* and *Pseudotsuga* leaf litter at the lower elevations of the forest. Both old growth and clearcut forests of different ages yielded specimens.

Discussion.—This species has the ratio of length of tergites I/II 1.66, and tergite I with a width/length ratio of 0.62, which is intermediate to the ratios used by Schuster and Grigarick (1960) to separate the genus into two groups. However, presence of the long setae medially at the base of sternite IV clearly places this species into Group A. In Schuster and Grigarick's key to species, *micropthalmus* runs readily to couplet 9. It is separable from the three species of this couplet, and indeed the entire group, by its small size, few facets of the eyes, and in the males by the form of the impression and microsetigerous area of tergite IV. The name was suggested by the small size of the eyes in both sexes.

Literature Cited

Schuster, R. O., and A. A. Grigarick. 1960. A revision of the genus *Oropus* Casey (Coleoptera: Pselaphidae). Pacif. Insects, 2:269–299.