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PSEUDOSCORPIONS OF THE FAMILY CHELIFERIDAE FROM OREGON (PSEUDOSCORPIONIDA, CHELIFEROIDEA)

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Abstract

A new genus, *Aspurochelifer*, and its type, *Aspurochelifer littlefieldi*, new species, are described from California, Idaho, Nevada, Oregon and Washington; the first Oregon state records are reported for *Dactylochelifer silvestris* Hoff, *Hysterochelifer fuscipes* (Banks), *H. proprius* Hoff, and *Parachelifer persimilis* (Banks); and new Oregon records are provided for *P. scabriculus* (Simon), *Chelifer cancroides* (Linnaeus) and *Haplochelifer philipi* (Chamberlin).

INTRODUCTION

Even though cheliferid pseudoscorpions are easily seen and occur almost worldwide, many species and even many genera are poorly characterized and have been reported from only scattered localities within their probable ranges. Of the approximately 40 species from the United States, only about one-half have been described in modern terms (Hoff 1945, 1946b, 1946c, 1949, 1950, 1956, 1964; Chamberlin 1949, 1952; Nelson 1975). Surprisingly, only a total of eight Oregon records (Banks 1895; Hoff 1950; Chamberlin 1952) are reported for the three previously known Oregon species: *Parachelifer scabriculus* (Simon), *Chelifer cancroides* (Linnaeus) and *Haplochelifer philipi* (Chamberlin). Yet, many cheliferid specimens from Oregon have accumulated through the years in the Benedict, Chamberlin, Malcolm, Muchmore, and Schuster Collections. In our attempt to determine these specimens to species, more than 500 specimens, including type series and specimens from other states, have been examined. The present paper provides descriptions of a new cheliferid genus and a new species; the first Oregon records for *Dactylochelifer silvestris* Hoff, *Hysterochelifer fuscipes* (Banks), *H. proprius* Hoff and

Parachelifer persimilis (Banks); and additional Oregon records for the three species previously known from Oregon. The resulting comparative morphological studies of the western North American species of *Hysterochelifer* Chamberlin and *Parachelifer* Chamberlin are being published separately.

A number of works, in addition to those cited above, contain major contributions to the present, though incomplete, knowledge of cheliferids. Chamberlin (1931) provided numerous illustrations in his comparative morphological monograph of the order; Beier (1932), the early synonymy of the family and a descriptive key to approximately 125 species of the world; Beier (1963), a descriptive key to nearly 20 European species; and Hoff (1958), a list of 26 cheliferid species from the United States and Canada and a highly useful key to tribes and genera. Oregon species of the family may be identified by the following key:

1. Coxal sacs absent in male; cribriform plates of female paired and as large in diameter as the diameter of the anterior tracheal trunks . . . . . *Haplochelifer philipi*
   Coxal sacs present in male; female with median cribriform plate single, or paired with diameter much smaller than diameter of anterior tracheal trunks 2

2. Coxal sacs of male with a well-defined atrium; female with a single median cribriform plate . . . . . *Dactylochelifer silvestris*
   Coxal sacs of male without an atrium; female with paired median cribriform plates; tribe Cheliferini (*the following couplets are based on males only*) 3

3. Males with tarsal claws of leg IV bearing an accessory tooth 4
   Males with tarsal claws of leg IV simple, not toothed 6

4. Cheliceral hand lacking seta *sb* . . . . . *Chelifer cancroides*
   Cheliceral hand with seta *sb* present (genus *Parachelifer*) 5

5. Chela (exclusive of pedicel) less than 1.65 mm in length; movable finger shorter than hand . . . . . *P. scabriculus*
   Chela (exclusive of pedicel) 1.7 mm or more in length; movable finger longer than hand . . . . . *P. persimilis*

6. Male with a well-developed antero-lateral process (spur) on margin of coxa IV; well-developed spurs present on at least tergites I to III (genus *Hysterochelifer*) . . 7
   Male without an antero-lateral process; spurs absent on tergites, although lateral margin of tergite may appear very heavily sclerotized and darkly pigmented . . . . . *Aspurochelifer littlefieldi*

7. Tarsus of leg I with 2-3 very enlarged setiferous tubercles at proximal end of a *deep* sinus; chela length (exclusive of pedicel) 1.10-1.50 mm; femur length 0.75-1.07 mm; chelal hand in lateral view slender, length/breadth ratio 4.0-4.7 . . *H. proprius*
   Tarsus of leg I without enlarged setiferous tubercles, sinus shallow; chela length (exclusive of pedicel) 0.95-1.15 mm; femur length 0.65-0.76 mm; chelal hand in lateral view stout, length/breadth ratio 2.6-3.4 . . . . . *H. fuscipes*

Tribe Cheliferini Chamberlin

The tribe Cheliferini (subfamily Cheliferinae Simon) has been well characterized by Hoff (1946a, 1956, 1958, 1964) and is represented in Oregon by five genera, including the one described below.

Aspurochelifer, new genus

Etymology.–The generic name refers to the absence of spurs on the tergites, carapace and coxae IV.

Diagnosis.–Of typical cheliferine facies; eyes present; cheliceral hand with 5 setae; tarsus of leg IV with simple, undivided claws and with dentate subterminal setae; claws of leg I of male asymmetrical with posterior claw dentate; movable finger of chela with 4 setae; fixed finger with normal number of setae, IT closer to ET than to EST; carapacial and tergal spurs absent; median cribriform plates of female paired, with diameter smaller than diameter of anterior tracheal trunks; males with coxal sacs and prominent apical spur on tarsi I, antero- lateral process (spur or minute tooth) on coxae IV absent.

Type species.–*Aspurochelifer littlefieldi*, new species.

Remarks.–Specimens of *Aspurochelifer* will key to *Hysterochelifer* in Beier (1932, 1963), but not in Chamberlin (1932) or Hoff (1946a, 1958). Although the new genus is closely related to *Hysterochelifer* as well as to *Phorochelifer* Hoff (1956), it differs from both in the arrangement of the chelal chaetotaxy and in the degree of expression of male sexual dimorphism. Seta IT of the fixed finger of the chela is midway between ET and EST in *Hysterochelifer*, somewhat closer to ET than to EST in *Aspurochelifer* and somewhat closer to EST than to ET in *Phorochelifer*. Males of *Aspurochelifer* lack lateral spurs on the tergites and carapace, while males of *Hysterochelifer* and *Phorochelifer* bear such spurs. Males of *Aspurochelifer* lack any type of antero-lateral process on coxa IV, while males of *Hysterochelifer*, on the other hand, bear a prominent, well-developed lateral spur, and those of *Phorochelifer* exhibit a minute tooth-like process in the same position as the coxal spur (Hoff 1956:20).

Unless one has examined cheliferid males with well-developed lateral spurs on the tergites and on the posterior disc of the carapace (e. g., specimens of the genera *Chelifer*, *Hysterochelifer*, *Parachelifer* or *Phorochelifer*), it may be difficult to decide if spurs are present or absent. A lateral spur (Chamberlin 1923), also referred to as "spine" (Banks 1909), "crest" (Chamberlin 1932, 1934, 1952) or "keel" (Hoff 1946a, 1956, 1964), is a posteriorly and dorsally protruding process located just dorsal to the edge of the lateral margin of the tergite or carapace. These spurs bear one to three small setae. Although this process is absent in *Aspurochelifer*, one or two setae are borne on the heavily sclerotized lateral margin of the tergite in a comparable position to the spur.

At present, only the type species from the western United States is assignable to this new genus, although the Chamberlin Collection contains two males from North Carolina which represent a second slightly larger undescribed species.

Aspurochelifer littlefieldi, new species
Figures 1-4

Type records.–*Oregon;* Jackson Co., Pinehurst, 9 September 1935 (R. V. Chamberlin and W. Ivie), 3 males (holotype AMNH, 2 paratypes JCC), 10 mi. E, 6 mi N of Gold Hill,

leaf litter of *Fraxinus latifolia* Benth., 14 September 1973 (E. M. Benedict), 2 males (paratypes EMB); Harney Co., 2 mi E of Frenchglen (1280 m), leaf litter of *Alnus tenuifolia* Nutt., 19 March 1972 (E. M. Benedict), 1 male (paratype EMB), 11 July 1972 (E. M. Benedict), 2 males, 3 females (paratypes EMB); Josephine Co., 1 mi S, 0.5 mi W of O'Brien, leaf litter of *Fraxinus latifolia,* 18 December 1971 (E. M. Benedict), 2 females (paratypes EMB).

Etymology.—The specific name is a patronym in honor of Carrol D. Littlefield of the Ecological Services of the United States Fish and Wildlife Service, Burns, Oregon.

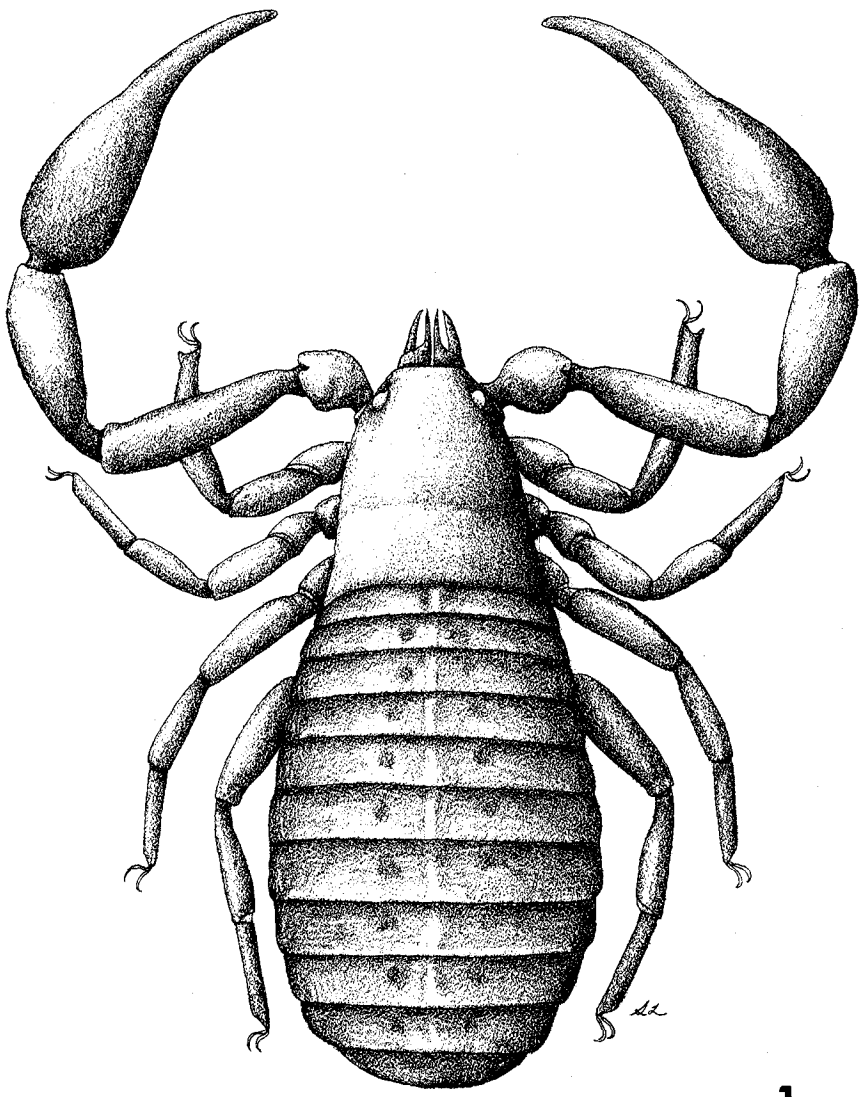


Fig. 1.—*Aspurochelifer littlefieldi*, new species: 1, dorsal view of male.

Distribution.–Reported from California, Idaho, Nevada, Oregon and Washington.

Diagnosis.–Based on adults. Body length of male 2.07-2.75 mm, of female 2.46-2.82 mm; palpal femur length of male 0.68-0.78 mm, of female 0.71-0.78 mm; pedipalps relatively stout, fingers slightly longer than the relatively broad hand; male with an exceedingly shallow sinus on tarsus I.

Description.–Measurements in Table 1, morphometric ratios in Table 2. Derm generally coarsely granulate to grano-reticulate; setae clavate, except as noted.

Carapace (Fig. 1): subtriangular, slightly longer than greatest breadth; median and posterior furrows deeply impressed; median disc not impressed medially; posterior disc tergiform, medial area faintly impressed with derm slightly smoother but still as heavily sclerotized and pigmented as other areas; only a few moderately sized setiferous tubercles, especially laterally on ocular disc; holotypic chaetotaxy 4-8(60±); one pair of well-developed corneate eyes about one ocular diameter from anterior margin.

Coxal area: each coxa IV with a well-developed coxal sac; setal number inconstant between coxal pairs, holotypic chaetotaxy approximately 3-m-13:7:10:37:50.

Abdomen (Fig. 1): somewhat oblong; pleural membrane roughly striate; scuta of tergites I to X more or less divided by narrow, deeply impressed and heavily sclerotized granulate intratergal membranes; lateral margins of tergites I to III heavily sclerotized but lacking spurs; derm of anterior sternites somewhat smoothly reticulate, becoming more granular posteriorly; sternal scuta IV to X completely divided, XI partially divided; abdominal setae uniseriate except for 1 or 2 setae along lateral margin of tergite; setae mostly simple except bifurcate or monodentate aroung genital opening, holotypic chaetotaxy of tergites 11:12:11:10:14:11:12:12:13:11:9:2, of sternites 75±:[0-0]:(0)4-4/19(0):(1)9(1):11:10?:9:9:10:8:11:2; sexual structures of cheliferine facies, ramshorn organ normal, sclerotic rod of statumen convolutum not extending beyond anterior invagination. Female genitalia typical.

Chelicera: galea long, with a total of 6 terminal and subterminal rami; lamina exterior a broad marginal band; serrula exterior with 15 to 17 blades; serrula interior with 3 dentate lobes distal to basal velum; flagellum of 3 setae, anterior seta with 6 to 7 spinules (may appear simple in certain orientations); hand with 5 acuminate setae; apical tooth of fixed finger with 3 microdenticles along inner margin, succeeded by 3 to 5 retrorse marginal teeth; apical tooth of movable finger weakly bifid terminally, subapical lobe well- developed and conical.

Pedipalp (Figs. 1-2): robust; trochanter with a moderately developed, lateral-dorsal protuberance bearing a moderately large setiferous tubercle. Chelal chaetotaxy and dentition as illustrated in Figs. 2-3; fixed finger with 42-47 and movable finger with 40-50 marginal teeth.

Legs (Fig. 1): relatively stout; derm grano-reticulate to reticulate; tarsus I (Fig. 4) not markedly swollen along extensor margin proximal to shallow sinus; claws of leg I asymmetrical, anterior one of normal appearance, posterior one modified with a slender tooth (Fig. 4).

Remarks.–The bifurcate nature of the setae surrounding the male genital opening is often destroyed by KOH treatment (e.g., in the holotype). These delicate branches are not destroyed on specimens mounted in Hoyer's medium (e.g., EMB paratypes).

Habitat.–Known only from leaf litter of thinleaf alder and Oregon ash.

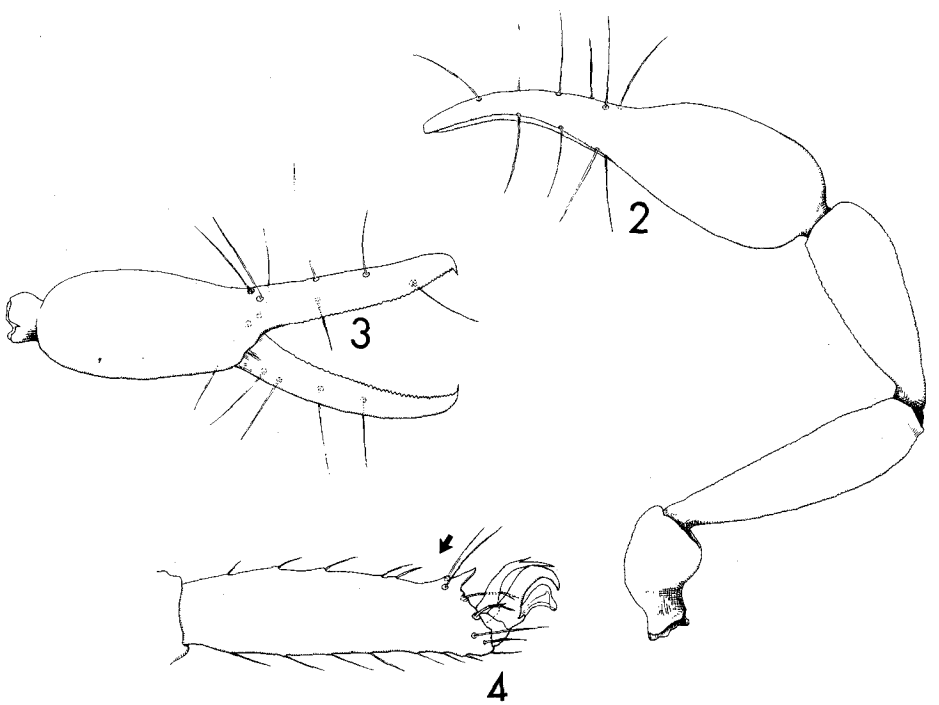
Other specimens examined.–California; Bray, 8 September 1935 (W. Ivie and R. V. Chamberlin), 1 male (JCC); *Marin Co.*, Bolinas, 24 March 1960 (R. O. Schuster), 1 male, 1 female, 3 nymphs (ROS), 7 April 1960 (R. O. Schuster), 3 nymphs (ROS); *Mendocino Co.*, Ukiah, 12 July 1937 (R. V. Chamberlin), 1 male (JCC); *Orange Co.*, 2 mi N of Laguna, 13 June 1960 (H. H. McKenzie), 1 male, 3

females, 3 nymphs (ROS); *Sierra Co.*, 3 mi S Sierraville, September 1961 (W. Ivie and W. J. Gertsch), 8 males, 5 females (ROS); *Siskiyou Co.*, Weed, 8 September 1933 (R. V. Chamberlin and W. Ivie), 1 male (JCC); *Solano Co.*, Suisun, October 1955 (K. H. Haller), 1 male (CCH): *Idaho; Idaho Co.*, Kooskia, Clearwater Creek, 23 August 1940 (W. Ivie), 1 male (JCC): *Nevada; Washoe Co.*, Verdi, 11 July 1937 (R. V. Chamberlin), 1 male (JCC): *Washington; Yakima Co.*, White Swan, 16 April 1933 (C. W. Getzendaner), 1 male (JCC), 21 May 1933 (J. Wilcox), 1 male (JCC).

Chelifer cancroides (Linnaeus)

Early references to this widely distributed and well-known species can be traced through the annotated synonymy of Beier (1932); more recent references are given by Nelson(1975). Chamberlin (1932) and Hoff(1956) have characterized this monotypic genus in modern terms. Keys by Hoff (1958, 1959) are especially useful for separating this species from other closely related forms which inhabit Oregon.

Even though *C. cancroides* was collected in Oregon, at least as early as 1921, surprisingly, the only published records to date are two, one each from Jackson and Tillamook Counties (Hoff 1950). Therefore, to document its wide distribution throughout the state, one record per county and/or records with habitat data are given below.



Figs. 2-4.–*Aspurochelifer littlefieldi*, new species: 2, dorsal aspect of pedipalp of paratype male; 3, internal aspect of chela of paratype male; 4, lateral aspect of tarsus I of holotype male (note very shallow sinus, at arrow).

Table 1.–Measurements (in mm) of *Aspurochelifer littlefieldi*, new species from California, Idaho, Nevada, Oregon and Washington (Abbreviations: B=breadth; D=depth; L=length).

	♂♂	♀♀
Body L	2.07-2.75	2.46-2.82
Abdominal B	0.96-1.08	1.13-1.18
Carapace L	0.69-0.76	0.80-0.86
Ocular B	0.37-0.41	0.43-0.44
Posterior B	0.73-0.82	0.83-0.84
Eye diameter	0.07-0.10	0.07-0.10
Chelicera L/B	0.20-0.28/0.12-0.16	0.23-0.26/0.13-0.14
Pedipalp		
Trochanter L/B	0.35-0.37/0.19-0.22	0.37-0.38/0.22-0.23
Femur L/B	0.68-0.78/0.17-0.19	0.71-0.78/0.20-0.21
Tibia L/B	0.63-0.17/0.20-0.22	0.66-0.74/0.24-0.25
Chela L/B	1.11-1.26/0.31-0.34	1.18-1.31/0.35-0.36
Chela D	0.28-0.32	0.34-0.35
Movable finger L/Hand L	0.51-0.64/0.56-0.68	0.60-0.70/0.59-0.62
Leg I		
Entire femur L/D	0.44-0.48/0.12-0.15	0.47-0.51/0.13-0.15
Tibia L/D	0.30-0.33/0.09-0.11	0.32-0.33/0.08-0.10
Tarsus L/D	0.30-0.33/0.08-0.09	0.34-0.35/0.06-0.07
Leg IV		
Entire femur L/D	0.57-0.63/0.17-0.19	0.65-0.70/0.19-0.21
Tibia L/D	0.42-0.48/0.10-0.11	0.48-0.51/0.11-0.13
Tarsus L/D	0.37-0.41/0.07-0.08	0.41-0.43/0.08-0.09

New records.–Oregon; Baker Co., 10 mi W of Baker, 7 August 1963 (J. S. Buckett), 1 male (ROS); *Benton Co.*, Corvallis, on human in bathroom, 26 May 1935 (N. Larson and Wheeler), 1 male, 1 female (JCC), Corvallis, soapdish in bathroom, 20 March 1937 (D. Edwards), 1 female (JCC), Corvallis, college building, 14 June 1937 (V. Shattuck), 1 male (JCC), Corvallis, house, 20 April 1940 (E. Crumb), 2 females (JCC), 0.5 mi NW of Glenbrook, *Neotoma* sp. debris in old shed, 4 December 1971 (E. M. Benedict), 2 nymphs (EMB); *Clackamas Co.*, Wilsonville, house, May 1938 (G. Danforth), 1 male, 1 female (JCC); *Coos Co.*, Bayview, in old book, 5 November 1938 (J. Briggs), 1 female (JCC); *Harney Co.*, 32 mi SE of Burns, bathtub, July 1972 (C. Gniewosz), 1 female (EMB), 32 mi SE of Burns, hay-dung in barn, 9 July 1972 (E. M. Benedict), 2 nymphs (EMB), 1 mi E of Frenchglen, hay-dung in barn, 12 May 1972 (E. M. Benedict), 1 male, 8 nymphs (EMB), 1 mi E of Frenchglen, hay-dung in barn, 11 July 1972 (E. M. Benedict), 4 nymphs (EMB); *Jackson Co.*, Medford, 7 July 1935 (L. G. Gentner), 1 female (JCC); *Klamath Co.*, Merrill, 15 April 1962 (J. D. Vestres), 1 male (DRM); *Lane Co.*, 2.5 mi N of Cheshire, hay, mouse and barn swallow nests in old sheep shed, 4 December 1971 (E. M. Benedict), 5 males, 4 females, 5 nymphs (EMB); *Marion Co.*, Salem, dead peach limb, 15 September 1945 (J. Schuh), 1 male (JCC); *Multnomah Co.*, Gresham, bed, 10 June 1944 (J. Schuh), 1 female (JCC), Portland, Oregon Museum of Science and Industry, hay-dung from cow exhibit, May 1975 (G. Mills), 3 males, 1 nymph (EMB), Portland, bathtub, May 1976 (R. Pope), 1 male (EMB); *Wasco Co.*, The Dalles, house, 23 May 1939 (D. C. Mote), 1 female (JCC); *Washington Co.*, Forest Grove, October 1921 (no. coll.), 2 males, 2 females (JCC), Forest Grove, under old shingles of garage roof, September 1942 (J. C. Chamberlin), 1 male (JCC), 0.2 mi E of Sherwood, hay-dung in barn, 1 January 1972 (E. M. Benedict), 1 male, 1 female, 13 nymphs (EMB); *Yamhill Co.*, McMinnville, grass clippings, August 1941 (K. Fender), 1 male (JCC), 2 mi S of Carlton, hay-dung in barn, 1 January 1972 (E. M. Benedict), 1 specimen (EMB).

Haplochelifer philipi (Chamberlin)

Chamberlin erected the genus *Haplochelifer* in 1932 and designated *Chelifer philipi* Chamberlin, initially described in 1923 from California, as type species. He later (1952)

Table 2.–Morphometric ratios of *Aspurochelifer littlefieldi*, new species from California, Idaho, Nevada, Oregon and Washington (Abbreviations: B=breadth; D=depth; L=length).

	♂♂	♀♀
Pedipalp		
Femur L/B	3.7-4.2	3.5-3.8
Tibia L/B	2.9-3.2	2.7-2.9
Chela L/B	3.4-3.8	3.2-3.6
Chela L/D	3.9-4.2	3.5-3.7
Movable Finger L/Hand L	1.0-1.1	1.0-1.1
Hand L/B	1.7-2.0	1.6-1.7
Leg I		
Entire femur L/D	3.1-3.7	3.4-3.6
Tibia L/D	3.0-3.6	3.4-3.7
Tarsus L/D	3.4-4.1	4.8-5.1
Leg IV		
Entire L/D	3.1-3.5	3.5-3.6
Tibia L/D	4.1-4.5	4.0-4.2
Tarsus L/D	4.8-5.3	4.7-4.8

redescribed this monotypic genus and its type species in great detail; Hoff (1956) briefly characterized the genus and included it in his valuable key of 1958.

The species has been reported from a number of widely scattered localities in the western United States (Chamberlin 1923, 1952; Hoff 1956, 1961). Chamberlin (1952) gave the first records for Oregon from a total of five localities in Josephine, Jackson, Klamath and Malheur Counties. The new specimens from 25 localities in these and five additional counties are as variable in size as those described earlier by Chamberlin.

Specimens examined.–California; Santa Clara Co., Palo Alto, Stanford University, 29 March 1921 (J. C. Chamberlin), 1 male (holotype JCC), 1 female (allotype JCC): *Oregon; Baker Co.*, 7 mi N, 8 mi E of Halfway (915 m), leaf litter of *Pinus ponderosa* Dougl. ex Loud., 17 September 1975 (E. M. Benedict), 1 male (EMB); *Benton Co.*, Corvallis, under rock, 15 June 1898 (no coll.), 1 female (BMUW); *Deschutes Co.*, 4.5 mi N, 3 mi W of Sisters (975 m), leaf litter of *P. ponderosa*, 22 March 1972 (E. M. Benedict), 1 male, 3 females, 2 nymphs (EMB), 11 mi SE of Bend (1070 m), leaf litter of *Juniperus occidentalis* Hook., 11 May 1972 (E. M. Benedict), 2 females, 1 nymph (EMB), 5 mi S, 1 mi E of Bend, leaf litter of *P. ponderosa*, 20 May 1972 (E. M. Benedict), 2 males, 2 females, 8 nymphs (EMB), leaf litter of *Arctostaphylos patula* Greene, 20 May 1972 (E. M. Benedict), 1 male, 1 female (EMB), 1 mi N of Bend, leaf litter of *P. ponderosa*, 1 October 1972 (E. M. Benedict), 2 males, 3 females, 1 nymph (EMB), leaf litter of *J. occidentalis*, 1 October 1972 (E. M. Benedict), 1 male, 1 female (EMB); *Douglas Co.*, 3 mi SE of Tiller (425 m), leaf litter of *P. ponderosa*, 6 November 1971 (E. M. Benedict), 2 males (EMB), 15 mi NW of Glide (185 m), leaf litter of *Arbutus menziesii* Pursh, 1 April 1972 (E. M. Benedict), 1 male, 1 female, 5 nymphs (EMB); *Harney Co.*, 11 mi SE of Riley (1340 m), leaf litter of *J. occidentalis*, 15 May 1972 (E. M. Benedict), 1 female (EMB), 13 mi S, 6 mi W of Princeton (1280 m), leaf litter of *J. occidentalis*, 14 July 1972 (E. M. Benedict) 1 male, 1 female, 1 nymph (EMB), 2 mi E of Frenchglen (1280 m), on top of rock under *J. occidentalis*, 15 May 1970 (C. D. Littlefield), 1 female (DRM), leaf litter of *J. occidentalis*, 11 July 1972 (E. M. Benedict), 1 male, 2 nymphs (EMB), leaf litter of *J. occidentalis*, 26 January 1974 (E. M. Benedict), 1 male, 1 female (EMB), leaf litter of *Prunus virginiana* L., 26 January 1974 (E. M. Benedict), 2 males, 6 females, 9 nymphs (EMB), Alvord Basin, Fifteen Cent Lake (1280 m), under rock about 10 m above shore, 27 April 1974 (L. Russell), 1 female

(EMB); *Jackson Co.*, 1 mi S of Ruch (520 m), leaf litter of *Quercus garryana* Dougl., 13 November 1971 (E. M. Benedict), 3 males, 2 females, 3 nymphs (EMB), 7 mi E, 3 mi N of Ashland (1070 m), under board, 23 March 1962 (J. Schuh and J. D. Vestres), 1 male (DRM), leaf litter of *Q. garryana*, 27 December 1971 (E. M. Benedict), 1 female (EMB), 2 mi N, 6 mi E of Ashland (975 m), leaf litter of *P. ponderosa*, 27 December 1971 (E. M. Benedict), 2 females (EMB), 10 mi E, 6 mi N of Gold Hill (395 m), leaf litter of *Q. garryana*, 22 January 1972 (E. M. Benedict), 3 females, 2 nymphs (EMB), 4 mi E of Eagle Point (425 m), leaf litter of *Q. kelloggii* Newberry, 22 January 1972 (E. M. Benedict), 1 female, 2 nymphs (EMB), 10 mi NW of Central Point (365 m), leaf litter of *Arctostaphylos* sp., 22 January 1972 (E. M. Benedict), 2 females, 1 nymph (EMB), 4 mi S, 11 mi E of Ashland (1465 m), leaf litter of *Quercus* sp., 15 October 1972 (E. M. Benedict), 2 females, 3 nymphs (EMB); *Josephine Co.*, 0.3 mi E of O'Brien (425 m), leaf litter of *Arctostaphylos* sp., 18 December 1971 (E. M. Benedict), 1 female, 3 nymphs (EMB), 0.5 mi E, 5.5 mi N of Galice (245 m), *Quercus chrysolepis* Liebm., 8 April 1972 (E. M. Benedict), 1 male, 1 nymph (EMB), 10 mi W of Selma (365 m), leaf litter of *Quercus garryana* 9 August 1973 (E. M. Benedict), 5 males, 1 female, 2 nymphs (EMB); *Klamath Co.*, Wocos, under board, 27 April 1971 (J. Schuh), 4 males, 1 female (DRM), Upper Klamath Lake, Algoma, ground litter, 17 April 1962 (J. Schuh), 2 males (DRM), Bly Mountain, 1 April 1962 (J. Schuh), 4 males (DRM).

Hysterochelifer fuscipes (Banks)

Our comprehensive study of the western North American species of *Hysterochelifer* Chamberlin reveals that Oregon specimens are assignable to two species, *H. fuscipes* and *H. proprius*, neither reported previously from Oregon. Chamberlin (1932) established the genus *Hysterochelifer* with *Chelifer fuscipes* Banks (1909) from California as type species. Even though there have been a number of references to this species (Banks 1909; Moles 1914; Chamberlin 1923, 1932; Beier 1932; Hoff 1958), it is very incompletely described, a deficiency which will be corrected in our revision of the western species of the genus, to be reported later.

Although both Moles and Chamberlin apparently examined new material from California, they did not list specimens. Therefore, it appears that the only prior published specimen record of this species is that of the type collection from Claremont, California (Banks 1909). Obviously, the three records below constitute the first records for Oregon.

Specimens examined.–California; Los Angeles Co., Claremont, prior to 1909 (Baker), 2 males (syntypes MCZ): *Oregon; Benton Co.*, Corvallis, in sweeping, 7 May 1936 (N. Larson), 1 female (JCC), Corvallis, from freshly felled *Abies grandis* (Dougl.) Lindl. log, 21 July 1961 (R. G. Mitchell), 1 male, 1 female (DRM), 8 mi S of Corvallis, in moss on silver maple, 15 October 1940 (J. Schuh), 1 female (JCC).

Hysterochelifer proprius Hoff

Hoff (1950) described this species in great detail and later added supplemental details and new records (Hoff 1956, 1958, 1959, 1961). Prior to the present study, *H. proprius* had been considered uncommon (Hoff 1961) as it had been reported only from a total of 11 specimens collected in Arizona, New Mexico, and Colorado. The first records for Oregon are now reported from 22 localities.

Specimens examined.–Arizona; Coconino Co., Flagstaff, 30 April 1936 (no. coll.), 1 male (holotype AMNH), 1 female (allotype AMNH): *Oregon; Benton Co.*, bark of *P. ponderosa*, 18 January 1939 (J. D. Vestres), 1 female (JCC); *Crook Co.*, near Prineville, *P. ponderosa* with *Dendroctonus brevicornis* Le Conte, no date (W. J. Buckhorn), 1 male (JCC); *Deschutes Co.*, 1 mi N of Bend, bark of *P. ponderosa*, 1 October 1972 (E. M. Benedict), 1 male, 1 nymph (EMB); *Grant Co.*, 3.9 mi E. of Dayville, bark of *Juniperus occidentalis*, 9 April 1937 (J. C. Chamberlin), 1 male, 1 female (JCC); *Harney Co.*, Cougar Creek, 17 October 1968 (J. Schuh), 1 female (DRM), 2 mi E of Frenchglen (1280 m), surface of rock under *J. occidentalis* tree, 15 May 1970 (C. D. Littlefield), 1 female (DRM), *J. occidentalis* bark, 18 March 1973 (E. M. Benedict), 1 male (EMB), 26 January 1974 (E. M. Benedict),

1 male (EMB), 11 mi E of Riley, bark of *J. occidentalis* tree, 15 May 1972 (E. M. Benedict), 8 nymphs (EMB), Diamond Craters, bark of *J. occidentalis* tree, 14 July 1972 (E. M. Benedict), 3 males, 5 nymphs (EMB), 16 mi N of Burns, bark of *P. ponderosa* tree, 17 July 1972 (E. M. Benedict), 1 male (EMB); *Hood River Co.*, Hood River, no date (R. V. Chamberlin), 1 female (JCC); *Jefferson Co.*, 4 mi E of Redmond, beating *Betula* sp., 28 May 1948 (J. Beer and V. Roth), 1 female (JCC); *Klamath Co.*, near Klamath Falls, *J. occidentalis* bark, no date (J. C. Chamberlin), 3 males, 2 females (DRM), Klamath Falls, Geary Ranch, beating *Pinus* sp., 28 April 1955 (J. Schuh), 7 males, 1 female, 1 nymph (DRM), Klamath Falls, 12 September 1956 (J. Schuh), 1 male, 1 female (WBM), Malone Springs, 12 June 1962 (J. D. Vestres), 2 females (DRM), 7.4 mi E of Dairy, bark of *J. occidentalis*, 7 April 1937 (J. C. Chamberlin), 1 male, 1 female (JCC), Keno, bark of *J. occidentalis*, 7 April 1937 (J. C. Chamberlin), 2 males, 2 females, 4 nymphs (JCC); *Lake Co.*, 5 mi N of Silver Lake, bark of *J. occidentalis*, 8 April 1937 (J. C. Chamberlin), 1 male, 1 female (JCC); *Wasco Co.*, 1 mi S, 13 mi W of Simnasho, bark of *P. ponderosa*, 4 September 1938 (R. L. Prentiss, J. C. Chamberlin), 2 males, 1 female (JCC), 8 mi E, 3 mi N of Pine Grove, bark of *J. occidentalis* tree, 27 February 1974 (E. M. Benedict), 1 male (EMB).

Parachelifer scabriculus (Simon)

Chamberlin (1932) erected the genus *Parachelifer* and designated *Chelifer scabriculus* Simon (1878) from California as type species. In 1952, Chamberlin revised the generic diagnosis and clearly separated *Parachelifer* from the closely related genus *Chelifer*; Hoff (1956, 1964) also briefly characterized it. Of the approximately 15 species assigned to the genus (Hoff 1964), many are still inadequately defined by modern standards. This is true of most of the western North American species despite the comparative study of three species, including *P. scabriculus*, by Gering (1948).

Banks (1895) has reported the only record to date of *P. scabriculus* from Oregon based on a single specimen collected at Hood River (without habitat data). Chamberlin (1952) published a redescription of *P. scabriculus* based, not upon type specimens, but on a number of specimens collected at various sites in California. The three Oregon specimens, listed below, are clearly conspecific with a male and female from Santa Clara, California, from the Chamberlin series. Even though *P. scabriculus* was redescribed in detail, it is difficult to separate from other closely related species which lack modern descriptions. Thus, any identification of Oregon specimens should be regarded as tentative. As the species are now defined, Oregon specimens are separable by Hoff's (1958, 1959) keys into *P. scabriculus* and *P. persimilis*. Further study may reveal that the Oregon specimens actually belong to a single highly variable species instead of the two species to which they are currently assigned.

Specimens examined.—California; Santa Clara Co., Stanford University, 19 December 1921 (L. Kiler and E. Sette), 1 male, 1 female (JCC-168): *Oregon; Jackson Co.*, 3 mi S, 11 mi E of Prospect (1160 m), bark of *Pinus lambertiana* Dougl., 22 August 1972 (E. M. Benedict), 1 male (EMB); *Josephine Co.*, 0.5 mi E, 5.5 mi N of Galice, (152 m), bark from snag of *Pseudotsuga menziesii* (Mirb.) France, 8 April 1972 (E. M. Benedict), 1 male (EMB); *Lane Co.*, 20 mi S, 14 mi E of Oakridge (1525 m), bark of *P. menziesii*, 16 August 1973 (E. M. Benedict), 1 female (EMB).

Parachelifer persimilis (Banks)

As implied above, this 1909 species of Banks lacks a modern description despite the many references to it in the literature (Banks 1909; Chamberlin 1923, 1932; Hoff 1950, 1956, 1959, 1961, 1963). The records below are the first for Oregon.

Specimens examined.–New Mexico; San Miguel Co., Pecos, prior to 1909 (N. Banks), 7 syntypes (MCZ): *Oregon*; Crater Lake National Park, Sleepy Hollow, phoretic on cerambycid beetles (*Ortholeptura valida* Le Conte), 8 August 1960 (D. H. Huntzinger), 1 male (DRM), 10 August 1960 (D. H. Huntzinger), 1 female (DRM), 17 August 1960 (D. H. Huntzinger), 1 female (DRM); *Clatsop Co.*, 2 mi E of Elsie, phoretic on cerambycid, 31 August 1963 (coll. unknown), 1 male (DRM); *Deschutes Co.*, Camp Abbott, 7 May 1944 (P. H. Arnaud), 7 males, 3 females (ROS), 1 mi N of Bend (1065 m), bark of *Pinus ponderosa*, 1 October 1972 (E. M. Benedict), 1 male, 1 nymph (EMB); *Harney Co.*, 16 mi N of Burns (1550 m), bark of *P. ponderosa*, 17 July 1972 (E. M. Benedict), 1 male (EMB); *Klamath Co.*, Klamath Falls, under bark, 2 May 1953 (J. Schuh), 2 males, 4 females (DRM), 8 May 1953 (J. Schuh), 1 male, 1 female (DRM), 21 February 1955 (J. Schuh), 6 males, 2 females (DRM), Upper Klamath Lake, under bark, 17 May 1955 (J. Schuh), 3 males, 2 females, 3 nymphs (DRM), 22 May 1955 (J. Schuh), 1 female (DRM); *Lake Co.*, Hart Mt., Blue Sky, bark of *P. ponderosa*, 9 July 1976 (K. P. Shea), 1 male (EMB), phoretic on a cerambycid beetle (*Brachyleptura canadensis* Kirby), 26 July 1977 (T. H. Pogson), 1 male, 1 female (EMB); *Wheeler Co.*, 9 mi S of Fossil, bark from "slab" of *P. ponderosa*, 18 May 1963 (J. H. Wirtz), 1 female (DRM).

Tribe Dactylocheliferini Beier

The tribe Dactylocheliferini (subfamily Cheliferinae) has been well characterized by Hoff (1956, 1958) and is represented in Oregon by one genus.

Dactylochelifer silvestris Hoff

Beier (1932) established the genus and designated *Chelifer latreillei* Leach from Europe as the type species. Hoff (1956, 1964) briefly characterized the genus in English and included it in his key of 1958. Of the approximately 25 now known species, only two, *Dactylochelifer copiosus* Hoff and *D. silvestris* Hoff, have been reported from the United States. The western species, *D. silvestris*, was described in reasonable detail by Hoff (1956, 1961) and reported from several widely scattered localities in New Mexico (Hoff 1956), Colorado (Hoff 1961), Utah (Knowlton 1972) and now is reported for the first time from Oregon. Oregon specimens appear to be very similar to those reported by Hoff except for the very slightly larger pedipalps. The palpal ratios, however, are consistent with those given by Hoff (1961); hence, the species can easily be separated from *D. copiosus*.

Specimens examined.–Oregon; Deschutes Co., 5 mi S, 1 mi E of Bend, leaf litter of *Arctostaphylos patula*, 20 May 1972 (E. M. Benedict), 1 male (EMB), 9 mi S, 7 mi E of Bend, leaf litter of *Pinus ponderosa*, 20 May 1972 (E. M. Benedict), 1 female (EMB); *Grant Co.*, Canyon City, 4 January 1934 (J. Schuh), 1 female (JCC); *Harney Co.*, 2 mi E of Frenchglen (1280 m), leaf litter of *Salix* sp., 30 July 1971 (E. M. Benedict), 2 females (DRM), 1 March 1974 (E. M. Benedict), 1 female, 2 nymphs (EMB), 23 mi N of Frenchglen (1280 m), leaf litter of *Artemisia tridentata* Nutt., 31 December 1977 (E. H. Gruber and E. M. Benedict), 3 males, 4 nymphs (EMB).

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