

Revised List of the North American Freshwater Planarians (Platyhelminthes: Tricladida: Paludicola)

ROMAN KENK

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A B S T R A C T

Kenk, Roman. Revised List of the North American Freshwater Planarians (Platyhelminthes: Tricladida: Paludicola). *Smithsonian Contributions to Zoology*, number 476, 10 pages, 1989.—A list of the species and subspecies of freshwater triclads of North America, including the West Indies, is presented, arranged in taxonomical order. For each taxon, the valid name, existing synonyms, known distribution, and pertinent morphological literature are given. An appendix lists the specific and subspecific names in alphabetical order.

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Contents

	<i>Page</i>
Introduction	1
List of Freshwater Triclad	1
Appendix	7
Literature Cited	8

Revised List of the North American Freshwater Planarians (Platyhelminthes: Tricladida: Paludicola)

Roman Kenk

Introduction

In 1972 I published a review of the freshwater planarians of North America north of Mexico, comprising 56 species and subspecies known at that time (Kenk, 1972). In the meantime the study of this animal group has proceeded at a rapid pace. Some of the taxa previously considered to be doubtful have been resolved, and additional species have been discovered and described. The present list does not repeat all the information given in the previous review, but intends to point out the necessary changes and to supply the recent additions to the North American fauna. It also extends the geographic area previously covered to include all the West Indies (Greater and Lesser Antilles) and all continental America north of the Isthmus of Panama.

Similar reviews of the freshwater tricladids have been published recently for other areas of the globe: for Africa by Young (1976) and for Europe by Dahm and Gourbault (1978).

The following data are given for each species in the present list: the accepted name, synonyms when first used in the literature, known area of occurrence, and the principal descriptive literature that is helpful for the identification of the species. Purely distributional, ecological, physiological, or karyological records are omitted. Much of the information in this list is contained also in the first review (Kenk, 1972) and in the Index of Genera and Species of the World (Kenk, 1974). It is repeated here to make the list more useful to students of this group of flatworms.

List of Freshwater Tricladids

Order TRICLADIDA

Suborder PALUDICOLA

Roman Kenk (deceased), Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560.

Family DUGESIIDAE

Genus *Cura* Strand, 1942

1. *Cura foremanii* (Girard, 1852)

- Dugesia foremanii* Girard, 1852
Planaria foremanii.—Stimpson, 1857
Planaria simplissima Curtis, 1900
Planaria simplicissima.—Morgan, 1904
Planaria lugubris.—Morgan, 1901 [not O. Schmidt, 1861]
Curtisia simplicissima.—Graff, 1916
Curtisia foremanii.—Kenk, 1930
Dugesia (Cura) foremanii.—Ball, 1974
? *Planaria gonocephala*.—Pearl, 1903 [not Dugès, 1830]
? *Dugesia modesta* Girard, 1893

Eastern and central North America.

Curtis, 1900:447–462; Stevens, 1904:208–218; Hyman, 1931b:322–323; Kenk, 1935:80–83, 1944:10–13, 1972:19; Anderson and Johann, 1958:375–383; Kawakatsu and Mitchell, 1982.

Genus *Dugesia* Girard, 1850

Subgenus *Girardia* Ball, 1974

2. *Dugesia (G.) tigrina* (Girard, 1850)

- Planaria maculata* Leidy, 1847 [not Fabricius, 1826, not Darwin, 1844]
Planaria tigrina Girard, 1850
Dugesia maculata.—Girard, 1851
Phagocata tigrina.—Diesing, 1862
Planaria lata Sivickis, 1923
Euplanaria maculata.—Kenk, 1930
Euplanaria lata.—Kenk, 1930
Euplanaria novangliae Hyman, 1931
Euplanaria tigrina.—Kenk, 1935
? *Euplanaria microbursalis* Hyman, 1931
? *Dugesia microbursalis*.—Hyman, 1939

United States, southern Canada, Mexico.

Curtis, 1902; Sivickis, 1923:114–119; Hyman, 1939b:266–273; Kenk, 1935:83–87, 1944:13–18, 1972:20–21; Kawakatsu and Mitchell, 1981b.

3. *Dugesia (G.) dorotocephala* (Woodworth, 1897)
Planaria dorotocephala Woodworth, 1897
Planaria agilis Stringer, 1909
Euplanaria dorotocephala.—Kenk, 1930
Euplanaria agilis.—Kenk, 1930
Euplanaria philadelphica Hyman, 1931
Dugesia agilis.—Hyman, 1939
Dugesia diabolis Hyman, 1956
United States, southern Canada, Mexico.
Woodworth, 1897:7–8; Hyman, 1925:51–80, 1929:406–413, 1931c:336–338; Kenk, 1944:18–21, 1972:22; Kawakatsu and Mitchell, 1981d.
4. *Dugesia (G.) arizonensis* Kenk, 1975
Arizona.
Kenk, 1975a.
5. *Dugesia (G.) jenkinsae* Benazzi and Gourbault, 1977
Texas.
Benazzi and Gourbault, 1977.
6. *Dugesia (G.) azteca* Benazzi and Giannini, 1971
Cura azteca Benazzi and Giannini, 1971
Dugesia (Cura) azteca.—Ball, 1974
Mexico.
Benazzi and Giannini, 1971; Kawakatsu and Mitchell, 1984a.
7. *Dugesia (G.) typhlomexicana* Mitchell and Kawakatsu, 1973
Here possibly also *D. barbareae*. Mexico.
Mitchell and Kawakatsu, 1972[1973]:642–646.
8. *Dugesia (G.) barbareae* Mitchell and Kawakatsu, 1973
Possibly identical with *D. typhlomexicana*. Mexico.
Mitchell and Kawakatsu, 1972[1973]:646–649.
9. *Dugesia (G.) guatemalensis* Mitchell and Kawakatsu, 1973
Mexico.
Mitchell and Kawakatsu, 1972[1973]:649–652; Kawakatsu and Mitchell, 1981c.
10. *Dugesia (G.) mckenziei* Mitchell and Kawakatsu, 1973
Mexico.
Mitchell and Kawakatsu, 1973.
11. *Dugesia (G.) festai* (Borelli, 1898)
Planaria festae Borelli, 1898
Dugesia festae.—Hyman, 1939
Dugesia festai.—Marcus, 1946
Widely distributed in South America, but occurs also in Curaçao.
Marcus, 1960:44–50; Kawakatsu and Mitchell, 1984c.
12. *Dugesia (G.) aurita* (Kennel, 1888)
Planaria aurita Kennel, 1888
Species inquirenda. Trinidad.
- Kennel, 1888:464–468; Ball, 1971:9–13.
13. *Dugesia (G.) arimana* Hyman, 1957
Lesser Antilles (Trinidad, Saint Vincent, Santa Lucia).
Hyman, 1957:2–4; Ball, 1971:3–9; Kawakatsu and Mitchell, 1984d.
14. *Dugesia (G.) miltgeni* Gourbault, 1980
Lesser Antilles (Guadeloupe, Dominica, Martinique).
Gourbault, 1980.
15. *Dugesia (G.) antillana* Kenk, 1941
Puerto Rico.
Kenk, 1941; Ball, 1971:9; Codreanu and Balcesco, 1973:77–78.
16. *Dugesia (G.) cubana* Codreanu and Balcesco, 1973
Cuba.
Codreanu and Balcesco, 1973:71–76; Gourbault, 1979.
- Subgenus *Schmidtea* Ball, 1974
17. *Dugesia (S.) polychroa* (Schmidt, 1861)
Dugesia lugubris.—Ball, 1969
This European species has been introduced to the St. Lawrence River system (eastern Canada and northeastern United States).
Ball, 1969; Kenk, 1972:24.
- Family PLANARIIDAE
- Genus *Phagocata* Leidy, 1847
- A detailed classification of this large and polymorphic genus, distributed over the entire northern hemisphere, has not been worked out (see Ball and Reynoldson, 1981:82).
18. *Phagocata velata* (Stringer, 1909)
Planaria velata Stringer, 1909
Fonnicola velata.—Kenk, 1930
Phagocata gracilis monopharyngea Hyman, 1948
Fonnicola gracilis monopharyngea.—Ball, 1969
Phagocata monopharyngea.—Kenk, 1970
Phagocata vernalis Kenk, 1944, in part
Fonnicola vernalis.—Ball, 1969, in part
Eastern and midcentral United States and Canada.
Stringer, 1909:258–259; Castle, 1928; Castle and Hyman, 1934; Kenk, 1944:28–35, 1972:35; Ball et al., 1981:9–15.
19. *Phagocata fawcetti* Ball and Gourbault, 1975
California.
Ball and Gourbault 1975.
20. *Phagocata virilis* Kenk, 1977
Maryland.
Kenk, 1977a:648–650.
21. *Phagocata bulbosa* Kenk, 1970

- North Carolina and Maryland.
Kenk, 1970a:14–19, 1972:36.
22. *Phagocata crenophila* Carpenter, 1969
Utah, California, New Mexico, and Nevada(?).
Carpenter, 1969; Kenk, 1970a:19–23, 1972:39.
23. *Phagocata tahoena* Kawakatsu, 1968
Phagocata nivea tahoena Kawakatsu, 1968
California and Nevada (Lake Tahoe).
Kawakatsu, 1968:6–11, 1973:67–69, 72–74; Kenk, 1970a:23–29, 1972:38.
24. *Phagocata hamptoniae* Kenk, 1982
Nevada.
Kenk, 1982.
25. *Phagocata oregonensis* Hyman, 1963
Fonticola oregonensis.—Ball, 1969
Oregon and Washington.
Hyman, 1963:2–4; Kenk, 1970a:29–31, 1972:32.
26. *Phagocata nivea* Kenk, 1953
Phagocata nivea nivea.—Kawakatsu, 1968
Fonticola nivea nivea.—Ball, 1969
Alaska.
Kenk, 1953:164–168, 1972:42.
27. *Phagocata morgani morgani* (Stevens and Boring, 1906)
Planaria truncata Leidy [not Abildgaard, 1789]
Dendrocoelum truncatum.—Girard, 1893
Fonticola truncata.—Hyman, 1931
Planaria morgani Stevens and Boring, 1906
Fonticola morgani.—Castle and Hyman, 1934
Dendrocoelum superbum Girard, 1850
Galeocephala superba.—Stimpson, 1857
Phagocata cavernicola Hyman, 1954
Fonticola cavernicola.—Ball, 1969
Eastern half of the United States and Canada, also introduced to California.
Stevens and Boring, 1906:7–8; Stringer, 1918:338; Hyman, 1931b:328; Kenk, 1935:92–105, 1944:33–36, 1972:40.
28. *Phagocata morgani polycelis* (Kenk, 1935)
Fonticola morgani polycelis Kenk, 1935
Virginia and Ontario.
Kenk, 1935:103–105, 1972:41.
29. *Phagocata spuria* Kenk, 1987
North Carolina.
Kenk, 1987:669–671.
30. *Phagocata angusta* Kenk, 1977
West Virginia.
Kenk, 1977a:645–648.
31. *Phagocata holleri* Kenk, 1979
North Carolina.
Kenk, 1979a, 1979b:94.
32. *Phagocata carolinensis* Kenk, 1979
North Carolina.
Kenk, 1979b, 1987:671–672.
33. *Phagocata pygmaea* Kenk, 1987
North Carolina.
Kenk, 1987:667–669.
34. *Phagocata procera* Kenk, 1984
North Carolina.
Kenk, 1984:209–213, 1987:667.
35. *Phagocata bursaperforata* Darlington, 1959
Fonticola bursaperforata.—Ball, 1969
Georgia and Alabama.
Darlington 1959:276–284; Kenk, 1972:37.
36. *Phagocata notorchis* Kenk, 1987
Tennessee.
Kenk, 1987:664–667.
37. *Phagocata gracilis* (Haldeman, 1840)
Planaria gracilis Haldeman, 1840
Phagocata gracilis.—Leidy, 1847
Euplanaria gracilis.—Kenk, 1930
Fonticola gracilis.—Castle and Hyman, 1934
Phagocata subterranea Hyman, 1937
Fonticola subterranea.—Ball, 1969
Eastern United States north to Maryland, west to Missouri.
Kenk, 1935:88–92, 1970c:2–10, 1972:43; Hyman, 1937a:302–305.
38. *Phagocata woodworthi* Hyman, 1937
Phagocata gracilis woodworthi Hyman, 1951
Fonticola gracilis woodworthi.—Ball, 1969
Northeastern United States south to Maryland, eastern Canada as far west as Ontario.
Woodworth, 1891 (misidentified as *P. gracilis*); Hyman, 1937a:305–306; Kenk, 1970c:10–14, 1972:44.
39. *Phagocata nordeni* Kenk, 1977
Florida, Louisiana, Mississippi.
Kenk, 1977a:650–652.
- Genus *Hymanella* Castle, 1941
40. *Hymanella retenuova* Castle, 1941
Phagocata vernalis Kenk, 1944, in part
Eastern and midwestern United States and Ontario.
Castle, 1941:85–95; Kenk, 1944:22–28 (as *P. vernalis*), 1972:31; Hyman, 1955:30–32; Ball et al., 1981:3–9.

Genus *Paraplanaria* Ball and Gourbault, 197841. *Paraplanaria dactyligera* (Kenk, 1935)*Planaria dactyligera* Kenk, 1935*Planaria dactyligera dactyligera*.—Kenk, 1969*Planaria dactyligera musculosa* Kenk, 1969

The subspecies *musculosa* shows transitions to the nominate subspecies without geographic differentiation, and should therefore be withdrawn. Eastern United States (Virginia, Maryland, Tennessee, North Carolina, Louisiana).

Kenk, 1935:105–110, 1969:541–549, 1972:28–29; Ball and Gourbault, 1978:31–34.

42. *Paraplanaria occulta* (Kenk, 1969)*Planaria occulta* Kenk, 1969

Virginia.

Kenk, 1969:549–556, 1972:30.

Genus *Polycelis* Ehrenberg, 1831Subgenus *Polycelis* Ehrenberg, 183143. *Polycelis (P.) coronata coronata* (Girard, 1891)*Phagocata coronata* Girard, 1891*Polycelis borealis* Kenk, 1953*Polycelis coronata borealis* Kenk, 1972

The species or subspecies *borealis* is not clearly separated from *P. coronata*, as many transitional forms exist. I therefore combine the two species, retaining the older name *coronata*. Western United States (Wyoming, Utah, Montana, New Mexico, Washington, Oregon, Alaska, Idaho) and Canada (Alberta).

Kenk, 1953:168–173, 1972:25, 27, 1973a:3–8.

44. *Polycelis (P.) coronata monticola* Kenk and Hampton, 1982*Polycelis monticola* Kenk and Hampton, 1982

California and Nevada.

Kenk and Hampton, 1982

45. *Polycelis (P.) coronata brevipenis* Kenk, 1972*Polycelis coronata* Hyman, 1931

South Dakota and Colorado.

Hyman, 1931a:124–131; Kenk, 1952:194–197, 1972:26, 1973a:8–9.

Subgenus *Seidlia* Zabusov, 191146. *Polycelis (S.) sierrensis* Kenk, 1973

California and Nevada.

Kenk, 1973a:9–12.

Family DENDROCOELIDAE

Subfamily KENKIINAE

Genus *Sphalloplana* Beauchamp, 1931Subgenus *Sphalloplana* Beauchamp, 193147. *Sphalloplana (Sph.) percoeca* (Packard, 1879)*Dendrocoelum percoecum* Packard, 1879*Fonticola percoecum*.—Hyman, 1931*Fonticola percaeca*.—Hyman, 1935*Sphalloplana alabamensis* Hyman, 1945

Kentucky, Alabama, Tennessee, and West Virginia.

Beauchamp, 1931:317–330, in part; Hyman, 1937b:467–471, 1951:163; Buchanan, 1936; Kenk, 1972:45, 1977b:3–5.

48. *Sphalloplana (Sph.) georgiana* Hyman, 1954

Somewhat problematic species. Georgia.

Hyman, 1954:566–570; Kenk, 1972:47, 1977b:5–6.

49. *Sphalloplana (Sph.) evaginata* Kenk, 1977

Missouri.

Kenk, 1977b:6–8.

50. *Sphalloplana (Sph.) kansensis* Hyman, 1945

Species not well defined. Kansas.

Hyman, 1945:478–479, 1951:164; Kenk, 1972:49, 1977b:8.

51. *Sphalloplana (Sph.) californica* Kenk, 1977

California.

Kenk, 1977b:8–10.

52. *Sphalloplana (Sph.) culveri* Kenk, 1977

West Virginia.

Kenk, 1977b:10–11.

53. *Sphalloplana (Sph.) consimilis* Kenk, 1977

Virginia and Tennessee.

Kenk, 1977b:11–12.

54. *Sphalloplana (Sph.) subtilis* Kenk, 1977

Virginia (now possibly extinct).

Kenk, 1977b:12–14.

Subgenus *Speophila* Hyman, 193755. *Sphalloplana (Sp.) virginiana* Hyman, 1945

Species inquirenda. Virginia.

Hyman, 1945:477–478; Kenk, 1972:48, 1977b:14.

56. *Sphalloplana (Sp.) holsingeri* Kenk, 1977

Virginia (now possibly extinct).

Kenk, 1977b:15–17.

57. *Sphalloplana* (*Sp.*) *weingartneri* Kenk, 1970
 Indiana.
 Kenk, 1970b:314–319, 1972:54, 1977b:17.
58. *Sphalloplana* (*Sp.*) *buchananii* (Hyman, 1937)
Speophila buchanani Hyman, 1937
 Kentucky.
 Hyman, 1937b:468–469; Kenk, 1972:51, 1977b:17–18.
59. *Sphalloplana* (*Sp.*) *pricei* (Hyman, 1937)
Speophila pricei Hyman, 1937
 Pennsylvania.
 Hyman, 1937b:462–466; Kenk, 1972:50, 1977b:18–19.
60. *Sphalloplana* (*Sp.*) *hubrichti* (Hyman, 1945)
Speophila hubrichti Hyman, 1945
 Missouri and Illinois.
 Hyman, 1945:479–480; Kenk, 1972:52, 1977b:20–21.
61. *Sphalloplana* (*Sp.*) *chandleri* Kenk, 1977
 Tennessee, Indiana, Virginia.
 Kenk, 1977b:21–23.
62. *Sphalloplana* (*Sp.*) *hypogea* Kenk, 1984
 Virginia.
 Kenk, 1984:213–215.
63. *Sphalloplana* (*Sp.*) *hoffmasteri* (Hyman, 1954)
Speophila hoffmasteri Hyman, 1954
Macrocoyla hoffmasteri.—Kenk, 1975
Kenkia hoffmasteri.—Kawakatsu and Mitchell, 1981
 The pharyngeal musculature does not quite conform with that of the genus *Kenkia*, which places the species back into the genus *Sphalloplana*. West Virginia and Maryland.
 Hyman, 1954:570–573; Kenk, 1972:53, 1975b:333–336.
- Subfamily DENDROCOELINAE
- Genus *Dendrocoelopsis* Kenk, 1930
68. *Dendrocoelopsis vaginata* Hyman, 1935
 Western United States (Montana, Oregon, Washington).
 Hyman, 1935:339–345; Kenk, 1972:58, 1973b:2–6.
69. *Dendrocoelopsis piriformis* Kenk, 1953
 Alaska and western Canada.
 Kenk, 1953:174–178, 1972:59, 1973b:6–8; Holmquist, 1967:453–465.
70. *Dendrocoelopsis alaskensis* Kenk, 1953
 Alaska.
 Kenk, 1953:178–181, 1972:60, 1973b:8–9.
71. *Dendrocoelopsis hymanae* Kawakatsu, 1968
 California and Nevada (Lake Tahoe).
 Kawakatsu, 1968:11–15; Kenk, 1972:61, 1973b:9–10.
72. *Dendrocoelopsis americana* (Hyman, 1939)
Sorocelis americana Hyman, 1939
 Oklahoma, Arkansas, Texas, Missouri.
 Hyman, 1939a:422–424, 1939c:280–283; Kenk, 1972:62, 1973b:10–14; Kawakatsu and Mitchell, 1984b.
- Genus *Procotyla* Leidy, 1857
73. *Procotyla fluviatilis* Leidy, 1857
Dendrocoelum lacteum.—misidentified by early American authors
Dendrocoelum graffi Wilhelm, 1909
?Dendrocoelum pulcherrimum Girard, 1850
?Oligocelis pulcherrima.—Stimpson, 1857
?Procotyla leidyi Girard, 1893
 Eastern and midwestern United States and Canada.
 Woodworth, 1897:2–6 (as *Dendrocoelum lacteum*); Hyman, 1928:222–245; Kenk, 1944:36–38, 1972:63.
74. *Procotyla typhlops* Kenk, 1935
 Virginia, Maryland, Florida.
 Kenk, 1935:111–117, 1972:64; Hyman, 1951:165–166.
- Genus *Rectocephala* Hyman, 1953
75. *Rectocephala exotica* Hyman, 1953
Bdellocephala exotica.—Kenk, 1972

Species inquirenda. Introduced to aquatic gardens in Washington, District of Columbia.
Hyman, 1953; Kenk, 1972:65.

Species Incertae Sedis

76. *Planaria fissipara* Kennel, 1888

Not observed in a sexually mature state. Apparently widely distributed in South America, but recorded also from Trinidad and probably Mexico.

Kennel, 1888:468-473; Hyman, 1957:4-5; Marcus, 1948:176-177.

Not Recognizable Species

77. *Hydromedus bruneus* Girard, 1891 .

This may be a triclad. Pennsylvania (Fairmount Park,

Philadelphia).

Girard, 1893:163-164; Kenk, 1972:67.

78. *Planaria fuliginosa* Leidy, 1851

Planaria (Typhlolepta?) fuliginosus Leidy, 1851

Anocelis fuliginosa.—Stimpson, 1857

Typhloplana(?) fuliginosa.—Leuckart, 1854

New Jersey (Rancocas Creek, Burlington County).

Leidy, 1851:225; Kenk, 1972:66.

79. *Planaria simplex* Woodworth, 1896

Lake Michigan.

Woodworth, 1896a:94, 1896b:239-240; Kenk, 1972:66.

80. *Planaria unionicola* Woodworth, 1897

Illinois (Illinois River near Havana).

Woodworth, 1897; Kenk, 1972:66.

Appendix

Names of Species and Subspecies

(includes valid names and synonyms; numbers refer to numbered paragraphs in text)

<i>agilis</i> , 3	<i>dorotocephala</i> , 3	<i>lewisi</i> , 67	<i>retenuova</i> , 40
<i>alabamensis</i> , 47	<i>evaginata</i> , 49	<i>lugubris</i> , 1, 17	<i>rhynchida</i> , 65
<i>alaskensis</i> , 70	<i>exotica</i> , 75	<i>maculata</i> , 2	<i>sierrensis</i> , 46
<i>americana</i> , 72	<i>fawcetti</i> , 19	<i>mckenziei</i> , 10	<i>simplex</i> , 79
<i>angusta</i> , 30	<i>festae or festai</i> , 11	<i>microbursalis</i> , 2	<i>simplicissima</i> , 1
<i>antillana</i> , 15	<i>fissipara</i> , 76	<i>miltgeni</i> , 14	<i>simplissima</i> , 1
<i>arimana</i> , 13	<i>fluvialis</i> , 73	<i>modesta</i> , 1	<i>sloani</i> , 64
<i>arizonensis</i> , 4	<i>foremanii</i> , 1	<i>mohri</i> , 64	<i>spuria</i> , 29
<i>aurita</i> , 12	<i>fuliginosa or -us</i> , 78	<i>monopharyngea</i> , 18	<i>subterranea</i> , 37
<i>azteca</i> , 6	<i>georgiana</i> , 48	<i>monticola</i> , 44	<i>subtilis</i> , 54
<i>barbarae</i> , 7, 8	<i>glandulosa</i> , 66	<i>morgani</i> , 27, 28	<i>superba or -um</i> , 27
<i>borealis</i> , 43	<i>gonocephala</i> , 1	<i>musculosa</i> , 41	<i>tahoena</i> , 23
<i>brevipenis</i> , 45	<i>gracilis</i> , 18, 37, 38	<i>nivea</i> , 23, 26	<i>tigrina</i> , 2
<i>bruneus</i> , 77	<i>graffi</i> , 73	<i>nordeni</i> , 39	<i>truncata or -um</i> , 27
<i>buchananii</i> , 58	<i>guatemalensis</i> , 9	<i>notorchis</i> , 36	<i>typhlomexicana</i> , 7, 8
<i>bulbosa</i> , 21	<i>hamptonae</i> , 24	<i>novangliae</i> , 2	<i>typhlops</i> , 74
<i>bursaperforata</i> , 35	<i>hoffmasteri</i> , 63	<i>occulta</i> , 42	<i>unionicola</i> , 80
<i>californica</i> , 51	<i>holleri</i> , 31	<i>oregonensis</i> , 25	<i>vaginata</i> , 68
<i>carolinensis</i> , 32	<i>holssingeri</i> , 56	<i>percoeca or -um</i> , 47	<i>velata</i> , 18
<i>cavernicola</i> , 27	<i>hubrichti</i> , 60	<i>philadelphica</i> , 3	<i>vernalis</i> , 18, 40
<i>chandleri</i> , 61	<i>hymanae</i> , 71	<i>piriformis</i> , 69	<i>virginiana</i> , 55
<i>consimilis</i> , 53	<i>hypogea</i> , 62	<i>polycelis</i> , 28	<i>virilis</i> , 20
<i>coronata</i> , 43, 44, 45	<i>jenkinsae</i> , 5	<i>polychroa</i> , 17	<i>weingartneri</i> , 57
<i>crenophila</i> , 22	<i>kansensis</i> , 50	<i>pricei</i> , 59	<i>woodworthi</i> , 38
<i>cubana</i> , 16	<i>kutscheri</i> , 64	<i>procera</i> , 34	<i>zeschi</i> , 64
<i>culveri</i> , 52	<i>lacteum</i> , 73	<i>pulcherrima or -um</i> , 73	
<i>dactyligera</i> , 41	<i>lata</i> , 2	<i>pygmaea</i> , 33	
<i>diabolis</i> , 3	<i>leidyi</i> , 73	<i>reddelli</i> , 64	

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