

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

ROMAN KENK

SMITHSONIAN CONTRIBUTIONS TO ZOOLOGY • NUMBER 476

## SERIES PUBLICATIONS OF THE SMITHSONIAN INSTITUTION

Emphasis upon publication as a means of "diffusing knowledge" was expressed by the first Secretary of the Smithsonian. In his formal plan for the Institution, Joseph Henry outlined a program that included the following statement: "It is proposed to publish a series of reports, giving an account of the new discoveries in science, and of the changes made from year to year in all branches of knowledge." This theme of basic research has been adhered to through the years by thousands of titles issued in series publications under the Smithsonian imprint, commencing with *Smithsonian Contributions to Knowledge* in 1848 and continuing with the following active series:

*Smithsonian Contributions to Anthropology*  
*Smithsonian Contributions to Astrophysics*  
*Smithsonian Contributions to Botany*  
*Smithsonian Contributions to the Earth Sciences*  
*Smithsonian Contributions to the Marine Sciences*  
*Smithsonian Contributions to Paleobiology*  
*Smithsonian Contributions to Zoology*  
*Smithsonian Folklife Studies*  
*Smithsonian Studies in Air and Space*  
*Smithsonian Studies in History and Technology*

In these series, the Institution publishes small papers and full-scale monographs that report the research and collections of its various museums and bureaux or of professional colleagues in the world of science and scholarship. The publications are distributed by mailing lists to libraries, universities, and similar institutions throughout the world.

Papers or monographs submitted for series publication are received by the Smithsonian Institution Press, subject to its own review for format and style, only through departments of the various Smithsonian museums or bureaux, where the manuscripts are given substantive review. Press requirements for manuscript and art preparation are outlined on the inside back cover.

Robert McC. Adams  
*Secretary*  
Smithsonian Institution

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

*Roman Kenk*

SMITHSONIAN INSTITUTION PRESS

Washington, D.C.

1989

## ABSTRACT

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.

OFFICIAL PUBLICATION DATE is handstamped in a limited number of initial copies and is recorded in the Institution's annual report, *Smithsonian Year*. SERIES COVER DESIGN: The coral *Montastrea cavernosa* (Linnaeus).

---

Library of Congress Cataloging in Publication Data

Roman Kenk, 1898-

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

(Smithsonian contributions to zoology ; no. 476)

Supt. of Docs. no.: SI 1.27:476

Bibliography p.

1. Planaria—North America—Classification. 2. Freshwater invertebrates—North America—Classification.

3. Platyhelminthes—North America—Classification. I. Title II. Series.

QL1.S54 no. 476 591 s [595.1'23097] 88-600390 [QL391.P7]

# 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 triclads 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 simplicissima* 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. barbarae*. Mexico.  
 Mitchell and Kawakatsu, 1972[1973]:642–646.
8. *Dugesia (G.) barbarae* 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  
*Fonticola velata*.—Kenk, 1930  
*Phagocata gracilis monopharyngea* Hyman, 1948  
*Fonticola gracilis monopharyngea*.—Ball, 1969  
*Phagocata monopharyngea*.—Kenk, 1970  
*Phagocata vernalis* Kenk, 1944, in part  
*Fonticola 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 hamptonae* 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 brevipennis* 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.*) *buchanani* (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.*) *hubrichtii* (Hyman, 1945)  
*Speophila hubrichtii* 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  
*Macrocotyla 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.

Subgenus *Polypharyngea* Carpenter, 1971

64. *Sphalloplana* (*P.*) *mohri* Hyman, 1938  
*Sphalloplana kutscheri* Mitchell, 1968  
*Sphalloplana sloani* Mitchell, 1968  
*Sphalloplana zeschi* Mitchell, 1968  
*Sphalloplana reddelli* Mitchell, 1968  
Texas.  
Hyman, 1939c:276–280; Mitchell, 1968:598–610, 1974:402–429; Kenk, 1972:55, 1977b:23–24.

Genus *Kenkia* Hyman, 1937

65. *Kenkia rhynchida* Hyman, 1937  
Oregon.  
Hyman, 1937b:457–462; Kenk, 1972:56; Kawakatsu and Mitchell, 1981a:126–135.
66. *Kenkia glandulosa* (Hyman, 1956)

*Macrocotyla glandulosa* Hyman, 1956  
Missouri.  
Hyman, 1956:9–14; Kenk, 1972:57, 1975b:324–329.

67. *Kenkia lewisi* (Kenk, 1975)

*Macrocotyla lewisi* Kenk, 1975  
Missouri.  
Kenk, 1975b:329–333.

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* Wilhelmi, 1909  
?*Dendrocoelum pulcherrimum* Girard, 1850  
?*Oligocelis pulcherrima*.—Stimpson, 1857  
?*Procotyla leidy* 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. *Hydrolimax 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*.—Simpson, 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)

*agilis*, 3  
*alabamensis*, 47  
*alaskensis*, 70  
*americana*, 72  
*angusta*, 30  
*antillana*, 15  
*arimana*, 13  
*arizonensis*, 4  
*aurita*, 12  
*azteca*, 6  
*barbarae*, 7, 8  
*borealis*, 43  
*brevipenis*, 45  
*bruneus*, 77  
*buchanani*, 58  
*bulbosa*, 21  
*bursaperforata*, 35  
*californica*, 51  
*carolinensis*, 32  
*cavernicola*, 27  
*chandleri*, 61  
*consimilis*, 53  
*coronata*, 43, 44, 45  
*crenophila*, 22  
*cubana*, 16  
*culveri*, 52  
*dactyligera*, 41  
*diabolis*, 3

*dorotocephala*, 3  
*evaginata*, 49  
*exotica*, 75  
*fawcetti*, 19  
*festae* or *festai*, 11  
*fissipara*, 76  
*fluvialilis*, 73  
*foremanii*, 1  
*fuliginosa* or *-us*, 78  
*georgiana*, 48  
*glandulosa*, 66  
*gonocephala*, 1  
*gracilis*, 18, 37, 38  
*graffi*, 73  
*guatemalensis*, 9  
*hamptonae*, 24  
*hoffmasteri*, 63  
*holleri*, 31  
*holsingeri*, 56  
*hubrichti*, 60  
*hymanae*, 71  
*hypogea*, 62  
*jenkinsae*, 5  
*kansensis*, 50  
*kutscheri*, 64  
*lacteum*, 73  
*lata*, 2  
*leidy*, 73

*lewisi*, 67  
*lugubris*, 1, 17  
*maculata*, 2  
*mckenziei*, 10  
*microbursalis*, 2  
*miltgeni*, 14  
*modesta*, 1  
*mohri*, 64  
*monopharyngea*, 18  
*monticola*, 44  
*morgani*, 27, 28  
*musculosa*, 41  
*nivea*, 23, 26  
*nordeni*, 39  
*notorchis*, 36  
*novangliae*, 2  
*occulta*, 42  
*oregonensis*, 25  
*percoeca* or *-um*, 47  
*philadelphica*, 3  
*piriformis*, 69  
*polycelis*, 28  
*polychroa*, 17  
*pricei*, 59  
*procera*, 34  
*pulcherrima* or *-um*, 73  
*pygmaea*, 33  
*reddelli*, 64

*retenuova*, 40  
*rhynchida*, 65  
*sierrensis*, 46  
*simplex*, 79  
*simplicissima*, 1  
*simplicissima*, 1  
*sloani*, 64  
*spuria*, 29  
*subterranea*, 37  
*subtilis*, 54  
*superba* or *-um*, 27  
*tahoena*, 23  
*tigrina*, 2  
*truncata* or *-um*, 27  
*typhlomexicana*, 7, 8  
*typhlops*, 74  
*unionicola*, 80  
*vaginata*, 68  
*velata*, 18  
*vernalis*, 18, 40  
*virginiana*, 55  
*virilis*, 20  
*weingartneri*, 57  
*woodworthi*, 38  
*zeschi*, 64

## Literature Cited

(Papers mentioned only in the list of synonyms of individual species are not entered here; most of these may be found in the bibliography of Kenk, 1974.)

- Anderson, J.M., and J.C. Johann  
1958. Some Aspects of Reproductive Biology in the Fresh-Water Triclad Turbellarian *Cura foremanii*. *Biological Bulletin*, 115:375-383.
- Ball, I.R.  
1969. *Dugesia lugubris* (Tricladida: Paludicola), a European Immigrant into North American Fresh Waters. *Journal of the Fisheries Research Board of Canada*, 26:221-228.  
1971. Systematic and Biogeographical Relationships of Some *Dugesia* Species (Tricladida, Paludicola) from Central and South America. *American Museum Novitates*, 2472: 25 pages.
- Ball, I.R., and N. Gourbault  
1975. The Morphology, Karyology and Taxonomy of a New Freshwater Planarian of the Genus *Phagocata* from California (Platyhelminthes: Turbellaria). *Life Sciences Contributions, Royal Ontario Museum*, 105: iii + 19 pages.  
1978. The Phyletic Status of the Genus *Planaria* (Platyhelminthes, Turbellaria, Tricladida). *Bijdragen tot de Dierkunde*, 48:29-34.
- Ball, I.R., N. Gourbault, and R. Kenk  
1981. The Planarians (Turbellaria) of Temporary Waters in Eastern North America. *Life Sciences Contributions, Royal Ontario Museum*, 127: iii + 27 pages.
- Ball, I.R., and T.B. Reynoldson  
1981. *British Planarians (Platyhelminthes: Tricladida); Keys and Notes for the Identification of the Species*. 141 pages. Cambridge: Cambridge University Press.
- Beauchamp, P. de  
1931. Biospeologica, LVI: Campagne spéologique de C. Bolivar et R. Jeannel dans l'Amérique du Nord (1928), 2: Turbellariés Triclades. *Archives de Zoologie Expérimentale et Générale*, 71:317-331.
- Benazzi, M., and E. Giannini  
1971. *Cura azteca*, nuova specie di planaria del Messico. *Atti della Accademia Nazionale dei Lincei, Rendiconti della Classe di Scienze Fisiche Matematiche e Naturali*, series 8, 50:477-481.
- Benazzi, M., and N. Gourbault  
1977. *Dugesia jenkinsae* n. sp., a Fresh-Water Triclad (Turbellaria) from Texas. *Transactions of the American Microscopical Society*, 96:540-543.
- Buchanan, J.W.  
1936. Notes on an American Cave Flatworm, *Sphalloplana percaeca* (Packard). *Ecology*, 17:194-211.
- Carpenter, J. H.  
1969. A New Planarian from Utah, *Phagocata crenophila* n. sp. (Turbellaria). *Transactions of the American Microscopical Society*, 88:274-281.
- Castle, W.A.  
1928. An Experimental and Histological Study of the Life-Cycle of *Planaria velata*. *Journal of Experimental Zoology*, 51:417-483.  
1941. The Morphology and Life History of *Hymanella retenuova*, a New Species of Triclad from New England. *American Midland Naturalist*, 26:85-97.
- Castle, W.A., and L.H. Hyman  
1934. Observations on *Fonticola velata* (Stringer), Including a Description of the Anatomy of the Reproductive System. *Transactions of the American Microscopical Society*, 53:154-171.
- Codreanu, R., and D. Balcesco  
1973. *Dugesia cubana* n. sp., Planaire nouvelle de l'île de Cuba et ses affinités sur-américaines. In *Résultats des expéditions biospéologiques cubano-roumaines à Cuba*, 1:71-80, 4 plates. Bucuresti: Academia Republicii Socialiste România.
- Curtis, W.C.  
1900. On the Reproductive System of *Planaria simplissima*, a New Species. *Zoologische Jahrbücher, Abtheilung für Anatomie und Ontogenie der Thiere*, 13:447-466, plates 31, 32.  
1902. The Life History, the Normal Fission, and the Reproductive Organs of *Planaria maculata*. *Proceedings of the Boston Society of Natural History*, 30:515-559, plates 9-19.
- Dahm, A.G., and N. Gourbault  
1978. Tricladida et Temnocephalida (Turbellaria). In J. Illies, editor, *Limnofauna Europaea*, 2nd edition, pages 16-20.
- Darlington, J.T.  
1959. The Turbellaria of Two Granite Outcrops in Georgia. *American Midland Naturalist*, 61:257-294.
- Girard, C.  
1852. Descriptions of Two New Genera and Two New Species of Planaria. *Proceedings of the Boston Society of Natural History*, 4:210-212.  
1891. Deux espèces nouvelles de Planaires américaines. *Le Naturaliste*, 13:80.  
1893. Recherches sur les Planariés et les Némertiens de l'Amérique du Nord. *Annales des Sciences Naturelles, Zoologie*, series 7, 15:145-310, plates 3-6.
- Gourbault, N.  
1977. Karyology of *Dugesia arizonensis* Kenk (Turbellaria, Tricladida). *Caryologia*, 30:63-68.  
1979. Données biologiques et cytotaxonomiques sur un Triclade de l'île de Cuba. *Archives de Zoologie Expérimentale et Générale*, 120:131-142.  
1980. Morphologie et cytotaxonomie d'une Planaire nouvelle de Guadeloupe (Turbellarié, Triclade). *Bulletin du Muséum National d'Histoire Naturelle* (Paris), series 2, section A, 3:751-757.
- Holmquist, C.  
1967. *Dendrocoelopsis piriformis* (Turbellaria Tricladida) and Its Parasites from Northern Alaska. *Archiv für Hydrobiologie*, 62:453-466, 6 plates.
- Hyman, L.H.  
1925. The Reproductive System and Other Characters of *Planaria dorocephala* Woodworth. *Transactions of the American Microscopical Society*, 44:51-89.  
1928. Studies on the Morphology, Taxonomy, and Distribution of North American Triclad Turbellaria, I: *Procotyla fluviatilis*, Commonly but Erroneously Known as *Dendrocoelum lacteum*. *Transactions of the American Microscopical Society*, 47:222-255.  
1929. Studies on the Morphology, Taxonomy, and Distribution of North American Triclad Turbellaria, II: On the Distinctions between *Planaria agilis* and *Planaria dorocephala*, with Notes on the Distribution of *agilis* in the Western United States. *Transactions of the American Microscopical Society*, 48:406-415.  
1931a. Studies on the Morphology, Taxonomy, and Distribution of North American Triclad Turbellaria, III: On *Polycelis coronata* (Girard). *Transactions of the American Microscopical Society*, 50:124-135.  
1931b. Studies on the Morphology, Taxonomy, and Distribution of North American Triclad Turbellaria, IV: Recent European Revisions of the Triclads, and Their Application to the American Forms, with a Key to the Latter and New Notes on Distribution. *Transactions of the*

- American Microscopical Society*, 50:316-335.
- 1931c. Studies on the Morphology, Taxonomy, and Distribution of North American Triclad Turbellaria, V: Description of Two New Species. *Transactions of the American Microscopical Society*, 50:336-343.
1935. Studies on the Morphology, Taxonomy, and Distribution of North American Triclad Turbellaria, VI: A New Dendrocoelid from Montana, *Dendrocoelopsis vaginatus* n. sp. *Transactions of the American Microscopical Society*, 54:338-345.
- 1937a. Studies on the Morphology, Taxonomy, and Distribution of North American Triclad Turbellaria, VII: The Two Species Confused under the Name *Phagocata gracilis*, the Validity of the Generic Name *Phagocata* Leidy, 1847, and Its Priority over *Fonticola* Komarek, 1926. *Transactions of the American Microscopical Society*, 56:298-310.
- 1937b. Studies on the Morphology, Taxonomy, and Distribution of North American Triclad Turbellaria, VIII: Some Cave Planarians of the United States. *Transactions of the American Microscopical Society*, 56:457-477.
- 1939a. New Species of Flatworms from North, Central, and South America. *Proceedings of the United States National Museum*, 86:419-439.
- 1939b. North American Triclad Turbellaria, IX: The Priority of *Dugesia* Girard 1850 over *Euplanaria* Hesse 1897, with Notes on American Species of *Dugesia*. *Transactions of the American Microscopical Society*, 58:264-275.
- 1939c. North American Triclad Turbellaria, X: Additional Species of Cave Planarians. *Transactions of the American Microscopical Society*, 58:276-284.
1945. North American Triclad Turbellaria, XI: New, Chiefly Cavernicolous, Planarians. *American Midland Naturalist*, 34:475-484.
1951. North American Triclad Turbellaria, XII: Synopsis of the Known Species of Fresh-Water Planarians of North America. *Transactions of the American Microscopical Society*, 70:154-167.
1953. North American Triclad Turbellaria, 14: A New, Probably Exotic, Dendrocoelid. *American Museum Novitates*, 1629: 6 pages.
1954. North American Triclad Turbellaria, XIII: Three New Cave Planarians. *Proceedings of the United States National Museum*, 103:563-573.
1955. Descriptions and Records of Fresh-Water Turbellaria from the United States. *American Museum Novitates*, 1714: 36 pages.
1956. North American Triclad Turbellaria, XV: Three New Species. *American Museum Novitates*, 1808: 14 pages.
1957. A Few Turbellarians from Trinidad and the Canal Zone, with Corrective Remarks. *American Museum Novitates*, 1862: 8 pages.
1963. North American Triclad Turbellaria, XVI: Fresh-Water Planarians from the Vicinity of Portland, Oregon. *American Museum Novitates*, 2123: 5 pages.
- Kawakatsu M.
1968. North American Triclad Turbellaria, 17: Freshwater Planarians from Lake Tahoe. *Proceedings of the United States National Museum*, 124(3638):1-21, 2 plates.
1973. Additional Notes on Freshwater Planarians from Lake Tahoe in the Sierra Nevada Mountains of North America. *Bulletin of Fuji Women's College*, series 2, 11:67-77.
- Kawakatsu, M., and R.W. Mitchell
- 1981a. Redescription of *Kenkia rhynchida*, a Troglitic Planarian from Oregon, and a Reconsideration of the Family Kenkiidae and Its Genera (Turbellaria, Tricladida, Paludicola). *Annotationes Zoologicae Japonenses*, 54:125-141.
- 1981b. A Note on the Morphology of *Dugesia tigrina* (Girard, 1850) from Louisiana, U.S.A. *Proceedings of the Japanese Society of Systematic Zoology*, 20:1-6, 1 plate.
- 1981c. An Additional Note on *Dugesia guatemalensis* Mitchell et Kawakatsu (Turbellaria, Tricladida, Paludicola), a Trogliphilic Planarian from Mexico. *Journal of the Speleological Society of Japan*, 6:37-41.
- 1981d. Freshwater Planarians from the Southern United States and Mexico: *Dugesia dorotocephala* and *Dugesia* sp. (Turbellaria, Tricladida, Paludicola). *Annotationes Zoologicae Japonenses*, 54:191-206.
1982. A Note on the Morphology of *Cura foremani* (Girard, 1852) from Four Localities, U.S.A. (Turbellaria, Tricladida, Paludicola). *Bulletin of Fuji Women's College*, series 2, 20:91-100.
- 1984a. Redescription of *Dugesia azteca* (Benazzi et Giannini, 1971) Based upon the Material Collected from the Type Locality in Mexico, with Corrective Remarks (Turbellaria, Tricladida, Paludicola). *Bulletin of the National Science Museum* (Tokyo), series A (Zoology), 10:37-50.
- 1984b. Occurrence of *Dendrocoelopsis americana* (Hyman, 1939) in Soda Water Well, Texas, U.S.A. (Turbellaria, Tricladida, Paludicola). *Proceedings of the Japanese Society of Systematic Zoology*, 28:1-11, plates 1-3.
- 1984c. Redescription of *Dugesia festai* (Borelli, 1898) Based upon Material from Venezuela and Peru (Turbellaria; Tricladida; Paludicola). *Bulletin of the Biogeographical Society of Japan*, 39(1):1-12.
- 1984d. Redescription of *Dugesia arimana* Hyman, 1957, Based upon Material from Trinidad, St. Vincent and Venezuela (Turbellaria, Tricladida, Paludicola). *Bulletin of Fuji Women's College*, series 2, 22:63-77.
- Kenk, R.
1935. Studies on Virginian Triclad. *Journal the Elisha Mitchell Scientific Society*, 51:79-133, 8 plates.
1941. A Fresh-Water Triclad from Puerto Rico, *Dugesia antiillana*, New Species. *Occasional Papers of the Museum of Zoology, University of Michigan*, 436: 8 pages, 1 plate.
1944. The Fresh-Water Triclad of Michigan. *Miscellaneous Publications of the Museum of Zoology, University of Michigan*, 60: 44 pages, 7 plates.
1952. Fresh-Water Triclad (Turbellaria) of the Rocky Mountain National Park Region, Colorado. *Journal of the Washington Academy of Sciences*, 42:193-198.
1953. The Fresh-Water Triclad (Turbellaria) of Alaska. *Proceedings of the United States National Museum*, 103:163-186, plates 6-8.
1969. Freshwater Triclad (Turbellaria) of North America, I: The Genus *Planaria*. *Proceedings of the Biological Society of Washington*, 82:539-558.
- 1970a. Freshwater Triclad (Turbellaria) of North America, II: New or Little Known Species of *Phagocata*. *Proceedings of the Biological Society of Washington*, 83:13-34.
- 1970b. Freshwater Triclad (Turbellaria) of North America, III: *Sphalloplana weingartneri*, New Species, from a Cave in Indiana. *Proceedings of the Biological Society of Washington*, 83:313-320.
- 1970c. Freshwater Triclad (Turbellaria) of North America, IV: The Polypharyngeal Species of *Phagocata*. *Smithsonian Contributions to Zoology*, 80:1-17.
1972. Freshwater Planarians (Turbellaria) of North America. *Biota of Fresh-water Ecosystems, Identification Manual*, 1: ix + 81 pages. Washington: Environmental Protection Agency. (Also second printing, 1976, Cincinnati, Ohio.)
- 1973a. Freshwater Triclad (Turbellaria) of North America, V: The Genus *Polycelis*. *Smithsonian Contributions to Zoology*, 135:1-15.
- 1973b. Freshwater Triclad (Turbellaria) of North America, VI: The Genus *Dendrocoelopsis*. *Smithsonian Contributions to Zoology*, 138:1-16.
1974. Index of the Genera and Species of the Freshwater Triclad (Turbellaria) of the World. *Smithsonian Contributions to Zoology*, 183:1-90.
- 1975a. Freshwater Triclad (Turbellaria) of North America, VIII: *Dugesia arizonensis*, New Species. *Proceedings of the Biological Society of Washington*, 88:113-120.

- 1975b. Freshwater Triclad (Turbellaria) of North America, VII: The Genus *Macrocotyla*. *Transactions of the American Microscopical Society*, 94:324-339.
- 1977a. Freshwater Triclad (Turbellaria) of North America, X: Three New Species of *Phagocata* from the Eastern United States. *Proceedings of the Biological Society of Washington*, 89:645-652.
- 1977b. Freshwater Triclad (Turbellaria) of North America, IX: The Genus *Sphalloplana*. *Smithsonian Contributions to Zoology*, 246:1-38.
- 1979a. Freshwater Triclad (Turbellaria) of North America, XI: *Phagocata holleri*, New Species, from a Cave in North Carolina. *Proceedings of the Biological Society of Washington*, 92:389-393.
- 1979b. Freshwater Triclad (Turbellaria) of North America, XII: Another New Cave Planarian from North Carolina. *Brimleyana*, 2:91-96.
1982. Freshwater Triclad (Turbellaria) of North America, XIII: *Phagocata hamptonae*, New Species, from Nevada. *Proceedings of the Biological Society of Washington*, 95:161-166.
1984. Freshwater Triclad (Turbellaria) of North America, XV: Two New Subterranean Species from the Appalachian Region. *Proceedings of the Biological Society of Washington*, 97:209-216.
1987. Freshwater Triclad (Turbellaria) of North America, XVI: More on Subterranean Species of *Phagocata* of the Eastern United States. *Proceedings of the Biological Society of Washington*, 100:664-673.
- Kenk, R., and A.M. Hampton  
1982. Freshwater Triclad (Turbellaria) of North America, XIV: *Polycelis monticola*, New Species, from the Sierra Nevada Range in California. *Proceedings of the Biological Society of Washington*, 95:567-570.
- Kennel, J.  
1888. Untersuchungen an neuen Turbellarien. *Zoologische Jahrbücher, Abtheilung für Anatomie und Ontogenie der Thiere*, 3:447-486, plates 18, 19.
- Leidy, J.  
1851. Helminthological Contributions, II. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 5:224-227.
- Marcus, E.  
1948. Turbellaria do Brasil. *Universidade de São Paulo, Boletins da Faculdade de Filosofia Ciências e Letras, Zoologia*, 13:111-243.  
1960. Turbellaria from Curaçao. *Natuurwetenschappelijke Studiekreis voor Suriname en de Nederlandse Antillen*, 21:41-51.
- Mitchell, R.W.  
1968. New Species of *Sphalloplana* (Turbellaria: Paludicola) from the Caves of Texas and a Reexamination of the Genus *Speophila* and the Family Kenkiidae. *Annales de Spéléologie*, 23:597-620.  
1974. The Cave-Adapted Flatworms of Texas: Systematics, Natural History, and Responses to Light and Temperature. In N.W. Riser and M.P. Morse, editors, *Biology of the Turbellaria*, pages 402-430. New York: McGraw-Hill Book Company.
- Mitchell, R.W., and M. Kawakatsu  
1972 [1973]. Freshwater Cavernicole Planarians from Mexico; New Troglotic and Troglitic *Dugesia* from Caves of the Sierra de Guatemala. *Annales de Spéléologie*, 27:639-681. [Date on title page is 1972; actually published in 1973.]  
1973. A New Cave-Adapted Planarian (Tricladida, Paludicola, Planariidae) from Chiapas, Mexico. *Association for Mexican Cave Studies, Bulletin*, 5:165-170.
- Sivickis, P.B.  
1923. Studies on the Physiology of Reconstitution in *Planaria lata*, with a Description of the Species. *Biological Bulletin*, 44:113-152.
- Stevens, N.M.  
1904. On the Germ Cells and the Embryology of *Planaria simplissima*. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 56:208-220, plates 13-16.
- Stevens, N.M., and A.M. Boring  
1906. *Planaria morgani* n. sp. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 58:7-9, plate 1.
- Stringer, C.E.  
1909. Notes on Nebraska Turbellaria with Descriptions of Two New Species. *Zoologischer Anzeiger*, 34:257-262.  
1918. The Free-living Flatworms (Turbellaria). In H.B. Ward and G.C. Whipple, editors, *Fresh-Water Biology*, pages 323-364. New York: John Wiley and Sons.
- Woodworth, W.M.  
1891. Contributions to the Morphology of the Turbellaria, I: On the Structure of *Phagocata gracilis*, Leidy. *Bulletin of the Museum of Comparative Zoology at Harvard College*, 21:1-44, plates 1-4.  
1896a. Preliminary Report on Collections of Turbellaria from Lake St. Clair and Charlevoix, Michigan. *Michigan Fish Commission, Bulletin* 6:94-95.  
1896b. Report on the Turbellaria Collected by the Michigan State Fish Commission during the Summers of 1893 and 1894. *Bulletin of the Museum of Comparative Zoology at Harvard College*, 29:239-244, 1 plate.  
1897. Contributions to the Morphology of the Turbellaria, II: On Some Turbellaria from Illinois. *Bulletin of the Museum of Comparative Zoology at Harvard College*, 31:1-16, 1 plate.
- Young, J.O.  
1976. The Freshwater Turbellaria of the African Continent. *Zoologischer Anzeiger*, 197:419-432.







## REQUIREMENTS FOR SMITHSONIAN SERIES PUBLICATION

**Manuscripts** intended for series publication receive substantive review (conducted by their originating Smithsonian museums or offices) and are submitted to the Smithsonian Institution Press with Form SI-36, which must show the approval of the appropriate authority designated by the sponsoring organizational unit. Requests for special treatment—use of color, foldouts, case-bound covers, etc.—require, on the same form, the added approval of the sponsoring authority.

**Review** of manuscripts and art by the Press for requirements of series format and style, completeness and clarity of copy, and arrangement of all material, as outlined below, will govern, within the judgment of the Press, acceptance or rejection of manuscripts and art.

**Copy** must be prepared on typewriter or word processor, double-spaced, on one side of standard white bond paper (not erasable), with 1¼" margins, submitted as ribbon copy (not carbon or xerox), in loose sheets (not stapled or bound), and accompanied by original art. Minimum acceptable length is 30 pages.

**Front matter** (preceding the text) should include: **title page** with only title and author and no other information, **abstract page** with author, title, series, etc., following the established format; table of **contents** with indents reflecting the hierarchy of heads in the paper; also, **foreword** and/or **preface**, if appropriate.

**First page of text** should carry the title and author at the top of the page; **second page** should have only the author's name and professional mailing address, to be used as an unnumbered footnote on the first page of printed text.

**Center heads** of whatever level should be typed with initial caps of major words, with extra space above and below the head, but no other preparation (such as all caps or underline, except for the underline necessary for generic and specific epithets). Run-in paragraph heads should use period/dashes or colons as necessary.

**Tabulations** within text (lists of data, often in parallel columns) can be typed on the text page where they occur, but they should not contain rules or numbered table captions.

**Formal tables** (numbered, with captions, boxheads, stubs, rules) should be submitted as carefully typed, double-spaced copy separate from the text; they will be typeset unless otherwise requested. If camera-copy use is anticipated, do not draw rules on manuscript copy.

**Taxonomic keys** in natural history papers should use the aligned-couplet form for zoology and may use the multi-level indent form for botany. If cross referencing is required between key and text, do not include page references within the key, but number the keyed-out taxa, using the same numbers with their corresponding heads in the text.

**Synonymy** in zoology must use the short form (taxon, author, year:page), with full reference at the end of the paper under "Literature Cited." For botany, the long form (taxon, author, abbreviated journal or book title, volume, page, year, with no reference in "Literature Cited") is optional.

**Text-reference system** (author, year:page used within the text, with full citation in "Literature Cited" at the end of the text) must be used in place of bibliographic footnotes in all Contributions Series and is strongly recommended in the Studies Series: "(Jones. 1910:122)" or "... Jones (1910:122)." If bibliographic

footnotes are required, use the short form (author, brief title, page) with the full citation in the bibliography.

**Footnotes**, when few in number, whether annotative or bibliographic, should be typed on separate sheets and inserted immediately after the text pages on which the references occur. Extensive notes must be gathered together and placed at the end of the text in a notes section.

**Bibliography**, depending upon use, is termed "Literature Cited," "References," or "Bibliography." Spell out titles of books, articles, journals, and monographic series. For book and article titles use sentence-style capitalization according to the rules of the language employed (exception: capitalize all major words in English). For journal and series titles, capitalize the initial word and all subsequent words except articles, conjunctions, and prepositions. Transliterate languages that use a non-Roman alphabet according to the Library of Congress system. Underline (for italics) titles of journals and series and titles of books that are not part of a series. Use the parentheses/colon system for volume (number): pagination: "10(2):5-9." For alignment and arrangement of elements, follow the format of recent publications in the series for which the manuscript is intended. Guidelines for preparing bibliography may be secured from Series Section, SI Press.

**Legends** for illustrations must be submitted at the end of the manuscript, with as many legends typed, double-spaced, to a page as convenient.

**Illustrations** must be submitted as original art (not copies) accompanying, but separate from, the manuscript. Guidelines for preparing art may be secured from Series Section, SI Press. All types of illustrations (photographs, line drawings, maps, etc.) may be intermixed throughout the printed text. They should be termed **Figures** and should be numbered consecutively as they will appear in the monograph. If several illustrations are treated as components of a single composite figure, they should be designated by lowercase italic letters on the illustration; also, in the legend and in text references the italic letters (underlined in copy) should be used: "Figure 9b." Illustrations that are intended to follow the printed text may be termed **Plates**, and any components should be similarly lettered and referenced: "Plate 9b." Keys to any symbols within an illustration should appear on the art rather than in the legend.

**Some points of style:** Do not use periods after such abbreviations as "mm, ft, USNM, NNE." Spell out numbers "one" through "nine" in expository text, but use digits in all other cases if possible. Use of the metric system of measurement is preferable; where use of the English system is unavoidable, supply metric equivalents in parentheses. Use the decimal system for precise measurements and relationships, common fractions for approximations. Use day/month/year sequence for dates: "9 April 1976." For months in tabular listings or data sections, use three-letter abbreviations with no periods: "Jan, Mar, Jun." etc. Omit space between initials of a personal name: "J.B. Jones."

**Arrange and paginate sequentially every sheet of manuscript** in the following order: (1) title page, (2) abstract, (3) contents, (4) foreword and/or preface, (5) text, (6) appendixes, (7) notes section, (8) glossary, (9) bibliography, (10) legends, (11) tables. Index copy may be submitted at page proof stage, but plans for an index should be indicated when manuscript is submitted.

