

Catalog of North American State and Regional Freshwater Sponge References



**Bureau of Science Services
Wisconsin Department of Natural Resources
P.O. Box 7921
Madison, WI 53707-7921**

Miscellaneous Publication PUB-SS-1040 2008

Contents

Introduction	1
Organization and Content	2
Literature Cited	3
Catalog of References	
North America: General References	4
United States of America: State-specific References	5
North America: Other Country-specific References	11

Cover Photo: An unidentified Wisconsin sponge, probably the widespread *Spongilla lacustris*. Photograph by Robert Korth, University of Wisconsin-Extension.

The Wisconsin Department of Natural Resources provides equal opportunity in its employment, programs, services, and functions under an Affirmative Action Plan. If you have any questions regarding this plan, please write to Equal Opportunity Office, Department of Interior, Washington, D.C. 20240.

This publication is available in alternative format (large print, Braille, audio tape, etc.) upon request. Please call (608) 266-0531 for more information.

Catalog of North American State and Regional Freshwater Sponge References

Dreux J. Watermolen

Bureau of Science Services
Wisconsin Department of Natural Resources

Abstract: A catalog of North American freshwater sponge references published through 2007—many of which are missed by modern electronic indexing and abstracting services—is provided. This report follows up on a *Wildlife Action Plan* recommendation “to compile and make available catalogs of existing taxonomic and related references for Wisconsin invertebrate groups.”

Introduction

Between 8,000 and 15,000 species of sponges occur worldwide, with fewer than 250 being represented in freshwaters (Hooper and van Soest 2002, Manconi and Pronzato 2008). Frost, et al. (2001) estimate that 27 freshwater species occur in North America north of Mexico. Biologists have occasionally treated these freshwater forms in local and regional reports that cover the taxonomy, distribution, and ecology of the species occurring in a given area. Such references are an important resource for better understanding the distribution, relative abundance, ecology, and natural history of individual species and local faunal assemblages, biological aspects that are particularly important for conservation planning. These references also provide an entryway into the local and regional literature, sometimes including the “gray” literature, and provide opportunities for resource managers and other investigators to compare their results and observations with research findings reported elsewhere.

Some of the most important work on freshwater sponge taxonomy and ecology has occurred in Wisconsin, yet when the Wisconsin Department of Natural Resources undertook work on the state’s *Comprehensive Wildlife Conservation Plan* (now called *Wisconsin’s Strategy for Wildlife Species of Greatest Conservation Need* or simply *Wildlife Action Plan*), biologists were unable to assess adequately the conservation status of sponges (Wisconsin DNR 2005, p. 2-70). The planners noted a combination of factors, including a lack of readily available reference materials (i.e. literature and specimens), as the cause of this situation. A general lack of taxonomic specialists working with freshwater sponges has also resulted in few organized listings of references that can aid planners and resource managers in their conservation work.

Nationally, the U.S. Fish and Wildlife Service reviewed the status of several freshwater sponges for possible listing as endangered or threatened species in the mid-1970s. The Service removed the sponges from further consideration, however, because evidence received during their public input process suggested the sponges were more common than previously thought or did not appear to be facing particular threats to their continued existence (U.S.F.W.S. 1975, 1978). Although the limitations of existing knowledge were recognized during this earlier planning effort, U.S. conservationists have done little since that initial assessment to monitor or further evaluate the status of freshwater sponge species.

To help address our information needs, I here provide a catalog of approximately 75 North American sponge references, some of which are missed by modern electronic indexing and abstracting services, published through 2007. This report follows up on the *Wildlife Action Plan* recommendation that "efforts should be made to compile and make available catalogs of existing taxonomic and related references for Wisconsin invertebrate groups" (Wisconsin DNR 2005, p. 4-1) and complements other ongoing scientific work with Wisconsin's freshwater sponges.

Organization and Content

A number of general principles define the scope of the included references. I try to list "complete" state faunas and exclude works covering only a small area of a state or dealing with only a limited number of species. There are, however, exceptions to this rule. I include works of a more limited scope if they provide information that fills significant gaps in our understanding of a state's fauna (e.g., the Poirrier [1978] reference listed under Louisiana, page 7). Generally, these have either been published after completion of a more comprehensive treatment of an area's fauna or remain the only works available for the area under consideration. For example, I leave out most minor distributional records, unless they represent the only significant reports for a given state (e.g., Sowka [1999] under Arizona and Duncan [1977] under Arkansas, page 5). Finally, my emphasis is on taxonomy, distribution, and ecology so I generally omit the numerous references dealing with morphology, physiology, biochemistry, biomechanics, developmental biology, paleobiology, and similar aspects of sponge biology even though some of these may contain important zoogeographic information. I simply could not review all of this extensive literature. This approach means that for a few states, like New Hampshire and Utah, where significant biological work has occurred with sponges, no references are listed. Again, the exceptions to this are when an item contains significant distribution information not otherwise available in the zoogeographical literature or if the item helps resolve taxonomic issues that might otherwise hinder understanding of the area's fauna (e.g., the references listed under Missouri, page 8, and South Carolina, page 10).

References are listed first alphabetically by author and then by year under individual state headings. Unfortunately, most states lack comprehensive references to their sponge faunas. Therefore, I have listed general references covering the North American fauna, or large portions thereof, prior to the state listings. These works tend to have useful bibliographies and often can be consulted initially to determine the likelihood of a particular species occurring in a given area. A listing of works dealing with the fauna of North American jurisdictions outside the United States follows the state-by-state listings.

I place a greater importance on utility than consistency and my goal in compiling the catalog is not to be all-inclusive, but rather to provide access to the most significant works for each geographic area. As such, I include some "gray" literature and web publications in the citations, occasionally with short annotations. Doing so will hopefully provide a helpful gateway for investigators newly tackling this group. Undoubtedly, my subjective determinations may result in omissions of a few important works. Hopefully, most of these will be found in the bibliographies of the more general works listed. Nonetheless, I welcome additions, corrections, and other comments that would improve the usefulness of this catalog. These can be sent to my attention at Bureau of Science Services, Wisconsin Department of Natural Resources, P.O. Box 7921, Madison, WI 53707-7921.

Most of the works listed can be obtained from public or university libraries directly or through interlibrary loan services. In addition to the references included in the catalog, the online *World Porifera Database* (van Soest, et al. 2005) contains a considerable amount of helpful taxonomic and distribution data that are continually updated.

Literature Cited

- Frost, T.M., H.R. Reiswig, and A. Ricciardi. 2001. Porifera. Pp. 97-133 In J.H. Thorp and A.P. Covich (eds.). *Ecology and Classification of North American Freshwater Invertebrates*, 2nd ed. Academic Press, New York.
- Hooper, J.N.A. and R.W.M. van Soest (eds.). 2002. *Systema Porifera: A Guide to the Classification of Sponges*. Kluwer Academic/Plenum Publishers, New York.
- Manconi, R. and R. Pronzato. 2008. Global diversity of sponges (Porifera: Spongillina) in freshwater. *Hydrobiologia* 595:27-33.
- van Soest, R., N. Boury-Esnault, D. Janussen, and J. Hooper. 2005. World Porifera database. Available online at <http://www.marinespecies.org/porifera>.
- U.S. Fish and Wildlife Service (U.S.F.W.S.). 1975. News release: Freshwater sponges studied for endangered or threatened status. U.S. Fish and Wildlife Service, Department of the Interior, Washington, DC. [April 30, 1975]
- U.S. Fish and Wildlife Service (U.S.F.W.S.). 1978. News release: 30 endangered species candidates are not in trouble as previously thought. U.S. Fish and Wildlife Service, Department of the Interior, Washington, DC. [July 3, 1978]
- Wisconsin Department of Natural Resources (DNR). 2005. *Wisconsin's Strategy for Wildlife Species of Greatest Conservation Need*. Wisconsin Department of Natural Resources, Madison. Available online at <http://dnr.wi.gov/org/land/er/wwap/plan/>.

Catalog of References

North America: General References

- Frost, T.M. 1991. Porifera. Pp. 95-124 In J.H. Thorp and A.P. Covich (eds.). *Ecology and Classification of North American Freshwater Invertebrates*. Academic Press, New York.
- Frost, T.M., H.R. Reisinger, and A. Ricciardi. 2001. Porifera. Pp. 97-133 In J.H. Thorp and A.P. Covich (eds.). *Ecology and Classification of North American Freshwater Invertebrates*, 2nd ed. Academic Press, New York. (The most recent comprehensive treatment of North American species; a standard reference for species identification.)
- Jewell, M.E. 1959. Porifera. Pp. 298-312 In W.T. Edmundson (ed.). *Fresh-water Biology*. John Wiley & Sons, New York.
- Pennak, R.W. 1953. *Fresh-water Invertebrates of the United States*. John Wiley & Sons, New York.
- Pennak, R.W. 1978. *Fresh-water Invertebrates of the United States*, 2nd. ed. John Wiley & Sons, New York.
- Pennak, R.W. 1989. *Fresh-water Invertebrates of the United States: Protozoa to Mollusca*, 3rd. ed. John Wiley & Sons, New York.
- Penney, J.T. 1960. Distribution and bibliography (1892-1957) of the fresh-water sponges. University of South Carolina Publ. Ser. 3 Biol. 3(1):1-97.
- Penney, J.T. and A.A. Racek. 1968. Comprehensive revision of a worldwide collection of freshwater sponges (Porifera: Spongillidae). *U.S. National Museum Bulletin* (272):1-184.
- Potts, E. 1887. Contributions towards a synopsis of the American forms of freshwater sponges with descriptions of those named by other authors and from all parts of the world. *Proceedings of the Academy of Natural Sciences of Philadelphia* 39:158-279. (An important early work in which most of the Nearctic freshwater species were described.)
- Smith, D.G. 2001. *Pennak's Freshwater Invertebrates of the United States: Porifera to Crustacea*. John Wiley and Sons, New York. 638 pp. (A recent comprehensive treatment of North American species; a standard reference for species identification.)
- Smith, F. 1921. Distribution of the fresh-water sponges of North America. *Bulletin of the Illinois Natural History Survey* 14(2):9-22.
- Volkmer-Ribiero, C. and A. Traveset. 1987. Annotated catalog of the type specimens of Potts' species of freshwater sponges. *Proceedings of the Academy of Natural Sciences of Philadelphia* 139:223-242. (An important interpretation and update of the historical work done by Potts.)

United States of America: State-specific References

Arizona

Sowka, P.A. 1999. Occurrence of two species of freshwater sponges (*Dosilia radiospiculata* and *Ephydatia muelleri*) in Arizona. *Southwestern Naturalist* 44(2):211-212.

Arkansas

Duncan, T.O. 1977. Freshwater sponges in Beaver Reservoir, northwest Arkansas. *Southwestern Naturalist* 22(1):140. (Reports on 5 species occurring in the reservoir.)

Saul, T.P., M.R. Dare, and J.A. Engman. 2005. Freshwater sponge community composition and characteristics of occurrence on *Egeria Densa* in Degray Lake, Arkansas, and a report of sponge occurrence in Lake Ouachita, Arkansas [abstract]. Proceedings of the 89th annual meeting of the Arkansas Academy of Science, Hendrix College. (See page 30. Available online at <http://www2.hendrix.edu/biology/aasmeeting/2005Program.pdf>.)

Colorado

Williams, R.E. 1977. Distribution, ecology, and reproductive cycles of Colorado freshwater sponges (Porifera: Spongillidae). Ph.D. dissertation. University of Colorado, Boulder. 155 pp. (Available from University Microfilms, Inc., Ann Arbor, Michigan.)

Williams, R.E. 1979. Freshwater sponge habitats of Colorado. *Transactions of the American Microscopical Society* 98(1):149-150.

Connecticut

De Santo, E.M. and P.E. Fell. 1996. Distribution and ecology of freshwater sponges in Connecticut. *Hydrobiologia* 341(1):81-89.

Paduano, G.M. and P.E. Fell. 1997. Spatial and temporal distribution of freshwater sponges in Connecticut lakes based upon an analysis of siliceous spicules in dated sediment cores. *Hydrobiologia* 350(1-3):105-121.

Paduano, G.M. and P.E. Fell. 1997. The occurrence of *Corvomeyenia carolinensis* (Harrison, 1971) (Porifera: Spongillidae) in Connecticut. *Hydrobiologia* 350(1-3):123-125.

Delaware

Old, M.C. 1932. Delaware freshwater sponges. *Transactions of the American Microscopical Society* 51(4):239-242.

Florida

Eshleman, S.K. 1950. A key to Florida's fresh-water sponges, with descriptive notes. *Quarterly Journal of the Florida Academy of Sciences* 12(1):36-44.

Schwandes, L.P. and M.E. Collins. 1994. Distribution and significance of freshwater sponge spicules in selected Florida soils. *Transactions of the American Microscopical Society* 113(3):242-257.

Georgia

Penney, J.T. 1954. Ecological observations on the fresh-water sponges of the Savannah River Operations Area. University of South Carolina Publishing Service III, Biology 1(3):156-172.

Hawaii

Englund, R.A. , K. Arakaki, D.J. Preston, N.L. Evenhuis, and M.K.K. McShane. 2003. *Systematic Inventory of Rare and Alien Aquatic Species in Selected O'ahu, Maui, and Hawai'i Island Streams*. Final Report for Hawaii Department of Land and Natural Resources, Hawaii Biological Survey Contribution No. 2003-017, Bishop Museum, Honolulu, HA. Available online at <http://hbs.bishopmuseum.org/pdf/rare&alien.pdf>. (Includes locality records for *Heteromyenia baileyi*.)

Illinois

Lauer, T.E. and A. Spacie. 1996. New records of freshwater sponges (Porifera) for southern Lake Michigan. *Journal of Great Lakes Research* 22(1):77-82.

Lauer, T.E., A. Spacie, and D.K. Barnes. 2001. The distribution and habitat preferences of freshwater sponges (Porifera) in four southern Lake Michigan harbors. *American Midland Naturalist* 146(2):243-253.

Indiana

Barnes, D.K. and T.E. Lauer. 2003. Distribution of freshwater sponges and bryozoans in northwest Indiana. *Proceedings of the Indiana Academy of Science* 112(1):29-35.

Kintner, E. 1939. Notes on Indiana fresh water sponges. *Proceedings of the Indiana Academy of Science* 48:244-245.

Lauer, T.E. and A. Spacie. 1996. New records of freshwater sponges (Porifera) for southern Lake Michigan. *Journal of Great Lakes Research* 22(1):77-82.

Lauer, T.E., A. Spacie, and D.K. Barnes. 2001. The distribution and habitat preferences of freshwater sponges (Porifera) in four southern Lake Michigan harbors. *American Midland Naturalist* 146(2):243-253.

Louisiana

- Moore, W.G. 1951. Louisiana freshwater sponges, with observations on the ecology of the sponges of the New Orleans area. *Bulletin of the Ecological Society of America* 32:63.
- Moore, W.G. 1953. Louisiana freshwater sponges, with ecological observations on certain sponges of the New Orleans area. *Transactions of the American Microscopical Society* 72(1):24-32.
- Moore, W.G. 1953. Notes on Louisiana Spongillidae. *Proceedings of the Louisiana Academy of Science* 16:42-43.
- Poirrier, M.A. 1969. Louisiana fresh-water sponges: taxonomy, ecology and distribution. Ph.D. dissertation. Department of Zoology and Physiology, Louisiana State University. 173 pp. (Available from University Microfilms, Inc., Ann Arbor, Michigan.)
- Poirrier, M.A. 1978. *Corvospongilla becki* n. sp., a fresh-water sponge from Louisiana. *Transactions of the American Microscopical Society* 97(2):240-243.

Maine

- Old, M.C. 1936. Additional North American fresh-water sponge records. *Transactions of the American Microscopical Society* 55(1):11-13. (Includes records of two species occurring in Acadia National Park.)

Massachusetts

- Smith, D.G. 1976. An intergeneric fresh-water sponge mixture (Demospongiae: Spongillidae). *Transactions of the American Microscopical Society* 95(2):235-236.
- Smith, D.G. 1990. *Keys to the Freshwater Macroinvertebrates of Massachusetts. No. 5. Porifera, Spongillidae*. Division of Water Pollution Control, Massachusetts Department of Environmental Protection.
- Smith, D.G. 1991. The Sponges: Porifera, Spongillidae. Pp 2-33 In *Keys to the Freshwater Macroinvertebrates of Massachusetts*. Department of Zoology, University of Massachusetts, Amherst.

Michigan

- Lauer, T.E., A. Spacie, and D.K. Barnes. 2001. The distribution and habitat preferences of freshwater sponges (Porifera) in four southern Lake Michigan harbors. *American Midland Naturalist* 146(2):243-253.
- Old, M.C. 1932. Taxonomy and distribution of the fresh-water sponges (Spongillidae) of Michigan. *Papers of the Michigan Academy of Sciences, Arts, and Letters* 15:439-477.

Michigan, Continued.

Smith, F. 1921. Data on the distribution of Michigan fresh-water sponges. *Papers of the Michigan Academy of Science, Arts, and Letters* 1:418-421. (Includes early state distribution records for Illinois, Indiana, Ohio, and Wisconsin as well.)

Mississippi

Poirrier, M.A. 1968. Fresh-water sponges (Demospongiae: Spongillidae) from Mississippi. *Journal of the Mississippi Academy of Science* 14:130-131.

Missouri

Old, M.C. 1936. Additional North American fresh-water sponge records. *Transactions of the American Microscopical Society* 55(1):11-13. (Includes the first, and one of the only known, published records of sponges from this state.)

Montana

Bartin, S.H. and J.S. Addis. 1997. Freshwater sponges (Porifera: Spongillidae) of western Montana. *Great Basin Naturalist* 57(2):93-103.

Peterson, K.J. and J.S. Addis. 2000. *Clypeatula cooperensis* gen. n., sp. n., a new freshwater sponge (Porifera, Spongillidae) from the Rocky Mountains of Montana, USA. *Zoologica Scripta* 29(3):265-274.

Stagliano, D.M., G.M. Stephens and W.R. Bosworth. 2007. *Aquatic invertebrate species of concern on USFS Northern Region lands*. Report to USDA Forest Service Northern Region. Montana Natural Heritage Program and Idaho Conservation Data Center. Available online at http://mtnhp.org/reports/AqInvert_SOC_R1.pdf. (See pp. 16-18 in particular.)

Nebraska

Paulsen, T.S. and W.W. Hoback. A report of freshwater sponge (Porifera: Spongillidae) in central Nebraska. Program and Proceedings of the Nebraska Academy of Sciences. Biological and Medical Sciences-Session A. April 20, 2007 Nebraska Wesleyan University, Lincoln, Nebraska. (The only reference to Nebraska sponges I have been able to locate. Unfortunately, only a title is provided and there appears to have been no published abstract or paper.)

New Jersey

Old, M.C. 1936. Additional North American fresh-water sponge records. *Transactions of the American Microscopical Society* 55(1):11-13. (Includes records of eight sponge species from this state.)

New York

Old, M.C. 1936. Additional North American fresh-water sponge records. *Transactions of the American Microscopical Society* 55(1):11-13. (Includes records of four sponge species from this state.)

Ricciardi, A. and H.M. Reiswig. 1992. *Spongilla heterosclerifera* Smith, 1918 is an interspecific freshwater sponge mixture (Porifera: Spongillidae). *Canadian Journal of Zoology* 70(2):352-354. (Includes information about a species reported only from a type locality in New York and previously listed as an endangered species; explains the erroneous taxonomic interpretation that led to its description as a distinct species.)

Ricciardi, A., F.L. Snyder, D.O. Kelch, and H.M. Reiswig. 1995. Lethal and sublethal effects of sponge overgrowth on introduced dreissenid mussels in the Great Lakes - St. Lawrence River system. *Canadian Journal of Fisheries and Aquatic Sciences* 52(12):2695-2703. (Includes sponge records from St. Lawrence Seaway along northern New York border.)

North Carolina

Whitlock, H.N. and J.C. Morse. 1994. *Ceraclaea enodis*, a new species of sponge-feeding caddisfly (Trichoptera: Leptoceridae) previously misidentified. *Journal of the North American Benthological Society* 13(4):580-591. (Includes records of the sponge *Anheteromeyenia ryderi*. Also, includes reference to collections from CN, GA, IL, MI, SC, and Ontario.)

Ohio

Kellicott, D.S. 1897. Preliminary report on the freshwater sponges of Ohio. *5th Annual Report of the Ohio State Academy of Sciences*. Pp. 1-50.

Ricciardi, A., F.L. Snyder, D.O. Kelch, and H.M. Reiswig. 1995. Lethal and sublethal effects of sponge overgrowth on introduced dreissenid mussels in the Great Lakes - St. Lawrence River system. *Canadian Journal of Fisheries and Aquatic Sciences* 52(12):2695-2703. (Includes sponge records from Lake Erie along northern Ohio border.)

Oklahoma

Sublette, J.E. 1957. The ecology of the macroscopic bottom fauna in Lake Texoma (Denison Reservoir), Oklahoma and Texas. *American Midland Naturalist* 57(2):371-402.

Pennsylvania

Wurtz, C.B. 1950. Freshwater sponges of Pennsylvania and adjacent states. *Notulae Naturae Academy of Natural Sciences (Philadelphia)* 228:1-10.

South Carolina

Bisbee, J.W. 1992. Life-cycle, reproduction, and ecology of fresh-water sponges in a South Carolina pond. 1. Life-cycle and reproduction of *Spongilla lacustris*. *Transactions of the American Microscopical Society* 111(2):77-88.

Harrison, F.W., L. Johnston, K.B. Stansell, and W. McAndrew. 1977. The taxonomic and ecological status of the environmentally restricted spongillid species of North America. I. *Spongilla spongiosa* Penney 1957. *Hydrobiologia* 53(3):199-201. (Includes information about a species reported only from a South Carolina type locality and now apparently extirpated; raises questions of its validity as a distinct species.)

Texas

Old, M.C. 1936. Additional North American fresh-water sponge records. *Transactions of the American Microscopical Society* 55(1):11-13. (Includes records of four species from this state.)

Poirrier, M.A. 1969. Some fresh-water sponge hosts of Louisiana and Texas *Spongilla*-flies, with new locality records. *American Midland Naturalist* 81(2):573-575.

Poirrier, M.A. 1972. Additional records of Texas freshwater sponges (Spongillidae) with the first record of *Radiospongilla cerebellata* (Bowerbank, 1863) from the Western Hemisphere. *Southwestern Naturalist* 16(3/4):434-435.

Washington

Wild Fish Conservancy. 2002. Research and program development: Cedar River freshwater sponge. Washington Trout *Wild Fish Runs* newsletter (November). Available online at www.washingtontrout.org/WFRnov02.shtml#RESEARCH. (Includes links to photographs and underwater video clips.)

Wisconsin

Annesley, J., J. Jass, and D.J. Watermolen. 2008. Wisconsin freshwater sponge species documented by scanning electron microscopy. *Journal of Freshwater Ecology* 23(2):253-272.

Colby, A.C.C., T.M. Frost, and J.M. Fischer. 1999. Sponge distribution and lake chemistry in northern Wisconsin lakes: Minna Jewell's survey revisited. *Memoirs of the Queensland Museum* 44:93-99.

Jewell, M.E. 1935. An ecological study of the fresh-water sponges of northern Wisconsin. *Ecological Monographs* 5(4):461-504.

Jewell, M.E. 1939. An ecological study of the fresh-water sponges of Wisconsin, II. The influence of calcium. *Ecology* 20(1):11-28.

Wisconsin, Continued.

Neidhoefer, J.R. 1938. *Carterius tenosperma* (Potts), a species of fresh-water sponge new to Wisconsin. *Transactions of the American Microscopical Society* 57(1):82-84.

Neidhoefer, J.R. 1940. The fresh-water sponges of Wisconsin. *Transactions of the Wisconsin Academy of Sciences, Arts, and Letters* 32:177-197.

Wyoming

Old, M.C. 1936. Additional North American fresh-water sponge records. *Transactions of the American Microscopical Society* 55(1):11-13. (Includes a single record of *Spongilla lacustris* from Yellowstone National Park, apparently one of the very few published records for this state.)

North America: Other Country-specific References

Canada

Clifford, H.F. 1991. *Aquatic Invertebrates of Alberta*. University of Alberta Press, Edmonton. Online version available at http://sunsite.ualberta.ca/Projects/Aquatic_Invertebrates/?Page=8.

Gee, N.G. 1937. Canadian freshwater sponges. *Transactions Royal Canadian Institute* 21:285-296.

Reiswig, H. and A. Ricciardi. 1993. Resolution of the taxonomic status of the freshwater sponges *Eunapius mackayi*, *E. igloviformis*, and *Spongilla johanseni* (Porifera: Spongillidae). *Transactions of the American Microscopical Society* 112(4):262-279.

Ricciardi, A. and H. Reiswig. 1993. Freshwater sponges (Porifera: Spongillidae) of eastern Canada: taxonomy, distribution, and ecology. *Canadian Journal of Zoology* 71(1):665-682.

Central America

Poirrier, M.A. 1982. Porifera. Pp 59-61 In S.H. Hurlburt and A. Villalobos-Figueroa (eds.). *Aquatic Biota of Mexico, Central America and the West Indies*. San Diego State University Press, San Diego.

Mexico

Bushnell, J.H. 1971. Porifera and Ectoprocta in Mexico: architecture and environment of *Carterius latitentus* (Spongillidae) and *Fredericella australiensis* (Fredericellidae). *Southwestern Naturalist* 15(3):331-346.

Mexico, Continued.

Poirrier, M.A. 1982. Porifera. Pp 59-61 In S.H. Hurlburt and A. Villalobos-Figueroa (eds.). *Aquatic Biota of Mexico, Central America and the West Indies*. San Diego State University Press, San Diego.

Rioja, E. 1953a. Estudios Hidrobiologicos. XI. Contribucion al estudio de las esponjas de agua dulce de Mexico. *Anales del Instituto de Biologia de Mexico* 24:425-433.

Rioja, E. 1953b. Datos historicos acerca de las esponjas de agua dulce de Mexico. *Revista Sociedad Mexicana de Historia Natural* 14:51-57.

West Indies

Bass, D. 2003. A comparison of freshwater macroinvertebrate communities on small Caribbean islands. *BioScience* 53(11):1094-1100.

Manoconi, R. and R. Pronzato. 2005. Freshwater sponges of the West Indies: discovery of Spongillidae (Haplosclerida, Spongillina) from Cuba with biogeographic notes and a checklist for the Caribbean area. *Journal of Natural History* 39(36):3235-3253.

Poirrier, M.A. 1982. Porifera. Pp 59-61 In S.H. Hurlburt and A. Villalobos-Figueroa (eds.). *Aquatic Biota of Mexico, Central America and the West Indies*. San Diego State University Press, San Diego.

Smith, D.G. 1994. First report of a freshwater sponge (Porifera: Spongillidae) from the West Indies. *Journal of Natural History* 28(5):981-986.