

Reuben Ratterree Goforth, Ph.D.

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Purdue University, West Lafayette, IN 47907
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EDUCATION

Ph.D. Natural Resources, Concentration: Fisheries and Aquatic Sciences (August 1999)

Cornell University, Ithaca, New York, Aug 1994 – Aug 1999.

M.S. Aquaculture, Fisheries and Wildlife; Minor Experimental Statistics (August 1994)

Clemson University, Clemson, South Carolina, Aug 1992 – Aug 1994.

B.S. Biological Sciences, Summa Cum Laude, Calhoun Honors College (Dept. Honors; May 1992)

Clemson University, Clemson, South Carolina, Aug 1988 – May 1992.

PROFESSIONAL EXPERIENCE

Associate Professor of Aquatic Community Ecology

Department of Forestry and Natural Resources, Purdue University, West Lafayette, Indiana,
Aug 2014 – Present.

Post-doctoral Research Associates: Dr. S. Conor Keitzer (May 2013 – Dec 2013), Dr. Brandon Peoples
(Aug 2015 – Aug 2016)

Graduate Students: S. Conor Keitzer (PhD, May 2013), Alison Coulter (PhD, May 2015), Jay Beugly
(PhD, current), Kensey Thurner (PhD, current), Christopher Cheek (PhD, current), Lindsey Bock
(MS, Dec 2009), Michael Wellman (MS, Dec 2010), Sam Nutile (MS, May 2012), Caleb Rennaker
(MS, Dec 2013), Katherine Touzinsky (MS, 2015), Austin Prechtel (MS, Current)

Assistant Professor of Aquatic Community Ecology

Department of Forestry and Natural Resources, Purdue University, West Lafayette, Indiana,
Jul 2007 – Aug 2014

Faculty and Lecturer

Department of Fisheries and Wildlife, Michigan State University, East Lansing, Michigan,
Aug 2005 – Jun 2007.

Graduate Students: Janice I. Sloan (MS, 2007), Alyson Olesen (MS, 2007), Holly Campbell (MS, 2008)

Senior Conservation Scientist

Michigan Natural Features Inventory, Michigan State University Extension, Lansing, Michigan,
Feb 1998 – Jun 2007.

AWARDS AND RECOGNITION

Purdue College of Agriculture Diversity Action Team in Agriculture Inaugural Unsung Diversity Hero
Award, Purdue University, West Lafayette, IN. 2016.

Real World Experience Award, The Nature of Wild Things Learning Community, Purdue University, West
Lafayette, IN. 2015-2016.

Purdue Office of the Vice President for Research, Excellence in Research Award (Seed for Success)/College
of Agriculture Millionaire's Club, Purdue University, West Lafayette, IN. 2011.

Outstanding Undergraduate Counselor Award (Department of Forestry and Natural Resources)/David C.
Pfundler Outstanding Undergraduate Counselor Award Nominee (College of Agriculture), Purdue
University, West Lafayette, IN. 2012.

Outstanding Undergraduate Teaching Award, Early Career (Department of Forestry and Natural
Resources)/Richard L. Kohl's Outstanding Early Career Award Nominee (College of Agriculture),
Purdue University, West Lafayette, IN. 2011.

College of Agriculture New Faculty Teaching Award Finalist, Michigan State University, East Lansing, MI.
2007.

H.W. Close Fellow, Clemson University, Clemson, SC. 1992-1994. A 2-year, \$12,000/yr graduate
recruiting award administered by the Clemson University Graduate School.

PROFESSIONAL ACTIVITY AND SERVICE

- Professional Service:** President, Indiana Chapter of the American Fisheries Society
 Organization for Tropical Studies La Selva Biological Station Advisory Committee
 Advisory Board Member, La MICA Biological Station, Panama
 Past Assoc. Editor for *Journal of the American Water Resources Association*
 Past Assoc. Editor for *American Midland Naturalist*
 Guest Editor for a Special Issue of *Journal of Great Lakes Research* titled,
Nearshore, Coastal, and Benthic Habitats of the Great Lakes
 Past Board Member, Indiana Water Resources Monitoring Council
 Peer Reviewer for: *Molecular Ecology, Biological Invasions, Fisheries, Wetlands, Environmental Toxicology and Chemistry, Science of the Total Environment, Transactions of the American Fisheries Society, North American Journal of Fisheries Management, Journal of Great Lakes Research, PLoS One, Marine Ecology Progress Series, American Midland Naturalist, Journal of the American Water Resources Association, Environmental Management, River Research and Applications, Ecological Engineering, Journal of Applied Ichthyology, Freeman's Biology* (undergraduate biology text), *International Journal of Sustainable Development and World Ecology*, Oxford University Press
 Grant Proposal Reviews Solicited for: U.S. Environmental Protection Agency, Great Lakes Fishery Commission, Great Lakes Commission, Great Lakes Fishery Trust, Great Lakes Protection Fund, National Science Foundation
- Society Membership:** Ecological Society of America American Fisheries Society
 International Assoc. for Great Lakes Res. N. Amer. Coll. & Teach. of Ag.
- Academic Affiliations:** Purdue Center for the Environment, Purdue Interdisciplinary Center for Ecological Sustainability, Purdue Climate Change Research Center

PUBLICATIONS

Peer-Reviewed Publications (underlined authors are Goforth lab graduate students; italicized and underlined authors are Goforth lab undergraduate students)

- Erickson, R.A., C.B. Rees, A.A. Coulter, C.M. Merkes, S.G. McCalia, K. Touzinsky, L. Walleser, **R.R. Goforth**, and J.J. Amberg. 2016. Detecting the movement and spawning activity of bigheaded carps with environmental DNA. *Molecular Ecology Resources* 16(4): 957-965. DOI: 10.1111/1755-0998.12533.
- Coulter, A.A., E.J. Bailey, D. Keller, and **R.R. Goforth**. 2016. Invasive silver carp movement patterns in the predominantly free-flowing Wabash River (Indiana, USA). *Biological Invasions* 18(2):471-485. DOI: 10.1007/s10530-015-1020-2.
- Coulter, A.A., D. Keller, E.J. Bailey, and R.R. Goforth. 2016. Predictors of bigheaded carp drifting egg density and spawning in an invaded, free-flowing river. *Journal of Great Lakes Research* 42(1): 83-89.
- Bossle, B.L., **R.R. Goforth**, S. D. Unger, and O.E. Rhodes, Jr. 2015. The effects of suspended sediment on Japanese Medaka (*Oryzias latipes*) and Mosquitofish (*Gambusia affinis*) metabolism. *Journal of the South Carolina Academy of Science* 13(1): 30-32.
- Lenaerts, A.W., A.A. Coulter, Z.S. Feiner, and **R.R. Goforth**. 2015. Egg size variability in an establishing population of invasive silver carp *Hypophthalmichthys molitrix* (Valenciennes, 1844). *Aquatic Invasions* 10(4): 449-461.
- Goforth, R.R.** and J. Janick. 2015. Identification of New World aquatic invertebrate illustrations in *The Drake Manuscript*. *Journal of Natural History* 49(11-12): 719-734.
- Hamel, M.J., M.A. Pegg, **R.R. Goforth**, Q. Phelps, K.D. Steffensen, J.J. Hammen, and M.L. Rugg. 2015. Range-wide age and growth characteristics of shovelnose sturgeon from mark-recapture data: Implications for conservation and management. *Canadian Journal of Fisheries and Aquatic Sciences* 72:71-82.

PUBLICATIONS (cont)

- Malaypally, P., A.M. Liceaga, F. San Martin-Gonzalez, K.H. Kim, M. Ferruzzi, and **R.R. Goforth**. 2015. Influence of molecular weight on intracellular antioxidant activity of invasive silver carp (*Hypophthalmichthys molitrix*) protein hydrolysates. *Journal of Functional Foods*.
- Coulter, A., D. Keller, J.J. Amberg, Elizabeth Bailey, and **R.R. Goforth**. 2013. Phenotypic plasticity of bigheaded carp (*Hypophthalmichthys* spp.) spawning traits in novel ecosystems *Freshwater Biology* 58(5): 1029-1037.
- Nutile, S., J.J. Amberg, and **R.R. Goforth**. 2013. Effects of electricity on fish early life history stages to investigate the use of electricity to control invasive cyprinids. *Transactions of the American Fisheries Society* 142:1-9.
- Leet, J.K., S. Sassman, **R.R. Goforth**, H.E. Gall, C.T. Javfert, J.M. Lazorchak, D.A. Gordon, L.S. Lee, and M.S. Sepúlveda. 2012. Impacts of land-applied wastes from concentrated animal feeding operations on fish communities. *Environmental Science & Technology* 46: 13440-13447.
- Keitzer, S.C. & **R.R. Goforth**. 2013. Spatial and seasonal variation in the ecological significance of nutrient recycling by larval salamanders in Appalachian headwater streams. *Freshwater Science* 32(4): 1136-1147. (formerly *Journal of the North American Benthological Society*)
- Keitzer, S.C. and **R.R. Goforth**. 2012. Response of stream-breeding salamander larvae to fine sediment deposition in southern Appalachian (USA) headwater streams. *Freshwater Biology* 57(8): 1535-1544.
- Nutile, S., J.J. Amberg, M.S. Sepúlveda, and **R.R. Goforth**. 2012. Effects of multiple electrical field exposures on cyprinid embryo survival. *North American Journal of Fisheries Management* 32(5): 875-879.
- Goforth, R.R.** and M.B. Bain. 2012. Assessing stream integrity based on interpretations of map-based riparian and sub-basin properties. *Landscape and Ecological Engineering* 8(1):33-43.
- Pyron, M., **R.R. Goforth**, J. Beugly, S. Morlock, and M. Kim. 2011. A GIS approach to analysis of environmental variables to explain fish assemblage structure in a large river. *River Systems* 19(3):239-247.
- Keitzer, S.C., **R.R. Goforth**, A. Pessier, and A. Johnson. 2011. Surveys for the pathogenic chytrid fungus, *Batrachochytrium dendrobatidis*, in salamander populations in southwestern North Carolina. *Journal of Wildlife Diseases* 47(2):455-458.
- Bock, L., **R.R. Goforth**, T. Stefanavage, and M.S. Sepúlveda. 2011. Diet of shovelnose sturgeon in the middle Wabash River, Indiana. *Journal of Applied Ichthyology* 27(2):309-315. (Article)
- Sepúlveda, M.S., T. Stefanavage, and **R.R. Goforth**. 2010. First record of *Polypodium hydriforme* parasitizing eggs from female shovelnose sturgeon from the Wabash River, Indiana. *Journal of Aquatic Animal Health* 22: 36-38.
- Amberg, J.J., **R.R. Goforth**, T. Stefanavage, and M.S. Sepúlveda. 2009. Sexually dimorphic gene expression in the gonad and liver of shovelnose sturgeon (*Scaphirhynchus platyrhynchus*). *Fish Physiology and Biochemistry* 36(4): 923-932.
- Trested, D.G., **R.R. Goforth**, J.P. Kirk, and J.J. Isely. 2010. Survival of shovelnose sturgeon following abdominally-invasive endoscopic evaluation. *North American Journal of Fisheries Management* 30:121-125.
- Goforth, R.R.** and S.M. Carman. 2009. Multiscale relationships between Great Lakes nearshore fish and anthropogenic shoreline factors. *Journal of Great Lakes Research* 35: 215-223.
- Meadows, G.A., S.D. Mackey, **R.R. Goforth**, D.M. Mickelson, T.B. Edil, J. Fuller, D. Guy, L.A. Meadows, E. Brown, S.M. Carman, and D.L. Liebenenthal. 2005. Cumulative habitat impacts of nearshore engineering. *Journal of Great Lakes Research* 31 (Suppl.1): 90-112.
- Goforth, R.R.** and S.M. Carman. 2005. Nearshore community characteristics related to shoreline properties in the Great Lakes. *Journal of Great Lakes Research* 31 (Suppl. 1): 113-128.
- Mackey, S.D. and **R.R. Goforth**. 2005. Great Lakes nearshore habitat science. *Journal of Great Lakes Research* 31 (Suppl. 1): 1-5.
- Bain, M.B., A. Harig, D.P. Loucks, **R.R. Goforth** and K.E. Mills. 2000. Aquatic ecosystem protection and restoration: advances in methods for assessment and evaluation. *Environmental Science and Policy* 3: S89-S98.

PUBLICATIONS (cont)

Goforth, R.R. and J.W. Foltz. 1998. Movements of the yellowfin shiner, *Notropis lutipinnis*. Ecology of Freshwater Fish 7:49-55.

Textbooks

W. S. Carlsen, N. M. Trautman, C. M. Cunningham, M. E. Krasney, A. Welman, H. Beck, H. Canning, M. Johnson, E. Barnaba, **R. Goforth**, and S. Hoskins. 2004. *Watershed Dynamics*. Cornell Scientific Inquiry Series, National Science Teachers Association Press, Arlington, VA.

R. R. Goforth. 2009. Michigan's Aquatic Fauna. Chapter 23 in *Michigan: Geography and Geology* (R. Schaetzl, D. Velbel, and J. Darden, eds.). Pearson Custom Publishing.

RESEARCH PROJECT FUNDING

Total External Funding to Date:	\$6,395,067	Total as Principal Investigator:	\$3,062,999
Total Internal Funding to Date:	\$239,476	Total as Co-Principal Investigator:	\$3,332,028

Total Funding to Date: \$6,634,543

Goforth, R.R. 2016. Correlating Asian carp eDNA and/or microbial tracking technologies with telemetry data in the Wabash River. U.S. Geological Survey. **Award amount: \$14,107.** *Principal Investigator*

Goforth, R.R. 2016. Evaluating an Alternative Fish Barrier Design to Control Juvenile Fish Movements and as an Element in Asian Carp Integrated Pest Management. U.S. Geological Survey. **Award amount: \$80,000.** *Principal Investigator*

Goforth, R.R. 2015. Implementation of the Ohio River Asian carp control strategy. Mississippi Interstate Cooperative Resource Association. **Award amount: \$32,351.** *Principal Investigator*

Goforth, R.R. 2015. Evaluating alternative methods for controlling Asian carp movements. U.S. Geological Survey. **Award amount: \$86,661.** *Principal Investigator*

Prokopy, L., R.N. Williams, and **R.R. Goforth**. 2014. Outreach to Protect Mussels in the Tippecanoe River. Indiana Department of Natural Resources. **Award Amount: \$75,128.** *Co-principal Investigator*

Goforth, R.R. 2014. Evaluating an alternative fish barrier design for controlling Asian carp. U.S. Geological Survey. **Award amount: \$39,924.** *Principal Investigator*

Goforth, R.R. 2013. Correlating Asian carp eDNA and/or microbial tracking technologies with telemetry data in the Wabash River. U.S. Geological Survey. **Award amount: \$30,000**

Goforth, R.R. 2013. An assessment of silver and bighead carp (*Hypophthalmichthys* spp.) movements and spawning activities in the Wabash River, Indiana. Indiana Department of Natural Resources. **Award amount: \$93,462.** *Principal Investigator*

Goforth, R.R. 2012. An assessment of silver and bighead carp (*Hypophthalmichthys* spp.) movements and spawning activities in the Wabash River, Indiana. Indiana Department of Natural Resources. **Award amount: \$126,824.** *Principal Investigator*

Sepúlveda, M.S. and **R.R. Goforth**. 2012. A reconnaissance of pathogens of silver and bighead carp (*Hypophthalmichthys* spp.) in the Wabash River watershed, Indiana. Indiana Department of Natural Resources. **Award amount: \$112,000.** *Co-principal Investigator*

Bowling, L.C. and **R.R. Goforth**. 2012. Invasive tree removal at Throckmorton Purdue Agricultural Center. Mary S. Rice Farm Estate. **Award amount: \$12,000.** *Co-principal investigator*

Beasley, J., T. Höök, **R.R. Goforth**, S. Weeks, and M. Sepúlveda. 2012. Microscopy and digital imaging for life science instruction. Purdue University, College of Agriculture Instructional Innovation Grant Program. **Award amount: \$24,567.** *Co-principal Investigator*

Turco, R., L. Prokopy, and **R.R. Goforth**. 2011. Deer Creek – Sugar Creek watershed management plan and implementation program. Indiana Department of Environmental Management/Wabash River Enhancement Corporation. **Award amount: \$132,702.** *Co-principal Investigator*

Turco, R., L. Prokopy, and **R.R. Goforth**. 2011. Region of the Great Bend of the Wabash River Implementation Project. Indiana Department of Environmental Management/Wabash River Enhancement Corporation. **Award amount: \$240,340.** *Co-principal Investigator*

RESEARCH PROJECT FUNDING (cont)

- Goforth, R.R.** 2011. An assessment of silver and bighead carp (*Hypophthalmichthys* spp.) movements and spawning activities in the Wabash River, Indiana. Indiana Department of Natural Resources. **Award amount: \$128,030.** *Principal Investigator*
- Goforth, R.R.** 2011. Effects of benthic predators on stream community structure and ecosystem function. Purdue Research Foundation. **Award amount: \$17,059.** *Principal Investigator*
- Goforth, R.R.** 2011. Bryant Creek Embayment aquatic habitat enhancement program. Duke Energy Indiana, Inc. **Award amount: \$100,000.** *Principal investigator*
- Bowling, L.C., I. Chaubey, J.R. Frankenberger, and **R.R. Goforth.** 2011. Demonstrating nitrogen treatment effectiveness through innovative bench wetland systems. Natural Resources Conservation Service. **Award amount: \$241,005.** *Co-Principal Investigator*
- Goforth, R.R.** 2011. Habitat use and movements of shovelnose sturgeon, *Scaphirhynchus platyrhynchus*, in the Wabash River, Indiana. Indiana Water Resources Research Center. **Award amount: \$10,803.** *Principal Investigator*
- Goforth, R.R.** 2010. An assessment of silver and bighead carp (*Hypophthalmichthys* spp.) movements and spawning activities in the Wabash River, Indiana. Indiana Department of Natural Resources. **Award amount: \$154,634.** *Principal investigator*
- Goforth, R.R.** 2010. Research to evaluate the potential for controlling aquatic invasive species at early life history stages: Asian carp (*Hypophthalmichthys* spp.). U.S. Geological Survey. **Award amount: \$199,578.** *Principal investigator*
- Chaubey, I., L.C. Bowling, S.M. Brouder, K.A. Cherkauer, B.A. Engel, J.R. Frankenberger, **R.R. Goforth**, B.M. Gramig, P.T. Murphy, and J.J. Volenc. 2010. Watershed scale optimization to meet sustainable cellulosic energy crop demand. U.S. Department of Energy. **Award amount: \$1,592,385.** *Co-principal investigator*
- Goforth, R.R.** 2010. Promoting sustainability within the context of maximizing Indiana's competitive advantage in agriculturally derived energy. Purdue University College of Agriculture, Agricultural Research Programs, Mission Oriented Grant. **Award amount: \$24,969.** *Principal Investigator*
- Goforth, R.R.** 2010. Stream fish responses to changes in agricultural land use management graduate research assistantship. Purdue University College of Agriculture, Agricultural Research Programs, Graduate Research Assistantship. **Award amount: \$35,000.** *Principal Investigator*
- Sepúlveda, M.S. and **R.R. Goforth.** 2010. A first assessment of pharmaceuticals and personal care products in the upper Wabash River, Indiana. U.S. Geological Survey/Indiana Water Resources Research Center. **Award amount: \$13,000.** *Co-Principal Investigator*
- Goforth, R.R.** 2009. Fish responses to sediment associated with increasing biofuel-related crop production in the Wabash River watershed. Indiana Water Resources Research Center. **Award amount: \$15,000.**
- Goforth, R.R.** 2009. Reciprocal community dynamics in headwater stream ecosystems: Defining ecological roles and the potential for disruption via climate change. Purdue University Discovery Park Seed Grant. **Award amount: \$9,548.** *Principal Investigator*
- Prokopy, L., L. Bowling, J. Frankenberger, R. Turco, and **R.R. Goforth.** 2009. Wabash River: Lafayette-West Lafayette Reach Proposal for Watershed Management Plan. Indiana Department of Environmental Management 319 Nonpoint Source Management Program. **Award amount: \$320,468.** *Co-Principal Investigator*
- Pijanowski, B., L. Prokopy, G. Shao, **R.R. Goforth**, et al. 2009. Enhancing interdisciplinary discovery, learning, and engagement activities to achieve sustainable land use systems in Indiana. Purdue University Department of Forestry and Natural Resources. **Award amount: \$125,000.** *Co-Principal Investigator*
- Goforth, R.R.** 2008. Obtaining an ultrasonic receiver for tracking riverine fish species. Purdue University, Department of Forestry and Natural Resources. **Award amount: \$7,900.** *Principal Investigator*
- Goforth, R.R.,** O.E. Rhodes, Jr., M.S. Sepúlveda, R. Williams, and T. Höök. 2008. Acquiring tagging and tracking equipment to enhance Purdue fish and wildlife education. College of Agriculture, Purdue University. **Award amount: \$29,275.** *Principal Investigator*

RESEARCH PROJECT FUNDING (cont)

- Goforth, R.R.** 2008. Lake Huron nearshore monitoring. Awarded by the State of Michigan Department of Environmental Quality and the Great Lakes National Program Office of the US Environmental Protection Agency. **Award amount: \$50,000.** *Principal Investigator*
- Goforth, R.R.** 2006. Habitat and biological community characterization, mapping, and modeling in eastern Lake Michigan nearshore zones. Awarded by the U. S. Fish and Wildlife Service. **Award amount: \$79,000.** *Principal Investigator*
- Goforth, R.R.** 2006. Great Lakes nearshore plankton and benthic monitoring to detect changes in environmental quality and biotic integrity. Awarded by the State of Michigan Department of Environmental Quality via Clean Michigan Initiative Funds. **Award amount: \$152,000.** *Principal Investigator*
- Goforth, R.R.** 2005. Evaluation and integration of stream classification units as elements of biodiversity in the Michigan Natural Features Inventory Biotics Database. Awarded by the State of Michigan Department of Natural Resources, Wildlife Division. **Award amount: \$75,000.** *Principal Investigator*
- Goforth, R.R.** 2005. Nearshore habitat inventory and mapping in western Lake Michigan: project expansion grant. Awarded by the Great Lakes National Program Office of the US Environmental Protection Agency. **Award amount: \$15,000.** *Principal Investigator*
- Goforth, R.R.** 2005. Great Lakes nearshore monitoring to detect changes in environmental quality and biotic integrity. Awarded by the State of Michigan Department of Environmental Quality via Clean Michigan Initiative Funds. **Award amount: \$141,000.** *Principal Investigator*
- Goforth, R.R.** 2004. Nearshore habitat inventory and mapping in western Lake Michigan. Awarded by the Great Lakes National Program Office of the US Environmental Protection Agency. **Award amount: \$128,500.** *Principal Investigator*
- Goforth, R.R.** 2004. Nearshore benthic community patterns related to multi-scale land cover properties of Lake Michigan shorelines. Awarded by the Michigan Department of Environmental Quality, Coastal Zone Management. **Award amount: \$35,000.** *Principal Investigator*
- Goforth, R.R., P. Brown, M.A. Kost, P.J. Higman, M.R. Penskar, and P.B. Pearman.** 2004. Development of a protocol for rare, threatened, and endangered species and natural community site assessments to streamline the endangered species clearance process. Awarded by the State of Michigan Department of Transportation. **Award amount: \$49,983.** *Principal Investigator*
- Goforth, R.R.** 2003. Nearshore benthic community patterns related to multi-scale land cover properties of Lake Michigan shorelines. Awarded by the Michigan Department of Environmental Quality, Coastal Zone Management. **Award amount: \$50,000.** *Principal Investigator*
- Goforth, R.R.** 2003. Patterns of aquatic nuisance species distribution and abundance related to multi-scale environmental properties of Great Lakes shorelines. Awarded by the Michigan Great Lakes Protection Fund, Michigan Department of Environmental Quality, Office of the Great Lakes. **Award amount: \$320,000.** *Principal Investigator* Note: Due to State of Michigan budget crisis, the final level of funding was reduced to \$102,000 following a Governor's Executive Order
- Goforth, R.R.** 2003. Research, assessment and data *management* needs to promote protection of Great Lakes Nearshore fisheries habitat: an expert's workshop. Awarded by the Great Lakes Fishery Trust. **Award amount: \$30,000.** *Principal Investigator*
- Goforth, R.R.** 2002. Nearshore benthic community patterns related to multi-scale land cover properties of Lake Michigan shorelines. Awarded by the Michigan Department of Environmental Quality, Coastal Zone Management. **Award amount: \$47,500.** *Principal Investigator*
- Goforth, R.R.** 2002. Surveys of native unionids at selected sites in the Muskegon River Watershed to facilitate ecological assessment and environmental management. Awarded by the Michigan Department of Environmental Quality, Coastal Zone Management. **Award amount: \$70,000.** *Principal Investigator*
- Goforth, R.R.** 2002. Surveys of native unionids in Michigan coastal areas and lower reaches of Great Lakes tributary rivers. Awarded by the Michigan Department of Environmental Quality, Coastal Zone Management. **Award amount: \$50,000.** *Principal Investigator*

RESEARCH PROJECT FUNDING (cont)

- Goforth, R.R.** 2001. Surveys of native unionids in Michigan coastal areas and lower reaches of Great Lakes tributary rivers. Awarded by the Michigan Department of Environmental Quality, Coastal Zone Management. **Award amount: \$36,400.** *Principal Investigator*
- Goforth, R.R.** 2000. Biodiversity analysis of selected riverine ecosystems within a fragmented landscape – phase II. Awarded by the Michigan Great Lakes Protection Fund, Michigan Department of Environmental Quality, Office of the Great Lakes. **Award amount: \$130,286.** *Principal Investigator*
- Goforth, R.R.** 2000. Evaluating the current status of freshwater mussels and associated communities in the St. Joseph and Grand Rivers, Michigan. Awarded by the Michigan Department of Environmental Quality, Office of the Great Lakes. **Award amount: \$35,000.** *Principal Investigator*
- Goforth, R.R.** 2000. Surveys for the clubshell (*Pleurobema clava*) and other rare clams in Michigan. Awarded by the US Fish and Wildlife Service, Region 3 Endangered Species Office, Twin Cities, MN. **Award amount: \$61,491.** *Principal Investigator*
- Meadows, G., D. Mickelson, T. Edil, S. Mackey, and **R.R. Goforth.** 1999. Cumulative impacts of shoreline engineering on nearshore areas of the Great Lakes. Great Lake Protection Fund. **Award amount: \$468,000.** *Co-principal investigator*
- Goforth, R.R.** 1999. Biodiversity analysis of selected riverine ecosystems within a fragmented landscape – phase I. Awarded by the Michigan Great Lakes Protection Fund, Michigan Department of Environmental Quality, Office of the Great Lakes. **Award amount: \$109,702.** *Principal Investigator*
- Goforth, R.R.** 1999. Surveys for the clubshell (*Pleurobema clava*) and other rare clams in Michigan. 1999-2000. Awarded by the US Fish and Wildlife Service, Region 3 Endangered Species Office, Twin Cities, MN. **Award amount: \$60,894.** *Principal Investigator*
- Goforth, R.R.** 1999. Evaluating the current status of freshwater mussels and associated communities in the Grand River, Michigan. Awarded by the Michigan Department of Environmental Quality, Office of the Great Lakes. **Award amount: \$35,000.** *Principal Investigator*
- Goforth, R.R.** 1998. Surveys for the clubshell (*Pleurobema clava*) and other rare clams in Michigan. Awarded by the US Fish and Wildlife Service, Region 3 Endangered Species Office, Twin Cities, MN. **Award amount: \$60,894.** *Principal Investigator*