

George E. Host

Natural Resources Research Institute
University of Minnesota
5013 Miller Trunk Highway
Duluth MN 55811-1442

218.720.4264
218.720.4328 f
ghost@nrri.umn.edu
www.d.umn.edu/~ghost/

Education

PhD Forest Ecology, Michigan State University, East Lansing. 1987
MS Botany, Kent State University, Kent, Ohio. 1982
BS Botany, Miami University, Oxford, Ohio. 1977

Recent Professional Experience

2005–present Graduate Faculty, Integrated Biosciences Program, University of Minnesota Duluth
2003–present Senior Research Associate and Director-Natural Resources Geographic Information System Laboratory. Natural Resources Research Institute, University of Minnesota Duluth
2003–present Senior Member, Water Resources Science Faculty, University of MN, St. Paul
2001–2003 Senior Research Associate, Natural Resources Research Institute, University of Minnesota Duluth
1989–2001 Biostatistician/Research Associate, Natural Resources Research Institute, University of Minnesota Duluth
1991–present Graduate Faculty, Department of Biology, University of Minnesota Duluth
1987–1989 Research Plant Physiologist, North Central Forest Experiment Station, U.S. Forest Service, Grand Rapids, MN

Recent Grants and Contracts

Minnesota's statewide conservation and preservation plan. Legislative-Citizen Commission on Minnesota Resources. Co-principal Investigator \$121,000.

Development of environmental indicators of condition, integrity, and sustainability in the Great Lakes basin. U.S. Environmental Protection Agency. Co-Principal Investigator. \$6,000,000.

Protocols for selecting classification systems and reference conditions: a comparison of methods. U.S. Environmental Protection Agency. Co-Principal Investigator. \$747,404.

Prioritized monitoring for the Lake Superior basin. Great Lakes National Protection Office. Principal Investigator-\$75,818.

Vegetation characterization and conifer regeneration strategies for the Grand Portage National Monument. National Park Service. \$30,194.

Comparison of recent and historic landscape changes by beaver activity in Voyageurs National Park, 1927-2005. National Park Service. \$28,154.

Development of sampling framework and key protocols for monitoring natural resources of the Great Lakes Network. National Park Service. Principal Investigator \$177,895.

Scenarios of landscape change effects on tropospheric ozone risk to forests of the Midwest. U.S. Forest Service. Principal Investigator. \$80,000.

The Grand Rapids forest legacy project: spatial analyses for the identification of conservation easement sites. The Nature Conservancy, Principal Investigator. \$22,021.

Aquatic and wetland ecosystem studies of a restored wild rice lake system. Fond du Lac Tribal Community College. Principal Investigator. \$96,000.

An ecological classification and assessment of Minnesota's northern landscape. MN DNR, Principal Investigator. \$25,000.

Evaluation of DNR aquatic vegetation surveys data summaries and comparative analysis. MN Department of Natural Resources. Co-Principal Investigator. \$50,000.

DuluthStreams heads north: making North Shore stream data make sense to citizens and local officials. Co-Principal Investigator. \$95,619.

DuluthStreams.org: Regionalizing surface water education and outreach. Co-Principal Investigator. MN's Lake Superior Coastal Program (MDNR- NOAA-prime). \$45,580 (total project = \$102,850).

Duluth Streams: Community partnerships for understanding urban stormwater and water quality issues at the head of the Great Lakes. Co-Principal Investigator. U.S. Environmental Protection Agency. \$211,555.

Inventory and classification of Minnesota's North Shore wetlands for the CoastalGIS project. National Atmospheric and Oceanic Administration via MN Dept of Natural Resources Coastal Program. \$100,000.

Development of monitoring protocols to assess impacts of European earthworm invasions. National Park Service. Principal Investigator. \$64,600.

Completed Grants and Contracts

Development and evaluation of multi-scale mechanistic indicators of regional landscapes. U.S. Environmental Protection Agency, Office of Research and Development. Co-Principal investigator. \$998,964.

Spatial analysis of forest landscape conditions of Northern Minnesota. MN Dept of Natural Resources. Principal Investigator. \$45,000.

Assessment and development of water quality monitoring for parks in the National Parks Service Great Lakes Network. National Park Service. Co-principal Investigator. \$46,650.

Training water science technicians for the future-a national online curriculum using advanced technologies and real-time data. National Science Foundation. Co-Principal Investigator. \$600,000.

Impacts of greenhouse gases (CO₂, O₃) on carbon sequestration and storage in a regenerating northern hardwood forest: the FACTS II (Aspen FACE) Study. Michigan Technological University/U.S. Department of Energy, Co-Principal Investigator. \$2,159,648.

Modeling impacts of CO₂, ozone, and climate change on tree growth: an ecophysiological whole-tree growth process approach. U.S. Forest Service/U.S. Department of Energy. Principal Investigator. \$226,000.

Lake Access: Managing urban runoff using real-time, community-based monitoring to improve lake water quality. U.S. Environmental Protection Agency/Suburban Hennepin Regional Park District. Principal Investigator \$400,000.

Lake Access: Making water quality data real and relevant for Minnesotans. U.S. Environmental Protection Agency/Suburban Hennepin Regional Park District. Principal Investigator \$425,000.

Landscape modeling of white pine blister rust. Cloquet Forestry Center, G.E. Host and M.A. White. \$34,000.

Predicting water and forest resources health and sustainability. Legislative Council on Minnesota Resources, Co-Principal Investigator. \$461,574.

Impact of harvesting on regeneration, productivity and floristic diversity of quaking aspen and northern hardwood ecosystems. MN Forest Resources Council. Co-Principal Investigator. \$185,000.

Impact of harvesting on forest regeneration and productivity. North Central Forest Experiment Station. Co-Principal Investigator, \$30,000.

Geographic information and decision support tools for land use planning in the Minnesota Lake Superior Coastal Zone. MN Dept. of Natural Resources/National Oceanic and Atmospheric Administration. Principal Investigator. \$77,700.

Mapping native plant communities of the Northern Superior Uplands. MN Dept of Natural Resources. Principal Investigator. \$45,000.

Hierarchical parallel algorithms for simulating plant response to environmental stress. National Science Foundation. Principal Investigator. \$380,073.

Lake Superior decision support systems. MN Department of Natural Resources/U.S. Environmental Protection Agency. Principal Investigator. \$514,619.

Water on the web: monitoring Minnesota lakes on the Internet. National Science Foundation. Munson, B., R. P. Axler, G. E. Host, C. A. Hagley, and C. J. Owen. \$685,000.

Great Lakes assessment: spatial analysis of landscape pattern, decision support and data visualization systems. U.S. Forest Service. G. E. Host-\$100,500.

Forest-atmosphere carbon transfer and storage-II (FACTS II): Interacting effects of elevated CO₂ and O₃ on aspen forest ecosystems. NSF/DOE/NASA/USDA Joint Program on Terrestrial Ecology and Global Change. Co-Principal Investigator-\$498,997.

Modeling impacts of CO₂, ozone, and climate change on tree growth: I an ecophysiological whole-tree approach. U.S. Forest Service, Northern Stations Global Change Program. G. E. Host, J. Isebrands, and M. Rauscher. \$60,000 10/91-8/96.

Modeling impacts of CO₂, ozone, and climate change on tree growth II: Scaling from individual trees to populations. U.S. Forest Service, Northern Stations Global Change Program. G. E. Host, G. Theseira, and J. Isebrands. \$50,000. 5/94-5/96.

Interacting effects of CO₂, and O₃ on aspen forest ecosystems. U.S. Forest Service, Northern Stations Global Change Program. G. E. Host, G. Theseira, and J. Isebrands. \$40,000. 3/96-9/98.

Ecological effects of commercial thinning in 30 year old aspen. Blandin Paper Company/MN Department of Natural Resources. G. E. Host and M. A. White. \$20,000. 11/97-12/98.

ECOPHYS/EPIC: Developing a process-level model of hybrid poplar plantations for EPIC, an erosion/productivity impact model. Department of Energy via USFS. G. E. Host 149,000. 4/94-9/97.

Minnesota environmental indicators initiative. G. E. Host and C. Richards. 12/96- 6/97. \$60,000

Development of ecological criteria in Midwestern watersheds. Environmental Protection Agency-ERL Duluth C. Richards, G. E. Host, L. Johnson. \$250,000 10/93-12/96

Effects of soil compaction and organic matter removal on long-term site productivity and ground-flora diversity. U.S. Forest Service. G. E. Host. \$70,000. 6/90-8/96

Assessing site suitability for land application of biosolids in St. Louis, Carlton, and Douglas counties. G. E. Host and P. Polzer. Western Lake Superior Sanitary District \$2,400. 9/95.

Succession and productivity of Minnesota's forest ecosystems. G. E. Host and J. Pastor. MN Department of Natural Resources. \$31,808. 10/94-10/95.

High resolution climatic classification of the northern Lake States. North Central Forest Experiment Station. G. E. Host and D. J. Mladenoff. \$10,000. 2/94-8/95.

Structure and function of regional landscapes. North Central Forest Experiment Station. D. Mladenoff, G. E. Host, and T.R. Crow. \$392,445. 7/91-6/95.

Development of biocriteria for regional watersheds through integrated watershed and reach-scale analyses. Environmental Protection Agency. C. Richards, G. E. Host, L. Johnson. \$248,000. 8/91-7/95.

Development of ecological criteria in Midwestern watersheds. Environmental Protection Agency-Environmental Research Laboratory-Duluth. C. Richards, G. E. Host, L. Johnson. \$250,000 10/93-12/96.

Quantitative methods for risk assessment. Environmental Protection Agency S. Basak, B. Hunter, G. E. Host, and G. Niemi \$350,000 3/92-6/95.

An ecophysiological model of root-soil processes. U.S. Forest Service, Northern Forests Global Change Program. G. E. Host, J. Isebrands, and M. Rauscher. \$24,000. 10/92-9/94.

Water quality criteria analyses/analysis of toxicity data. U.S. Environmental Protection Agency. G. E. Host and R. Regal. \$24,000 10/91-9/92.

Computer databases, programs, and analyses of acute toxicity data. University of Wisconsin Superior. G. E. Host and R. Hunter. \$16,400. 7/92-9/92.

GIS for the Superior National Forest-Toimi opportunity area analysis. Superior National Forest. G. E. Host, L. Johnson, J. Pastor. \$7,250, 8/91-4/93.

Use of ecological land classification and geographic information systems to assess habitat suitability for black bear. USDA Forest Service. G. E. Host and L. Johnson. \$5,000. 9/90-12/92.

Vegetation data management software for entry, verification, and multivariate analysis. Ottawa National Forest. G. E. Host and A. Lima, \$5000 5/92-9/92.

Effects of leaf shape on light interception and photosynthate production in *Populus*. Principal Investigators: G. E. Host and D. Dickmann (Michigan State University). \$3,500.

Refereed Publications

Hutchens, J.J., J.A. Schuldt, C. Richards, L.B. Johnson, **G.E. Host**, and D.H. Breneman. Multi-scale mechanistic indicators of Midwestern USA stream macroinvertebrates. *Ecological Indicators* (In press).

G.E. Host, H.W. Stech, K.E. Lenz, K. Roskoski, and R. Mather. 2008. Forest patch modeling: using high performance computing to simulate aboveground interactions among individual trees. *Functional Plant Biology* 35:976-987.

White, M.A. and **G.E. Host**. 2008. Forest disturbance frequency and patch structure from pre-European settlement to present in the Mixed Forest Province of Minnesota, USA. *Can. J. of Forest Research* 38:2212-2226.

Bourgeau-Chavez, L., R.D. Lopez, A. Trebitz, T. Hollenhorst, **G.E. Host**, B. Huberty, R.L. Gauthier, and J. Hummer. 2008. (p 143-171) Landscape-based Indicators. In: T. Burton, J.C. Brazner, J.J.H. Ciborowski, G.P. Grabas, J. Jummer, J. Schnieder, and D.G. Uzarski, eds. Great Lakes Coastal Wetlands Monitoring Plan: Landscape-based Indicators. Great Lakes Commission, Ann Arbor.

Hollenhorst, T.P., Brown, T.N., Johnson, L.B., Ciborowski, J.J.H., Hollenhorst, T. P., Brown, T. N., Johnson, L. B., Ciborowski, J. J. H., and **Host, G. E.** 2007. Methods for generating multi-scale watershed delineations for indicator development in Great Lake Coastal ecosystems. *J. Great Lakes Res.* 33 (Special Issue 3) 13-26.

Brazner, J. C., Danz, N. P., Trebitz, A. S., Niemi, G. J., Regal, R. R., Hollenhorst, T. P., **Host, G. E.**, Reavie, E. D., Brown, T. N., Hanowski, J. M., Johnston, C. A., Johnson, L. B., Howe, R. W., and Ciborowski, J. J. H. 2007. Responsiveness of Great Lakes wetland indicators to human disturbances at multiple spatial scales: a multi-assemblage assessment. *J. Great Lakes Res.* 33 (Special Issue 3) 42-66.

Danz, N. P., G. J. Niemi, R. R. Regal, T. Hollenhorst, L. B. Johnson, J. M. Hanowski, R. Axler, J. J. H. Ciborowski, T. Hrabik, V. J. Brady, J. R. Kelly, J. A. Morrice, J. C. Brazner, R. W. Howe, C. A. Johnston, and **G. E. Host**. 2007. Integrated gradients of anthropogenic stress in the U.S. Great Lakes basin. *Environmental Management* 39:631-647.

Hollenhorst, T. P., **G. E. Host**, and L. B. Johnson. Scaling issues in mapping riparian zones with remote sensing data. 2006. In: (Wu, J., K.B. Jones, H. Li, and O.L. Loukes, eds) *Scaling and Uncertainty Analysis in Ecology: Methods and Applications*. Springer, p 271-291.

Johnson, L. B., **G. E. Host**, J. Olker, and C. Richards. 2006. Landscape and reach scale predictors of large wood abundance in low-gradient streams. In: (Hughes, R. M, L. Wang and P. W. Seelback eds). *Landscape Influences on Stream Habitats and Biological Assemblages*. American Fisheries Society Symposium 48:151-173.

Host, G. E., J. Schuldt, J. J. Ciborowski, L. B. Johnson, T. Hollenhorst, and C. Richards. 2005. Use of GIS and remotely-sensed data for a priori identification of reference areas for Great Lakes coastal ecosystems. *International J. of Remote Sensing* 26: 5325-5342.

Danz, N. P., R. R. Regal, G. J. Niemi, V. Brady, T. Hollenhorst, L. B. Johnson, **G. E. Host**, J. M. Hanowski, C. A. Johnston, T. Brown, J. Kingston, and J. Kelly R. 2005. Environmentally stratified sampling design for the development of Great Lakes environmental indicators. *Environmental Monitoring & Assessment* 102:41-65.

Schomberg, J.D., **G.E. Host**, L.B. Johnson, and C. Richards. 2005. Evaluating the influence of landform, surficial geology and land use on streams using hydrologic simulation modeling. *Aquatic Sciences* 67:393-548.

Angelstam, Per, Stan Boutin, Fiona Schmiegelow, Marc-André Villard, Pierre Drapeau, **George Host**, John Innes, Grigoriy Isachenko, Timo Kuuluvainen, Mikko Mönkkönen, Gerald Niemi, Jean-Michel Roberge, John Spence, Duncan Stone. 2004. Targets for boreal forest biodiversity conservation-a rationale for macroecological research and adaptive management. *Ecological Bulletin* 51:487-509.

Berger, A. L, K. J. Peuttmann and **G. E. Host**. Harvesting impacts on soil and understory vegetation: The influence of season of harvest and within-site disturbance patterns in clearcut Aspen stands in Minnesota. 2004. *Canadian Journal of Forest Research* 43:2159-2168.

Karnosky, D.F., D.R. Zak, K.S. Pregitzer, C.S. Awmack, J.G. Bockheim, R.E. Dickson, G.R. Hendrey, **G. E. Host**, W.S. Jones, J.S. King, B.J. Kopper, E.L. Kruger, M.E. Kubiske, R.L. Lindroth, W.J. Mattson, E.P. McDonald, A. Noormets, E. Oksanen, W.F.J. Parsons, K.E. Percy, G.K. Podila, D.E. Riemenschneider, P. Sharma, A. Sober, J. Sober, S. Anttonen, E. Vapaavuori, and J.G. Isebrands. 2003. Tropospheric O₃ moderates responses of temperate hardwood forests to elevated

CO₂: a synthesis of molecular to ecosystem results from the Aspen FACE project. *Functional Ecology* 17:289-304.

Munson, B. H. R. Huber, R. P. Axler, **G. E. Host**, C. Hagley, C. Moore, and G. Merrick. 2003. Field trips online: investigating water quality through the Internet. *Science Teacher* 70:44-49.

Theseira, G.W., **G. E. Host**, J. G. Isebrands, and F. D. Whisler. 2003. SOILPSI: A potential-driven three-dimensional soil water redistribution model: description and comparative evaluation. *Environmental Software and Modeling* 18:13-23.

White, M. A., T. N. Brown and **G. E. Host**. 2002. Landscape analysis of risk factors for white pine blister rust in the Mixed Forest Province of Minnesota, U.S.A. *Canadian Journal of Forest Research* 32:1639-1650.

Laconite, A., J. G. Isebrands, and **G. E. Host**. 2002 A new way to account for the effect of source-sink spatial relationships in whole plant carbon allocation models. *Canadian Journal of Forest Research* 32:1838-1848.

Martin, M. J., **G. E. Host**, K. E. Lenz, and J. G. Isebrands. 2001. Simulating the growth response of aspen to elevated ozone: a mechanistic approach to scaling a leaf-level model of ozone effects on photosynthesis to a complex canopy architecture. *Environmental Pollution* 115: 425-436.

Host, G. E., L. B. Johnson, C. Richards, and P. Collins. 2000. Geographic information and tools for informed decisions: the Lake Superior Decision Support project. In: *Environmental Problem Solving with Geographic Information Systems 1994 and 1999 Conference Proceedings*. Environmental Protection Agency Document Number EPA/625/R-00/010. 11 p.

Host, G. E., N. R. Will, R. P. Axler, C.J. Owen, and B. H. Munson. 2000. Interactive technologies for collecting and visualizing water quality data. *Journal of the Urban and Regional Information Systems Association* 12:39-45.

Isebrands, J. G., **G. E. Host**, K.E. Lenz, G. Wu, H. W. Stech. 2000. Hierarchical, parallel computing strategies using component object model for process modelling responses of forest plantations to interacting multiple stresses. In: (R.J.M. Ceulemans, F. Veroustraete, V. Gond, and J.B.H.F. Van Rensbergen eds.) *Forest Ecosystem Modeling, Upscaling, and Remote Sensing*, SPB Academic Publishing, Hague, Netherlands. pp 123-135.

Crow, T. R., **G. E. Host**, and D. J. Mladenoff. 1999. Ownership and ecosystem as sources of spatial heterogeneity in a forested landscape, Wisconsin, USA. *Landscape Ecology* 14:449-463.

Host, G. E., B. H. Munson, R. P. Axler, C. A. Hagley, G. Merrick, and C. J. Owen. 1999. Water on the web: students monitoring Minnesota rivers and lakes over the Internet. *Proceedings: AWRA Symposium on Water Resources and the World Wide Web*, Seattle, WA. Dec 5-9, 1999. <http://www.awra.org/proceedings/www99/w74/index.htm>.

Host, G. E., G. W. Theseira, C. Heim, J. G. Isebrands and R. Graham. 1999. EPIC-ECOPHYS: A linkage of empirical and process models for simulating poplar plantation growth. In: (A. Amaro and

M. Tome Eds.) Empirical and Process Models for Forest Tree and Stand Growth Simulation. Edicos Salamandra pp. 419-429.

Isebrands, J. G., **G. E. Host**, K. McTavish and K. E. Lenz. 1999. Modeling short-rotation forest plantations using hierarchical, parallel computing: A developmental history of ECOPHYS. In: (A. Amaro and M. Tome, eds.) Empirical and Process Models for Forest Tree and Stand Growth Simulation. Edicos Salamandra pp. 537-51.

Basak, S. C., G. D. Grunwald, **G. E. Host**, G. J. Niemi, and S. P. Bradbury. 1998. A comparative study of molecular similarity, statistical and neural methods for predicting toxic modes of action. Environmental Toxicology and Chemistry 17:1056-1064.

Host, G. E. and J. Pastor. 1998. Modeling forest succession among ecological land units in northern Minnesota. Conservation Ecology, [online] 2(2): 15. Available from the Internet. <http://www.consecol.org/vol2/iss2/art15>.

Richards, C., R.J. Haro, L.B. Johnson, and **G. E. Host**. 1997. Catchment and reach-scale properties as indicators of macroinvertebrate species traits. Freshwater Biology 37:219-230.

Johnson, L.B., C. Richards, **G. E. Host**, and J.W. Arthur. 1997. Landscape influences on water chemistry in Midwestern stream ecosystems. Freshwater Biology 37:193-207.

Host, G. E., P. L. Polzer, D. J. Mladenoff, M. A. White, and T. R. Crow. 1996. A quantitative approach to developing regional ecosystem classifications. Ecological Applications 6:608- 618.

Host, G. E., J. G. Isebrands, G.W. Theseira, J.R. Kiniry, and R.L. Graham. 1996. Temporal and spatial scaling from individual trees to plantations: a modeling strategy. Biomass and Bioenergy 11:233-243.

Host, G. E., J.G. Isebrands, and K. Perttu. 1996. Modeling short rotation forestry growth: an international workshop. Biomass and Bioenergy 11:73-74.

Isebrands, J.G., **G. E. Host**, L. Bollmark, J. Porter, S. Philippot, E. Stevens, and K. Rushton. 1996. A strategy for process modelling of short rotation *Salix* coppice plantations. Biomass and Bioenergy: 11:245-252.

McDonald, M.E., C.A. Tikkanen, R.P. Axler, C.P. Larsen and **G. E. Host**. 1996. Fish simulation culture model (FIS-C): a bioenergetics based model for aquacultural wasteload application. Aquacultural Engineering 15:243-259.

Perala, D. A., **G. E. Host**, J. K. Jordan, and C. J. Cieszewski. 1996. A multiproduct growth and yield model for the circumboreal aspens. Northern Journal of Applied Forestry 13:164-170.

Richards, C., L.B. Johnson, and **G. E. Host**. 1996. Landscape-scale influences on stream habitats and biota. Can. J. Fish. Aquat. Sci. 53:295-311.

- Nute, D. E., H. M. Rauscher, D. A. Perala, G. Zhu, Y. Chang, and **G. E. Host**. 1995. A toolkit approach to developing forest management advisory systems in PROLOG. *AI Applications in Natural Resources* 9:39-58.
- Rauscher, H. M., D. E. Nute, D. A. Perala, G. Zhu, Y. Chang, **G. E. Host**, and J. W. Benzie. 1995. The forest management advisory system. *AI Applications in Natural Resources* 9:60.
- Wolter, P. T., D. J. Mladenoff, **G. E. Host**, and T. R. Crow. 1995. Improved forest classification in the northern Lake States using multi-temporal Landsat imagery. *Photogrammetric Engineering and Remote Sensing* 61(9):1129-1143.
- Host, G. E.** and J. G. Isebrands. 1994. An interregional validation of ECOPHYS, a growth process model of juvenile poplar clones. *Tree Physiology* 14:933-945.
- Richards, C. and **G. E. Host**. 1994. Examining land use influences on stream habitats and macroinvertebrates: A GIS approach. *Water Resources Bulletin* 30:729-738.
- Richards, C, **G. E. Host**, and J. W. Arthur. 1993. Identification of predominant environmental factors structuring stream macroinvertebrate communities within a large agricultural catchment. *Freshwater Biology* 29:285-294.
- Host, G. E.** and K. S. Pregitzer. 1992. Geomorphic influences on ground-flora and overstory composition in upland forests of northwestern Lower Michigan. *Canadian Journal of Forest Research* 22:1547-1555.
- Host, G. E.**, H.M. Rauscher, and D. Schmoldt. 1992. SYLVATICA: An integrated framework for forest landscape simulation. *Landscape and Urban Planning* 22:281-284.
- Host, G. E.** and K.S. Pregitzer. 1991. Ecological species groups for upland forest ecosystems of northwestern Lower Michigan. *Forest Ecology and Management*. 43:87-102.
- Host, G. E.**, J.G. Isebrands, H.M. Rauscher, and D.A. Michael. 1990. Validation of photosynthate production in ECOPHYS, an ecophysiological growth process model of *Populus*. *Tree Physiology* 7:283-296.
- Rauscher, H.M. and **G. E. Host**. 1990. Hypertext and AI: a complementary combination for knowledge management. *AI Applications in Natural Resource Management* 4:58-61.
- Rauscher, H. M., J. G. Isebrands, **G. E. Host**, R. E. Dickson, D. I. Dickmann, T. R. Crow, and D. A. Michael. 1990. ECOPHYS: an ecophysiological growth process model of poplar. *Tree Physiology* 7:255-281.
- Zak, D.R., **G. E. Host**, and K.S. Pregitzer. 1989. Regional variability in nitrogen cycling and overstory biomass in northern Lower Michigan. *Canadian Journal of Forest Research* 9:1521-1526.
- Host, G. E.**, K.S. Pregitzer, C.W. Ramm, D.P. Lusch, and D.T. Cleland. 1988. Variation in overstory biomass among glacial landforms and ecological land units in northwestern Lower Michigan. *Canadian Journal of Forest Research* 18:659-668.

Host, G. E. K. S. Pregitzer, C. W. Ramm, J. B. Hart, and D. T. Cleland. 1987. Landform-mediated differences in successional pathways among upland forest ecosystems in northwestern Lower Michigan. *Forest Science* 33:445-457.

Zak, D. R., K. S. Pregitzer, and **G. E. Host**. 1986. Landscape variation in nitrogen mineralization and nitrification. *Canadian Journal of Forest Research* 16:1258-1263.

Andreas, B. K. and **G. E. Host**. 1983. Development of a *Sphagnum* bog on the floor of a sandstone quarry in northeastern Ohio. *Ohio Journal of Science* 83:246-253.

Host, G. E. and S. J. Mazzer. 1982. An Ohio record for *Tuber texense* (Heimsch). *Ohio Journal of Science* 82:142

Technical Reports

Alban, D. H, **G. E. Host**, J. D. Elioff, and D. Shadis. 1994. Soil and vegetation response to soil compaction and forest floor removal after aspen harvesting. USDA Forest Service North Central Forest Experiment Station Research Paper NC-315. 8 p.

Arthur, J.W., T. Roush, J.A. Thompson, F.A. Puglisi, C. Richards, **G. E. Host**, and L.B. Johnson. Evaluation of watershed quality in the Saginaw River basin. U.S. Environmental Protection Agency, Office of Research and Development, Duluth, MN. EPA/600/R95/153.

Axler, R., C. Tikkanen, M. McDonald, C.Larsen, and **G. E. Host**. 1993. Fish bioenergetics modeling to estimate waste loads from a net-pen aquaculture operation. In: (J. Wang ed) *Proceedings Modeling and Management Techniques for Aquaculture Operations*, June 21-23, 1993, Spokane, WA.

Axler, R.P, E. Ruzycski, **G. E. Host** and J. Henneck. 2006. Historical water quality data assessment of the Great Lakes inventory and monitoring network. NRRI Technical Report NRRI/TR-2006/05.

Axler, R. P., J. Barten, **G. E. Host**, B. H. Munson, C. A. Hagley, B. Luikkonen, and C. J. Owen. 2000. Water on the Web and Lake Access: some lessons from continuous lake monitoring. *Focus* 10,000 11:17-20

Basak, S. C., B. Hunter, G. Niemi, and **G. E. Host**. 1993. Report of the international workshop on molecular similarity in risk assessment. EPA/CR 819621-01-0. NRRI Technical Report No, NRRI/TR-93/09.

Berguson, W. E. and **G. E. Host**. 1995. Analysis of stand stocking relationships and basal area growth rate among ecological land units in north central Minnesota. Natural Resources Research Institute. NRRI/TR-95/44 7 pp.

Boeder, J.E., Y. Xin, M.A. White, D.J. Mladenoff, and **G. E. Host**. 1995. Spatial analysis package (apack): user's guide and technical documentation. Duluth, MN. Natural Resources Research Institute. NRRI/TR-95/26 16 p.

Cleland, D. T., J. B. Hart, **G. E. Host**, K. S. Pregitzer, and C. W. Ramm. 1994. Field guide: ecological classification and inventory system of the Huron-Manistee national forests. USDA Forest Service Huron-Manistee National Forest, Cadillac, MI. 245 p.

- Dickson, R. E., K. F. Lewin, J. G. Isebrands, M. D. Coleman, W. E. Heilman, D. E. Riemenschneider, J. Sober, **G. E. Host**, D. R. Zak, G. R. Hendrey, K. S. Pregitzer, and D. F. Karnosky. 2000. Forest atmosphere carbon transfer and storage-II (FACTS-II)-the aspen free-air CO₂ and O₃ enrichment (FACE) project: an overview. General Technical Report NC-214, North Central Experiment Station, St. Paul, MN, 68 p.
- Hale, C.M. and **G. E. Host**. 2005. Assessing the impacts of European earthworm invasions in beech-maple hardwood and aspen-fir boreal forests of the western Great Lakes region. National Park Service Great Lakes Inventory and Monitoring Network Report GLKN/2005/11.
- Host, G. E.** 1996. Effects of soil compaction and organic matter removal on ground-flora diversity in the Great Lakes forests. Natural Resources Research Institute Technical Report. NRRI/TR-96/16.
- Host, G. E.** and J. Pastor. 1995. Modeling forest succession among ecological land units in northern Minnesota. Natural Resources Research Institute Technical Report. NRRI/TR-95/43 33 p.
- Host, G. E.** and G. Sjerven. 2008. CoastalGIS: delivering spatial information for land use planning on Minnesota's north shore. Natural Resources Research Institute Technical Report. NRRI/TR-2008/07 16 p.
- Host, G. E.** 1993. Floristic differences in permanent openings among ecological land units and after fire. Natural Resources Research Institute Technical Report NRRI/TR-94/04. 33 p.
- Host, G. E.** and J. G. Isebrands. 1997. Modeling the effects of climatic extremes on early growth of poplar under short rotation intensive culture. North Central Forest Experiment Station General Technical Report NC-196, 7 p.
- Host, G. E.**, M. A. White, P. L. Polzer, and P. T. Wolter. 1997. Great Lakes assessment: assessing landscape pattern and structure in Lake States forests. Natural Resources Research Institute Technical Report NRRI/TR-97/03. 28 p.
- Host, G. E.** and P. L. Polzer. 1996. Assessing site suitability for land application of biosolids in St. Louis, Carlton, and Douglas counties. Natural Resources Research Institute Technical Report NRRI/TR-96/10. 28 p.
- Host, G. E.** and P. L. Polzer. 1997. A comparison of forest cover classifications in the Great Lakes region based on AVHRR and Landsat Thematic Mapper imagery. Natural Resources Research Institute Technical Report NRRI/TR-97/06. 14 p.
- Host, G. E.**, T. Brown, and P. Meysembourg. 2006. An ecological classification and assessment of Minnesota's northern landscape. Natural Resources Research Institute Technical Report NRRI/TR-2006/30 23 p.
- Host, G. E.**, P. L. Polzer, and D. T. Cleland. 1995. Regional climatic analyses of the northern Lake States. Natural Resources Research Institute Technical Report NRRI/TR-95/32. 10 p.
- Host, G. E.**, R. R. Regal, and C. E. Stephan. 1991. Analyses of acute and chronic data for aquatic life. EPA-Microfiches PB93-154714.

Host, G. E., H.M. Rauscher, J.G. Isebrands, D.I. Dickmann, R.E. Dickson, T.R. Crow, and D.A. Michael. 1990. The microcomputer scientific software series #6. ECOPHYS: An ecophysiological growth process model of juvenile *Populus*-user's manual. USDA Forest Service North Central Forest Experiment Station, Gen. Tech. Rept. NC-141. St. Paul, MN.

Host, G. E. and H.M. Rauscher. 1990. Validating the regional applicability of an ecophysiological growth process model of poplar. Proceedings of the IUFRO Forest Simulation Systems Conference, Nov. 2-5, 1988, Berkeley, CA. p 97-106.

Host, G. E., L. B. Johnson, C. Richards, and P. T. Collins. 2000. Geographic information and tools for informed decisions: the Lake Superior decision support project. Proceedings, Environmental Problem Solving with Geographic Information Systems, National Conference, Sept 22-24, 1999, Cincinnati, OH. EPA/625/R-00/010. 11 p.

Host, G. E., G. W. Theseira, and J. G. Isebrands. 1996. Modeling impacts of CO₂, ozone, and climate change on tree growth. In: (J. Hom, R. Birdsey, and K. O'Brian, eds.) Proceedings of the 1995 meeting of the Northern Global Change Program, March 14-16, Pittsburgh, PA. Northeastern Forest Experiment Station General Technical Report NE-214, pp. 33-37.

Host, G. E., S. Westin, W. Cole, and K.S. Pregitzer. 1989. The microcomputer scientific software series #5: the BIOMASS user's manual. USDA Forest Service North Central Forest Experiment Station, Gen. Tech. Rept. NC-127. St. Paul, MN.

Host, G. E. 1991. An ecophysiological whole-tree approach to modelling tree growth. In: (H. Grewel, ed.) Proceedings of the Forestry Canada Modelling and Climate Change Joint Workshop. Northern Forestry Centre, Forestry Canada. p. 15-23.

Host, G. E., C. W. Ramm, E. A. Padley, K. S. Pregitzer, J. B. Hart, and D. T. Cleland. 1993. Field sampling and data analysis methods for development of ecological land classifications: an application on the Manistee National Forest. North Central Forest Experiment Station General Technical Report NC-162, St. Paul, MN, 47 p.

Host, G. E. and C. Tikkanen. 1993. Fish growth rates and food consumption model: a review. Bulletin of the Ecological Society of America 74:59-60.

Host, G. E. 1996. Forest management impacts on riparian ecosystems. In: (K. Burke, ed.) At the Water's Edge: the Science of Riparian Forestry, Conference Proceedings, University of Minnesota Distribution Center BU-6637-S St. Paul, MN pp. 137-141.

Johnson, L. B., **G. E. Host**, J. K. Jordan, and L. L. Rogers. 1991. Use of GIS for landscape design in natural resources management: habitat assessment and management for the female black bear. In: Proceedings of GIS/LIS '91, Oct 28-Nov-1, 1991, Atlanta, GA. pp. 507-517.

Martin, M. J., **G. E. Host**, K. E. Lenz, and J. G. Isebrands. 2003. Simulating the growth response of aspen to elevated ozone: a mechanistic approach from leaf-level photosynthesis to complex architecture. In: Karnosky, D.F., K. E. Percy, A. H. Chappelka, C. Simpson, and J. Pikkarainen eds) Air Pollution, Global Change and Forests in the New Millennium Elsevier, p 175-198

Mladenoff, D. J. and **G. E. Host**. 1994. Ecological perspective: current and potential applications of remote sensing and GIS to ecosystem analysis. In: (V. A. Sample, ed) Remote Sensing and GIS in Resource Management Planning, Analysis, and Decision Making. Island Press, Washington, D.C. pp 218-242.

Mladenoff, D.J., **G. E. Host**, J.E. Boeder, and T.R. Crow. 1996. LANDIS: a spatial model of forest landscape disturbance, succession, and management. Pages 175-180 In: M. F. Goodchild, L. T. Steyaert, B. O. Parks, C. A. Johnston, D. Maidment, M. Crane, and S. Glendinning, editors. GIS and Environmental Modeling: Progress and Research Issues. GIS World Books, Fort Collins, CO.

Munson, B. H., **G. E. Host**, C. A. Hagley, and R. P. Axler. 2000. Water on the web. ENC Focus 7:30-32.

Rauscher, H.M., D.A. Perala, and **G. E. Host**. 1990. An aspen forest management advisory system. In: Proceedings of Aspen Symposium '89, ed, R.D. Adams. USDA Forest Service, North Central Forest Experiment Station, Gen. Tech. Rept. NC-140. St. Paul, MN.

Reschke, C., G. E. Host, and L. B. Johnson. 2005. Evaluation of DNR aquatic vegetation surveys: data summaries and comparative analyses. Minnesota Dept of Natural Resources CFMS Contract Number A61156, St. Paul.

Richards, C., L. Johnson, **G. E. Host**, and J. Arthur. 1993. Landscape influences on habitat, water chemistry, and macroinvertebrate assemblages in Midwestern stream ecosystems. Natural Resources Research Institute Technical Report NRRI/TR-93/109. 60 p.

Richards, C., L. B. Johnson, and **G. E. Host**. 1995. Using GIS to examine linkages between landscapes and stream ecosystems. Pages 131-141. Seminar Publication: National Conference on Environmental Problem-Solving with Geographic Information Systems. U.S. Environmental Protection Agency EPA/625/R-95/004, Cincinnati.

Richards, C. L. Johnson, and **G. E. Host**. 1994. Identifying linkages between landscapes and stream ecosystems. In: Proceedings of a Workshop on Watershed and Water Quality Monitoring. Israeli Ministry of the Environment and U.S. Environmental Protection Agency.

Schomberg, J., Richards, C. and **G. E. Host**. 2000. Miller Creek stormwater modeling. Natural Resources Research Institute Technical Report NRRI/TR-2000/06. 69 p.

U.S. EPA. 2000. Delivering time-relevant water quality information to your community: the Lake Access-Minneapolis project. U.S. Environmental Protection Agency EPA/625/R-00/012. 82 p

White, M. A. and **G. E. Host**. 2000. Mapping range of natural variation ecosystems classes for the northern Superior uplands: draft map and analytical methods. Natural Resources Research Institute Technical Report NRRI/TR-2000/39. 13 p.

White, M. A. and **G. E. Host**. 2003 Historic disturbance regimes and natural variability of Grand Portage National Monument forest ecosystems. Report to GRPO, Grand Marais, MN, 17 p.

Teaching Experience

- 2006 Landscape Ecology (Biol 5808)-University of Minnesota Duluth (3 cr)-team taught with L. Johnson and T. Hollenhorst
- 2004 Landscape Ecology (Biol 5808)-University of Minnesota Duluth (3 cr)-team taught with L. Johnson and T. Hollenhorst
- 2000 Landscape Ecology (Biol 5990)-University of Minnesota Duluth (2 cr)-team taught with L. Johnson
- 1997 Vegetation Sampling and Analysis. Natural Environment Learning Center, University College, University of Minnesota Duluth (2 day workshop, 1 cr)
- 1997 Fire Ecology. MN Department of Natural Resources Division of Parks. (3-day workshop), Lecturer
- 1996 Ecological Modeling: a Short Course. Swedish Agricultural University, Uppsala, Sweden. (5 day workshop, part of 3 cr course)
- 1995 Physiological Modeling of Plant Growth Processes. Plant Physiology, University of Minnesota Duluth, Lecturer
- 1994 Forest Ecology (Biol 5774)-University of Minnesota Duluth. (5 cr-summer)
- 1990 Yield Components in Forestry. Province of Ontario and Lakehead University, Ontario Advanced Forestry Program, Lecturer
- 1982-1987 Advanced Forest Ecology, Forest Ecology, Plants and Environment, Forest Soils, Teaching Assistant, Michigan State University
- 1979-1982 Instructor for Biological Principles I, II (Lab), Teaching Assistant for Dendrology, Natural History of Plants, Field Mycology, Wildlife Resources, Plant Pathology, Ecology of Fungi.-Kent State University

Graduate Student Advising

Current students

Elaine Ruzycki-co-advisor, UM WRS program
Nathan DeJager-PhD final member, UM EEB
Pamela Gipe-PhD prelim member, UM Water Resources Science
Terri Jicha-MS final member, UMD Biology

Past students

UMD Biology

Michele Barlow, MS final chair/advisor
Megan Forbes-MS final chair/advisor
Sarah Crawford-MS final member
Steven Garske-MS final member
Cynthia Hale-MS Final member

Julie Ann Palakovich-MS final member
Lisa Schulte-MS final member
Scott Stai-MS final member

UMD Mathematics and Statistics

Michael Donahue-MS final member
Kyle Roskoski-MS final member
Yongtao Guan-MS final member
Larry Tordsen-MS final member

UM Water Resources Sciences

Joan Weandt-Fulton-MS final member
Melinda Zapp-MS final member

UM Forestry

Steven Friedman-PhD, UM Forestry, PhD prelim member

Symposia and Workshops, Invited and Contributed Seminars

“Leaves to landscapes: using high performance computing to assess patch-scale forest response to regional temperature and trace gas gradients.” Presented at the 5th International Workshop on Structural-Functional Plant Models. Napier, New Zealand. Nov 6, 2007.

“Minnesota’s Statewide Conservation and Preservation Plan.” Invited presentation, Integrative Biological Sciences Colloquium, October 15, 2007.

“The St. Louis River area of concern: linking watershed-scale stressor gradients to AOC habitat types for setting restoration targets” Invited presentation to the Great Lakes Commission Areas of Concern Conference, Cleveland, OH, June 28-30, 2007.

Reference area development and GLEI results. Invited presentation to Lake Superior LAMP, Marquette, MI Sept 7, 2006.

Real-time monitoring of stream ecosystems. Presented to the Vermillion River Watershed Joint Powers Agreement, Farmington, MN, Nov 2, 2006.

Minnesota Water 2005 and Annual Water Resources Joint Conference, Minneapolis, MN Oct 25-26, 2005.

“Spatial analyses for reference area identification and indicator development for coastal ecosystems of the Great Lakes. G. E. Host, L. B. Johnson, T. Hollenhorst, V. Brady, N. Danz, G. Niemi and J. Ciborowski.

“Water on the Web: lake and stream data-rich teaching resources.” C. Hagley, B. Munson, R. Axler, G. E. Host, E. Ruzycski, D. Richards, G. Merrick, J. Reed and N. Will.

“DuluthStreams to LakeSuperiorStreams: making stormwater and stream data come alive for citizens, students, research agencies and decision-makers. R. Axler, M. Lonsdale, C. Hagley, G. Host, J. Reed, J. Schomberg, and E. Ruzycski.

“DuluthStreams: community partnerships for understanding urban stormwater and water quality issues at the head of the Great Lakes. E. Rucycki, J. Reed, R. Axler, G. Host, N. Will, and J. Henneck.

“Water on the Web” G. E. Host Invited award presentation to the 5th Annual MERLOT International Conference, Nashville, TN, July 25-28, 2005

Lake Superior Basin Wetlands Research Conference. July 14, 2005, Duluth, MN

“Spatial analyses for quantifying anthropogenic stress in Great Lakes coastal wetlands. Host, George E., Hollenhorst, Tom, Johnson, Lucinda B, Brady, Valerie, Natural Resources Research Institute, University of Minnesota Duluth, Schuldt, Jeff, University of Wisconsin-Superior, Ciborowski Jan, University of Windsor and Richards Carl, Minnesota Sea Grant.

“Wetland inventory and classification for the *CoastalGIS* project.” Meysembourg, Paul; Sjerven, Gerry; Host, George. Natural Resources Research Institute, University of Minnesota Duluth.

4th International Symposium on Structural-Functional Plant Models, Montpellier, France, June 7-11, 2004.

“Mechanistically-based functional-structural tree models for simulating forest patch response to interacting environmental stresses.” Host, G E., K. Lenz, and H. Stech.

“Phenological process models based on carbon productivity at the leaf and branch levels, and their effects on aspen tree architecture.” Lenz, K.E., H.W. Stech, and G.E. Host.

“Elementary image analysis techniques for calibrating and testing canopy light interception models.”Stech, H.W., G. E. Host and K E. Lenz. Range of Variation Modeling for Minnesota Forests. Invited presentation to the Northeast Minnesota Landscape Committee Sept, 16, 2004.

Great Lakes Commission Sustainability Conference, Cleveland, OH May 5-6, 2004.

Future of open water observation technology for the Great Lakes workshop, Ann Arbor-Nov 2004 NOAA, International Joint Commission-Invited Presentations.

“Remote underwater sensing technology and data visualization.” G. Host, R. Axler, B. Munson, C. Hagley, and C. Richards.

“Multitemporal high-resolution satellite classification of submerged aquatic vegetation in the Great Lakes” G. Host, P. Wolter, J. Niemi, and C. Johnston. Society for Conservation Biology Annual Meeting, Duluth, MN-June 2003.

“Historic changes in landscape spatial patterns of northern Minnesota forests: interpretations from digitized surveyor notes and air photo sequences.” G. Host and M. White.

“Effects of temperature and trap density on male gypsy moth capture rates and flight patterns.” M. White, G. Host, D. Benson, and A. Sawyer.

“Water on the Web: training water science technicians with an online data-rich curriculum.” C. Hagley, R. Axler, G. Host, G. Merrick, B. Munson, and C. Richards.

“Scale effects in mapping riparian zones in agricultural landscapes: predicting in-stream conditions from land use at varying distances from the channel.” T. Hollenhorst, L. B. Johnson, G. Host, J. Schuldt, and C. Richards.

“Restricting the use of phosphorus fertilizer to improve water quality: an urban watershed experiment.” J. Johnson, J. Barten, G. Host, R. Axler, C. Hagley, and B. Luikkonen.

“Setting regional bird conservation priorities based on species historic population ranges.” J. Hanowski, T. Brown, G. Host, and M. White.

“Restoration of a wild rice lake ecosystem.” A. Wold, G. Host, and L. Schwartzkopf.

“Past, present, and possible future forest spatial patterns in northern Minnesota.” Manolis, G. Host, M. White, S. Mehta, H. Hoganson, M. Jones, L. Frelich, J. Bixby, S. Bergman, T. Crow, and W. Befort.

DuluthStreams: community partnerships for understanding urban stormwater and water quality issues at the head of the Great Lakes. R. Axler, M. Lonsdale, C. Hagley, G. Host, B. Munson, and C. Richards. (Poster).

“Internet-based remote sensing and visualizations of water quality information: education applications for specialists and citizens.” Host, G., R. Axler, C. Hagley, B. Munson, C. Richards, and G. Merrick. Frontiers in Assessment Methods for the Environment Conference, Minneapolis, MN. Aug 2003-invited presentation.

“Geospatial data for Lake Superior and the Great Lakes coastline: GIS in the Lake Superior Decision Support and Great Lakes Environmental Indicators projects. Invited presentation to the Great Lakes Commissions Great Lake Regional Data Exchange Workshop, Ann Arbor, MI (webcast), July 2003.

“Historic changes in landscape spatial patterns of northern Minnesota forests: interpretations from digitized surveyor notes and airphoto sequences. Society for Conservation Biology, Duluth, MN, June 2003.

“Use of GIS and remotely-sensed data for *a priori* identification of reference areas for Great Lakes coastal ecosystems.” 99th Association of American Geographers Conference, New Orleans, LA, March 2003.

“Great Lakes environmental indicators.” State of the Lakes Ecosystem Conference, Cleveland, OH, Oct 2002.

“Spatial analyses for strategic planning in public forest lands.” North American Forest Ecology Workshop, Duluth, MN June 2002.

“Potential native plant communities and the range of natural variation: tools for regional-scale forest landscape management.” International Conference: Ecosystem Management in Boreal Forest Landscapes, Koli National Park, Finland. May 2001.

“GIS databases and support tools for non-point education for municipal officials.” Invited presentation to Sea Grant NEMO Workshop, Duluth, MN, March 2001.

“Water on the Web: students monitoring Minnesota lakes over the Internet.” NSF Advanced Technology Education Annual Investigators Meeting, Washington, D.C. Oct 2000.

“Lake Superior decision support systems.” University Consortium on Geographic Information Systems Annual Winter Meeting, Washington, D. C. Feb. 2000.

“Lake Access: program description. MN Limnology Retreat, Siren, WI Feb 19-20, 2000.

“Water on the Web: students monitoring Minnesota lakes over the Internet.” NSF Advanced Technology Education Annual Investigators Meeting, Arlington, VA. Oct 1999

“Water on the Web: time-relevant monitoring of rivers and lakes over the Internet.” International Association for Great Lakes Research 42nd Conference. Cleveland, OH, May 99.

“GIS-based decision support for the Lake Superior basin.” International Association for Great Lakes Research 42nd Conference. Cleveland, OH, May 99.

“Modeling the natural range of variation for disturbance events in Minnesota forest ecosystems.” Government Accounting Office Performance Review, Great Lakes Assessment. Rhinelander, WI, May 99.

“Lake Superior decision support systems: GIS databases and decision support systems for land use planning” at the U.S. EPA’s Environmental Problem Solving with Geographic Information Systems Conference, held Sept 22-24, Cincinnati, OH.

“Sensors, slicers, and shuttles: the role of advanced technology and data visualization in science and the public education process.” Invited Sigma Xi Seminar, UMD, March 1999.

“New technologies for monitoring Minnesota lakes and rivers.” Invited Seminar, Itasca Community College Science Seminar Series. March 1999.

“Transmission, management, and visualization of real-time environmental data over the Internet,” Undergraduate Mathematics Colloquium, UMD, Dec 1998.

“State-of-the-art in growth process modeling.” Keynote address, 2nd International Workshop on Functional-Structural Tree Models, Clermont-Ferrand, France, October 1998.

“Vegetation response to soil compaction.” Invited presentation for the Institute for Sustainable Natural Resource's Soil Productivity Workshop, Cloquet Forestry Center, June, 1998.

“Ecophysiological process modeling for bioenergy plantations” at the International Energy Agency’s “Approaches to Modeling Bioenergy Systems” Workshop held at Oak Ridge National Laboratory, Oak Ridge, TN, April, 1997.

“Desired future conditions of the Great Lakes forest: an ecological perspective.” Invited presentation to the Board of Trustees of the Lake States Forestry Alliance. Two Harbors, MN, June, 1996. “Ecology and Management of Northern Minnesota’s Forests.” Invited seminar at the Minnesota Lakes Association Annual Meeting, Duluth, MN, May 1996.

“Eastern white pine: a multiscale approach to management.” Invited seminar at Boulder Lake Environmental Learning Center, Duluth, MN, April, 1996.

“Ecological modeling: a short course.” A series of eight invited lectures presented at the Swedish Agricultural University, Uppsala, Sweden, February 1996.

“Ecological modeling at the landscape scale.” Invited seminar at a joint meeting of the Minnesota SAF/WS/AFS, Brainerd, MN, January 1996.

“Forest management impacts on riparian ecosystems.” Invited seminar for “At the Water’s Edge: the Science of Riparian Forestry” Duluth, MN, June 1996.

Peer Reviewer of Professional Journals-1998-2008

Reviewer:

Canadian Journal of Forest Research
North Central Forest Experiment Station
Environmental Monitoring and Assessment
American Midland Naturalist
Natural Areas Journal
Tree Physiology
Forest Science
Landscape Ecology
Journal of Vegetation Science

Associate Editor:

Forest Science, 1998

Project Web Sites

Great Lakes Environmental Indicators
National Park Service Protocol Team
Lake Access
Water on the Web
Lake Superior Decision Support Systems
ECOPHYS Tree Growth Model
Duluth Streams

<https://glei.nrri.umn.edu/default/>
<http://www.nrri.umn.edu/NPSProtocol/>
<http://www.lakeaccess.org/>
<http://waterontheweb.org/>
<http://lsgis.nrri.umn.edu/>
www.nrri.umn.edu/nrri/ecophys.html
<http://www.duluthstreams.org/>

Professional Societies-1990-2008

American Institute of Biological Sciences
Xi Sigma Pi-National Forestry Honorary

Ecological Society of America
Sigma Xi

International Union of Forestry Research Org.
International Association for Landscape Ecology
Society of American Foresters
Association of American Geographers

Michigan Botanical Club
International Energy Agreement
American Water Resources Society

Committees/Outreach Activities

Society for Conservation Biology-June 2003-Chair, Symposium, Workshop and Discussion Committee

3rd North American Forest Ecology Workshop-June 2001-Planning and Session Coordinator

Minnesota Extension Service, St. Louis County Extension Committee-member since 1993, former Chair, current appointment through 2010

Minnesota Forest Resource Council
 Spatial Assessment Technical Team
 Spatial Assessment Strategy Team (alternate)
 Landscape Planning Committee
 Interagency Information Cooperative
 Soil Productivity Technical Committee

Minnesota Department of Natural Resources
 White Pine Timber Management Planning Public Involvement Work Group
 Extended Forest Rotation Roundtable
 Minnesota Wildlife Assessment and Management Advisory Board

Minnesota Generic Environmental Impact Statement Roundtable (alternate)
Lake Superior Ecosystem Cooperative
Great Lakes Forests and Soils Conference, Conference Organizer

Consultancy

UPM Blandin Paper Mill Thunderhawk Project, Draft Environmental Impact Statement-MN DNR via HDR Engineering, Inc. May 2005-January 2006.

Reconstructing fire history for the Grand Portage National Monument, a historic and dendro-chronological study-National Park Service 2001-2003.

KPA Associates: landscape ecology consultant for Aitkin County forest planning-March 2000-present.

Shaker Lakes Nature Center: Conservation Assessment through Heritage Preservation June-Sept 2001.

Audubon Center of the North Woods: Conservation Assessment through Heritage Preservation June-Sept 2000.

Smartwood, Inc: Smartwood audit team to assess incorporation of landscape ecology concepts into forest management practices of the Aitkin County Land Department and the Minnesota Department of Natural Resources, Oct-Nov 1998.

Eveleth Mines: Consultant to develop statistical methods for predicting silica concentration of coarse ore using crusher dust data. Jan-Sept. 1995.

Michigan Natural Features Inventory Program of the Nature Conservancy and the Michigan Department of Natural Resources, July 1986 to September 1987. Assess ecological quality of natural forest communities in Michigan's Lower Peninsula.

Awards or Honors Received

MERLOT (Multimedia Educations Resources for Learning and On-line Teaching) Classics Award-Biology. Nashville, TN July 25-28, 2005 (Water on the Web; team award).

Technical Excellence Award in recognition of "Outstanding Research in Stream and Lake Restoration, Protection and Management" from the North American Lake Management Society 2005. (LakeSuperiorStreams, team award).

Environmental Leadership Award for education and outreach at the 4th Annual Road Salt Symposium, March 30, 2005, St. Cloud, MN (LakeSuperiorStreams, team award).

2000 Technical Excellence Award for Public Education and Research, from the North American Lake Management Society, in recognition of extending effective and creative education in lake restoration, protection, and management. Award was for the Lake Access and Water-on-the-Web projects. (team award).

Gold Web Page Award from the Association of Natural Resource Extension Professionals, in recognition of an outstanding web page for natural resources education-Water on the Web site. (Water on the Web, team award).

Eisenhower National Clearinghouse Digital Dozen award (Water on the Web; Team award).
UCGIS Showcase 2000-selected Lake Superior Decision Support Project for presentation to Congressional representatives.

1999 Technology Enhanced Learning Award to the Water on the Web team: Rich Axler, G. Host, C. Hagley, B. Munson.

Fellowships

National Wildlife Federation
Environmental Conservation Fellowship
September 1982

Graduate Research Fellowship
Department of Forestry, March 1982
Michigan State University
June 1984