

## **Stuart H. Gage**

### **Professional Preparation**

North Dakota State University	Entomology	BS 1968
Michigan State University	Entomology	MS 1972
Michigan State University	Entomology & Systems Ecology	PhD 1974

### **Appointments**

Professor, Entomology Dept., Michigan State University, 1984-Present  
Associate Professor, Entomology Dept., Michigan State University, 1980-1984  
Extension Project Leader, Entomology Dept, Michigan State University, 1981-1982  
Assistant Professor, Entomology Dept., Michigan State University, 1977-1980  
Research Scientist, Agriculture Canada, Saskatoon, Saskatchewan, 1974-1977  
Adjunct Asst. Professor, Dept of Geography, Univ. Saskatchewan, Saskatoon, Sask., 1975-1977

### **Other Assignments**

Adjunct Professor, Department of Zoology, Michigan State University, 1998-Present

### **Awards**

Visiting Professor, Queensland University of Technology, 2006, 2007, 2008  
University Distinguished Faculty Award, Michigan State University, 2005  
Visiting Scholar, Department of Primary Industries, Victoria Australia, 2004  
Hayward Senior Fellow, Landcare Research, Lincoln, New Zealand, 2002  
Bailey Scholar, College of Agriculture and Natural Resources, MSU, 1998  
Visiting Professor, San Diego Supercomputer Center, La Jolla, CA, 1997  
Visiting Scientist, Plant Research Institute, Melbourne, Australia, 1984

### **Publications**

#### ***Five most closely related to proposed project***

- Gage, S.H. 2003. Observing the Acoustic Landscape. [In] Estrin, D, Michener, W. Bonito, G. 2003. Environmental Cyberinfrastructure Needs for Distributed Sensor Networks. A Report from a NSF Sponsored Workshop. Scripps Institute of Oceanography. Workshop Steering Committee. 64pp.
- Gage, S., P. Ummadi, A. Shortridge, J. Qi and P. Jella. 2004. Using GIS to develop a network of acoustic environmental sensors. ESRI International Conference. 2004. Aug 9-13. San Diego, CA. 15 pp.
- Porter, J., P. Arzberger, T. Kratz, P. Hanson, S. Gage, W. Michener, F-P. Lin, H. King, Hans-Werner Braun, T. Hanson, S. Shapiro, P. Bryant. 2005. Wireless Sensor Networks for Ecology. *Bioscience* 55:561-572.
- Butler, R. M. Servilla, S. Gage, J. Basney, V. Welch, B. Baker, T. Fleury, P. Duda, D. Gehrig, M. Bletzinger, J. Tao, D.M. Freemon. 2006. CyberInfrastructure for the analysis of ecological acoustic sensor data: a use case study in grid deployment. *Challenges of Large Applications in Distributed Environments*, IEEE 25-33.
- Kasten, E.P, P.K. McKinley, and S.H. Gage. 2007. Automated Ensemble Extraction and Analysis of Acoustic Data Streams. Proceedings of the First International Workshop on Distributed Event Processing, Systems and Applications (DEPSA), in conjunction with the IEEE International Conference on Distributed Computing Systems, Toronto, Ontario, Canada. 11pp.

### **Other significant publications**

- Gage, S.H., S.A. Isard and M. Colunga. 1999. Ecological scaling of aerobiological process. *Agric. For. Meteorol. Agricultural and Forest Meteorology* 97: 249-261.
- Gage, S.H., M. Colunga-Garcia, J.J. Helly, G.R. Safir and A. Momin. 2001. Structural design for management and visualization of information for simulation models applied to a regional scale. *Computers and Electronics in Agriculture* 33:77-84.
- Gage, S.H. 2003. Climate variability in the North Central Region: Characterizing drought severity patterns. [In] *Climate Variability and Ecosystem Response at Long Term Ecological Research Sites*. (D. Greenland, D. Goodin. and R. Smith, Eds.). Oxford Univ. Press. 457 pp.
- Grace P.R., M. Colunga-Garcia, S.H. Gage, G.R. Safir, G.P. Robertson. 2006. The potential impact of agriculture management and climate change on soil organic carbon of the North Central Region of the United States. *Ecosystems* 9: 1-13.
- Grace, P.R., J.N. Ladd, G.P. Robertson and S.H. Gage. 2006. SOCRATES-A simple model for predicting long-term changes in soil organic carbon in terrestrial ecosystems. *Soil Biology and Biochemistry* 38: 1172-1176.
- Isard, S.A. and S.H. Gage. 2001. *Flow of Life in the Atmosphere: An Airscape Approach to Understanding Invasive Organisms*. Michigan State University Press. 304 pp.
- Isard, S.A., S.H. Gage, P. Comtois, and J. Russo. 2005. Principle of the atmospheric pathway for invasive species applied to soybean rust. *BioScience*. 56:
- Lele, S., M. Taper and S.H. Gage. 1998. Statistical analysis of population dynamics in time and space. *Ecology*. 79:1489-1502.
- Nessledge, G.M., B.A. Maurer and S.H. Gage. 2006. Gypsy moth response to landscape structure differs from neutral model predictions: implications for invasion monitoring. *Bio Invasions*. DOI 10.1007/s/10530-006-9061-1.

### **Synergistic Activities**

*Teaching Complex Systems:* Professor Gage teaches Earth System Science (Honors).

*Laboratory/Center Development:* Gage is Director of the Computational Ecology and Visualization Laboratory ([www.cevl.msu.edu](http://www.cevl.msu.edu)) which focuses on large scale ecological analysis and synthesis of long time series of biophysical processes. *National Linkages:* Gage is a collaborator with scientists at the San Diego Supercomputer Center (SDSC) and at the National Center for Supercomputing Applications (NCSA) where he has collaborated on GRID computing applications. Gage has been CO-PI of the NSF supported Kellogg LTER. He collaborates with national scientists in the area of acoustic analysis, regional ecosystem simulation modeling, ecological synthesis and data mining.

*International linkages:* In 2004 and 2006 Gage was invited as Visiting Scholar, Department of Primary Industries in Victoria, Australia to develop new approaches to research, including use of acoustics to sense environmental change. Gage is currently collaborating with Director/Professor Peter Grace in the Institute of Sustainable Resources and Paul Roe e-Commerce, Queensland University of Technology on sensors and sensor cyber-infrastructure. QUT and MSU are co-developing new sensor technologies to monitor ecological health in complex ecosystems.