

Curriculum Vitae, February 2004

Dr. Paul W. Box

Current Address: Dept. of Aquatic, Watershed, and Earth Resources,
Utah State University, Logan, Utah
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Education:

- Ph.D. (1997) Geography, University of Florida, Gainesville Florida
- M.S. (1991) Geography, University of Florida, Gainesville Florida
- B.S. (1984) Geology, Utah State University, Logan, Utah

Employment History:

2002-present: **Assistant Professor**, Department of Aquatic, Watershed, and Earth Resources, Utah State University, Logan, Utah, USA
1997-2002: **Assistant Professor**, Department of Geography and Earth Resources, Utah State University, Logan Utah, USA
1989-1997: **Geographic Information Systems Specialist** and Research Assistant, Latin American Cartographic Lab, University of Florida, Gainesville Florida
1988: **Foreign Fisheries Observer**, Soviet fishing vessel, National Marine Fisheries Service, Seattle
1987-1988: **Fisheries Technical Trainer**, University of South Carolina and U.S. Peace Corps, Dar es Salaam, Tanzania
1984-1988: **Aquaculture Extension Agent**, U.S. Peace Corps, Tanga, Tanzania

Teaching Experience:

Regular University Courses:

- GEOG 4930 Geographic Information Systems (6 semesters)
- GEOG 5930/6930 Geographic Information and Analysis (5 semesters)
- GEOG 3900 Spatial Analysis (3 semesters)
- GEOG 3750 Fundamentals of Remote Sensing (co-taught 1 semester)
- GEOG 2230 Economic Geography (2 semesters)

Special Topics Courses and Workshops

- *Geographic Programming Languages* (co-taught 2 semesters)
- *Introduction to Swarm Programming Language* (2 workshops, 1 week each)
- *Agent-Based Modeling and GIS: the Swarm/Kenge toolkit* (1 week workshop)
- *Curso Introductorio y Avanzado de SIG* (2 semesters, taught 4930 and 6930 courses concurrently in Spanish)
- *SIG Introductorio para Administradores de Sistemas de Irrigación* (1 week workshop in Santo Domingo, Dominican Republic, in Spanish)
- *Tópicos Avanzados de SIG y ArcGIS 8.1* (1 week workshop in Santo Domingo, Dominican Republic, in Spanish)
- *Introduction to Swarm* (2-day seminar, Swarmfest 2003, Notre Dame CS Dept.)

Publications

Journal articles:

- Pitt, W. C., Box, P. W., and Knowlton, F. F. (2003). An individual-based model of canid populations: modelling territoriality and social structure. *Ecological Modelling* 166:109-121
- Sasaki, Y. and Box, P. W. (2003). An agent-based exploration of von Thünen's location theory. *Journal of Artificial Societies and Social Simulation*. 6(3)
- Pitt, W. C., Knowlton, F. F., and Box, P. W. (2001). A new approach to understanding canid populations using an individual-based computer model: preliminary results. *Endangered Species Update* 18(4):103-107
- Smith, K., Barrett, C. B., and Box, P. W. (2001). Not necessarily in the same boat: Heterogeneous risk assessment among east African pastoralists. *Journal of Development Studies*, 37(5):1-30.
- Box, P. W. (2000). Garage band science and dynamic spatial models. *Journal of Geographical Systems*, 2(1):49-54.
- Smith, K. C., Barrett, C. B., and Box, P. W. (2000). Participatory risk mapping for targeting research and assistance: with an example from east African pastoralists. *World Development*, 28(11):1945-1959

Peer-reviewed book chapters

- Box, P. W. (2002). Spatial units as agents: Making the landscape an equal player in agent-based simulations. In Gimblett, H. R., editor, *Integrating Geographic Information Systems and Agent-Based Modeling Techniques for Understanding Social and Ecological Processes*, Life Sciences, Oxford. Oxford University Press.

Peer-reviewed conference proceedings

- Box, P. W. (2001). The Kenge GIS-CA class template for Swarm. In Pitt, W. C., editor (2001). *Proceedings of the Fourth Annual Swarm User Group Meeting*, volume VIII of *Natural Resources and Environmental Issues*, Logan, UT. S. J. and Jessie E. Quinney Natural Resources Research Library.
- Pitt, W. C., Ogawa, A., Knowlton, F. F., and Box, P. W. (2001). Evaluating the effects of management on territorial animals using Swarm. n Pitt, W. C., editor (2001). *Proceedings of the Fourth Annual Swarm User Group Meeting*, volume VIII of *Natural Resources and Environmental Issues*, Logan, UT. S. J. and Jessie E. Quinney Natural Resources Research Library
- Pitt, W. C., Ogawa, A., Knowlton, F. F., and Box, P. W. (2000). Evaluation of depredation management techniques for territorial animals using a computer model: Coyotes as a case study. In *Proceedings of Vertebrate Pest Control Conference*, pages 315-318.

Research Grants (figures are in US\$)

Holt, J. and P. W. Box (USU) **Bottom-up Modeling of Mass Pedestrian Flows: Implications of the Effective Egress of Individuals with Disabilities**, funded by US Dept. of Education National Institute on Disability and Rehabilitation Research, \$450,000, 2003-2006

Loomis, J.L., M. Laituri, J. Ramirez (Colorado State University), A. Covich (Georgia), T. Crowl, P. W. Box (USU), and F. Scatena (U. Pennsylvania) **Modeling Complex Interactions of Overlapping River and Road Networks in a Changing Landscape**, funded by National Science Foundation Biocomplexity program, \$4.2 million, 2003-2008

Provenza, F. D. et al., (USU) **Behavioral Principles to Management in Western Rangelands**, funded by USDA IFAFS program, \$4.1 million, 2001-2005

Maschner, H (Idaho State University), P. W. Box (USU), B. Finney (U. Alaska Anchorage), and K Maschner (ISU) **Biocomplexity of Human/Environment Interactions in Bering Sea** funded by National Science Foundation Biocomplexity program, \$88,000, 2001-2002

White, M., P. W. Box, and N. McCoy Haynes (USU) **Biocomplexity in a Coupled Natural and Human System: the Glassy-winged Sharpshooter and Threats to the California Wine Industry** funded by National Science Foundation Biocomplexity program, \$55,000, 2001-2002.

Box, P. W. (USU). **Kenge, the integration of agent-based models, cellular automata, and GIS**, funded by VP Research, Utah State University \$19,201, 1998-1999

Contracts

Neale, C.M.U, and P. W. Box (USU). **Estudios Básicos para el Manejo de los Sistemas de Riego** funded by Instituto Nacional de Recursos Hidrológicos, Santo Domingo \$6.6 million, 2000-2003

Ramsey, R. D., W. Wagner, and P. W. Box (USU) **Utah Weeds Database** funded by Bureau of Land Management \$10,000, 1999

Unfunded Collaborations

Coppock, L (USU), C. B. Barrett (Cornell), and P. Little (U. Kentucky) **Improving Pastoral Risk Management in East African Highlands**. funded by USAID SR-GL/CRSP

Sidman, C (Florida Sea Grant, University of Florida, Gainesville) and P. W. Box (USU) **Personal Space in Anchoring Boats**

Pitt, W. C. (US Fisheries and Wildlife Service Coop Unit), F. F. Knowlton, and P. W. Box. **Agent-based simulation of Coyote Population Dynamics**

Foster, A., (USGS Florida Caribbean Science Center, Gainesville, FL) and P. W. Box
Agent-based simulation of Salamander Populations in Great Smokey Mountains

Graduate Student Supervision

Co-Chair, 1 completed Ph.D. degree, Transportation Engineering

- Heli Kilpala, 2002: Location Criteria of Warehousing for Semiconductors in the Electronic Economy

Chair, 4 completed M.S. degrees Geography

- Aaron Fritz, 2002: An Independent Verification and Validation of Clarke's Urban Growth Model
- Russ Reading, 2003: Meso-scale fire prediction and modeling
- Yoonsik Chung, 2003: Assessment and siting of trails in Logan Canyon using GIS
- Lyle Shakespear, 2003 (plan B): Test Application of Arcview Urban Growth Extension to Logan City

Currently directing 5 M.S. programs in Geography and Earth Systems Science

- Raj Prasanth Divakaran, 2003: Ant-colony optimization for automated image classification
- Yuya Sasaki (Geography and Economics): Spatial economics through agent-based models
- Darcy Stock (Geography, plan B): Evaluation of data needs for Forest Service operations in Logan Ranger District (plan B)
- Praveena Pepalla (Earth Systems Science): Integration of Multiple spatial and temporal scale processes in ecologic and human models
- Cynthia Tyler (Earth Systems Science): Agent-based models of invasive plant species in the Colorado River

Serving or have served as a committee member on 58 masters and Ph.D. committees in the following departments at USU (ordered by frequency)

- Geography
- Transportation Engineering
- Biological and Irrigation Engineering
- Forest Resources
- Fisheries and Wildlife
- Rangeland Resources
- Sociology
- History
- Civil Engineering

- Biology
- Business Information Systems

Serving or served as external committee member on graduate committees in the following departments at other universities

- Dept. of Natural Resources, Instituto Técnico Superior, Monterrey, Mexico
- Agricultural Engineering, Egerton University, Njoro, Kenya

Recent Conference Presentations

Box, P.W. (2004) Decentralized Systems and Integration of Dynamic Processes at Multiple Spatial and Temporal Scales. Invited seminar, CSIRO Center for Arid Zone Research, Alice Springs, Australia.

Gutierrez-Castillo, J., O. Retamal, and P. W. Box (2004) Monitoring change detection on land cover area at Apodaca, Nuevo Leon, Mexico *Society for Range Management Annual Meeting*, Laramie, Wyoming

Box, P.W. (2004) Decentralized Systems approach to Population Process Models. Invited seminar, USDA Risk Management Services, Gainesville, Florida

Box, P. W. (2003) Agent-Based Models, Cellular Automata, and their Use in Geography. Invited seminar, Victoria University, Wellington, New Zealand

Box, P. W. and Maschner, H (2003) A computational environment for studying human/environment interactions in subsistence fisheries in the Bering Sea *Association of American Geographers Annual Meeting*. New Orleans

Baerwald, T. et al. (2003) Panel Discussion: The role of geographers in the NSF Biocomplexity initiative. *Association of American Geographers Annual Meeting*. New Orleans

Sasaki, Y., H. DeGaris, and P. W. Box (2003) Genetic neural networks for image classification. *IEEE IGARS*, Paris

Kilpala, H. and P. W. Box (2003) E-Commerce era location of the US semiconductor industry: modeling the most important location criteria. *NOFOMA 2003*, Oulu, Finland

Box, P. W., F. Provenza, and J. Villalba (2002) A computational environment for studying grazer-landscape interaction *Association of American Geographers Annual Meeting*, Los Angeles

Divakaran, R. and P. W. Box (2002) Ant colony optimization for remote sensing and image classification *Swarmfest IV*, University of Washington

Sasaki, Y. and P. W. Box (2002) Spatial economic geography using agent-based modeling *Swarmfest IV*, University of Washington

Box, P. W., J. Villalba, and F. Provenza (2002) Swarm and agent-based simulations of grazers. *Swarmfest IV*, University of Washington

- Box, P. W. F. Provenza, and J. Villalba (2001) A computational environment for grazer-landscape interaction *GeoComputation*, University of Queensland
- Box, P. W. (2001) SIG y modelación espacial. Invited seminar, Universidad Autónoma de Santo Domingo (Dominican Republic)
- Box, P. W. (2001) SIG en el manejo e recursos naturales. Invited seminar, Universidad Técnico Superior de Monterrey (Mexico)
- Box, P. W. (2001) Open-source software in academia. Invited seminar, Open Source Software Forum, Utah State University.
- Box, P. W. (2000) Agent-based models and GIS. Invited seminar, Idaho State University
- Box, P. W. and C. Sidman (1999) Agent-based model for calculating recreational anchorage carrying capacity *Recreation Resource Capacity* Breckenride, Colorado
- Box, P. W. (1999) Design considerations for integrating GIS with Swarm. *Swarmfest III*, University of California, Los Angeles
- Box, P. W. (1999) Garage band science and spatial analysis. *Trends in Spatial Analysis*, National Center for Geographic Information and Analysis, Santa Barbara, California
- Box, P. W. and C. Sidman (1998) GIS and recreational management in southwest Florida. *Association of American Geographers Annual Meeting*, Boston
- Box, P. W. (1998) Calculating recreational anchorage carrying capacity in Swarm. *Swarmfest II*, Santa Fe Institute, New Mexico
- Box, P. W. (1998) GIS and agent-based models in Swarm. *Workshop on Integration of Agent-Based Models and GIS*, Santa Fe Institute, New Mexico

Radio Interviews

- Voice of America East Africa Service (in Swahili), July 2003
- Access Utah, KUSU, National Public Radio, Logan, Utah, May 2001

Other Information

Peer Reviewer

- Journal of Geographical Systems
- Journal of Forestry
- Computational Statistics
- International Journal of Geographic Information Science

Professional Affiliations

- Board of Directors, Swarm Development Group
- Association of American Geographers
- American Society of Photogrammetry and Remote Sensing
- American Statistical Association

- New England Complex Systems Institute

Other Professional Activities

- Organized and hosted SwarmFest 2000, with 35 participants from 7 countries
- Proficient in many object-oriented and procedural computing languages
- Technical consultant (trouble shooter) for ESRI GIS products USU site license (1998-2001)
- Local maintainer of GNU open-source software archive (1997-2001)
- Assistant director, USU Remote Sensing/GIS Laboratory (1997-2001)

Languages Spoken

- English (mother tongue)
- Spanish (fluent speaking, reading, writing)
- Swahili (fluent speaking, reading, writing)
- Portuguese (fluent speaking and reading)
- French (working knowledge)
- Russian (working knowledge)
- Sambia (basic knowledge)