

CURRICULUM VITA

Dr. Paul A. Zandbergen

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Contact Information

Department of Geography
University of New Mexico
Albuquerque, NM 87131 USA

Tel: (505) 277-3105
Fax: (505) 277-3614
E-mail: zandberg@unm.edu

Website: www.paulzandbergen.com

Areas of Expertise

Geographic Information Science (GISc)
Spatial/statistical analysis techniques using Geographic Information Systems (GIS)
Error and uncertainty in spatial data, error propagation modelling
GIS applications in criminology, economics, health and spatial ecology
Terrain analysis and modelling, LIDAR data, accuracy assessment
Water resources modelling, watershed management
Community-based mapping using GIS and GPS

Educational Background

Doctor of Philosophy (1998). Resource Management and Environmental Studies
University of British Columbia, Vancouver, BC, Canada
"Urban watershed assessment: Linking watershed health indicators to management"

Masters of Engineering (1993). Chemical and Environmental Engineering
University of Twente, Enschede, The Netherlands
"Thermophilic ethanol production: immobilization of Bacillus stearothermophilus LLD-16 and performance in an adapted draft tube fluidized bed bio-reactor"

Masters of Development Studies (1993). International Relations and Renewable Energy Policy
University of Twente, Enschede, The Netherlands.
"Energy and environmental policy in Latin America: the case of fuel ethanol in Argentina and Brazil"

Employment History

Period	Position	Employer
2008 –	Associate Chair	Department of Geography, University of New Mexico
2007 –	Associate Professor	Department of Geography, University of New Mexico
2001 – 2007	Assistant Professor	Department of Geography, University of South Florida
2000 – 2001	Assistant Professor	Faculty of Environmental Studies, York University
1999 – 2000	Lecturer	Continuing Studies, University of British Columbia
1998 – 2000	Research Associate	Inst. for Resources & Environment, U. of British Columbia
1997 – 2000	Private Consultant	Various consulting firms and government organizations
1997 – 1998	Lecturer	Environmental Studies Program, Univ. of British Columbia
1997 – 1998	Research Assistant	Inst. for Resources & Environment, U. of British Columbia
1994 – 1997	Research Assistant	Faculty of Commerce, University of British Columbia
1991 – 1993	Research Assistant	T & D Group, University of Twente, The Netherlands
1990 – 1991	Research Assistant	Oakville Research Centre Shell, Oakville ON, Canada

Awards and Scholarships

- 2010 Nominee, Regents' Lecturer, University of New Mexico
- 2010 Nominee, Outstanding Teacher of the Year Award, University of New Mexico
- 2009 University Libraries Faculty Acknowledgement Award, University of New Mexico
- 2006 Faculty Research and Development Grant, University of South Florida
- 2002 Innovative Teaching Grant, University of South Florida
- 2002 Faculty International Travel Grant, University of South Florida
- 2001 Teaching-Learning Development Grant, York University
- 2001 Research Development Award, York University
- 1995 University of British Columbia Graduate Fellowship
- 1995 Walter W. Jeffrey Memorial Scholarship, University of British Columbia
- 1994 Walter W. Jeffrey Memorial Scholarship, University of British Columbia
- 1993 Graduate Study Abroad Award, University of Twente
- 1991 Dutch Royal Institute of Engineers Study and Travel Award

Publications

Refereed Journals – Published or In Press

1. Zandbergen, P.A. In Press. *Characterizing the error distribution of LIDAR elevation data*. International Journal of Remote Sensing.
2. Zandbergen, P.A. and D.A. Ignizio. 2010. *Comparison of dasymetric mapping techniques for small area population estimates*. Cartography and Geographic Information Science, 37(3): 199-214.
3. Zandbergen, P.A. 2010. *Accuracy considerations in the analysis of depressions in medium resolution lidar DEMs*. GIScience and Remote Sensing, 47(2): 187-207.
4. Zandbergen, P.A., J. Levenson, and T.C. Hart. 2010. *Residential proximity to schools and daycares: An empirical analysis of sex offense recidivism*. Criminal Justice Behavior, 37(5): 482-502.
5. Zandbergen, P.A. 2010. *Methodologic issues in using land cover data to characterize living environments of geocoded addresses*. Environmental Health Perspectives, 118(3): A108.
6. Zandbergen, P.A. 2009. *Accuracy of iPhone locations: A comparison of assisted-GPS, WiFi and cellular positioning*. Transactions in GIS, 13(s1): 5-25.
7. Picone, G.A., D.B. Ridley and P.A. Zandbergen. 2009. *Distance decreases with differentiation: Strategic agglomeration by retailers*. International Journal of Industrial Organization, 27: 463-473.
8. Zandbergen, P.A. 2009. *Geocoding quality and implications for spatial analysis*. Geography Compass, 3(2): 647-680.
9. Zandbergen, P.A. 2009. *Methodological issues in determining the relationship between street trees and asthma prevalence*. Journal of Epidemiology and Community Health, 63(2):174-175.
10. Zandbergen, P.A. and T.C. Hart. 2009. *Geocoding accuracy considerations in determining residency restrictions for sex offenders*. Criminal Justice Policy Review, 20(1): 62-90.
11. Zandbergen, P.A. 2009. *Exposure of US Counties to Atlantic Tropical Storms and Hurricanes, 1851-2003*. Natural Hazards, 48(1):83-99.
12. Zandbergen, P.A. 2008. *Commentary on Duwe, Donnay, and Tewksbury (2008): "Does residential proximity matter? A geographic analysis of sex offender recidivism"* Criminal Justice and Behavior, 35(11):1449-1451.
13. Zandbergen, P.A. 2008. *Comments on Boone et al., "Validation of a GIS facilities database: Quantification and implications of error"*. Annals of Epidemiology, 18(10):823-824.
14. Zandbergen, P.A. 2008. *Applications of Shuttle Radar Topography Mission elevation data*. Geography Compass, 2(5):1404-1431.
15. Zandbergen, P.A. 2008. *Geocoding school and student's home addresses: Zandbergen responds*. Environmental Health Perspectives, 116(8):A330-A331.
16. Zandbergen, P.A. 2008. *A comparison of address point, parcel and street geocoding techniques*. Computers, Environment and Urban Systems, 32(3): 214-232.
17. Zandbergen, P.A. 2008. *Positional accuracy of spatial data: Non-normal distributions and a critique of the National Standard for Spatial Data Accuracy*. Transactions in GIS, 12(1): 103-130.

18. Chakraborty, J. and P.A. Zandbergen. 2007. *Children at risk: Measuring racial disparities in potential exposure to air pollution at school and home*. Journal of Epidemiology and Community Health, 61:1074-1079.
19. Zandbergen, P.A. and J.W. Green. 2007. *Error and bias in determining exposure potential of children at school locations using proximity-based GIS techniques*. Environmental Health Perspectives, 115(9):1363-1370.
20. Zandbergen, P.A. 2007. *Influence of geocoding quality on environmental exposure assessment of children living near high traffic roads*. BMC Public Health, 7:37.
21. Zandbergen, P.A. and T.C. Hart. 2006. *Reducing housing options for convicted sex offenders: Investigating the impact of residency restriction laws using GIS*. Justice Research and Policy, 8:1-24.
22. Zandbergen, P.A. and J. Chakraborty. 2006. *Improving environmental exposure analysis using cumulative distribution functions and individual geocoding*. International Journal of Health Geographics, 5:23.
23. Zandbergen, P.A. 2006. *The effect of cell resolution on depressions in digital elevation models*. Applied GIS. 2(1): 04.1-04.35.
24. Schwab, A. and P. A. Zandbergen. 2005. *The influence of roads on the movement patterns of the Florida panther*. Papers of the Applied Geography Conference, 28: 227-239.
25. Reader, S. and P.A. Zandbergen. 2002. *A geodemographic analysis of marine recreational fishing on the west coast of Florida*. Papers and Proceedings of the Applied Geography Conference, 25: 138-149.
26. Zandbergen, P.A. and K.J. Hall. 1998. *Analysis of the British Columbia Water Quality Index for watershed managers: A case study of two small watersheds*. Water Quality Research Journal of Canada. 33(4): 519-549.
27. Zandbergen, P.A. 1998. *Urban watershed ecological risk assessment using a geographic information system: A case-study of the Brunette River Watershed in British Columbia, Canada*. Journal of Hazardous Materials. 61: 163-173.
28. Jennings, P.D. and P.A. Zandbergen. 1996. *Jennings and Zandbergen Reply*. Academy of Management Review. 21 (4): 917-918.
29. Jennings, P.D., and P.A. Zandbergen. 1995. *Ecologically sustainable organizations: An institutional approach*. Academy of Management Review. 20 (4): 1015-1052.

Refereed Journals – Under Revision

1. Tribby, C. and P. A. Zandbergen. *A social justice analysis of new rapid bus routes in Albuquerque, New Mexico*. Journal of Transport Geography – revisions submitted.
2. Arnold, L.L and P.A. Zandbergen. *Positional accuracy of the Wide Area Augmentation System*. Computers and Geosciences – revisions submitted.
3. Schwab, A. And P.A. Zandbergen. *Vehicle-related mortality and road crossing behavior of the Florida panther*. Journal of Applied Geography – revisions in progress.

Refereed Journals – Under Review

1. Zandbergen, P.A., and S.J. Barbeau. *Evaluation of positional accuracy of assisted GPS data from high-sensitivity GPS-enabled mobile phones*. Submitted to Journal of Navigation on January 31, 2010.
2. Zandbergen, P.A. *Influence of street reference data on geocoding quality*. Submitted to Geocarto International on August 4, 2010.
3. Zandbergen, P.A., D.A. Ignizio and K.E. Lenzer. *Positional Accuracy of TIGER 2000 and 2009 Road Networks*. Submitted to Transactions in GIS on September 17, 2010.

Books

1. Zandbergen, P.A. 2011 (anticipated). *Python Scripting for ArcGIS*. ESRI Press (under contract).
2. Lorenz Vicente, P., C. Broiato, F.R. Figuerinho, B. dos Santos Rodrigues Neto, E. Pereira Costa, P.A. Zandbergen, H.S. Schreier and S.J. Gomes da Silva. 2004. *Áreas ambientalmente sensíveis e regularização fundiária*. Annablume, São Paulo, Brazil. (Available in Portuguese only.)

Book Chapters and Edited Volumes

1. Zandbergen, P.A., S.J. Brown and H.S. Schreier. 2005. *Watershed management education and training CD-ROMs*. In: R.L. Frances (Ed.). *Facilitating watershed management: Fostering awareness and stewardship*. Rowman and Littlefield Publishers, Inc., Lanham, MA.
2. Jennings, P.D., P. A. Zandbergen and M. Martens. 2002. *Complications in compliance: Variation in environmental enforcement in British Columbia's Lower Fraser Basin, 1985-1996*. In: A.J. Hoffman and M.J. Vantresca (Editors), *Organizations, policy and the natural environment: Institutional and strategic perspectives*. Chapter 3, pp. 57-89. Stanford University Press, Stanford, CA.
3. Zandbergen, P.A. 2001. *Imperviousness*. In: B. Mason, R. Knight and M. Johannes (Eds.) *Sensitive Habitat Inventory and Mapping*. Chapter 7, pp. 247-272. Community Mapping Network, Vancouver, British Columbia.
4. Hall, K.J., P. Kiffney, R. Macdonald, D. McCallum, G. Larkin, J. Richardson, H. Schreier, J. Smith, P. Zandbergen, P. Keen, W. Belzer, R. Brewer, M. Sekela and B.Thomson. 1999. *Non-point source pollution in the urban environment of Greater Vancouver: A case-study of the Brunette River watershed*. In: C. Gray and T. Tuominen. *Health of the Fraser River aquatic ecosystem: A synthesis of research conducted under the Fraser River Action Plan*. Chapter 4.9, pp. 109-134. Environmental Canada. DOE FRAP 1998-11.
5. Jennings, P.D., P.A. Zandbergen and V. Clark. 1999. *Organizations and the Lower Fraser Basin's water management system: An institutional approach*. In: M. Healey (Ed.), *Seeking Sustainability in the Lower Fraser Basin: Issues and Choices*. Vancouver BC: University of British Columbia Press.

Book Reviews

1. Zandbergen, P.A. 2005. *Review of Geographic Information Analysis by D. O'Sullivan and D. J. Unwin*. URISA Journal, 17(1): 67-68.

Textbooks

1. Zandbergen, P.A., K.J. Hall, S.J. Brown, R. Bestbier and H.S. Schreier. 2000. *Urban Watershed Management: An interactive graduate level course for distributed learning*. CD-ROM by the Institute for Resources and Environment, University of British Columbia.
2. Schreier, H.S., K.J. Hall, W. Tamagi, S.J. Brown, L.M. Lavkulich, and P.A. Zandbergen. 1997. *Integrated Watershed Management: An interactive graduate level course for distributed learning*. CD-ROM by the Institute for Resources and Environment, University of British Columbia.

Theses and Dissertations

1. Zandbergen, P.A. 1992. *Thermophilic ethanol production: immobilization of Bacillus stearothermophilus LLD-16 and performance in an adapted draft tube fluidized bed bio-reactor*. Master of Chemical Engineering thesis. Enschede, the Netherlands: University of Twente.
2. Zandbergen, P.A. 1993. *Energy and environmental policy in Latin America: the case of fuel ethanol in Argentina and Brazil*. Master of Development Studies thesis. Enschede, the Netherlands: University of Twente.
3. Zandbergen, P.A. 1998. *Urban watershed assessment: Linking watershed health indicators to management*. Doctor of Philosophy dissertation. Vancouver BC, Canada: University of British Columbia.

Conference Papers/Presentation

1. Zandbergen, P.A. and T.C. Hart. *Effects of data quality on predictive hotspot mapping*. National Institute of Justice Conference, June 14-16, 2010, Arlington, VA.
2. Lenzer, K. And P.A. Zandbergen. *Clustering of fast food restaurants around schools*. ESRI Southwest Users Group Conference, April 21-23, 2010, Moab, UT.
3. Zandbergen, P.A. *Impacts of sex offender residency restrictions on the availability of affordable rental housing in Miami-Dade County*. Annual meeting of the Association of American Geographers. April 14-18, 2010. Washington, DC.
4. Zandbergen, P.A. *Privacy considerations in utilizing location traces*. Space-time modelling and analysis workshop, February 22-23, Redlands, CA.
5. Levenson, J., T. Hart and P.A. Zandbergen. *The relationship between residential proximity and sex offense recidivism*. American Society of Criminology Annual Meeting, November 4-7, 2009, Philadelphia, PA.
6. Zandbergen, P.A. *A critique of the National Standard for Spatial Data Accuracy*. ESRI Southwest Users Group Conference, October 21-23, 2009, Pueblo, CO.
7. Ignizio, D. and P.A. Zandbergen. *Dasymetric mapping of population density in New Mexico using imperviousness and road density*. ESRI Southwest Users Group Conference, October 21-

- 23, 2009, Pueblo, CO.
8. Athens, E. and P.A. Zandbergen. *Effects of neighbourhood characteristics on the performance of WiFi positioning for mobile GIS*. ESRI Southwest Users Group Conference, October 21-23, 2009, Pueblo, CO.
 9. Zandbergen, P.A., J. Levenson, and T.C. Hart. *Residential proximity to schools and daycares: An empirical analysis of sex offense recidivism*. Crime Mapping Research Conference, August 19-22, 2009, New Orleans, LA.
 10. Hart, T.C. *Geocoding accuracy considerations in determining residency restrictions for sex offenders*. Crime Mapping Research Conference, August 19-22, 2009, New Orleans, LA.
 11. Zandbergen, P.A. 2009. *Accuracy of iPhone locations: A comparison of assisted-GPS, WiFi and cellular positioning*. ESRI International User Conference, July 14-18, 2009, San Diego, CA.
 12. Zandbergen, P.A. 2009. *Everybody is watching everybody: Privacy implications of geospatial technologies*. Invited lecture, University Libraries Faculty Acknowledgement Award, University of New Mexico, April 29, 2009.
 13. Martinez, A.A., G.C. Migliaccio., P.A. Zandbergen, and S. Zhang. 2009. *Assessment of methods for adjusting construction cost conceptual estimates by geographical location*. AACE International Annual Meeting, June 29 - July 1, 2009, Seattle, WA.
 14. Migliaccio, G.C., P.A. Zandbergen, and A.A. Martinez. 2009. *Assessment of methods for adjusting construction cost estimates by geographical location*. Construction Research Congress, April 5-7, 2009. Seattle, WA.
 15. Zandbergen. P.A. 2009. *Reverse geocoding and implications for geospatial privacy*. Annual meeting of the Association of American Geographers. March 22 – 27, 2009. Las Vegas, NV.
 16. Arnold, L.A. and P.A. Zandbergen. 2009. *Does WAAS really improve the positional accuracy of GPS?* Annual meeting of the Association of American Geographers. March 22 – 27, 2009. Las Vegas, NV.
 17. Zandbergen, P.A. 2008. *The GIS&T body of knowledge and the role of universities*. NMGIC Fall Meeting, November 7, 2008. Albuquerque, NM.
 18. Zandbergen, P.A. 2008. *Sensitivity of estimates of travel distance and travel time to street network data quality*. Fifth International Conference on GIScience, September 23-26, 2008. Park City, UT.
 19. Chakraborty, J. and P.A. Zandbergen. 2007. *Children in the City: Racial/Ethnic Disparities in Air Pollution Exposure at School and Home*. Annual meeting of the Southeastern Division of the Association of American Geographers, November 18 – 20, 2007. Charleston, SC.
 20. Zandbergen, P.A. 2006. *Accuracy considerations in the use of digital elevation models for coastal vulnerability assessment*. URISA Caribbean GIS Conference, October 29 – November 2, 2006. Nassau, Bahamas.
 21. Bennett, M. and P.A. Zandbergen. 2006. *Examining the effect of road class on vehicle-caused Florida black bear mortalities using GIS*. Applied Geography Conference, October 11 – 14, 2006. Tampa, FL.
 22. Meyer, C. and P.A. Zandbergen, 2006. *Determining fractal dimension for DEMs in North Carolina, USA*. ESRI International User Conference, August 7 – 11, 2006. San Diego, CA.
 23. Crosby, D. and P.A. Zandbergen. 2006. *Resolution dependency of hydrologic parameters from LIDAR DEMs*. GIS and Water Resources IV, American Water Resources Association. May 8 – 10, 2006. Houston, TX.

24. Crosby, D. and P.A. Zandbergen. 2006. *The effect of DEM resolution upon hydrologically related terrain derivatives*. Annual meeting of the Association of American Geographers. March 7 – 11, 2006. Chicago, IL.
25. Zandbergen, P.A. and D. Crosby. 2006. *Evaluation of LIDAR digital elevation models for hydrologic modeling*. Annual meeting of the Association of American Geographers. March 7 – 11, 2006. Chicago, IL.
26. Zandbergen, P.A. 2005. *Which US County has been hit the most by Atlantic tropical storms and hurricanes?* Annual meeting of the Southeastern Division of the Association of American Geographers, November 20 – 22, 2005. West Palm Beach, FL.
27. Zandbergen, P.A. 2005. *River basin committees in Brazil*. York University, University Consortium on the Global South (UCGS): Processes for Watershed Management in Brazil: Models and Challenges. March 9, 2005. York University, Toronto, Canada.
28. Schwab, A. and P. A. Zandbergen. 2005. *The influence of roads on the movement patterns of the Florida panther*. Applied Geography Conference, November 2 – 5, 2005. Washington, DC.
29. Reader, S. and P.A. Zandbergen. 2003. *Hooked on Florida: Tourism through marine recreational fisheries*. Applied Geography Conference, November 5 – 8, 2003. Colorado Springs, CO.
30. Zandbergen, P.A. 2003. *Integrating GIS and environmental modelling at the graduate level*. ESRI Education User Conference, July 6 – 9, 2003. San Diego, CA.
31. Zandbergen, P.A. 2003. *River Basin Committees in Brazil*. International Congress on Watershed Management for Water Supply Systems of the American Water Resources Association, June 29 – July 2, 2003. New York, NY.
32. Reader, S. and P.A. Zandbergen. 2002. *A geodemographic analysis of marine recreational fishing on the west coast of Florida*. Applied Geography Conference, October 23 – 26, 2002. Binghamton, NY.
33. Zandbergen, P.A. 2002. *Evaluating the effectiveness of public education as a stormwater BMP*. 6th International Conference on Diffuse Pollution. September 30 – October 4, 2002. Amsterdam, the Netherlands.
34. Zandbergen, P.A. 2002. *GIS Certificate Programs*. ESRI User Conference, July 8 – 12, 2002. San Diego, CA.
35. Zandbergen, P.A. and H.S. Schreier. 2000. *Comparative analysis of methodologies for measuring watershed imperviousness*. Watershed Management, August 9 – 12, 2000. Vancouver, BC.
36. Zandbergen, P.A., K.J. Hall, S.J. Brown, R. Bestbier and H.S. Schreier. 2000. *Training community leaders, local government officials and professionals in urban watershed management using distance education*. Watershed Management, August 9 – 12, 2000. Vancouver, BC.
37. Zandbergen, P.A. and K.J. Hall. 1998. *Comparing ecological risks from spills and stormwater runoff in urban watersheds: A case study of petroleum products*. Watershed Management, May 3 – 6, 1998. Denver, CO.
38. Zandbergen, P.A. 1997. *Urban watershed ecological risk assessment using a geographic information system: A case-study of the Brunette River Watershed in British Columbia, Canada*. International Conference Mapping Environmental Risks and Risk Comparison, October 21 – 24, 1997. Amsterdam, the Netherlands.
39. Jennings, P.D., P.A. Zandbergen, and M.L. Martens. 1997. *The adoption of environmental practices by organizations in one eco-basin: Variations in local interpretation*. Academy of Management Meetings, August 10 – 13, 1997. Boston MA.

40. Jennings, P.D., P.A. Zandbergen, and M.L. Martens. 1997. *Government agents and organizational offenders: Institutional determinants of environmental enforcement in the Lower Fraser Basin's regulatory system, 1985-1996*. Academy of Management Meetings, August 10 – 13, 1997. Boston MA.
41. Jennings, P.D. and P.A. Zandbergen. 1996. *Ecologically Sustainable Organizations: An Institutional Approach*. Special pre-Academy workshop on Creating the Sustainable Enterprise: A Research Focus. Academy of Management Meetings, August 11 – 14, 1996. Cincinnati OH.
42. Zandbergen, P.A. and P.D. Jennings. 1996 *Interpreting environmental regulations, regulatory compliance and enforcement in the Lower Fraser Basin*. Sustainability and the Lower Fraser Basin: A Human perspective, May 1, 1996. Abbotsford BC, Canada.
43. Zandbergen, P.A. and K.J. Hall. 1996 *Transport, industry and dangerous goods: Consequences for stream ecosystem health*. Non-point sources of pollution and implications for watershed management, January 24, 1996. Delta BC, Canada.
44. Zandbergen, P.A. 1995. *A novel tool for the communication of ecological risk assessment information in an urbanized watershed*. 2nd World Congress of the Society of Environmental Toxicology and Chemistry, November 5 – 9, 1995. Vancouver BC, Canada.
45. Zandbergen, P.A., and J.R. Moreira. 1993. *Biogas in Brazil*. International Conference on medium and large scale biogas plants in developing countries, November 29 – December 4 1993. Arusha, Tanzania.

Technical Reports

1. Zandbergen, P.A. and T.C. Hart. 2009. *Availability and spatial distribution of affordable housing in Miami-Dade county and implications of residency restriction zones for registered sex offenders*. Greater Miami Chapter of the American Civil Liberties Union of Florida.
2. Reeder, P., K. Archer, M.M. Bosman, P.A. Zandbergen, D. Mustafa and A. Bernard. 2005. *Urban water supply and flood hazard in Latin America and the Caribbean: A case-study from Belize City, Belize, Central America*. Technical report for Globalization Centre, University of South Florida.
3. Zandbergen, P. and S. Reader, 2003. *A GIS-based analysis of the spatial, temporal, and social trends in marine recreational fishing participation on the West Coast of Florida, Phase II*. Technical report for Florida Marine Research Institute.
4. Reader, S. and P.A. Zandbergen. 2002. *A GIS-based analysis of the spatial, temporal, and social trends in marine recreational fishing participation on the West Coast of Florida, Phase I*. Technical report for Florida Marine Research Institute.
5. Zandbergen, P.A. and S.J. Brown. 2000. *Environmental Sensitive Area (ESA) assessment workshop manual*. Technical report for Philippines – Canada Environmental and Economic Management (PCEEM) project.
6. Zandbergen, P.A. 2000. *Manual to determine imperviousness of watersheds in the Georgia Basin using orthophotos*. Technical report for Fisheries and Oceans Canada.
7. EVS Environment Consultants and P.A. Zandbergen. 2000. *Environmental effects of stormwater discharges on small streams – habitat and benthic assessment*. Technical report for the Greater Vancouver Regional District.

8. EVS Environment Consultants and P.A. Zandbergen. 2000. *Environmental effects of stormwater discharges on the North Arm of the Fraser River*. Technical report for the Greater Vancouver Regional District.
9. Page, N., K. Rood, T. Holz, P.A. Zandbergen, R. Horner and M. McPhee. 1999. *Proposed watershed classification system for stormwater management in the GVS&DD area*. Technical report for the Greater Vancouver Regional District.
10. Zandbergen, P.A., H. Schreier and J. Houston. 1999. *Comparative analysis of methodologies to measure imperviousness of watersheds in the Georgia Basin*. Technical report for Fisheries and Oceans Canada.
11. EVS Environment Consultants and P.A. Zandbergen. 1998. *Design of a monitoring program to evaluate environmental effects of stormwater discharges*. Technical report for the Greater Vancouver Regional District.
12. Zandbergen, P.A., H.S. Schreier and A. Radecki-Pawlik. 1998. *Contrasting urban and rural watersheds: A GIS-based analysis linking imperviousness, riparian forest cover, land use and pollution indicators*. Technical report, Institute for Resources and Environment, University of British Columbia.
13. Zandbergen, P.A. and H.S. Schreier. 1997. *Agricultural trends in the Salmon River Watershed (Salmon Arm) 1986-1991*. Technical report for Environment Canada.

Multimedia Products

1. Zandbergen P.A. and S.J. Brown. 2000. *Environmentally Sensitive Area Assessment*. CD-ROM by the Institute for Resources and Environment, University of British Columbia.
2. Zandbergen, P.A., S.J. Brown and H. S. Schreier. 1999. *Community-based Watershed Management in Santo André, São Paulo, Brazil*. 1999. CD-ROM by the Centre for Human Settlements and the Institute for Resources and Environment, University of British Columbia, and the Municipality of Santo André, Brazil.
3. Zandbergen, P.A., H. Schreier and J. Houston. 1999. *Comparative analysis of methodologies to measure imperviousness of watersheds in the Georgia Basin*. CD-ROM by the Institute for Resources and Environment, University of British Columbia.
4. Zandbergen, P.A., H.S. Schreier, S.J. Brown, W. Tamagi and V. Galay. 1998. *Sedimentation of the Kulekhani Reservoir: A case study of the importance of sediment dynamics in the Nepalese Himalayas*. CD-ROM by the Institute for Resources and Environment and Northwest Hydraulics.
5. Zandbergen, P.A. 1998. *Urban watershed assessment: Linking watershed health indicators to management*. CD-ROM by the Institute for Resources and Environment, University of British Columbia, in collaboration with Environment Canada Pacific and Yukon Region.
6. Schreier, H.S., K.J. Hall, P.A. Zandbergen, W. Tamagi, and S.J. Brown. 1997. *Assessing Non-Point Sources (NPS) of pollution in watersheds: Case-studies in the Lower Fraser Valley, BC, Canada*. CD-ROM by the Institute for Resources and Environment, University of British Columbia.
7. Zandbergen, P.A. and H.S. Schreier. 1997. *Assessment of the groundwater resources of the Brookwood Aquifer and implications for management*. CD-ROM by the Institute for Resources and Environment, University of British Columbia.

8. Carson, B., H.S. Schreier, W. Tamagi, S.J. Brown and P. Zandbergen. 1996. *Chapman/Gray Creek Watershed*. CD-ROM by the Institute for Resources and Environment, University of British Columbia.
9. Hall, K.J., D.W. McCallum, G. Larkin and P.A. Zandbergen. 1996. *The Brunette River Watershed: A case study of the impact of urbanization on aquatic ecosystem health*. CD-ROM by the Institute for Resources and Environment, University of British Columbia.

Grants and Contracts

Applied for – decision pending

- National Institute of Justice. Integrating crime theories into GIS tools: Bridging the gap between research and practice for crime analysts. Co-Principal Investigator. PI is Timothy Hart, University of Nevada, Las Vegas. 2011-2012. \$ 392,086.
- National Institute of Justice. Performance of positioning technologies on mobile devices for law enforcement applications. Principal Investigator. 2011-2012. \$143,323.
- National Institutes of Health. Validation of geographic masking techniques for location privacy protection. Principal Investigator. 2010-2012. \$148,123.

Current

- Robert Wood Johnson Foundation Center. Geographic information tools for assessing spatial relationships between food accessibility, food availability, and diet-related public health in a local community. Co-Principal Investigator. PI is Chris Duvall, Geography, University of New Mexico. 2010-2011. \$19,775.
- National Institute of Justice. Effects of Data Quality on Predictive Hotspot Mapping. Co-Principal Investigator. Co-Principal Investigator. PI is Timothy Hart, University of Nevada, Las Vegas. 2010-2012. \$193,040.
- National Science Foundation. Reverse geocoding, geographic masking and geospatial privacy. Principal Investigator. 2008-2011. \$121,980.

Completed

- American Civil Liberties Union – Greater Miami Chapter. Availability and Spatial Distribution of Affordable Housing in Miami-Dade County and Implications of Residency Restriction Zones for Registered Sex Offenders. Principal Investigator. Co-PI is Timothy Hart, University of Nevada Las Vegas. 2008-2010. \$29,500
- University of New Mexico Research Allocation Committee. Field performance of WiFi Positioning Systems (WPS). 2008-2009. \$3,472.
- New Mexico Department of Energy, Minerals and Natural Resources. New Mexico energy trends database. Co-Principal Investigator. PI is Andrea Mammoli, University of New Mexico. 2008. \$49,989.
- University of New Mexico Teaching Allocations Subcommittee. Implementing hands-on Global Positioning Systems exercises across the Geographic Information Science curriculum.

- Principal Investigator. 2007-2008. \$2,000.
- University of New Mexico Research Allocation Committee. Evaluation of the performance of high-sensitivity GPS receivers. Principal Investigator. 2007-2008. \$4,000.
 - University of New Mexico Research Allocation Committee. Reverse geocoding, geographic masking and geospatial privacy. Principal Investigator. 2007-2008. \$7,975.
 - Canadian International Development Agency. Capacity building of civil society in water resources management in São Paulo State, Brazil. 2002 – 2008. Co-Director with Ellie Perkins, York University. \$750,000 (Canadian).
 - Hillsborough County Traffic Management Division. Effective use of GIS in transportation management. Principal Investigator. 2004 – 2007. \$32,000
 - National Institutes of Health – National Institute of Alcohol Abuse and Alcoholism (NIH/NIAAA). Determinants and consequences of alcohol consumption. 2005-2009. Co-Investigator with Gabriel Picone (Economics, USF). 2005 – 2008. \$225,967
 - Florida Children's Justice Act Task Force and Florida Department of Health (Federal Flow from Administration for Children and Families). Child Abuse Death Review - Perpetrator Risk Factor Study. Co-Investigator with Ilene Berson (Florida Mental Health Institute, Child and Family Studies, USF), Mary Kershaw (FMHI/CFS, USF), Svetlana Yampolskaya (FMHI/CFS, USF) and Nancy Lemrow (FMHI/CFS, USF). 2005 – 2006. \$129,687
 - CAS Faculty Research and Development Grant. Quality of geocoding of socio-economic, health and environmental data using GIS. Principal Investigator. 2005 - 2006. \$1,000
 - Florida Department of Transportation. Florida Statewide Transit Training and Technical Assistance Program. Co- Investigator with Lisa Staes (Center for Urban Transportation Research, USF), Amber Reep (CUTR, USF) and Martin Catala (CUTR, USF). 2005 – 2006. \$125,000
 - USF Globalization Center. Access and Vulnerability in a Globalizing World: Urban Water Supply and Flood Hazard in Belize. Co-Principal Investigator with Phil Reeder (Geography, USF), Kevin Archer (Geography, USF), Martin Bosman (Geography, USF) and Daanish Mustafa (Geography, USF St. Petersburg). 2004 - 2005. \$20,000
 - Hillsborough County Stormwater Section. GIS workshop for stormwater management. Principal Investigator. 2004. \$3,600
 - Florida Marine Research Institute. Geodemographic analysis of marine recreational fisheries participation in Florida. Principal Investigator. 2003. \$28,500
 - USF Internal Awards. Faculty International Travel Grant. Principal Investigator. 2003. \$2,500
 - Hillsborough County Stormwater Section. GIS workshop for stormwater management. Principal Investigator. 2002 – 2003. \$10,080
 - USF Center for 21st Century Teaching Excellence. Innovative Teaching Grant. Principal Investigator. 2002. \$6,000
 - Florida Marine Research Institute. Determine spatial patterns in marine recreational fisheries participation in Florida. Co-Principal Investigator with Steven Reader (Geography, USF). 2002 \$16,500
 - Southwest Florida Water Management District. Digitization of water utility service area boundaries. Co-Principal Investigator with Shawn Landry (Architecture, USF). 2002 – 2003 \$165,000

- Mountain Equipment Co-op Environmental Fund. Community-based watershed monitoring programs. Principal Investigator. 2001. \$6,000 (Canadian)
- York University Teaching-Learning Development Grant. Development of multimedia content for a WebCT component of a course in Water Resources Management. Principal Investigator. 2001. \$2,500 (Canadian)
- York University Internal Awards. Capacity building of civil society in water resources management in São Paulo State, Brazil. Principal Investigator. 2001. \$3,240 (Canadian)
- British Columbia Real Estate Foundation. Urban watershed management. Co-Principal Investigator with Hans Schreier (University of British Columbia). 1999 – 2000. \$10,000 (Canadian).
- Greater Vancouver Regional District. Monitoring program to evaluate the impacts of stormwater. Principal Investigator with Howard Bailey (EVS Environment Consultants). 1998-1999. \$140,000 (Canadian)
- Department of Fisheries and Oceans. Land use mapping and imperviousness methodologies. Principal Investigator. 1999. \$30,000 (Canadian)
- Greater Vancouver Regional District. Watershed classification system. Co-Principal Investigator with Nick Page (Coast River Environmental Consultants). 1998. \$45,000 (Canadian)
- Environment Canada Pacific and Yukon Region. Urban watershed indicators. Principal Investigator. 1997 – 1998. \$10,000 (Canadian)

Instructional Activities

Teaching Experience

University of New Mexico (2007 – present)

Undergraduate

- GEOG 381L Introduction to GIS
- GEOG 487L Spatial Analysis and Modelling
- GEOG 488L GIS Concepts and Techniques

Graduate

- GEOG 525 Seminar in GI Science
- GEOG 587L Spatial Analysis and Modelling
- GEOG 588L GIS Concepts and Techniques

University of South Florida (2001 – 2007)

Undergraduate

- GEO 3180 Digital Thematic Mapping / Computer Cartography
- GEO 4201C Advanced Physical Geography

Graduate

- GEO 5177 / GIS 5049 GIS for Non-Majors
- GEO 5157 / GEO 6157 / GIS 6100 Advanced GIS
- GIS 5075 Global Positioning Systems
- GIS 6306 Environmental Applications of GIS
- GIS 6355 Water Resources Applications of GIS
- GEO 6159 / GIS 6307 Readings in GIS / Seminar in GIS
- GEO 6119 Spatial Analysis and Modelling

Also provided frequent guest lectures in: GIS for Non-Majors (GEO 5177 / GIS5049), Geography Colloquium (GEO 4933), and Introduction and Earth Systems Science (GEO 2371).

York University (2000 -2001)

Undergraduate

- ENV5 4520 Advanced GIS

Graduate

- ENV5 7189 Advanced GIS

University of British Columbia (1998 – 2000)

Undergraduate

- ENVR 300 Environmental Studies

Graduate

- RMES 515 Integrated Watershed Management
- RMES 516 Urban Watershed Management

Also provided frequent guest lectures in: Ecological Impact of Pollution (CVL 568) and Land Evaluation Techniques (PLAN 593).

British Columbia Institute of Technology (1999 – 2000)

Undergraduate

- RENR 5200 Planning for Urban Watersheds

Curriculum and Course Development

- Curriculum and course development for the GIS components of the geography program at UNM. 2007 – present.
- Curriculum and course development for the GIS graduate certificate program at USF. 2001 – 2007. New courses developed include: GEO4284 Water Resources Development, GIS 5075 Global Positioning Systems, GIS 6303 Environmental Applications of GIS, GIS 6355 Water Resources Applications of GIS, GIS 6112 Spatial Database Development, and GIS 6103

Programming for GIS. Also complete revision of GEO 5177 / GIS 5049 GIS for Non-Majors and GEO 5157/6157 / GIS 6100 Advanced GIS.

- Principal author of an electronic textbook on Urban Watershed Management. 2000.
- Co-author of an electronic textbook on Integrated Watershed Management. 1997

Supervision of Students

Supervisor of Masters students

Elise Athens (MS Geography, UNM). Ongoing
Destiny Mitchell (MS Geography, UNM). Ongoing
Steve Linger (MS Geography, UNM). Ongoing
Natalie Heberling (MS Geography, UNM). Ongoing
Drew Ignizio (MS Geography, UNM). 2010
Calvin Tribby (MS Geography, UNM). 2009
Lisa Arnold (MS Geography, UNM). 2009
Jason Snyder (MS Geography, UNM). 2008
Eric Carlsen (MS Geography, non-thesis, UNM). 2008
Heather McTighe (MS Geography, non-thesis, UNM). 2008
Chris Higham (MA Geography, USF). 2007
Autumn Schwab (MA Geography, USF). 2006
David Crosby (MA Geography, USF). 2006
Steven Fernandez (MA Geography, non-thesis, USF). 2006
Tomo Hashimoto (MS Environmental Science and Policy, USF). 2005
Keith Albury (MA Geography, USF). 2004

Supervisor of honours students

Bo Romero (BS Geography, UNM). 2008

Committee member of doctoral students

Alejandro Prera (PhD Economics, UNM). Ongoing
Lori Collins (PhD Anthropology, USF). 2007
Alex Mraz (PhD Electrical Engineering, USF). 2004

Committee member of Masters students

Kate Lenzer (MS Geography, UNM), Ongoing
Peggy Allison (MS Geography, UNM). Ongoing
Su Zhang (Masters of Construction Management, UNM). 2010
Adam Martinez (Masters of Construction Management, UNM). 2010
Krista Schultz (Masters of Water Resources, UNM). 2008
Jordan Wollak (Masters of Water Resources, UNM). 2008

Cody Wiley (Masters of Water Resources, UNM). 2007
Mark Mueller (MS Environmental Science and Policy, USF). 2006
Alan Booker (MA Geography, USF). 2006
Curt Walker (MA Geography, USF). 2006
Brian Pickard (MS Engineering, USF). 2006
Swarna Pujari. (MS Engineering, USF). 2005
Philip Ranali (MA Geography, USF). 2004
Ekaterina Fitos (MA Geography, USF). 2004
Darwiche El Sabeh (MS Engineering, USF). 2004

Committee member of undergraduate honour's thesis

Summer Wood (BS Geography, UNM). 2009
Chantal Braithwaite (BS Biomedical Sciences, USF). 2006

Chair of PhD examinations

Cherie Keller (PhD Biology, USF). 2005

Supervision at York University (2000 – 2001): thesis supervisor of 3 graduate students and general supervisor of 11 graduate students for their Masters in Environmental Studies, and supervisor of 3 undergrad students for their senior honour's thesis project.

Supervision at the University of British Columbia (1998 – 2000): Committee member of 2 Masters thesis committees (Landscape Architecture and Soil Science).

Noteworthy Accomplishments of Recent Graduate Students

- Kate Lenzer, SWUG Conference Scholarship, NMGIC, 2010
- Drew Ignzio, SWUG Conference Scholarship, NMGIC, 2010
- Peggy Allison, SWUG Conference Scholarship, NMGIC, 2010
- Lisa Arnold, Jesse Rossbach Memorial Scholarship, NMGIC, 2009
- Calvin Tribby, 2nd place Applied Geography Conference Student Paper Competition, 2009
- Calvin Tribby, 3rd place URISA Student Paper Competition, 2009
- Elise Athens, SWUG Conference Scholarship, NMGIC, 2009
- Drew Ignzio, SWUG Conference Scholarship, NMGIC, 2009
- Natalie Heberling, SWUG Conference Scholarship, NMGIC, 2009

Non-credit Courses

- GIS Introduction (5-day course). 2002, 2003, 2004, 2005 and 2006
- Global Positioning Systems (3-day course). 2003, 2005 and 2006
- Geodatabase Fundamentals (3-day course). 2006.
- Introduction to ArcGIS I – ESRI Authorized (2-day course). 2004, 2005 and 2006

Workshops, Seminars and Short Courses

- Geodatabase fundamentals. 2-day workshop. November 29 – 30, 2005. Hillsborough County Traffic Division, Tampa FL.
- GIS for the transportation professional. 3-day workshop. March 14 – 16, 2005. Centre for Urban Transportation Research, University of South Florida, Tampa FL.
- Introduction to ArcGIS. 2-day workshop. June 3 – 4, 2004. Hillsborough County Traffic Division, Tampa FL.
- Programming with ArcObjects. Series of five ½ day workshops. October 2004. Hillsborough County Stormwater Section, Tampa FL.
- Geodatabase fundamentals and geodatabase topology. Series of eight ½ day workshops. April – June 2004. Hillsborough County Stormwater Section, Tampa FL.
- Map design using GIS. 2-day workshop. September 2 – 3, 2003. Hillsborough County GIS Department, Tampa FL.
- GIS introduction for stormwater management. Series of eighteen ½ day workshops. January – April 2002. Hillsborough County Stormwater Section, Tampa FL.
- Environmentally Sensitive Area analysis. 2-week workshop. May 2000. Municipality of Santo André, São Paulo, Brazil.
- Watershed management. 2-week workshop. February 2000. Municipalities of Cebu and Davao, Philippines.
- Multimedia and watershed management. 5-day workshop. October 1999. International Potato Centre, Lima, Peru.
- Watershed modeling and GIS. 2-week workshop. October 1999. Municipality of Santo André, São Paulo, Brazil.
- Watershed management. 3-day workshop. September 1999. Watershed management board members from Cebu and Davao (Philippines), University of British Columbia, Vancouver, Canada
- GIS and multimedia authoring. 1-week workshop. August 1999. Municipality of Santo André, São Paulo, Brazil.
- GIS for municipal planning and environmental analysis. 2-week workshop. April/May 1999. Municipality of Santo André, São Paulo, Brazil.
- GIS and multimedia authoring. 1-week workshop. March 1999. Municipality of Santo André, São Paulo, Brazil.
- Watershed management. 2-week seminar series. January/February 1999. University of British Columbia, Vancouver, Canada.

Workshops and Courses Attended

- Network Analysis with ArcGIS, 2 days, 2006, Tampa, FL
- Advanced Analysis with ArcGIS, 3 days, 2004, Tampa, FL
- Modelling using ArcHydro, 1 day, 2003, ESRI, San Diego, FL
- Using BlackBoard, ½ day, 2002, University of South Florida, Tampa, FL
- Introduction to ArcSDE, 2 days, 2002, ESRI, Tampa, FL
- Introduction to Programming with ArcObjects, 5 days, 2002, ESRI, Tampa, FL

- GIS/GPS Integration seminar, 1 day, 2002, ESRI and Trimble, Tampa, FL
- What's New in ArcGIS 8.3, 3 days, 2002, ESRI Tampa, FL
- Using WebCT, 2 days, 2001, York University, Toronto, ON
- Teaching Dossier Workshop, ½ day, 2000, York University, Toronto, ON
- Instructional Skills Workshop, 3 days, 1997, University of British Columbia, Vancouver, BC
- Multiple Stressors in Ecological Risk Assessment, 5 days, 1997, Pellston, MI
- Rural Energy and Development, two months, 1991, University of Twente, the Netherlands

Service Activities

Administration (UNM)

- Associate Chair, Department of Geography. 2008 – present.
- Graduate Program Director, Department of Geography. 2008 – present.
- GIS Program Coordinator, Department of Geography. 2007 – present.
- GIS Lab Manager, Department of Geography. 2007 – present.
- Member, College of Arts and Sciences Tenure and Promotion committee, 2010-2011.
- Member, College of Arts and Sciences Tenure and Promotion committee, 2009-2010.
- Member, Department Chair Geography search committee, 2009-2010.
- Member, Department Chair Geography search committee, 2008-2009.
- Member, Assistant Professor Geography search committee, 2007-2008.

Administration (USF)

- GIS Certificate Program Coordinator. 2001 – 2007.
- GIS Lab manager. 2001 – 2007.
- Coordinator of non-credit GIS courses for Educational Outreach. 2002 – 2007.
- Coordinator of ESRI training courses in Geography GIS teaching labs. 2003 – 2007.
- Member, CAS computer steering committee. 2003 – 2007.
- Member, Geography Graduate Committee. 2005 – 2007.
- Member, Search committee for Remote Sensing hire. 2005 – 2006.
- Member, Geography Undergraduate Committee. 2002 – 2004.
- Member, Search committee for Remote Sensing hire. 2002 – 2003.

Editorial Activities

- Co-founding Editor of Crime Mapping: A Journal of Research and Practice, 2008 – present.
- Editorial Board Member, Environmental Health Insights, 2008 – present.

Reviewer Activities

Reviewer for the following journals:

- American Journal of Epidemiology, 2007 (1)
- Annals of Epidemiology, 2008 (1), 2009 (1)

- Applied Geography, 2010 (1)
- Applied GIS, 2006 (1), 2007 (1), 2008 (1)
- Applied Spatial Analysis and Policy, 2010 (1)
- Area, 2008 (1)
- BMC Public Health, 2009 (1)
- Cartography and Geographic Information Science, 2009 (1)
- Computers, Environment and Urban Systems, 2009 (1)
- Crime Mapping: A Journal of Research and Practice, 2008 (1), 2009 (1)
- Criminology and Public Policy, 2010(1)
- Geoinformatica, 2010 (1)
- International Journal of Geographical Information Systems, 2009 (1), 2010 (1)
- International Journal of Health Geographics, 2007 (1), 2008 (1), 2009 (3)
- International Journal of Remote Sensing, 2008 (1), 2009 (2), 2010 (2)
- Journal of Environmental Management, 2008 (1)
- Journal of Hydrologic Engineering, 2008 (1), 2009 (1), 2010(2)
- Journal of Urban Affairs, 2010(1)
- Journal of Zhejiang University-SCIENCE A, 2009 (1)
- Justice Quarterly, 2008 (1)
- Professional Geographer, 2007 (1), 2009 (1)
- Science of the Total Environment, 2007 (1)
- Southeastern Geographer, 2009 (1), 2010(1)
- Spatial and Spatio-Temporal Epidemiology, 2009 (1)
- Survey Methodology, 2010(1)
- Transactions in GIS, 2007 (1)
- Urban Geography, 2009 (1)

Reviewer for the following publishers:

- ESRI Press, 2008 (1)
- ISPRS Book Series, 2009 (1)

Reviewer for the following funding agencies:

- National Institute of Justice (NIJ), 2010 (1)
- National Science Foundation (NSF), 2003 (1), 2005 (1), 2008 (1), 2010(1)
- Science and Humanities Research Council of Canada (SHRCC), 2003 (1)

Advisory panel review member:

- National Institute of Justice (NIJ), 2010 (1)
- National Science Foundation (NSF), 2010 (1)

Professional Membership

American Public Health Association (APHA)
 Association of American Geographers (AAG)
 New Mexico Geographic Information Council (NMGIC)