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- CONTACT INFORMATION Natural Resources Building *Phone:* 517-432-7219
 Department of Forestry *Fax:* 517-432-1143
 Michigan State University *E-mail:* finleya@msu.edu
 East Lansing, MI 48824-1222 *WWW:* <http://blue.for.msu.edu>
- EDUCATION **University of Minnesota**, St. Paul, MN
Ph.D., Natural Resources Science and Management. Completed Dec. 2006
 Dissertation title: Application of Bayesian spatial models in multisource forest inventory
 Advisers: Alan R. Ek and Sudipto Banerjee
M.S., Statistics. Completed Apr. 2007
 Adviser: Galin L. Jones
University of Massachusetts, Amherst, MA
M.S., Forestry. Completed May 2003
 Thesis title: Assessing private forest landowners' attitudes toward, and ideas for, cross-boundary cooperation in western Massachusetts
 Adviser: David B. Kittredge
The Pennsylvania State University, University Park, PA
B.S., Forestry. Completed May 2000
- ACADEMIC EXPERIENCE *Assistant Professor* **2007 – Current**
 Department of Forestry and Department of Geography, Michigan State University, East Lansing, MI.
Adjunct professor **2008 – Current**
 Department of Statistics and Probability, Michigan State University, East Lansing, MI.
Research Fellow **2003–2007**
 Department of Forest Resources, University of Minnesota, St. Paul, MN.
Research Assistant **2001–2003**
 Department of Natural Resources Conservation, University of Massachusetts, Amherst, MA.
Visiting Researcher and Undergraduate Researcher Mentor **Summer 2001**
 Harvard Forest LTER, Harvard University, Petersham, MA.
- GRANTS NIH, *Hierarchical spatial process models for estimating and predicting health effects of climate change.* S. Banerjee (PI) and A.O. Finley (Co-PI). \$610,295, 2010–2012.
 NASA *Integrating landscape-scale forest measurements with remote sensing and ecosystem models to improve carbon management decisions.* R. Birdsey (PI) and Co-PIs J. Bradford, K. Clark, A.O. Finley, D. Hollinger, J. Hom, S. Klooster, R. Kolka, S. McNulty, and Y. Pan. Subaward \$122,000. 2009–2011.

USDA, Forest Service, *Forest complexity in the Lake States: Implications for carbon storage*. A.O. Finley (PI). \$30,000. 2009–2012.

USDA, Forest Service. *Nationwide forest imputation system*. A.O. Finley (PI). \$275,000. 2007–2012.

NSF, Division of Mathematical Sciences. *Hierarchical models for large geostatistical datasets with applications to forestry and ecology*. S. Banerjee (PI) and A.O. Finley (Co-PI). \$253,511. 2007–2010.

USDA, Forest Service. *Spatial prediction and estimation of forest attributes*. M.E. Bauer (PI) and A.O. Finley (Co-PI). \$36,000. 2006–2007.

NASA, Earth System Science Graduate Fellowship. A.O. Finley. \$72,000. 2003–2006.

National Ford Foundation Masters Fellowship, A.O. Finley. \$7,000. 2001–2002.

PROPOSALS IN
REVIEW

NSF, Division of Environmental Biology. *Covariation of genotype-specific traits within and among early life-stages of lake sturgeon: laboratory and field studies of adaptations to timing of reproduction*. K.T. Scribner (PI) and A.O. Finley (Co-PI). \$742,846. Submitted July, 2009.

NIH, *Impacts of climate change on the spatial and temporal patterns of BU incidence in Ghana and Benin, West Africa*. J. Qi (PI) and Co-PIs S.R. Robert, N. Jacob, and A.O. Finley \$977,707. Submitted June, 2009.

USDA. *Young adult body mass and proximity to nutrient-dense foods*. P. Howard (PI) and Co-PIs K.G. Goldsberry and A.O. Finley (Co-PI). \$1,499,699. Submitted July, 2009.

NIH. *Nutrition Environments and Body Mass Index: Spatial Associations Between Produce Accessibility and BMI of Young Adults*. K.G. Goldsberry (PI) and Co-PIs P. Howard and A.O. Finley. \$405,828. Submitted July, 2009.

HONORS

2009 Research fellow, Statistical and Applied Mathematical Sciences Institute.

2009 Young investigator award, American Statistical Association's Section on Statistics and the Environment.

2007 Student paper competition, American Statistical Association's Section on Statistical Computing.

2007 Student paper competition, American Statistical Association's Section on Statistics and the Environment.

PEER REVIEWED
PUBLICATIONS

Banerjee, S., **Finley, A.O.**, P. Waldmann, and T. Ericsson. (Accepted) Hierarchical spatial process models for multiple traits in large genetic trials. *Journal of the American Statistical Association*.

Finley, A.O., S. Banerjee, and R.E. McRoberts. (Accepted) Hierarchical spatial models for predicting tree species assemblages across large domains. *Annals of Applied Statistics*.

Woodall, C.W., C.M. Oswalt, J.A. Westfall, C.H. Perry, M.D. Nelson, and **A.O. Finley**. (2009) Selecting tree species for testing climate change migration hypotheses using forest inventory data. *Forest Ecology and Management*. DOI 10.1016/j.foreco.2009.07.022.

- Finley, A.O.**, H. Sang, S. Banerjee, and A.E. Gelfand. (2009) Improving the performance of predictive process modeling for large datasets. *Computational Statistics and Data Analysis*, **53**:2873–2884.
- Finley, A.O.**, S. Banerjee, P. Waldmann, and T. Ericsson. (2009) Hierarchical spatial modeling of additive and dominance genetic variance for large spatial trial datasets. *Biometrics*, **65**, 441–451.
- Clark, S. and **A.O. Finley**. (2009) Spatial Modelling of Car Ownership Data: A Case Study from the United Kingdom. *Applied Spatial Analysis and Policy*, DOI 10.1007/s12061-009-9030-z.
- Woodall, C.W., C.M. Oswalt, J.A. Westfall, C.H. Perry, M.D. Nelson, and **A.O. Finley**. (2009) An indicator of tree migration in forests of the eastern United States. *Forest Ecology and Management*. **257**:1434–1444.
- Banerjee, S., A.E. Gelfand, **A.O. Finley**, and H. Sang. (2008) Gaussian Predictive Process Models for Large Spatial Datasets. *Journal of the Royal Statistical Society Series B*, **70**:825–848.
- Nicholas, L.C. and **A.O. Finley**. (2008) yaImpute: An R package for kNN Imputation. *Journal of Statistical Software*, **23**:10, www.jstatsoft.org.
- Finley, A.O.** and R.E. McRoberts. (2008) Efficient k -nearest neighbor searches for multi-source forest attribute mapping. *Remote Sensing of Environment*, **112**:2203–2211.
- Liang, S., S. Banerjee, S. Bushhouse, **A.O. Finley**, and B.P. Carlin. (2008) Hierarchical multiresolution approaches for dense point-level breast cancer treatment data. *Computational Statistics and Data Analysis*. **52**:2650–2668.
- Finley, A.O.**, S. Banerjee, A.R. Ek, and R.E. McRoberts. (2008) Bayesian multivariate process modeling for prediction of forest attributes. *Journal of Agricultural, Biological, and Environmental Statistics*. **13**:60–83.
- Finley, A.O.**, S. Banerjee, and R.E. McRoberts. (2008) A Bayesian approach to quantifying uncertainty in multi-source forest area estimates. *Environmental and Ecological Statistics*, **15**:241–258.
- McRoberts, R.E., E. Tomppo, **A.O. Finley**, and J. Heikkinen. (2007) Model-based estimators for the k -nearest neighbors technique. *Remote Sensing of Environment*, **111**:466–480.
- Finley, A.O.**, S. Banerjee, and B.P. Carlin. (2007) spBayes: A program for multivariate point-referenced spatial modeling. *Journal of Statistical Software*, **19**:4, www.jstatsoft.org.
- Banerjee, S. and **A.O. Finley**. (2007) Bayesian multi-resolution modeling for spatially replicated data sets with application to forest biomass data. *Journal of Statistical Planning and Inference*, **137**:3193–3205.
- Finley, A.O.**, R.E. McRoberts, and A.R. Ek. (2006) Applying an efficient k -nearest neighbor search to forest attribute imputation. *Forest Science*, **52**:130–135.

Finley, A.O., D.B. Kittredge, T.H. Stevens, C.M. Schweik, and D. Dennis. (2006) Possibilities for cross-boundary cooperation in a landscape dominated by private ownership: a case study from Massachusetts. *Forest Science*, **52**:10–22.

Finley, A.O. and D.B. Kittredge. (2006) Thoreau, Muir, and Jane Doe: different types of private forest owners need different kinds of forest management. *Northern Journal of Applied Forestry*, **23**:27–34.

Haapanen, R., A.R. Ek, M.E. Bauer, and **A.O. Finley**. (2004) Delineation of forest/non-forest land-use classes using k -nearest neighbor classification. *Remote Sensing of Environment*, **89**:265–271.

Kittredge, D.B., **A.O. Finley**, and D.R. Foster. (2003) Timber harvesting as ongoing disturbance in a landscape of diverse ownership. *Forest Ecology and Management*, **180**:425–442.

PUBLICATION IN REVIEW **Finley, A.O.**, S. Banerjee, and D.W. MacFarlane. A hierarchical model for predicting forest variables over large heterogeneous domains. *Journal of the American Statistical Association*. Submitted October, 2009.

PUBLICATION IN PREPARATION Munoz-R, J.D., **A.O. Finley**, and S. Kravchenko. Nonlinear hierarchical models for predicting cover crop biomass using NDVI. To be submitted to *Remote Sensing of Environment*. Estimated submission November, 2009.

Finley, A.O., S. Banerjee, and D.W. MacFarlane. A hierarchical spatially-varying coefficients model for tree diameter-height relationships over environmental gradients. To be submitted to *Journal of the American Statistical Association*. Estimated submission November, 2009.

Niyogi, R.G., **A.O. Finley**, S. Banerjee, and A. Gelfand. Gaussian predictive process models with random knots. To be submitted to *Journal of the American Statistical Association*. Estimated submission December, 2009.

GRADUATE STUDENTS Brian F. Walters, M.S. Geography (chair, 2008)
Ellen Holste, M.S. Forestry (committee, in progress)
Huirong Zhu, M.S. Forestry (chair, in progress)
Juan David Munoz-R, Ph.D. Crop and Soil Science (committee, in progress)
Lindsay Campbell, M.S. Geography (committee, in progress)
Megan Matonis, M.S. Forestry (committee, in progress)

BOOK CHAPTERS **Finley, A.O.** and S. Banerjee. (2008) Bayesian spatial regression for multi-source mapping. *Encyclopedia of Geographic Information Systems*. <http://refworks.springer-sbm.com/geograph>. Springer-Verlag, New York.

BOOKS UNDER CONTRACT **Finley, A.O.** and S. Banerjee. *Bayesian Models for Environmental Spatial Data analysis with R*, Springer Press. http://blue.for.msu.edu/book/Finley_Banerjee_useR.pdf

McRoberts, R.E., E. Tomppo, and A.O. Finley. Nearest neighbor search algorithms and computing. *Nearest neighbor methods for multi-source forest inventory*. Springer-Verlag, New York.

- BOOK REVIEWS *Sampling Techniques for Forest Inventories*, by D. Mandallaz. Chapman & Hall/CRC 2008. *The American Statistician*. **63**, 287–288.
- SHORT COURSES Hierarchical Modeling and Analysis of Spatial-Temporal Data: Emphasis in Forestry, Ecology, and Environmental Sciences. Invited for 2009 Eastern North American Region, International Biometric Society meeting in San Antonio, TX. http://blue.for.msu.edu/ENAR_09/SC. Co-instructed with S. Banerjee.
- Hierarchical Modeling and Analysis of Spatial-Temporal Data: Emphasis in Forestry, Ecology, and Environmental Sciences. Invited for 2009 The International Environmetrics Society conference in Bologna, Italy. http://blue.for.msu.edu/TIES_09/SC. Co-instructed with S. Banerjee.
- Hierarchical Modeling and Analysis of Spatial-Temporal Data: Emphasis in Forestry, Ecology, and Environmental Sciences. Invited for 2009 Joint Statistical Meeting in Washington, DC. http://blue.for.msu.edu/JSM_09/SC. Co-instructed with S. Banerjee.
- PRESENTATIONS **Finley, A.O.** Hierarchical modeling of large spatially referenced forest inventory datasets. September 30, 2009. Department of Statistical Science, Duke University. Durham, NC.
- Finley, A.O.**, S. Banerjee and A. Gelfand. An adaptive predictive process modeling approach for large spatial-temporal data sets. American Statistical Association Joint Statistical Meeting. August 3, 2009. Washington, DC.
- Finley, A.O.** and S. Banerjee. Hierarchical spatial models with remotely sensed predictors for mapping tree species assemblages across large domains. International Environmetrics Society. July 7, Bologna, Italy.
- Finley, A.O.** Hierarchical spatial models with remotely sensed predictors for mapping tree species assemblages across large domains. Eastern North American Region, International Biometric Society. March 18, 2009. San Antonio, TX.
- Finley, A.O.**, S. Banerjee, and R.E. McRoberts. Hierarchical spatial models with remotely sensed predictors for mapping tree species assemblages across large domains. Eastern North American Region, International Biometric Society. March 18, 2009. San Antonio, TX.
- Banerjee, S.**, A.O. Finley, P. Waldmann, and T. Ericsson. Hierarchical spatial modeling of genetic variance for large spatial trial datasets. Eastern North American Region, International Biometric Society. March 18, 2009. San Antonio, TX.
- Finley, A.O.**, S. Banerjee, and R.E. McRoberts. Hierarchical spatial models for predicting tree species assemblages across large domains. Invited paper hosted by Section on Statistics and the Environment at the American Statistical Association Joint Statistical Meeting. August 4, 2008. Denver, CO.
- Banerjee, S.**, A.O. Finley, P. Waldmann, and T. Ericsson. Hierarchical multivariate spatial modeling of additive and dominance genetic variance for large spatial trial datasets. Invited paper at The International Environmetrics Society conference. June 10, 2008. Kelowna, Canada.

Finley, A.O., S. Banerjee, P. Waldmann, and T. Ericsson. Hierarchical spatial modeling of additive and dominance genetic variance for large spatial trial datasets. Eastern North American Region, International Biometric Society. March 17, 2008. Arlington, VA.

Finley, A.O., S. Banerjee, and B. Carlin. spBayes: An R package for univariate and multivariate hierarchical point-referenced spatial models. Invited paper hosted by the Section on Statistical Computing at the American Statistical Association Joint Statistical Meeting. July 29, 2007. Salt Lake City, UT.

Finley, A.O. and **S. Banerjee**. Spatial modeling for large multivariate environmental data: advancing methods and applications. Hosted by the Section on Statistics and the Environment at the American Statistical Association Joint Statistical Meeting. July 29, 2007. Salt Lake City, UT.

McRoberts, R.E. and **A.O. Finley**. Design-based and model-based issues in natural resource inventories. Hosted by the Section on Statistics and the Environment at the American Statistical Association Joint Statistical Meeting. July 29, 2007. Salt Lake City, UT.

Finley, A.O. Bayesian spatial regression analysis of continuous forest attributes using the *spBayes* software. Presented at the University of Minnesota's Department of Forest Resources Seminar Series. Feb. 27, 2006. St. Paul, MN.

Finley, A.O., R.E. McRoberts, and A.R. Ek. A comparative study of a new nearest neighbor variance estimator. Presented at the 2006 Nearest Neighbors Workshop. August. 28–30, 2006. University of Minnesota, Minneapolis, MN.

Crookston, N.L. and A.O. Finley. *yaImpute*: A R Package for k -NN imputation. Presented at the 2006 Nearest Neighbors Workshop. August 28–30, 2006. University of Minnesota, Minneapolis, MN.

Banerjee, S. and A.O. Finley. Modeling large multivariate spatial data sets with Gaussian predictive processes. Presented at the Center for Statistical Sciences, Brown University. Sept. 25, 2006. Providence, RI.

Finley, A.O., A.R. Ek, Y. Bai, and M.E. Bauer. Fast k -nearest neighbor imputation. Presented at the 2nd International Conference of Forest Measurements and Quantitative Methods and Management and the 2004 Southern Mensurationists Meeting. June 15–18, 2004. Hot Springs, AR.

Kittredge, D.B. and A.O. Finley. North Quabbin Region's Chapter 61 spatial database. Presented at the 12th Annual Harvard Forest Ecology Symposium. April 23, 2001. Petersham, MA.

Kittredge, D.B., A.O. Finley, and D.R. Foster. Pattern and intensity of timber harvest in a complex forest landscape of private and public ownership. Presented at the 12th Annual Harvard Forest Ecology Symposium. April 23, 2001. Petersham, MA.

Finley, A.O. Exploring modern timber harvesting as a form of disturbance across the North Quabbin Region of Massachusetts. Presented at the 8th Annual Harvard Forest Summer Research Program. August 16, 2000. Petersham, MA.

PUBLISHED
SOFTWARE

MBA. Finley, A.O. and S. Banerjee. (2009) A R package that performs scattered data interpolation with Multilevel B-Splines Approximation. Available at <http://cran.r-project.org>.

spBayes. Finley, A.O., S. Banerjee, and B.P. Carlin. (2009) A R package that performs Bayesian analysis of Gaussian models with complex or hierarchical error structure. Written specifically to model spatial/temporal data. Available at <http://cran.r-project.org>.

yaImpute. Finley, A.O. and N.L. Crookston. (2009) A R package for efficient nearest neighbor imputation routines, variance estimation, and mapping. Available at <http://cran.r-project.org>.

PROFESSIONAL
AND ACADEMIC
SERVICE AND
MEMBERSHIP

Michigan State University, Department of forestry, Graduate Committee: 2007–2009.

Michigan State University, Department of forestry, Ad hoc Undergraduate Curriculum Committee (chair): 2008–2009.

Michigan State University, College of Agriculture and Natural Resources, Technology Services Faculty Advisory Committee: 2009.

International Biometric Society, Regional Advisory Board: 2009–2011

Member of International Biometric Society: 2007–current

Member of American Statistical Association: 2007–current

JOURNAL PEER
REVIEWS

Canadian Journal of Forest Research: 2006

Computational Statistics and Data Analysis: 2006, 2008, 2009

Environmental and Ecological Statistics: 2008, 2009

Environmetrics: 2008, 2009

Forest Science: 2007

Forest Ecology and Management: 2006 – 2008

Forestry: An International Journal of Forest Research: 2007

International Journal of Remote Sensing: 2008

Journal of the Royal Statistical Society Series C (Applied Statistics): 2007

Journal of the American Statistical Association: 2009

Landscape Ecology: 2008

Photogrammetric Engineering and Remote Sensing: 2006

Remote Sensing of Environment: 2004 – 2009

Statistics in Medicine: 2008 – 2009

CONFERENCE
ORGANIZING AND
SCIENTIFIC
COMMITTEES

Eastern North American Region/International Biometric Society. March, 2011. Miami, FL. www.enar.org/meetings.cfm.

Extending Forest Inventory and Monitoring Over Space and Time. May 19–22, 2009. Quebec City, Canada. <http://blue.for.msu.edu/meeting>.

Nearest Neighbors Workshop. July 5–7, 2007. University of Florence, Florence, Italy. <http://www.aisf.it/nn-workshop>.

Nearest Neighbors Workshop: Meeting in the Middle. August 28–30, 2006. University of Minnesota, Minneapolis, MN. <http://knn.gis.umn.edu>.

CONFERENCES
ATTENDED

American Statistical Association Joint Statistical Meeting. August 1–6, 2009. Washington, DC.

International Environmetrics Society. July 6–9, Bologna, Italy.

Eastern North American Region, International Biometric Society. March 15–18, 2009. San Antonio, TX.

Extending Forest Inventory and Monitoring Over Space and Time. May 19–22, 2009. Quebec City, Canada.

American Statistical Association Joint Statistical Meeting. August 3–7, 2008. Denver, CO.

Eastern North American Region/International Biometric Society. March 16–19, 2008. Arlington, VA.

American Statistical Association Joint Statistical Meeting. July 29 – August 2, 2007. Salt Lake City, UT.

Nearest Neighbors Workshop. August 28–30, 2006. University of Minnesota, Minneapolis, MN.

Seventh Annual Forest Inventory and Analysis Symposium. October 3–6, 2005. Portland, ME.

International Conference of Forest Measurements and Quantitative Methods and Management and the 2004 Southern Mensurationists Meeting. June 15–18, 2004. Hot Springs, AR.

12th Annual Conference of Minnesota GIS/LIS Consortium, October 2–4, 2002, Duluth, MN.

New England Society of American Foresters Annual Meeting, March 26, 2002, Manchester, NH.

New England Society of American Foresters Annual Meeting, March 14, 2001, Portland, ME.

Society of American Foresters National Convention. September. 9–15, 1999, Portland, OR.

SCHOLARSHIPS

University of Minnesota, Department of Forest Resources Scholarship 2006, \$1,500

University of Minnesota, Department of Forest Resources Scholarship 2004, \$6,000

University of Massachusetts–Amherst, Department of Natural Resources Conservation’s Donald L. Mader Scholarship 2002, \$500

University of Massachusetts–Amherst, Department of Natural Resources Conservation’s Frank M. West Scholarship 2002, \$250

PROGRAMMING
EXPERIENCE

Geospatial libraries: Geospatial Data Abstraction Library (GDAL), Geometry Engine Open Source (GEOS), Boost Graph Library (BGL)

Databases: PostGIS–PostgreSQL, MySQL, SQLite

Statistical and scientific: R, S-Plus, GNU Scientific Library (GSL), Basic Linear Algebra Subprograms (BLAS), Linear Algebra PACKage (LAPACK)

Optimization libraries: GNU Linear Programming Kit (GLPK)

Languages: C/C++, PHP, Python, R, Unix shell scripts

GIS and image processing: GRASS, ERDAS-Imagine, ESRI products

Scientific typesetting: L^AT_EX

Operating systems: Unix/Linux, Windows