David W. MacFarlane, Ph.D., LTE.

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Education:

Ph.D. Ecology and Evolutionary Biology. Rutgers University. 2001. *Cum Laude*
B.S. Natural Resource Management. Cook College. 1995. *Cum Laude*.
A.S. General Science. Brookdale Community College. 1992. *Cum Laude*.
L.T.E. N.J. Licensed Tree Expert (LTE #361; 1997-present).

Professional experience:

7/2020 – present:	Director - Institute for Ecology and Human Well-being, Michigan State University
7/2018 - present:	Professor, Department of Forestry, Michigan State University
9/2012 – present:	Director of Undergraduate Studies, Department of Forestry, Michigan State University
7/2008 - present:	Associate Professor, Department of Forestry, Michigan State University
3/2002 – 6/2008:	Assistant Professor, Department of Forestry, Michigan State University
1/1997 - 8/2001:	Research Assistant / Teaching Assistant, Department of Ecology, Evolution & Natural Resources, Rutgers University.
6/1995- 3/2002:	Head Consultant (Owner) Roots & Shoots L.L.C. Forest Management and Research & Certified Tree Expert Consulting, Red Bank, N.J.
6/1995- 3/2002:	Project Leader, NJ-ECOMAP Project, N.J. Forest Service, U.S.D.A.F.S.

Courses Taught:

Michigan State University (2002-2024)

International Studies in Agriculture and Natural Resources (ANR 475 750): "Exploring Human – Forest Co-dependence in the Yucatán".
Forestry Field Methods (FOR 222, 2 cr.), Instructor, undergraduate, Fall 2013-2024. Fall 2020- online.
Forestry Field Studies (FOR 420, 3 cr.), Co-Instructor, undergraduate, Spring 2003-2010; 2013; Summer 2014-2023. Summer 2020- online only. Sole Instructor, Spring 2006, 2011.
Professional Internship in Forestry (FOR 493, var. cr.), Instructor, Summer 2013-2015.
Forest Biometry (FOR 306, 4cr.), Instructor, undergraduate, Spring 2003-2013
Sampling Methods for Forest Ecosystems Measurement, FOR 890:607 (3 cr.), Fall 2007

Natural Resource Inventory (FOR 890, 3 cr.), Co-instructor, graduate Fall 2004
Independent Study in Forestry Biometry (FOR 490), Instructor, Spring 2003-2005; 2009-2019
Forest Conservation Thesis (FOR 410), Faculty advisor, Fall 2006.

Rutgers University (1997-2001):
Dendrology (11:704:272), Fall 1994; Lab Instructor
Forestry Field Practice (11:704:274), Summer 1996, 1998, 2000; Field Camp Instructor
Principles of Applied Ecology (11:704:351), Spring 1999, 2000, 2001; Recitation Instructor
Interesting and Edible Plants (11:015:2xx), Fall 1999, 2000; Instructor
Genetics (01:477:380), Fall 2000; Recitation Instructor

Graduate Student Mentoring

Chair, PhD Committee

Cooper, Lauren, Doctor of Philosophy. (Spring 2020 - Present).

Arseniou, Georgios, Doctor of Philosophy. (Fall 2016 – December 2021). Degree Awarded.

Haghighat, Sahar, Doctor of Philosophy. (Spring 2014 - Present).

Kraus, Erika Beth, Doctor of Philosophy. (Spring 2012 – Jan 2017). Degree Awarded.

An, Hong Su, Doctor of Philosophy. (Spring 2007 - Spring 2012). Degree Awarded.

Wang, Zhonglei, Doctor of Philosophy. (Summer 2007 – Spring 2013). Degree Awarded.

Member, PhD Committee

White, Grayson, Doctor of Philosophy (2024 – present)

Shannon, Elliot, , Doctor of Philosophy (2024 – present)

Ver Planck, Neil Ryan, Doctor of Philosophy. (Summer 2015 - 2017). Degree Awarded.

Lin, Yingqian, Doctor of Philosophy. (Fall 2012 - 2021). Degree Awarded.

Wekesa, Chemuku, Doctor of Philosophy. (2014 - 2017) (Egerton University)

Crosby, Andrew Donald, Doctor of Philosophy.(Spring 2015 - Spring 2017). Degree Awarded.

McCann, Robert S, Doctor of Philosophy. (Fall 2009 - Fall 2013). Degree Awarded.

Otto, Clint Robert Vincent, Doctor of Philosophy.(Spring 2009 - Summer 2012). Degree Awarded.

Adovor, Doe, Doctor of Philosophy. (2008) Degree Awarded.

Chair, Master's Thesis Committee

Fitzharris, Jacob, Master of Science (Fall 2023 – present)

Morales, Aidan, Master of Science (Fall 2022 – present)

Dettmann, Garret T, Master of Science. (Spring 2015 –Dec 4, 2017). Degree Awarded.

Mosa, Warveen Loqman, Master of Science. (2016). Degree Awarded.

Ver Planck, Neil , Master of Science. (2011). Degree Awarded.

Shawna P. Meyer, Master of Science. (2005). Degree Awarded.

Luo, Aidong, Master of Science. (2005). Degree Awarded.

Member, Master's Thesis Committee

White, Grayson, Master of Science (2024 – present)

Rivera, Richard, Master of Science (2020 – present)

Stanke, Hunter, Master of Science (2020) Degree Awarded.

Surface, Heather Marie, MS: Master of Science. (2015). Degree Awarded.

Akinyi, Leila, MS: Master of Science. (2015). Degree Awarded. (Kenyatta University)

Babcock, Chad, Master of Science. (2014). Degree Awarded.

Edwards, Megan, MS: Master of Science. (2014). Degree Awarded.

Schlott, Peter, MS: Master of Science. (2014). Degree Awarded.

Zhu, Huirong, MS: Master of Science. (2011). Degree Awarded.

Matchett, Brian, MS: Master of Science, Plan B (2005). Degree Awarded.

Mwelwa, Malunga, MS: Master of Science. (2005). Degree Awarded.

Nirmal Subedi, MS: Master of Science. (2005). Degree Awarded.

Advisor, Graduate Research (not member of graduate committee); outside of U.S.

Hassan Camil David (PhD)(Brazil) Universidade Federal do Paraná; Science Without Borders, Sandwich Doctorate (2015-present)

Akinyi, Leila, MS: Master of Science, Plan A, (2015). Degree Awarded. (Kenyatta University, Kenya Africa)

Shem Kuyah (PhD)(Kenya) Jomo Kenyatta University of Agriculture and Technology (JKUAT)(2010-2014)

Post-doctoral Mentoring

Arseniou, Georgios (Post-doctoral Research Associate) (2022 - 2023)

Latifi, Hooman (Visiting Doctoral Scholar)(Iran). Albert-Ludwigs- Universität Freiburg, funded by scholarship from German Academic Exchange Service (DAAD) (2011)

Rubin, Benjamin (Post-doctoral Research Associate) (2006 - 2009)

Peer-reviewed research articles

Published journal articles (*is student or mentee as co-author)

Morales, Aidan*, MacFarlane, David W. 2024. Reducing tree volume overestimation in quantitative structure models using modeled branch topology and direct twig measurements, *Forestry: An International Journal of Forest Research*, cpae046,https://doi.org/10.1093/forestry/cpae046

MacFarlane, D.W., 2024. Highly variable bark-wood density relationships across tree species reflect tradeoffs in evolved tolerances to environmental stressors. Trees, pp.1-17.

Quezada-Euán, J.J.G., Guerrero-Herrera, R.O.*, González-Ramírez, R.M. and MacFarlane, D.W., 2024. Frequency and behavior of Melipona stingless bees and orchid bees (Hymenoptera: Apidae) in relation to floral characteristics of vanilla in the Yucatán region of Mexico. *PloS one*, *19*(7), p.e0306808.

Cooper, L.* and MacFarlane, D., 2023. Climate-Smart Forestry: Promise and risks for forests, society, and climate. PLOS Climate, 2(6), p.e0000212.

Stovall, A.E., MacFarlane, D.W., Crawford, D., Jovanovic, T., Frank, J. and Brack, C., 2023. Comparing mobile and terrestrial laser scanning for measuring and modelling tree stem taper. Forestry: An International Journal of Forest Research, p.cpad012.

Arseniou, G.*, MacFarlane, D.W., Calders, K. and Baker, M., 2023. Accuracy differences in aboveground woody biomass estimation with terrestrial laser scanning for trees in urban and rural forests and different leaf conditions. Trees, pp.1-19.

David, H. C.*, Barbosa, R. I., Vibrans, A. C., Watzlawick, L. F., Trautenmuller, J. W., Balbinot, R., ... & MacFarlane, D. W. (2022). The tropical biomass & carbon project–An application for forest biomass and carbon estimates. Ecological Modelling, 472, 110067.

Dettmann, G.T.*, MacFarlane, D.W., Radtke, P.J., Weiskittel, A.R., Affleck, D.L., Poudel, K.P. and Westfall, J., 2022. Testing a generalized leaf mass estimation method for diverse tree species and climates of the continental United States. Ecological Applications, 32(7), p.e2646.

Mukerjee, S., Doroshewitz, J., Merlo, J.M., Oakley, C., Udpa, L., MacFarlane, D.W., Huff, E.* and Nanzer, J.A., 2022. A Microwave Tomography System Using Time-Reversal Imaging for Forestry Applications. IEEE Journal of Microwaves, 2(4), pp.614-625.

Stanke, H.*, Finley, A.O., Domke, G.M., Weed, A.S. and MacFarlane, D.W., 2021. Over half of western United States' most abundant tree species in decline. Nature Communications, 12(1), pp.1-11.

Arseniou, G.*, MacFarlane, D.W. and Seidel, D. 2021. Woody Surface Area Measurements with Terrestrial Laser Scanning Relate to the Anatomical and Structural Complexity of Urban Trees. *Remote Sensing*, 13(16), p.3153.

Arseniou, G.*, MacFarlane, D.W. and Seidel, D. 2021. Measuring the Contribution of Leaves to the Structural Complexity of Urban Tree Crowns with Terrestrial Laser Scanning. *Remote Sensing*, 13(14), p.2773.

Arseniou, G.* and MacFarlane, D.W., 2021. Crown Fractal Geometry Adapts Trees to City Life. The *Bulletin of the Ecological Society of America*, 102(2), p.e01857.

Arseniou, G.* and MacFarlane, D.W. 2021. Fractal dimension of tree crowns explains species functional-trait responses to urban environments at different scales. *Ecological Applications*, 31(4), p.e02297.

Veintimilla, R.A.R., MacFarlane, D. and Cooper, L.*, 2021. The carbon sequestration potential of 'analog' forestry in Ecuador: an alternative strategy for reforestation of degraded pastures. *Forestry: An International Journal of Forest Research*, 94(1), pp.102-114.

MacFarlane, D.W., 2020. Functional relationships between branch and stem wood density for temperate tree species in North America. Frontiers in Forests and Global Change, 3, doi: 10.3389/ffgc.2020.00063

Hassan C David*, David W MacFarlane, Sylvio Péllico Netto, Ana Paula Dalla Corte, Daniel Piotto, Yeda M M de Oliveira, Vinicius A Morais, Carlos R Sanquetta, Rorai P M Neto. 2019. Exploring coarse- to fine-scale approaches for mapping and estimating forest volume from Brazilian National Forest Inventory data, *Forestry: An International Journal of Forest Research*, , cpz030, https://doi.org/10.1093/forestry/cpz030

Neil R Ver Planck*, David W MacFarlane. 2019. Branch mass allocation increases wind throw risk for Fagus grandifolia, *Forestry: An International Journal of Forest Research*, cpz001, https://doi.org/10.1093/forestry/cpz001

Dettman, G.T.* and MacFarlane, D.W. 2018. Trans-species predictors of tree leaf mass. *Ecological Applications,* 29(1): e01817. 10.1002/eap.1817

Clough, B.J., Domke, G.M., MacFarlane, D.W., Radtke, P.J., Russell, M.B., Weiskittel, A.R. 2018. Comparison of approaches for predicting total tree aboveground biomass and its components in the primary conifer and hardwood species of eastern United States. *Forestry: An International Journal of Forest Research*, Forestry; 00, 1–14, doi:10.1093/forestry/cpy016.

Frank, J., Castle, M., Westfall, J., Weiskittel, A., MacFarlane, D.W., Baral, S, Radtke, P., and Pelletier, G.

2018. Variation in occurrence and extent of internal stem decay in standing trees across eastern US and Canada: Evaluation of alternative modeling approaches and influential factors. *Forestry: An International Journal of Forest Research*; 91, 382–399, doi:10.1093/forestry/cpx054

David, H.C.*, Gomes de Araújo, E.J., Morais, V.A., Scolforo, J.R.S., Marques, J.M., Péllico, S. and MacFarlane, D.W. 2017. Carbon stock classification for tropical forests in Brazil: Understanding the effect of stand and climate variables. *Forest Ecology and Management*, 404: 241–250.

McCann, R.S.*, Messina, J.P., MacFarlane, D.W.,, M. Nabie Bayoh, Gimnig, J.E. Giorgi, E. and Walker, E.D. 2017. Explaining variation in adult Anopheles indoor resting abundance: the relative effects of larval habitat proximity and insecticide-treated bed net use. *Malaria Journal*, 16:288 DOI 10.1186/s12936-017-1938-1.

MacFarlane, D.W. and Kane, B., 2017. Neighbour effects on tree architecture: functional trade-offs balancing crown competitiveness with wind resistance. *Functional Ecology*, 31(8), pp.1624-1636.

Radtke, P., Walker, D., Frank, J., Weiskittel, A., DeYoung, C., MacFarlane, D.W., Domke, G., Woodall, C., Coulston, J. and Westfall, J., 2017. Improved accuracy of aboveground biomass and carbon estimates for live trees in forests of the eastern United States. *Forestry: An International Journal of Forest Research*, 90(1), pp. 32-46.

MacFarlane, D.W., Weiskittel, A.R. 2016. A new method for capturing stem taper variation for trees of diverse morphological types. *Can. J. For. Res*. 46: 804–815.

MacFarlane, D.W., Kinzer, A.T., Banks, J.E. 2015. Coupled human-natural regeneration of indigenous coastal dry forest in Kenya. *Forest Ecology and Management*, 354: 149–159.

MacFarlane, D.W. 2015. A generalized tree component biomass model derived from principles of variable allometry. *Forest Ecology and Management*, 354: 43-55.

Weiskittel, A.R., MacFarlane, D.W., Radtke, P.J. Affleck, D.L.R., Hailemariam, T.,Westfall, J.A., Woodall, C.W., and Coulston, J.W. 2015. A call to improve methods for estimating tree biomass for regional and national assessments. *Journal of Forestry*, 113(4):414–424.

Ver Planck N.R.*, MacFarlane, D.W. 2015. A vertically integrated whole-tree biomass Model. *Trees: Structure and Function,* 29: 449–460.

McCann, R.S., Messina, J.P., MacFarlane, D.W., Nabie Bayoh, B.M., Vulule, J.M., Gimnig, J.E. and Walker, E.D. 2014. Modeling larval malaria vector habitat locations using landscape features and cumulative precipitation measure*. International Journal of Health Geographics*, 13:17, 1-12.

MacFarlane, D.W., Kuyah, S.*, Mulia, R., Dietz, J., Muthuri, C., and Van Noordwijk, M. 2014. Evaluating a non-destructive method for calibrating tree biomass equations derived from tree branching architecture. *Trees: Structure and Function,* 28: 807–817.

Ver Planck, N.R.* and MacFarlane, D.W., 2014. Modelling vertical allocation of tree stem and branch volume for hardwoods. *Forestry: An International Journal of Forest Research*, 87(3), pp.459-469.

An, Hong Su*, MacFarlane, David W. 2012. Comparing a new model-based method to fixed-area sampling for estimating the abundance of standing dead trees. *Forestry: An International Journal of*

Forest Research, 2013; 86, 231–239.

Wang, Z.*, MacFarlane, D.W. 2012. Evaluating the biomass production of coppiced willow and poplar clones in Michigan, USA, over multiple rotations and different growing conditions. *Biomass and Bioenergy*, 46, 380-388.

Woodall, C.W., Domke, G.M., MacFarlane, D.W., and Oswalt, C.M. 2011. Comparing field- and model-based standing dead tree carbon stock estimates across forests of the US. *Forestry: An International Journal of Forest Research*; 85: 125–133.

MacFarlane, D.W. 2011. Allometric scaling of branch volume in hardwood trees in Michigan, USA: implications for improvements in above-ground forest carbon biomass inventories. *For. Sci.* 57(6):451– 459.

Finley, A.O., S. Banerjee, and D.W. MacFarlane. 2011. A Hierarchical Model for Quantifying Forest Variables over Large Heterogeneous Landscapes with Uncertain Forest Areas. *Journal of the American Statistical Association.* March 2011, Vol. 106, No. 493, 31-48.

MacFarlane, D.W. 2010. Predicting branch to bole volume scaling relationships from varying centroids of tree bole volume. *Can. J. For. Res.* 40(12): 2278–2289.

MacFarlane, D.W. and Luo, A*. 2009. Quantifying tree and forest bark structure with a bark-fissure index. *Can. J. For. Res*. 39(10): 1859–1870.

MacFarlane, D.W. 2009. Potential availability of urban wood biomass in Michigan: implications for energy production, carbon sequestration and sustainable forest management in the USA. *Biomass & Bioenergy*, 33, 628-634.

Rubin B.D.* and MacFarlane, D.W. 2008. Using the space-time permutation scan statistic to map anomalous diameter distributions drawn from landscape-scale forest inventories. *For. Sci*. 54(5): 523-533.

MacFarlane, D.W. 2007. Quantifying urban saw timber abundance and quality in south eastern Lower Michigan, U.S. *Arboriculture and Urban Forestry* 33(4): 253-263.

Zakrzewski, W.T., MacFarlane D.W. 2006. Regional stem profile model for cross-border comparisons of harvested red pine (*Pinus resinosa* Ait.) in Ontario and Michigan, *For. Sci*. 52(4): 468-475.

MacFarlane, D.W. and Kobe, R.K. 2006. Selecting models for capturing tree size effects on growth-resource relationships. *Can. J. For. Res*. 36: 1695-1704.

MacFarlane, D.W. and Meyer, S.P.* 2005. Characteristics and distribution of potential ash tree hosts for Emerald Ash Borer. *For. Ecol. & Manage*., 213: 15-24.

MacFarlane, D.W. 2004. Ecologically stratified height-diameter models for hardwood species in northwestern Lower Michigan. *In* Proceedings of the 14th Central Hardwoods Forest Conference, GTR-NE-316, Wooster, Ohio, March 17-19th, 2004.

MacFarlane, D.W., Green, E.J., Brunner, A., and Amateis, R.L. 2003. Modeling loblolly pine canopy

dynamics for a light capture model. *For. Ecol. & Manage*. 173: 145-168.

MacFarlane, D.W., Green, E.J., Brunner, A., and Burkhart, H.E. 2002. Predicting survival and growth rates for individual loblolly pine trees from light capture estimates. *Can. J. For. Res*. 32(11): 1970-1983.

MacFarlane, D.W., Green, E.J., and Burkhart, H.E. 2000. Population density influences assessment and application of site index. *Can. J. For. Res.* 30(9): 1472-1475.

MacFarlane, D.W., Green, E.J., and Valentine, H.T. 2000. Incorporating uncertainty into the parameters of a forest growth model. *Ecol. Model*. 134:27-40.

Green, E.J., MacFarlane, D.W., and Valentine, H.T. 2000. Bayesian synthesis for quantifying uncertainty in predictions from process models. *Tree physiol*ogy 20: 415-419

Green, E.J., MacFarlane, D.W., Valentine, H.T. and Strawderman, W.E. 1999. Assessing uncertainty in a stand growth model by Bayesian Synthesis. *For. Sci.* 45(4): 528-538

Valentine, H.T., Amateis, R.L., Burkhart, H.E., Gregoire, T.G., Hollinger, D.Y. and MacFarlane, D.W. 1999. Growth of loblolly pine in a changing atmosphere. *South. J. Appl. For.* 23(4):212-216.

Submitted, in review, or under revision (*is student or mentee as co-author)
Cooper, L.*, Kalman, R., Cristina, M., Delgado, D., Castro Pacheco, Ciro., Larson, A., Zanabria, P. MacFarlane, D.W., 2023. Conservation incentives that benefit people, forests, and climate: a case from Peru. Forest Policy and Economics. Submitted to a Special Issue: Current Trends in Forest Livelihoods Research.

MacFarlane, D.W. Highly variable bark-wood density relationships across tree species are modulated by life-history traits and evolved tolerances to environmental stressors. Submitted to Functional Ecology in 2023.

Arseniou, G*, MacFarlane, D.W., Raumonen, P. Whole-tree quantification of heartwood and sapwood volume with terrestrial laser scanning. Submitted to Methods in Ecology and Evolution in 2023.

C. Manuscripts in preparation (*is student or mentee as co-author)

Hernández-Moreno, J. Antonio; Pérez-Salicrup, Diego R.; Velázquez-Martínez, Alejandro, MacFarlane David W., and Reyes-Hernández, Valentín J. Terrestrial laser scanning for the estimation of stem volume and biomass in the Monarch Butterfly Biosphere Reserve.

José Javier G. Quezada-Euán, Roger O. Guerrero-Herrera, Raymundo M. González-Ramírez, David W. MacFarlane. Frequency and behavior of Melipona stingless bees and orchid bees (Hymenoptera: Apidae) in relation to floral characteristics of vanilla in the Yucatán region of Mexico.

Morales, Aidan*, MacFarlane, David W. Multipath Correction of QSM Volume and Biomass Overestimation Calibrated with Measurements of Real Twigs.

Technical reports & other research publications

Westfall, J.A., Coulston, J.W., Gray, A.N., Shaw, J.D., Radtke, P.J., Walker, D.M., Weiskittel, A.R., MacFarlane, D.W., Affleck, D.L., Zhao, D. and Temesgen, H., 2024. A national-scale tree volume, biomass, and carbon modeling system for the United States. Gen. Tech. Rep. WO-104. Washington, DC: US Department of Agriculture, Forest Service., 104. (https://www.fs.usda.gov/research/treesearch/66998).

MacFarlane, D.W. (2019). New models for a new Michigan DNR timber volume inventory system. Technical Report to Michigan DNR. December 19, 2019. 79 pp.

Frank, Jereme; Weiskittel, Aaron; Walker, David; Westfall, James A.; Radtke, Philip J.; Affleck, David L.R.; Coulston, John; MacFarlane, David W. 2019. Gaps in available data for modeling tree biomass in the United States. Gen. Tech. Rep. NRS-184. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 57 p. https://doi.org/10.2737/NRS-GTR-184.

MacFarlane, D. W. (2017). "Determining a diameter at form class height model and associated data collection procedures to begin implementing new cruising procedures for the Michigan DNR." Technical Report to Michigan DNR. November 22, 2017. 22 pp.

MacFarlane, D. W. (2015). "A new procedure for point sample – timber cruising with the Clark et al. taper model for the Michigan Department of Natural Resources". Technical Report to Michigan DNR.

Kraus, E., MacFarlane, D.W. (2015). Land value -use relationships at the MSU MacCready Reserve: Changing land use and perspectives over time. Department of Forestry, Report for MSU Land Management Office. March 9, 2015. 35 pp.

MacFarlane, D.W. (2013). Testing a point-taper model-based system for timber inventory for the Michigan Department of Natural Resources, Technical Report to the Michigan Department of Natural Resources, September 30, 2013, 102 pp.

MacFarlane, D.W. and Kowalewski, G. (2012). An Inventory for Assessing MSU Greenhouse Gas Offsets Potential from Off-campus Forests: Carbon Sequestration and Alternative Fuels. Technical Report to the MSU Office of Campus Sustainability. September 17, 2012. 32 pp.

MacFarlane, D.W. and Ver Planck, N.R. (2012). Improved Prediction of Hardwood Tree Biomass Derived from Wood Density Estimates and Form Factors for Whole Trees. In: Morin, Randall S.; Liknes, Greg C., comps. Moving from status to trends: Forest Inventory and Analysis (FIA) symposium 2012; 2012 December 4-6; Baltimore, MD. Gen. Tech. Rep. NRS-P-105. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. [CD-ROM]: 352-355.

Cheboiwo, J. K., M. W. Gichora, J. K. Kagombe, J.G. Kariuki, J.M. B.N. Kigomo, J.M. Kimondo, J. Lelon, D. W. MacFarlane, M. N. Muchiri, J. K. Ndufa, J. Ngugi, V. O. Oeba, W. O. Omondi, and G. M. Onchieku. (2012) Documenting and understanding the impacts of climate change on Kenya's forests and trees: A climate change research strategy for the Kenya Forestry Research Institute. June 2012. 14 pp.

MacFarlane, D.W. (July, 21, 2011) A new taper model-based sampling system for timber volume inventory for the Michigan DNR. Report for the Michigan Department of Natural Resources, Forest,

Mineral and Fire Management Michigan Contract # 777P1300095, 79 pp.

MacFarlane, D.W. (2009) Using auxiliary information from previous forest inventories to enhance the efficiency of volume estimation: An exploratory report for the Michigan Department of Natural Resources, Forest, Mineral and Fire Management Michigan Contract # 751P8201476-Report #2, December 7, 2009. 24 pp.

MacFarlane, D.W. (2009) A review of taper modeling options for the Michigan Department of Natural Resources, Forest, Mineral and Fire Management. Michigan Contract # 751P8201476-Report #1, September 29, 2009. 55 pp.

Leefers, L., K. Potter-Witter, D. MacFarlane, and Z. Wang. (2009). Michigan's wood energy biomass availability and supply. Proceedings of the Society of the American Foresters 2009 National Convention, Orlando, FL, September 29-October 2, 2009. Bethesda, MD: Society of American Foresters, 2009. CD-ROM.

Sherrill, S.B. and MacFarlane, D.W. (May 2007). Measures of Wood Resources in Lower Michigan: Wood residues and the saw timber content of urban forests. Technical Report to the Southeast Michigan Resource Conservation and Development Council (SEMIRCD). 178 pp.

MacFarlane, D.W., and Zakrzewski, W.T. The role of stem profile models in cross-border comparisons of timber products volume and value. In, U.S. – Canada Forest Products Trade: A bilateral symposium. Special Report 125, Michigan Agricultural Experiment Station Research Report, September 2006. 303 pp.

MacFarlane, D.W. Evaluation of Land Type Associations for eight states in the U.S.D.A. Forest Service Northeastern Area. Cooperative Research Agreement Technical Report to U.S.D.A. Sustainable Forests, Northeastern Area, State and Private Forestry. June 12, 2006. 51 pp.

Zakrzewski, W.T., Penner, M., and MacFarlane, D.W. Defining stem profile model for wood valuation of red pine in Ontario and Michigan with consideration of stand density influence on tree taper. In Proceedings of the 7th Annual Forest Inventory and Analysis Symposium, Oct. 3-6, 2005, Portland, ME.

MacFarlane, D.W. Validation of TSALE volume equations for Michigan Department of Natural Resources (MDNR) timberlands. September 22, 2005, Technical report to the Michigan DNR. 68 pp.

MacFarlane, D.W. Assessment of recommendations by Fowler and Hussain (2000, items 2-4 and 6-10) on changes to MDNR Timber Sale program (TSALE) and potential new directions for forest inventory and volume assessment on MDNR timberlands. November 18, 2005, Technical report to the Michigan DNR. 11 pp.

MacFarlane, D.W., S.K. Friedman, B.D. Rubin. Final Report: Assessing the spatial distribution of ash trees for increased efficiency in sampling for the emerald ash borer. August 5th, 2005, USDA Forest Service Forest Health Protection. 43 pp.

MacFarlane, D.W. Data requirements for validating TSALE volume equations on Michigan Department of Natural Resources (MDNR) timberlands. Technical report to the Michigan DNR, March 30th, 2004. 16 pp.

Carpenter, C., Barbour, J. G., Diamond, S., Dunn, J., and MacFarlane, D.W. 2003. Section 3. Ecomap Component of the "New York- New Jersey Highlands Region Study Technical Report"; compiled by M.C. Hoppe, U.S.D.A. F.S. Report # NA-TP-04-03, April 2003. Newtown Square, PA.

MacFarlane, D.W. "Linking an Individual Tree Growth Model to a Spatially Explicit Light Capture Model." *In*, Proceedings of the Symposium on Statistics and Information Technology in Forestry, Virginia Polytechnic Institute and State University, Blacksburg, Virginia USA, September 8-12, 2002

Books

MacFarlane, D.W., and Dunn, J. 2002. "Landscape Classification for the Highlands of New Jersey". N.J. Forest Service. Pub#. NJ-ECOMAP-2, 114 pp. (w / CD-ROM. containing digital maps).

MacFarlane, D.W., Coutros, C. and Dunn, J. 2000. "Landscape Classification for the Hudson Valley Section of New Jersey". N.J. Forest Service. Pub#. NJ-ECOMAP-1, 85 pp. (w/ CD-ROM. containing digital maps).

"Trees of New Jersey and the Mid-Atlantic States", Martine, C., Kuser, J., MacFarlane, D.W. Artwork by Hansens, A. and Figley, R. New Jersey Department of Environmental Protection, NJ Community Forestry Program, TNJ1-2/98. 1998. 108 pp.

Book Chapters or Contributions

Contributing author, "Encyclopedia of New Jersey", edited by Maxine Laurie and Marc Mappen, Rutgers University Press, New Brunswick, N.J. 2004.

Coutros, C., MacFarlane, D.W., and Dunn, J. 2000. "Ecological Land Types of the Hudson Valley Section", ESRI Map Book, Volume 15, pg. 39. ESRI Press.

Coutros, C., MacFarlane, D.W., and Dunn, J. 1997. "New Jersey Ecomap, Land type Associations of the Mid-Atlantic Coastal Plain", *In* GIS Our Common Language, ESRI Map Book, Volume 12, pg. 28. ESRI Press.

Scholarly Presentations
(*is student or mentee as presenter / co-contributor)

MacFarlane, D.W., Arseniou, G., and Westfall, J. "Incorporating tree structural complexity and neighborhood effects into urban forest monitoring systems". XXVI World Congress of the International Union of Forest Research Organizations (IUFRO), Stockholm, Sweden, 23-29 June 2024.

MacFarlane, D.W., Quezada-Euán, J.J.G., Herrera-Silveira, J.A., and Gordon, T. "Reimagining Mayan Forest Gardens: Linking forest conservation to sustainable livelihoods through 'analog' forestry systems in the Yucatán of Mexico". XXVI World Congress of the International Union of Forest Research Organizations (IUFRO), Stockholm, Sweden, 23-29 June 2024.

Arseniou, G., MacFarlane, D.W. and Raumonen, P. "Quantifying the aboveground portion of sapwood-heartwood volume of urban trees with the use of terrestrial laser scanning technology". XXVI World Congress of the International Union of Forest Research Organizations (IUFRO),

Stockholm, Sweden, 23-29 June 2024. [Won the Best Poster Award of the Congress]

Cooper, L.* and MacFarlane, D.W. An exploration of Climate-Smart Forestry to reduce risk, enhance opportunity, and seek alignment across landscapes. XXVI World Congress of the International Union of Forest Research Organizations (IUFRO), Stockholm, Sweden, 23-29 June 2024.

Cooper, L.* Kalman, R., Miranda Beas, C., Delgado Pulcey, D., Castro Pacheo, C.C., Larson, A., MacFarlane, D.W. and Zanabria, P. "Forest Conservation incentives and benefits distribution for indigenous communities—a case from Peru with scalable lessons". XXVI World Congress of the International Union of Forest Research Organizations (IUFRO), Stockholm, Sweden, 23-29 June 2024.

MacFarlane, D.W. "Linking forest conservation and climate change mitigation to sustainable livelihoods in the Yucatán of Mexico". Ecosystem Restoration for Livelihoods and Food Security: A Global Dialogue, Joint Meeting of FAO and CANR. Michigan State University, East Lansing, MI, October 16 – 17, 2023.

Cooper, L.*, Kalman, R., Cristina, M., Delgado, D., Castro Pacheco, Ciro., Larson, A., Zanabria, P. MacFarlane, D.W. "Linking Climate, Forests, and People: Forest conservation incentives and benefit-distribution in IPLC-focused programming -- a case from Peru." Forests & Livelihoods: Assessment, Research, and Engagement (FLARE) Conference. Nairobi, Kenya. October 12-16, 2023.

MacFarlane, D.W., Arseniou, G.*, Morales, A.*, and Seidel, D. Measuring the effects of size and growing space on tree structural complexity with terrestrial laser scanning. SilviLaser 2023, University College London, 6 - 8 September 2023, London, UK.

MacFarlane, D.W., Morales, A.*, Calders, K., and Raumonen, P. Differences in tree stem and branch volume and biomass estimation accuracy arising from different versions of TreeQSM: implications for corrective measures and alternative approaches. SilviLaser 2023, University College London, 6 - 8 September 2023, London, UK.

Morales, A.*, and MacFarlane, D.W. Correcting QSM small branch overestimation with information from measurements of real twigs. SilviLaser 2023, University College London, 6 - 8 September 2023, London, UK.

Arseniou, G.*, MacFarlane, D.W., and Raumonen, P. Using terrestrial laser scanning technology to estimate the aboveground heartwood-sapwood volume proportion of trees. SilviLaser 2023, University College London, 6 - 8 September 2023, London, UK.

MacFarlane, D.W. "Differences in bark versus wood properties across tree species reflects evolved constraints in mechanical stability and adaptation to diverse environmental stressors." 10th IUFRO Wind and Trees Conference Castelfranco Veneto, Italy, 20 – 23, June 2023.

Cooper, L.* and D.W. MacFarlane. The Future of Forestry in the Farm Bill Briefing Series: Farm Bill in Focus. Environment and Energy Study Institute. Washington, DC. (https://www.eesi.org/briefings/view/060723farmbill). June 7, 2023.
MacFarlane, D.W. "Why are big trees important?" Professional Surveyors, Central Chapter Meeting, May 6, 2023.

MacFarlane, D.W., Arseniou, G.*, Westfall, J.A. "Developing a minimally-destructive sampling

protocol for urban tree mass modeling for FIA." 2022 FIA Science Stakeholder Meeting, Nov. 15-17, 2022. (virtual conference).

MacFarlane, D.W. and Gordon, T. "Opportunities for the Institute for Ecology and Human Well-being (IEHW) in Peru" ERCA Research Workshop 2022, Universidad Cesar Vallejo- Institute for Global Health, , Lima Peru, October 24-27, 2022.

MacFarlane, D.W. "Linking forest conservation and climate change mitigation to sustainable livelihoods in the Yucatán of Mexico" Hanover Forest Science Seminar Series, East Lansing, MI., USA. October, 18, 2022.

MacFarlane, D.W. "Why are big trees special?" Big Tree Hunt Award Ceremony. Chippewa Nature Center, Midland, MI. October, 15, 2022.

Cooper, L*. and MacFarlane, D.W. Defining and Deploying Landscape-Scale Climate-Smart Forestry. Joint Meeting of the Ecological Society of America and Canadian Society for Ecology and Evolution. Montreal, Quebec, Canada. August 14-19, 2022.

Arseniou, G.*, MacFarlane, D.W. "Use of Terrestrial Laser Scanning to study the Architecture of Urban Trees." USDA Forest Service, Forest Inventory and Analysis Program, Techniques Research Band Seminar Series, delivered virtually in June 2022.

Arseniou G., MacFarlane D.W., Calders K., Baker M. TLS data to estimate aboveground biomass of open-grown urban and rural forest trees. Operational LiDAR Inventory (OLI) meeting, Western Forestry and Conservation Association, April 6, 2022.

Arseniou, G., MacFarlane, D.W., Seidel, D., Calders, K. & Baker, M. Studying the Architecture of Urban Trees with the use of Terrestrial Laser Scanning Technology. ArborCon 2022, Arboriculture Society of Michigan, February 14-16, 2022, Lansing, MI, USA.

MacFarlane, D.W. Opportunities for sustainable forestry in the Yucatán. MSU-Yucatán Collaboration Symposium. Parque Científico Tecnológico de Yucatán, Sierra Papacal, Mexico. October, 29, 2021.

MacFarlane, D.W., Arseniou, G., Burt, A., Vicari, M.B., Disney, M., Calders, K. Exploring the effect of leaves on tree woody surface area estimation with quantitative structural models. SilviLaser 2021, Vienna, Austria, September 28 –30, 2021.

MacFarlane, D.W., Forest Conservation and Cultivation as Therapy- Restoring Human-Forest Mutualisms in the Yucatán. Education and Research Consortium of the Americas (ERCA) Conference 2021. East Lansing, MI. September 9-10, 2021.

MacFarlane, D.W. and Brandt, L. "The Role of Urban Forests in Climate Mitigation and Adaptation with Data and Interventions." Forest-Climate Working Group (FCWG), 2020-21 Learning Exchange Series. Michigan State University Forest Carbon and Climate Program (MSU FCCP), April 7th, 2021.

Arseniou, G., MacFarlane, D.W. and Seidel, D. "Using Terrestrial Laser Scanning and Digital Image Analysis to Quantify the Above-ground Surface Area of Urban Trees". Hanover Research Seminar, Forestry Dept., Michigan State University, February 2, 2021 - East Lansing, Michigan, USA.

Arseniou G., MacFarlane D.W. Disentangling the foliage from the woody component of the fractal

dimension of urban trees. MSU Forestry Graduate Students Symposium, February 13, 2020 - East Lansing, Michigan, USA.

Arseniou G., MacFarlane D.W. Urban tree's fractal dimension relates to their ecological-traits and growing environments. Hanover Research Seminar, Forestry Dept., Michigan State University, February 4, 2020 - East Lansing, Michigan, USA.

MacFarlane, D.W. Influence of forest structure, species composition, deforestation and land-use change on the diversity of species of bees and other pollinators in the Yucatán? One Global Health for Bees Yucatan Binational Conference, Merida, Yucatán, Mexico. February 10-13, 2020.

MacFarlane, D.W. Modified power functions for dynamic Mass-DBH allometric relationships. FIA Biomass Meeting, San Antonio, TX January 14-17, 2020.

MacFarlane, D.W., Arseniou, G., Westfall, J. New approaches and considerations for developing tree measurements and models for urban FIA plots. 2019 Forest Inventory and Analysis Stakeholder Science Meeting: Celebrating Progress, Possibilities, and Partnerships, November 19th - 21st, 2019, Knoxville, Tennessee, USA.

MacFarlane, D.W. Functional, species-species or hybrid groups for new tree models for FIA plots? 2019 Forest Inventory and Analysis Stakeholder Science Meeting: Celebrating Progress, Possibilities, and Partnerships, November 19th - 21st, 2019, Knoxville, Tennessee, USA.

Arseniou, G., MacFarlane, D.W. The use of fractal dimension to study ecological traits of trees in US cities. 2019 Forest Inventory and Analysis Stakeholder Science Meeting: Celebrating Progress, Possibilities, and Partnerships, November 19th - 21st, 2019, Knoxville, Tennessee, USA.

R. Ramos, D. W. MacFarlane, L. Cooper. Carbon sequestration potential of "analog" forestry in Ecuador: an alternative strategy for reforestation of degraded pasture. XXV International Union of Forest Research Organizations (IUFRO) World Congress: Forest Research and Cooperation for Sustainable Development. Sept 29 – October 5, 2019 - Curitiba, Brazil.

Arseniou G., MacFarlane D.W., Baker M. & Seidel D. Relationship between the woody-surface area of urban trees and their fractal dimension derived from terrestrial laser scanning. 10th AGSE Conference- Applied Geoinformatics for Society and Environment, September 11-14, 2019- Stuttgart, Germany.

Arseniou G., MacFarlane D.W. Exploring the space filling character of urban trees using LiDAR technology. MSU Forestry Graduate Students Symposium, February 7, 2019 - East Lansing, Michigan, USA.

Arseniou G., MacFarlane D.W. Exploring the main drivers of tree form and growth in urban areas. ArboCon 2019, Arboriculture Society of Michigan, February 11-13, 2019- Lansing, Michigan, USA.

Doroshewitz, J., Merlo, J., Oakley, C., Udpa, L., Nanzer, J., MacFarlane, D.W., Huff, E., and Mukherjee, S. A Microwave Tomography System Using Time-Reversal Imaging \. 2019 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, 7-12 July 2019 • Atlanta, Georgia, U.S.A.

Arseniou G., MacFarlane D. W., Calders K. & Baker M. Whole-tree and component -volume

estimation accuracy from TLS: comparisons of urban and forest -grown trees. Terrestrial Laser Scanning in Forest Ecology: Expanding the Horizon, May 6 & 7, 2019 - Gent, Belgium.

Alan Strahler, Crystal Schaaf, David Orwig, Audrey Barker-Plotkin, Jereme Frank, David W. MacFarlane, and Philip Radtke. A Field Experiment Using Destructive Sampling to Validate TLS Retrievals of Leaf Area, Tree Volume, and Aboveground Biomass at Harvard Forest. Terrestrial Laser Scanning in Forest Ecology: Expanding the Horizon, May 6 & 7, 2019 - Gent, Belgium.

Dettmann, G.T., MacFarlane, D.W., Radtke, P.J., Weiskittel, A.R., Affleck, D., Poudel, K., and Westfall, J. Generalized Predictors of Foliage Biomass for Tree Species of the United States. Joint Southern and Northeastern Mensurationists and IUFRO 4.01 Conference. Blacksburg, VA. October 28-30, 2018.

MacFarlane, D.W., Radtke, P.J. and Walker, D. Exploring Branch, Stem and Tree Wood Density Relationships for Temperate Tree Species in the Eastern USA. Joint Southern and Northeastern Mensurationists and IUFRO 4.01 Conference. Blacksburg, VA. October 28-30, 2018.

Walker, D., Radtke, P.J., Weiskittel, A.R., Frank, J., MacFarlane, D.W., Zhao, D., Coulston, J. and Westfall, J. Regional and National Scale Aboveground Biomass Estimators for Applications Involving Multiple Tree Species. Joint Southern and Northeastern Mensurationists and IUFRO 4.01 Conference. Blacksburg, VA. October 28-30, 2018.

MacFarlane, D.W. Carbon Quantification in Forests: Methodological Strategies. Polytechnic School of Chimborazo, Riobamba Canton, Ecuador. April 19, 2018.

Crawford, D., Jovanovic, T., Brack, C., Stovall, A., MacFarlane, D.W., Frank, J., Condon, T., Strahler, A., Schaaf, C., Barker-Plotkin, A., Orwig, D. Using ZEB1, a highly-mobile terrestrial laser scanner, to assess and measure trees in an eastern hemlock-dominated forest. ForestSAT 2018, College Park Maryland, USA, October 2-5, 2018.

Dettman, G., and MacFarlane, D.W. Generalized predictors of tree foliage biomass for tree species representing the Upper Midwestern US. 2017 Forest Inventory and Analysis Stakeholder Science Meeting: "Doing More with the Core". Park City, Utah, USA. October 24-26, 2017.

Strahler , A., Schaaf, C., Orwig, D., Barker-Plotkin, A., Frank, J., Weiskittel, A., MacFarlane, D.W., Radtke, P. Virtual tree volume and aboveground biomass retrieval from TLS calibrated by destructive sampling at Harvard Forest. Silvilaser 2017. Blacksburg, VA, October 10-12, 2017.

Radtke, P., Frank, J., Weiskittel, A., MacFarlane, D.W., Clark, S., Dettman, G., Strahler , A., Schaaf, C., Orwig, D., Barker-Plotkin, A. Detailed measurements of felled trees at Harvard Forest for developing and testing TLS volume and biomass algorithms and estimators. Silvilaser 2017. Blacksburg, VA, October 10-12, 2017.

MacFarlane, D.W. and Kane, B. "Tree architecture and wind resistance: influence from neighboring trees, or lack thereof." 8th IUFRO International Conference on Wind and Trees. Boulder, CO USA. July 17 – 20, 2017.

Ver Planck, N.R., and MacFarlane, D.W. "Relative crown mass influences wind throw susceptibility of *Fagus grandifolia*, Ehrh." 8th IUFRO International Conference on Wind and Trees. Boulder, CO USA. July 17 – 20, 2017.

MacFarlane, D.W. "Adaptive growth in trees: tradeoffs in responses to shading versus wind. SNS Seminar Series, California State University – Monterey Bay, May 1, 2017.

Guo, T., Barrera, P., Ureña, J., and MacFarlane, D.W. Seedling ecotype and drought in Neotropical tree species *Cordia alliodora* in Ecuador. Michigan State University Undergraduate Research and Arts Forum (UURAF). East Lansing, MI. April 7, 2017.

Kraus, E., and MacFarlane, D.W. "Connecting Services and Ecosystems in Wooded Shrines in Benin, West Africa." 59th meeting of the African Studies Association. Washington, D.C., December 1-3, 2016.

MacFarlane, D.W. and Kane, B. "Allometric scaling of urban- versus forest-grown trees: responses to shading and wind resistance." 2016 Northeastern Mensurationists Organization Meeting, Concord, MA, November 13 – 15, 2016.

MacFarlane, D. W. "Building generalized tree mass / volume component models for improved estimation of forest stocks and utilization potential." Abstract presented at 2015 Forest Inventory and Analysis Science Symposium: "Pushing Boundaries: New Directions in Inventory Techniques & Applications", USDA Forest Service, Portland, OR. December 8, 2015.

MacFarlane, D. W., Weiskittel, A. R. "What the fork is wrong with taper models?" Abstract presented at Annual Meeting, Northeastern Mensurationists Organization (NEMO), Stowe, VT. November 16, 2015.

Kraus, E., MacFarlane, D.W., and Kowalewski, G. Restoring hardwood forests in Michigan, USA: costs and effectiveness of deer protection strategies. 2nd IUFRO Congress on Restoring Forests: What Constitutes Success in the 21st Century? Lafayette, Indiana, USA. October 14-16, 2014.

MacFarlane, D.W., Wekesa, C. and Rogers, Paul, C. Forest structure and carbon storage potential of remnant forest fragments in Kenya. 24th IUFRO World Congress, Salt Lake City Utah, October 5-11, 2014.

MacFarlane, D.W., Kinzer, A. T., and Banks, J.E. "Monitoring the influence of restoration plantings on tropical dry forest regeneration dynamics in coastal Kenya." 2nd IUFRO Congress on Restoring Forests: What Constitutes Success in the 21st Century? Lafayette, Indiana, USA. October 14-16, 2014.

MacFarlane, D.W. Assessing the potential for tree biomass to meet urban energy demand and reduce carbon emissions in Michigan, USA. 2nd International Symposium on Energy Challenges and Mechanics (ECM2), August 19-21, 2014, Aberdeen, Scotland, UK.

MacFarlane, D.W. Reforming simple allometric scaling models to accommodate the complexity of diverse tree forms. 2nd IUFRO Conference on Complex Forest Ecosystems: from Tree to Landscape. Joint Meeting with Southern Mensurationists Annual Meeting. New Orleans, LA- Oct 7-9, 2013.

Cesa, E., D.W. Macfarlane, Sherrill, S. Assessing Commodity Values of Urban Forests and Other Utilization Items of Interest, Partners in Community Forestry Conference, Pittsburgh, PA, November 6, 2013.

Robert S. McCann, Joseph P. Messina, David W. MacFarlane, M. Nabie Bayoh, John M. Vulule, John E. Gimnig, and Edward D. Walker. Effects of larval habitat density and ITN/LLIN use on the spatial

distribution of malaria vectors. Entomological Society of America's 61st Annual Meeting, November 10-13, 2013 in Austin, Texas.

An, Hong Su, MacFarlane, D.W. and Woodall, C.W. Improvement of Precision for Estimating the Abundance of Standing Dead trees using Auxiliary Information under the FIA Plot Design. In, "Moving from Status to Trends: Forest Inventory and Analysis Symposium 2012"; GTR-NRS-P-105, Baltimore, Maryland, December 4-6, 2012.

MacFarlane, D.W. and Ver Planck, N.R. Improved Prediction of Hardwood Tree Biomass Derived from Wood Density Estimates and Form Factors for Whole Trees. In, "Moving from Status to Trends: Forest Inventory and Analysis Symposium 2012"; GTR-NRS-P-105, Baltimore, Maryland, December 4-6, 2012.

Ver Planck, N.R., and MacFarlane, D.W. Cumulative Volume and Mass Profiles for Dominant Stems and Whole Trees Tested for Northern Hardwoods. In, "Moving from Status to Trends: Forest Inventory and Analysis Symposium 2012"; GTR-NRS-P-105, Baltimore, Maryland, December 4-6, 2012.

Westfall, J.A., MacFarlane, D.W. and Weiskittel, A.R. Biomass Measurement and Modeling Challenges for Hardwood Species in the Northern Region. In, "Moving from Status to Trends: Forest Inventory and Analysis Symposium 2012"; GTR-NRS-P-105, Baltimore, Maryland, December 4-6, 2012.

Kuyah, S., Muthuri, C., MacFarlane, D.W., Mwangi, P., Mulia, R., Jamnadass, R., van Noordwijk, M., and Dietz, J. Comparing destructive and non-destructive methods for calibrating regional tree biomass equations in tropical agricultural landscapes. In Forests and Trees: Serving the People of Africa and the World: 1st regional congress of the International Union of Forest Research Organizations and the Forestry Research Network of Sub-Saharan Africa, Nairobi, Kenya from 25-29 June 2012.

MacFarlane, D.W., Ver Planck, N.R., Kuyah, S., and Weiskittel, A.R. Generalized, biologically-motivated biomass equations for nationally-consistent and locally-accurate forest carbon inventories across diverse landscapes. In Forests and Trees: Serving the People of Africa and the World: 1st regional congress of the International Union of Forest Research Organizations and the Forestry Research Network of Sub-Saharan Africa, Nairobi, Kenya from 25-29 June 2012.

Skole, D., Castaneda, O., Chomentowski, W., Justice, C., Kasten, E., Laboda, T., MacFarlane, D. W., Samek, J., and Smalligan, M. Building National Scale Carbon Monitoring Systems for Forested and Treed Landscapes in Africa. In Forests and Trees: Serving the People of Africa and the World: 1st regional congress of the International Union of Forest Research Organizations and the Forestry Research Network of Sub-Saharan Africa, Nairobi, Kenya from 25-29 June 2012.

MacFarlane, D. W. (Presenter & Author). "Potential Benefits from Forestry Carbon Offset Projects in Kenya". Malindi Museum Society. June 19th, 2012.

MacFarlane, D.W. "Methodological approaches for estimating wood stocks and yield from urban forests: Results from Michigan, USA" California Urban Forest Products Conference, The Presidio, San Francisco, CA, May 19 – 21, 2011.

MacFarlane, D.W. "Imputation of whole-tree models from stem taper models". *Monitoring Across Borders*, the 2010 FIA Symposium, Knoxville, TN, Oct. 5-7, 2010.

An, H-S, MacFarlane, D.W. "Estimation of Standing Dead Tree Abundance using the Expected-Zero (EZ) Hurdle Model". *Monitoring Across Borders*, the 2010 FIA Symposium, Knoxville, TN, Oct. 5-7, 2010.

Miller, R.O., MacFarlane. D.W., Rothstein, D.E., Wang, Z. "Energy Crop Plantation System Development for Salix and Populus in Michigan, USA". Fifth International Poplar Symposium Poplars and willows: from research models to multipurpose trees for a bio-based society Orvieto, Italy, 20-25 September 2010.

MacFarlane, D.W., Luo, A. "Forest bark structure: an indicator of forest biodiversity and health". Forests for the Future: Sustaining Society and the Environment, World Congress 2010. Seoul, Republic of Korea, 23-28 August 2010.

MacFarlane, D.W. "Imputing branch volume or mass from changes in tree bole shape". Forests for the Future: Sustaining Society and the Environment, World Congress 2010. Seoul, Republic of Korea, 23-28 August 2010.

MacFarlane, D.W. "Quantifying ecosystems services provided by urban treed spaces: data and analysis from cities in Michigan, USA". Forests for the Future: Sustaining Society and the Environment, World Congress 2010. Seoul, Republic of Korea, 23-28 August 2010.

An, H-S, MacFarlane, D.W. "Improving tree abundance estimates from rare or aggregated populations with the EZ-Hurdle model". Forests for the Future: Sustaining Society and the Environment, World Congress 2010. Seoul, Republic of Korea, 23-28 August 2010.

MacFarlane, D.W. "Beyond the bole: building a better biometry of branching." Northeastern Mensurationist Organization (NEMO) Meeting, Durham, NH, November 2-3, 2009.

An, H.S. and MacFarlane, D.W. "Model-assisted estimation of dead tree abundance with the EZ-hurdle model." Northeastern Mensurationist Organization (NEMO) Meeting, Durham, NH, November 2-3, 2009.

Finley, A.O., S. Banerjee, and D.W. MacFarlane. A hierarchical model for predicting forest variables over large heterogeneous domains. October 17, 2009, SAMSI workshop, RTP North Carolina.

Leefers, L., K. Potter-Witter, D. MacFarlane, and Z. Wang. 2009. Michigan's wood energy biomass availability and supply. Society of the American Foresters 2009 National Convention, Orlando, FL, September 29-October 2, 2009. Bethesda, MD.

Parker, L., and MacFarlane, D.W. Estimating Potential Carbon Offsets from urban tree plantings on the Michigan State University campus. Carbon in Northern Forests: integration of research and management, Traverse City, MI, June 10-11, 2009.

MacFarlane, D.W. "Allometric scaling of branch volume in deciduous trees in Michigan: implications for improvements in above-ground forest carbon biomass inventories." Carbon in Northern Forests: integration of research and management, Traverse City, MI, June 10-11, 2009.

MacFarlane, D.W. "Allometric scaling relationships for predicting branch volume in hardwood trees and forests." James Hanover Forest Science Seminar Series, Michigan State University, February 10,

2009.

MacFarlane, D.W. "Allometric scaling of branch volume in deciduous trees and forests in Michigan" Forest Inventory and Analysis Symposium, Park City, Utah, October 21 - 23, 2008.

MacFarlane, D.W. "Increasing the impact of arboriculture: Capitalizing on emerging values for urban treed spaces" Annual Meeting of the Arboricultural Society of Michigan, Frankenmuth, MI, September 18-19, 2008.

MacFarlane, D.W. and Luo, Aidong. "Bark fissure index: a scalable indicator of bark niche in forests" 93rd Annual Meeting of the Ecological Society of America, Milwaukee, WI, August 3-8, 2008.

MacFarlane, D.W. "Wood Products: An underestimated value of urban trees", Great Lakes Trade Exposition, Grand Rapids, Michigan, January 7-9, 2008.

Sherrill, S.B. and MacFarlane, D.W. "Measures of Wood Resources in Lower Michigan: Wood Residues and the Saw Timber Content of Urban Forests"; Encouraging Sustainable Business Opportunities through Utilization of Urban Wood Waste, Urban Wood Waste Venture Forum, University of Baltimore, October 11, 2007.

MacFarlane, D.W. "Potential Utilization of Urban Trees and Wood: Implications for Bio-based Fuels Production, Carbon Sequestration and Sustainable Forest Management"; Advances in Forest and Natural Resource Management Symposium: Sustainability, Integration, Modeling, and Technologies, National Taiwan University, Taipei, Taiwan, September 2-5, 2007.

MacFarlane D.W. "A regional assessment of urban saw timber quantity and quality for southeast lower Michigan." EAB & Beyond: Finding Value in Urban Trees, Ann Arbor, MI May 23-24, 2007.

MacFarlane D.W. "Applied Forest Measurement and Modeling Research in Michigan" Forestry Extension Research Exchange, Michigan State University, Sept. 26, 2006.

MacFarlane D.W. and Rubin B.D. "A risk assessment for Emerald Ash Borer based on pest and host landscape patterns." *In*, Abstracts of the 91st Annual Meeting of the Ecological Society of America, Memphis, TN, August 6-11, 2006.

MacFarlane, D.W. "Quantifying the quality and availability of urban saw timber: How much is there and is it worth the trouble?" James Hanover Forest Science Seminar Series, Michigan State University, April 25, 2006.

Zakrzewski, W.T., Colpitts, L. and MacFarlane, D.W. "How the Softwood Lumber Countervailing Duty Case Enhanced Stem Profile Modelling in the Great Lakes Region." Ontario Forest Research Institute Seminar Series, Sault, St. Marie, ON, Canada, January 31, 2006.

MacFarlane, D.W. "Accounting for remote-sensing error when mapping forest ecosystem attributes at large spatial scales." James Hanover Forest Science Seminar Series, Michigan State University, Nov.8, 2005.

MacFarlane, D.W., Rubin, B.D., and Friedman, S.K. "Modeling potential hosts for the Emerald Ash Borer in the complex landscape of southern Lower Michigan." 7th Annual Forest Inventory and Analysis Symposium, Oct. 3-6, 2005, Portland, ME.

MacFarlane, D.W., and Rubin, B.D. "The ground truth: Weighting misclassification error into sampling error when using classified satellite imagery for large scale forest inventory and mapping." 7th Annual Forest Inventory and Analysis Symposium, Oct. 3-6, 2005, Portland, ME.

MacFarlane, D.W. and Kobe, R.K. "Modeling tree size effects on growth-resource relationships." The 90th Annual Meeting of the Ecological Society of America jointly held with the IX International Congress of Ecology (INTERCOL), Aug. 7-12, 2005, Montreal, Quebec.

Rubin, B.D., MacFarlane, D.W., and Friedman, S.K. "Mapping the distribution of ash in southern Lower Michigan." Northeast Forest Pathologists' Workshop. Bretton Woods, NH. May 24-26. 2005.

Rubin, B.D., and MacFarlane, D.W. "A test for forest health assessment techniques. Northeast Forest Pathologists' Workshop." Bretton Woods, NH. May 24-26. 2005.

Zakrzewski, W.T. and MacFarlane, D.W. "The role of localized stem profile models in cross-border comparisons of timber harvest structures." U.S. - Canada Forest Products Trade in Eastern North America —A Bilateral Technical Symposium, March 6-8, 2005, East Lansing, MI.

MacFarlane, D.W. "Localizing the parameters of height-diameter models with ecological classification systems". Joint Meeting of the Midwest Forest Economists and Midwest Forest Mensurationists, Grand Rapids, MI, October 17-19, 2004.

MacFarlane, D.W., Rubin, B.D., and Friedman, S.K. "Exploring the use of spatially-stratified ash host distribution maps for improving efficiency of Emerald Ash Borer detection". *In*, Abstracts of the 2nd Annual Emerald Ash Borer Meeting, Romulus, MI, October 5-6, 2004.

Friedman, S.K., MacFarlane, D.W., Rubin, B.D. "Ecological spatial patterns of ash in Southern Michigan." *In*, Abstracts of the 2nd Annual Emerald Ash Borer Meeting, Romulus, MI, October 5-6, 2004.

Rubin, B.D., MacFarlane, D.W., Friedman, S.K. "Mapping the Distribution of Ash Trees in Southern Michigan", James Hanover Forest Science Seminar Series, Michigan State University, Sept, 28, 2004.

MacFarlane, D.W. "Using ecological classification systems to calibrate forest models: Power, parsimony and potential problems." *In*, Abstracts of the 89th Annual Meeting of the Ecological Society of America, Portland OR, August 1-6, 2004.

McKane, R., Rygiewicz, P., MacFarlane, D.W., Beedlow, P., Anderson, C., Brooks, R., Hogsett, W., and Hynes, M. "Above and belowground controls on forest tree growth, mortality and spatial patterns." *In*, Abstracts of the 89th Annual Meeting of the Ecological Society of America, Portland OR, August 1-6, 2004.

MacFarlane, D.W. "Optimizing the efficiency of forest health monitoring in a complex landscape using spatial strata derived from satellite imagery." IUFRO 4.11 Statistical Methods, Mathematic and Computers Conference on Applications of Statistics Information Systems and Computers in Natural Resources Management, National Taiwan University, Taipei, Taiwan, June 7-11, 2004

MacFarlane, D.W. "Using Ecological Classification Systems to Parameterize Height-Diameter Models", James Hanover Forest Science Seminar Series, Michigan State University, April 13, 2004

MacFarlane, D.W., and Friedman, S.K. "Enhanced survey methodologies and strategic risk assessment for emerald ash borer using spatial models of host tree distribution". *In*, Abstracts of the Emerald Ash Borer Research and Technology Development Meeting, Port Huron, MI, September 30-October 1, 2003.

MacFarlane, D.W. "Using relative versus absolute growth rates for tree growth modeling", James Hanover Forest Science Seminar Series, Michigan State University, Sept 16, 2003

MacFarlane, D.W., and Kobe, R.K. "Relative growth rate is an ineffective response variable for capturing size effects on tree growth." *In*, Abstracts of the 88th Annual Meeting of the Ecological Society of America, Savannah, GA, August 1-8, 2003.

MacFarlane, D.W. "Linking an individual tree growth model with a spatially explicit light capture model", James Hanover Forest Science Seminar Series, Michigan State University, Jan 21, 2003

MacFarlane, D.W. "Illuminating tree survival prediction". 2001 Rutgers-Princeton-Penn Ecology and Evolutionary Biology Symposium, Princeton University, N.J.

MacFarlane, D.W., Coutros, C., and Dunn, J. "Mapping Land Type Associations using digital soil maps and landscape topography". Land Type Association Conference- Development and Use in Natural Resource Management, Planning, and Research, April 24-26, 2001, Madison, WI.

Green, E.J., MacFarlane, D.W., and Valentine, H.T. and Strawderman, W. "Process-based Models for Forest Management", IUFRO, 4.11, Rovaniemi and Saariselkä, Lapland, Finland, Aug. 30 – Sept. 9, 1998.

Green, E.J., MacFarlane, D.W., and Valentine, H.T. and Strawderman, W. 1998. "Assessing uncertainty in mechanistic models. Proceedings, "Integrated Tools for Natural Resources Inventories in the 21st Century." Boise, Idaho, Aug 16-20, 1998.

Grants awarded

Mota-Sanchez, David; Wise, John; MacFarlane, David, W.; Garcia, Luis. "GREAT LAKES LATINA/O FARMERS PROGRAM" USDA National Institute of Food and Agriculture. Amount: $731,994. (Project Period: 9/15/2023 - 9/14/2026).

MacFarlane, D. W. Finley, A.O. *"MIDWEST REGION – VALIDATING THE SPECIES AND ORIGIN OR AMERICAN HARDWOODS"*, USDA FOREST SERVICE. Amount: $90,000. (Project Period: August 13, 2022 – August 31, 2025).

MacFarlane, D. W. *"INVESTIGATING NEW NATIONAL TREE BIOMASS MODELS FOR URBAN FIA"*, USDA FOREST SERVICE. Amount: $50,000. (Project Period: June 2, 2023 - December, 2024).

MacFarlane, D.W. "REINVENTING MAYAN FOREST GARDENS IN THE YUCATÁN OF MEXICO: LINKING FOREST CONSERVATION TO SUSTAINABLE RURAL LIVELIHOODS THROUGH 'ANALOG' FORESTRY SYSTEMS." MICHIGAN AGBIORESEARCH. Amount: $50,000. (Project Period: April 25, 2022 - September 30, 2024).

MacFarlane, D. W. *"INVESTIGATING NEW NATIONAL TREE BIOMASS MODELS FOR URBAN FIA"*,

USDA FOREST SERVICE. Amount: $50,000. (Project Period: June 2, 2022 - December, 2023).

MacFarlane, D. W. *"INVESTIGATING NEW NATIONAL TREE BIOMASS MODELS FOR URBAN FIA"*, USDA FOREST SERVICE. Amount: $50,000. (Project Period: November 2, 2021 - December, 2022).

Huff, H.S. and MacFarlane, D. W. BUILDING EXTENSION CAPACITY AROUND LEGACY PLANNING FOR WOODLAND OWNERS. National Inst of Food & Agriculture. (Project Period: 4/1/2021 - 7/31/2022)

MacFarlane, D. W. *"INVESTIGATING NEW NATIONAL TREE BIOMASS MODELS FOR URBAN FIA"*, USDA FOREST SERVICE. Amount: $50,000. (Project Period: July 23, 2020 - November 1, 2021).

MacFarlane, D. W. EXPLORING HUMAN – FOREST MUTUALISMS IN THE YUCATÁN. FACULTY-DIRECTED EDUCATION ABROAD PROGRAM INNOVATION FUND. MSU OFFICE FOR EDUCATION ABROAD. Award Amount: $5,000.

MacFarlane, D. W. *DEVELOPING NEW NATIONAL TREE BIOMASS MODELS FOR FIA IN THE GREAT LAKES REGION*, USDA FOREST SERVICE. Amount: $70,000. (Project Period: June 13, 2020 - May 31, 2021).

MacFarlane, D. W. PROFESSIONAL DEVELOPMENT MICRO-GRANT. COLLEGE OF AGRICULTURE AND NATURAL RESOURCES, AGBIORESEARCH AND MSU EXTENSION. Amount: $3,000.

MacFarlane, D. W. *DEVELOPING NEW NATIONAL TREE BIOMASS MODELS FOR FIA IN THE GREAT LAKES REGION*, USDA FOREST SERVICE. Amount: $70,000. (Project Period: June 13, 2019 - May 31, 2020).

Mota-Sanchez, D. MacFarlane, D.W. QUANTIFICATION OF MONARCH BUTTERFLY POPULATIONS OVERWINTERING IN MEXICO USING NOVEL TOOLS. Center for Latin American and Caribbean Studies (CLACS). Amount: $9,612. (Project Period: Feb 2012 - Feb, 2021).

MacFarlane, D. W. *DEVELOPING NEW NATIONAL TREE BIOMASS MODELS FOR FIA IN THE GREAT LAKES REGION*, USDA FOREST SERVICE. Amount: $70,000. (Project Period: June 13, 2018 - May 31, 2019).

MacFarlane, D. W. *INVESTIGATING NEW NATIONAL TREE BIOMASS MODELS FOR URBAN FIA*, USDA FOREST SERVICE. Amount: $50,000. (Project Period: June 13, 2020 - May 31, 2021).

MacFarlane, D. W. *DEVELOPING NEW NATIONAL TREE BIOMASS MODELS FOR FIA IN THE GREAT LAKES REGION*, USDA FOREST SERVICE. Amount: $70,000. (Project Period: June 13, 2018 - May 31, 2019).

Huff, E.S. , MacFarlane, D. W., Cooper, L. T., Kobe, R. K. *UNDERSTANDING FOREST CARBON MANAGEMENT: AN E-LEARNING PROGRAM*, USDA - NATIONAL INSTITUTE OF FOOD AND AGRICULTURE, (PRIME: US DEPT AGRICULTURE). Amount: $110,000. (Project Period: September 1, 2017 - August 31, 2019),

Nanzer, J., MacFarlane, D. W., Huff. E. *ENGINEERING SOLUTIONS FOR URBAN TREE RISK ASSESSMENT AND VALUATION*, MSU-ENVIRONMENTAL SCIENCE & POLICY PROGRAM. Amount $10,000 (June 1, 2017 - May 31, 2018)

MacFarlane, D. W. *DEVELOPING NEW NATIONAL TREE BIOMASS MODELS FOR FIA IN THE GREAT LAKES REGION*, USDA FOREST SERVICE. Amount: $75,000. (Project Period: June 13, 2017 - May 31, 2018).

Guo, T., MacFarlane, D. W. *ASSESSING VIABILITY OF COMMUNITY NURSERY-GROWN TREE STOCKS FOR INTER-CROPPING WITHIN CHAKRAS IN THE ECUADORIAN AMAZON*. CANR UNDERGRADUATE RESEARCH, Amount: $2,000. (July 2016 – May 2018)

MacFarlane, D. W. *DEVELOPING NEW NATIONAL TREE BIOMASS MODELS FOR FIA IN THE GREAT LAKES REGION*, USDA FOREST SERVICE. Amount: $87,500 (June 13, 2016 - May 31, 2017

MacFarlane, D. W., Minor, D. M., *SUGAR MAPLE SEED BIOMASS*, RUSS FOREST ENDOWMENT. Amount: $7,961. (May 20, 2016 - Present).

MacFarlane, D. W. *QUANTIFYING THE EFFECT OF TREE SHELTERS ON THE GROWTH RATE AND FORM OF OAK SAPLINGS, MSU MACCREADY RESERVE ENDOWMENT*. Amount: $23,710. (July 1, 2015 - June 30, 2018).

MacFarlane, D. W. *INTERNATIONAL RESEARCH EXPERIENCE FOR STUDENTS: ECOSYSTEM FUNCTION AND CONSERVATION OF INDIGENOUS EAST AFRICAN COASTAL FORESTS*. VISTAS, ESPP. Amount: $2,058. (October 26, 2015 - February 19, 2016).

MacFarlane, D. W. *AN IMPROVED BIOMASS AND CARBON DATABASE FOR U.S. TREE SPECIES*, USDA FOREST SERVICE. Amount: $95,000. (August 10, 2015 - August 9, 2016)

MacFarlane, D. W. *UNDERSTANDING FOREST VALUES - FOREST USE RELATIONSHIPS AT THE MSU MACCREADY RESERVE*, MSU MACCREADY RESERVE ENDOWMENT. Amount: $8,000. (July 1, 2014 - June 30, 2015).

MacFarlane, D. W. *AN IMPROVED BIOMASS AND CARBON DATABASE FOR U.S. TREE SPECIES*, USDA FOREST SERVICE. Amount: $148,050. (August 10, 2014 - August 9, 2015)

MacFarlane, D. W. *AN IMPROVED BIOMASS AND CARBON DATABASE FOR U.S. TREE SPECIES*, USDA FOREST SERVICE. Amount: $75,536. (August 10, 2013 - October 31, 2014)

MacFarlane, D. W. *AN IMPROVED BIOMASS AND CARBON DATABASE FOR U.S. TREE SPECIES*, USDA FOREST SERVICE. Amount: $18,000. (September 14, 2011 - October 31, 2012).

MacFarlane, D. W. *AN IMPROVED BIOMASS AND CARBON DATABASE FOR U.S. TREE SPECIES*, USDA FOREST SERVICE. Amount: $60,000. (August 10, 2011 - October 31, 2012)

Miller, R. O., Wright, D. W., Saffron, C. M., MacFarlane, D. W., Rothstein, D. E., Potter-Witter, K. L., Peterson, H. C., Srivastava, A., Kamdem, D.-P., Keathley, D. E., Leefers, L. A., *FORESTRY BIOFUEL STATEWIDE COLLABORATION CENTER, MICHIGAN ECONOMIC DEVELOPMENT CORP*, (PRIME: ENERGY US DEPT OF). Amount: $780,398. (March 11, 2009 - December 31, 2011)

Skole, D. L., Simpson, B. M., MacFarlane, D. W., Chhin, S., *CARBON, CONSERVATION, AND LIVELIHOODS, WORLD WILDLIFE FUND*, (PRIME: GLOBAL ENVIRONMENTAL FACILITY). Amount: $995,011. (April 1, 2009 - March 1, 2012)

MacFarlane, D. W. *MODEL-ENHANCED ESTIMATES OF STANDING DEAD TREE ABUNDANCE FOR FIA PLOTS*, USDA FOREST SERVICE. Amount: $157,750. (January 28, 2009 - December 31, 2011).

Kobe, R. K., Finley, A. O., Rothstein, D. E., MacFarlane, D. W., Chhin, S., *EQUIPMENT TO MEASURE CARBON IN FOREST ECOSYSTEMS*, MICHIGAN AGRICULTURAL EXPERIMENT STATION (MAES), MICHIGAN STATE UNIVERSITY. Amount: $64,149. (May 2009 - September 2009).

MacFarlane, D. W. (100%), *FIELD TESTING A NEW METHOD FOR IMPROVED BASELINE MORTALITY ESTIMATION FROM FIA/FHM PLOTS*, USDA FOREST SERVICE. Amount: $20,000. (February 1, 2009 - January 31, 2012).

MacFarlane, D. W. *DEMONSTRATING NATIVE HARDWOOD RESTORATION AND INVASIVE SPECIES CONTROL AT THE MSU MACCREADY RESERVE*, HARDWOOD FORESTRY FUND. Amount: $22,972. (February 29, 2008 - February 28, 2013).

Parker, L., MacFarlane, D. W. *QUANTIFYING CARBON SEQUESTERED IN MICHIGAN STATE UNIVERSITY-OWNED FORESTS*. CANR UNDERGRADUATE RESEARCH. Amount: $4,000 (July 2008 – May 2009)

Potter-Witter, K. L., Leefers, L. A., MacFarlane, D. W., *MICHIGANS BIOECONOMY: WOOD ENERGY BIOMASS AVAILABILITY AND SUPPLY*, USDA FOREST SERVICE. Amount: $60,320. (August 15, 2007 - June 30, 2009)

Whaley, Kelly, MacFarlane, D.W. *A PRACTICAL ROSEHIP RESOURCE ASSESSMENT IN RURAL SOUTHWEST CHINA*. MSU COLLEGE OF AGRICULTURE AND NATURAL RESOURCES, UNDERGRADUATE RESEARCH AWARD. Amount: *$4,000* (March – August 2007)

MacFarlane, D.W. *DEVELOPING HOST-BASED STRATEGIC SAMPLING AND RISK ASSESSMENT TOOLS FOR FIGHTING THE EMERALD ASH BORER*. USDA FOREST HEALTH PROTECTION PROGRAM (March 2004 – December 2007). Amount: *$45,000.*

MacFarlane, D.W. *DEVELOPING HOST-BASED STRATEGIC SAMPLING AND RISK ASSESSMENT TOOLS FOR FIGHTING THE EMERALD ASH BORER*. USDA Forest Health Protection Program. Amount: *$155,000.* (May 2004 – December 2007).

MacFarlane, D.W. *CHARACTERIZATION OF URBAN SAW TIMBER QUALITY AND QUANTITY IN SOUTHEASTERN LOWER MICHIGAN*. MICHIGAN RESOURCE CONSERVATION DEVELOPMENT COUNCIL. Amount: *$27,500*. (May 2005 – February 2006).

MacFarlane, D.W., Friedman, S. *ASSESSING THE SPATIAL DISTRIBUTION OF ASH TREES FOR INCREASED EFFICIENCY IN SAMPLING FOR THE EMERALD ASH BORER*. USDA Forest Health Protection Program; *$79,000*. (September 2003 – March 2005)

MacFarlane, D.W. *EVALUATION OF LAND TYPE ASSOCIATIONS IN THE USDA FOREST SERVICE NORTHEASTERN AREA*. U.S.D.A. SUSTAINABLE FORESTS, NORTHEASTERN AREA, STATE AND PRIVATE FORESTRY. Amount: *$31,000*. (July 2003 – December 2005).

MacFarlane, D.W. *VALIDATION ASSESSMENT FOR CRUISE MODULE IN MICHIGAN DNR TIMBER SALE (TSALE) SYSTEM*. MDNR (SUBAWARD FROM SYMBIOSIS INTERNATIONAL). Amount: *$34,385*. (December 2003 – Jan 2005)

MacFarlane, D.W., Propst, D. *TRAINING FUTURE FOREST STEWARDS: RAISING PUBLIC AWARENESS OF FOREST VALUES IN INGHAM COUNTY*. INGHAM COUNTY PARKS. Amount: $10,000. (Jan 18, 2005 – September 15, 2005)

Han, K., Kamdem, D.P. MacFarlane, D.W. *GENOMICS OF HEARTWOOD FORMATION*. USDA, NRI-CGP. Amount: *$71,000* (September 2003 – June 2005).

Grants Pending:

MacFarlane, D.W., Arseniou, G, Baker, M. "DEVELOPING NEW MODELS FOR MONITORING URBAN FOREST ECOSYSTEMS IN THE EASTERN UNITED STATES". USDA- NATIONAL INSTITUTE OF FOOD & AGRICULTURE; Amount: $750,000. (In review)

Professional Service

Academic Peer Review

Associate Editor, *Tree Physiology:* Dec 2019 – present.

Associate Editor, *Forest Science:* March 2004 – March 2011.

Ad-hoc (peer) reviewer (2002- present): *African Journal of Biotechnology; African Journal of Ecology; American Midland Naturalist; Arboriculture and Urban Forestry; Atmosphere; Biomass and Bioenergy; Canadian Journal of Forest Research; Ecology; Ecological Restoration; Ecosphere; European Journal of Forest Research; Forestry: An International Journal of Forest Research; Forests; Forest Ecology & Management; Forest Science. (Ad hoc and on Editorial Board); International Journal of Forestry; Journal of Environmental Management; Journal of Torrey Botanical Society; Journal of Wildlife Management; Landscape and Urban Planning; Nature; Oecologia; PLOS-One; Scandinavian Journal of Forest Research; Trees: Structure and Function; Urban Forest & Urban Greening.*

Reviewer, U.S. Environmental Protection Agency (EPA) Science to Achieve Results (STAR) Graduate Fellowship Review. March 11-15, 2013.

University Service- Michigan State University

Member, CANR Committee for Reappointment, Tenure and Promotion. (Fall 2018 – Present).

Member, CANR Committee for Undergraduate Research. (Fall 2016 – Spring 2019).

Director, Undergraduate Studies, Department of Forestry, Michigan State University. (August 2012 - Present).

Chairperson, MSU Forestry Undergraduate Committee, Michigan State University. (August 2012 - Present).

Faculty Liaison, MSU Experimental Forests, Michigan State University. (September 2004 – Dec 2019).

Forestry Representative, CANR Committee on Learning Outcomes Assessment and Alignment. (September 2014 -Present).

Chairperson, Search Committee- Forestry Resource Economics Professor. (Fall 2019 - Present).

Chairperson, Search Committee- Forestry Teaching Professor. (Summer 2017 - Present).

Member, Search Committee- Undergraduate Academic Advisor. (September 2016 - November 2016).

Faculty Mentor- Emily Huff. (October 19, 2016 - Present).

Coordinator/Organizer, Detroit Area Schools- Recruiting event, (April 20, 2016).

Member, Search Committee- Forest Biomaterials. (August 2015 - July 2016).

Member, Reappointment Committee- Jessica Miesel, Dept. of Forestry. (Fall 2015).

Member, Undergraduate Advisor Search Committee, Michigan State University. (September 2014 - February 2015).

Chairperson, Ad-hoc Committee on Forestry Properties Revitalization, Michigan State University. (April 2014 - December 2014).

Diversity and Pluralism Event, "Preparing for Academic Success and Exploring CANR Majors", Organizer, (November 4th, 2014).

Forestry Liaison, College Assessment Committee, MSU Committee for Reaccreditation. (2014).

Diversity and Pluralism Event, "Preparing for Academic Success and Exploring CANR Majors", Organizer, (October 31, 2013).

Chairperson, Tenure and Promotion Committee for Dr. Andrew Finley (Fall 2012).

Member, Departmental Advisory Committee, Department of Forestry, Michigan State University. (June 2010 - 2012).

Member, Ad-hoc Committee on Curriculum, Michigan State University. (August 2011 - December 2011).

Chair, Departmental Advisory Committee, Michigan State University. (August 2010 - December 2011).

Member, MSU Environmental Systems Team, Michigan State University. (2008 - 2011).

Member, MSU-Committee on Burning Alternative Fuels Team, Michigan State University. (2007 - 2011).

Member, Silviculture Search Committee, Department of Forestry, Michigan State University. (April 2007 - August 2009).

Member, Silviculture Search Committee, Department of Forestry, Michigan State University. (2007 - 2008).

Forestry Department Representative, College Recruitment Team, College of Agriculture and Natural Resources, Michigan State University (Fall 2004 – Fall 2007)

Forestry Department Coordinator, College Assessment Committee, College of Agriculture and Natural Resources, Michigan State University, 9/24/2004 – 3/1/2006; 2012 - present

Faculty Secretary, Department of Forestry, Michigan State University, 3/1/2002 - 9/24/2004

University Service- Rutgers University

Undergraduate Advisor, Rutgers Naturalists Club (Fall 2000 - Spring 2001)

Service to the Broader Community

Technical advisor, Michigan Department of Natural Resources. Timber Measurements Technical Team, Michigan Department of Natural Resources. (2004 - Present).

Chairperson, Forestry Career Development Event - Skills Contest, Future Farmers of America, (2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2013, 2014, 2015, 2016, 2017, 2018, 2019).

Event Presenter, Green Corps Visit to MSU. (June 30, 2016).

Technical Advisor, Morton Arboretum, Illinois EAB Wood Utilization Team and Urban Forest Products Alliance. (2011).

Technical Advisor, Rules Committee, Chicago Climate Exchange. (2007 - 2010).

Event Organizer / Presenter, 2013 Michigan Science Festival.

Event Organizer / Presenter, 2014 Michigan Science Festival.

Awards & Honors

Fulbright Global Scholar Award- Mexico, Italy, 2024—2025. Project Title: Cross-cultural Collaborations in Climate Smart Forestry.

Best Poster Award, IUFRO World Congress, Stockholm Sweden. 2024.

Forest Inventory and Analysis Program (FIA) Director's Award. 2024.

High Quality Reviewer for *Forestry: An International Journal of Forest Research*. Institute of Chartered Foresters. February 2019.

High Quality Reviewer for *Forestry: An International Journal of Forest Research*. Institute of Chartered Foresters. February 2017.

Honorary American Degree, Future Farmers of America (FFA). 2013.

Fulbright Scholarship- Sub-Saharan Africa Regional Research Program, 2011—2012. Project Title: Quantifying carbon benefits from tree planting and forest protection in Kenya.

2009 Honorary Membership, Michigan Future Farmers of America.

2009 Honorary Membership, Michigan Association of Agriscience Educators.

2002 Good Neighbor Award- Leadership in Ecological Classification and Mapping- USDA Forest Service Northeastern Area State and Private Forestry.