



MATTHEW P THOMPSON – DIRECTOR OF APPLIED FIRE SCIENCE

NARRATIVE

Matt is the Director of Applied Fire Science at Pyrologix, a subsidiary of Vibrant Planet. He is a thought leader with proven success in innovation, communication and applied research. His work pioneered new horizons in wildfire hazard and risk assessment, incident response planning, decision support, landscape fuels strategy, and performance measurement – perhaps most notably the widespread adoption of the potential operational delineations (PODs) framework and related analytics. His research interests focus primarily on risk, systems, strategy, and decision analysis. Ultimately, he aspires to inform and catalyze actionable science to address the wildfire and climate crises with urgency and dispatch. Prior to joining Pyrologix, he spent 14 years in the Human Dimensions Program at the USDA Forest Service Rocky Mountain Research Station, where he served as a core member of the National Fire Decision Support Center and the Wildfire Risk Management Science Team. Matt has a BS in systems engineering from the University of Virginia, a MS in industrial engineering and operations research from the University of California, Berkeley, a MS in forest management from Oregon State University, a PhD in forest engineering from Oregon State University, a professional certificate in strategic decision and risk management from Stanford University and was a Senior Executive Fellow at the Harvard Kennedy School.

ACCOMPLISHMENTS

- Recipient of Presidential Early Career Award for Scientists and Engineers, USDA Forest Service Deputy Chief’s Early Career Scientist Award, and USDA Forest Service Chief’s Award.
- Author of multiple landmark articles/reports spanning multiple aspects of wildfire risk management and invited keynote speaker/panelist at multiple conferences/workshops.
- Respected subject matter expert frequently sought out by USDA Forest Service leadership as well as the Wildland Fire Leadership Council, the Fire Executive Council, the Fire Management Board, and the Office of Management and Budget.
- Proven track record of developing and deploying actionable science-based tools including quantitative wildfire risk assessment, potential operational delineations, suppression difficulty index, potential control locations, fireline effectiveness, and structured decision making.

WORK HISTORY

Director of Applied Fire Science, Pyrologix LLC, November 2023 to present.

Research Forester, Rocky Mountain Research Station, USDA Forest Service, 2009-2023.

EDUCATION

PhD 2009	Forest Engineering	Oregon State University
MS 2008	Forest Management	Oregon State University
MS 2002	Industrial Engineering and Operations Research	University of California, Berkeley
BS 2001	Systems Engineering	University of Virginia

SELECT PUBLICATIONS

Thompson, M.P., O'Connor, C.D., Gannon, B.M., Caggiano, M.D., Dunn, C.J., Schultz, C.A., Calkin, D.E., Pietruszka, B., Greiner, S.M., Stratton, R. and Morisette, J.T., 2022. Potential operational delineations: new horizons for proactive, risk-informed strategic land and fire management. *Fire Ecology*, 18(1), pp.1-20.

Downing, W.M., Dunn, C.J., **Thompson, M.P.**, Caggiano, M.D. and Short, K.C., 2022. Human ignitions on private lands drive USFS cross-boundary wildfire transmission and community impacts in the western US. *Scientific reports*, 12(1), pp.1-14.

Thompson, M.P., Wei, Y., Calkin, D.E., O'Connor, C.D., Dunn, C.J., Anderson, N.M. and Hogland, J.S., 2019. Risk Management and Analytics in Wildfire Response. *Current Forestry Reports*, pp.1-14.

Thompson, M.P., MacGregor, D.G., Dunn, C.J., Calkin, D.E. and Phipps, J., 2018. Rethinking the wildland fire management system. *Journal of Forestry*, 116(4), pp.382-390.

O'Connor, C.D., Calkin, D.E. and **Thompson, M.P.**, 2017. An empirical machine learning method for predicting potential fire control locations for pre-fire planning and operational fire management. *International journal of wildland fire*, 26(7), pp.587-597.

Thompson, M., Bowden, P., Brough, A., Scott, J., Gilbertson-Day, J., Taylor, A., Anderson, J. and Haas, J., 2016. Application of wildfire risk assessment results to wildfire response planning in the southern Sierra Nevada, California, USA. *Forests*, 7(3), p.64.

Calkin, D.E., **Thompson, M.P.**, and M.A. Finney. 2015. Negative consequences of positive feedbacks in US wildfire management. *Forest Ecosystems* 2(1): 1-10.

Thompson, M.P., Haas, J.R., Gilbertson-Day, J.W., Scott, J.H., Langowski, P., Bowne, E., and D.E. Calkin. 2015. Development and application of a geospatial wildfire exposure and risk calculation tool. *Environmental Modelling & Software* 62: 61-72

Calkin, D.E., Cohen, J.D., Finney, M.A., and **M.P. Thompson**. 2014. How risk management can prevent future wildfire disasters in the wildland-urban interface. *Proceedings of the National Academy of Sciences* 111(2): 746-751.

Marcot, B.G., **Thompson, M.P.**, Runge, M.C., Thompson, F.R., McNulty, S., Cleaves, D., Tomosy, M., Fisher, L.A., and A. Bliss. 2012. Recent advances in applying decision science to managing national forests. *Forest Ecology and Management* 285: 123-132.

Thompson, M.P., and D.E. Calkin. 2011. Uncertainty and Risk in Wildland Fire Management: A Review. *Journal of Environmental Management* 92(8): 1895-1909.

Thompson, M.P., Calkin, D.E., Finney, M.A., Ager, A.A., and J. W. Gilbertson-Day. 2011. Integrated national-scale assessment of wildfire risk to human and ecological values. *Stochastic Environmental Research and Assessment* 25(6): 761-780.