



JOSEPH H. SCOTT – PRINCIPAL WILDFIRE ANALYST

NARRATIVE

Joe is the founder, Executive Vice President, and Principal Wildfire Analyst at Pyrologix, a subsidiary of Vibrant Planet. He has more than three decades' experience in wildland fire science research, development and application. He now has three decades of experience in surface and canopy fuel characterization, operational wildfire simulation modeling, landscape-scale wildfire hazard and risk assessment, and fuel management planning. Joe leads wildfire hazard and risk assessments to support land management planning, incident management, and utility-wildfire risk assessment for state and federal agencies and private organizations. He was the lead developer of the Nexus software for assessing crown fire potential, and is the lead author of USFS reports on crown fire hazard assessment and modeling, surface fire behavior fuel models, and landscape-scale wildfire risk assessment. Joe earned a B.Sc. in Forestry and Resource Management from the University of California at Berkeley and an M.Sc. in Forestry from the University of Montana. He is a Society of American Foresters Certified Forester™ an Association for Fire Ecology Senior Fire Ecologist.

ACCOMPLISHMENTS

- First author of several landmark reports pertaining to fuel characterization, wildfire behavior modeling, and hazard and risk assessment for the USDA Forest Service over a 20-year period.
- Technical Lead on the SDG&E Utility Wildfire Risk Reduction Model (WRRM).
- Member of the CPUC FireMap2 Independent Review Team; Technical Lead on the Tier 3 mapping.
- Technical Lead on utility-wildfire risk mapping projects for public and investor-owned electric utilities and communications providers.
- Technical Lead on landscape-scale hazard assessments at extents ranging from counties, to states, to the entire nation.

CERTIFICATIONS

Certified Forester Society of American Foresters

Senior Fire Ecologist Association for Fire Ecology

WORK HISTORY

Principal Wildfire Analyst, Pyrologix LLC, Missoula, Montana. March 2004 to present

Research Forester, Systems for Environmental Management, Missoula, Montana. September 1996 to December 2008

Consulting Forester, Residential Forest Management, Missoula, Montana. May 1994 to September 1996

Forestry Technician, Intermountain Fire Sciences Laboratory, Missoula, Montana. April 1991 to July 1994

Junior Forestry Specialist, University of California, Berkeley, Berkeley, California. May 1990 to April 1991

EDUCATION

M.S 1998	Forestry	University of Montana
B.S. 1990	Forestry and Resource Management	University of California Berkeley

PUBLICATIONS

Thompson, M.P., Vogler, K.C., **Scott, J.H.** and Miller, C. 2022. Comparing risk-based fuel treatment prioritization with alternative strategies for enhancing protection and resource management objectives. *Fire Ecol* **18**, 26. <https://doi.org/10.1186/s42408-022-00149-0>

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Kerry L. Metlen, Terry Fairbanks, Max Bennett, Jena Volpe, Bill Kuhn, Matthew P. Thompson, Jim Thrailkill, Michael Schindel, Don Helmbrecht, **Joe H. Scott**, and Darren Borgias. 2021. Integrating forest restoration, adaptation, and proactive fire management: Rogue River Basin case study. *Can. J. For. Res.* 51: 1292-1306. <http://dx.doi.org/10.1139/cjfr-2020-0480>

Scott, Joe H.; Brough, April M.; Gilbertson-Day, Julie W.; Dillon, Gregory, K.; Moran, Christopher. 2020. Wildfire Risk to Communities: Spatial datasets of wildfire risk for populated areas in the United States. Fort Collins, CO: Forest Service Research Data Archive. <https://doi.org/10.2737/RDS-2020-0060>

Thompson, Matthew P.; Gannon, B.M.; Caggiano, M.D.; O'Connor, C.D.; Brough, A.; Gilbertson-Day, J.W.; **Scott, Joe H.** Prototyping a Geospatial Atlas for Wildfire Planning and Management. *Forests* 2020, 11, 909. <https://doi.org/10.3390/f11090909>

Scott, Joe H.; Gilbertson-Day, Julie W.; Moran, Christopher; Dillon, Gregory K.; Short, Karen C.; Vogler, Kevin C. 2020. Wildfire Risk to Communities: Spatial datasets of landscape-wide wildfire risk components for the United States. Fort Collins, CO: Forest Service Research Data Archive. <https://doi.org/10.2737/RDS-2020-0016>

Short, Karen C.; Finney, Mark A.; Vogler, Kevin C.; **Scott, Joe H.**; Gilbertson-Day, Julie W; Grenfell, Isaac C. 2020. Spatial datasets of probabilistic wildfire risk components for the United States (270m). 2nd Edition. Fort Collins, CO: Forest Service Research Data Archive. <https://doi.org/10.2737/RDS-2016-0034-2>

Scott, Joe H. 2020. A deterministic method for generating flame-length probabilities. In: Hood, Sharon; Drury, Stacy; Steelman, Todd; Steffens, Ron, tech. eds. The fire continuum—preparing for the future of wildland fire: Proceedings of the Fire Continuum Conference. 21-24 May 2018, Missoula, MT. Proc. RMRS-P-78. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. p. 195-205.

Wei, Yu; Thompson, Matthew P.; **Scott, Joe H.**; O'Connor, Christopher D.; Dunn, Christopher J. 2019. Designing Operationally Relevant Daily Large Fire Containment Strategies Using Risk Assessment Results. *Forests* 2019, 10(4), 311; [doi:10.3390/f10040311](https://doi.org/10.3390/f10040311)

Riley, Karin L.; Thompson, Matthew P.; **Scott, Joe H.**; Gilbertson-Day, Julie W. 2018. A model-based framework to evaluate alternative wildfire suppression strategies. *Resources* 7(1) 4. 26 p. [doi:10.3390/resources7010004](https://doi.org/10.3390/resources7010004)

Thompson, Matthew P.; David Calkin; **Joe H. Scott**; Michael Hand. 2017. Uncertainty and probability in wildfire management decision support, an example from the United States. Chapter 4: Natural Hazard

Uncertainty Assessment: Modeling and Decision Support, Geophysical Monograph 223, First Edition. American Geophysical Union. John Wiley and Sons.

Haas, Jessica R.; Matthew P. Thompson; Anne Tillery; **Joe H. Scott**. 2017. Capturing Spatiotemporal Variation in Wildfires for Improving Postwildfire Debris-Flow Hazard Assessments. Chapter 20: Natural Hazard Uncertainty Assessment: Modeling and Decision Support, Geophysical Monograph 223, First Edition. American Geophysical Union. John Wiley and Sons.

Short, Karen C.; Finney, Mark A.; **Scott, Joe H.**; Gilbertson-Day, Julie W.; Grenfell, Isaac C. 2016. Spatial dataset of probabilistic wildfire risk components for the conterminous United States. Fort Collins, CO: Forest Service Research Data Archive. <https://doi.org/10.2737/RDS-2016-0034>

Scott, Joe H., Matthew P. Thompson, and Julie Gilbertson-Day. 2016. Examining alternative fuel management strategies and the relative contribution of National Forest System land to wildfire risk to adjacent homes – A pilot assessment on the Sierra National Forest, California, USA. *Forest Ecology and Management*. 362: 29-37. <http://dx.doi.org/10.1016/j.foreco.2015.11.038>

Thompson, Matthew P.; Bowden, Phil; Brough, April; **Scott, Joe H.**; Gilbertson-Day, Julie; Taylor, Alan H.; Anderson, Jennifer; Haas, Jessica. 2016. Application of wildfire risk assessment results to wildfire response planning in the Southern Sierra Nevada, California, USA. *Forests* 7(64): 1-23. [doi:10.3390/f7030064](https://doi.org/10.3390/f7030064)

Thompson, Matthew P.; Gilbertson-Day, Julie; **Scott, Joe H.** 2016. Integrating pixel- and polygon-based approaches to wildfire risk assessment: application to a high-value watershed on the Pike and San Isabel National Forests, Colorado, USA. *Environmental Modelling and Assessment*. 21(1): 1-15. [DOI 10.1007/s10666-015-9469-z](https://doi.org/10.1007/s10666-015-9469-z)

Scott, Joe H., Matthew P. Thompson, and Julie Gilbertson-Day. 2015. Exploring how alternative mapping approaches influence fire risk assessment and human community exposure to wildfire. *GeoJournal*. 80(5): 15 p. [doi: 10.1007/s10708-015-9679-6](https://doi.org/10.1007/s10708-015-9679-6)

Scott, Joe H. and Matthew P. Thompson. 2015. Emerging concepts in wildfire risk assessment and management. In: Keane, Robert E.; Jolly, Matt; Parsons, Russell; Riley, Karin. 2015. Proceedings of the large wildland fires conference; May 19-23, 2014; Missoula, MT. Proc. RMRS-P-73. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. Pages 196 – 206.

Thompson, Matthew P.; Haas, Jessica R.; Gilbertson-Day, Julie W.; **Scott, Joe H.**; Langowski, Paul; Bowne, Elise; Calkin, David E. 2015. Development and application of a geospatial wildfire exposure and risk calculation tool. *Environmental Modelling and Software*. 63: 61-72. <http://dx.doi.org/10.1016/j.envsoft.2014.09.018>

Scott, Joe H. 2014. Understanding stochastic wildfire simulation results. Unpublished report prepared for USDA Forest Service, Washington Office. Available at www.pyrologix.com.

Scott, Joe H. 2014. Summarizing contemporary large-fire occurrence for land and resource management planning. Unpublished report prepared for USDA Forest Service, Washington Office. Available at www.pyrologix.com.

Scott, Joe H., Donald J. Helmbrecht, and Matthew P. Thompson. 2014. Assessing the expected effects of wildfire on vegetation condition on the Bridger-Teton National Forest, Wyoming, USA. Res. Note: RMRS-RN-71. Ft. Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 36 p.

Anne C. Tillery, Jessica R. Haas, Lara W. Miller, **Joe H. Scott**, and Matthew P. Thompson. 2014. Potential Postwildfire Debris-Flow Hazards—A Prewildfire Evaluation for the Sandia and Manzano Mountains and

Surrounding Areas, Central New Mexico. U.S. Geological Survey Scientific Investigations Report 2014-5161, 24 p. with appendix. <http://dx.doi.org/10.3133/sir20145161>.

Scott, Joe H., Matthew P. Thompson and Dave Calkin. 2013. A wildfire risk assessment framework for land and resource management. General Technical Report RMRS-GTR-315. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 83 p.

Thompson, M.P.; **Scott, J. H.**, Langowski, P.G., Gilbertson-Day, J.W., Haas, J.R. and Bowne, E.M. 2013. Assessing Watershed-Wildfire Risks on National Forest System Lands in the Rocky Mountain Region of the United States. *Water* 5: 945-971.

Thompson, Matthew P., **Joe H. Scott**, Jeffrey D. Kaiden, and Julie Gilbertson-Day. 2013. A polygon-based modeling approach to assess exposure of resources and assets to wildfire. *Natural Hazards*. 67(2): 627-644.

Scott, Joe H., Don Helmbrecht, Martha Williamson. 2013. Response of Highly Valued Resources and Assets to Wildfire within Grand Teton National Park and the Bridger-Teton National Forest. Final Report. 66 p.

Thompson, Matthew, **Joe H. Scott**, Donald Helmbrecht, Dave Calkin. 2013. Integrated Wildfire Risk Assessment: Framework Development and Application on the Lewis and Clark National Forest in Montana, USA. *Integrated Environmental Assessment and Management* 9(2): 329-342.

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Parresol, Bernard R., **Joe H. Scott**, Anne Andreu, Susan Prichard and Laurie Kurth. 2012. Developing custom fire behavior fuel models from ecologically complex fuel structures for upper Atlantic Coastal Plain forests. *Forest Ecology and Management* 273: 50-57.

Scott, Joe H., Don Helmbrecht, Matthew P. Thompson, David E. Calkin, Kate Marcille. 2012. Probabilistic assessment of wildfire hazard and municipal watershed exposure. *Natural Hazards*. 64(1): 707-728.

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Helmbrecht, Don; **Joe H. Scott**; David Keefe. 2012. Little Belts Landscape Assessment: Vegetation Departure and Wildfire Threat Report. 46 p.

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Calkin, David E.; Ager, Alan A.; Gilbertson-Day, Julie; **Scott, Joe H.**; and five others. 2010. Wildfire risk and hazard: procedures for the first approximation. Gen. Tech. Rep. RMRS-GTR-235. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 62 p.

Scott, Joe H. 2008. Modeling transitions in shrubland fire behavior using crown fire modeling techniques. In: Proceedings of the 2002 Fire Conference Managing Fire and Fuels in the remaining Wildlands and Open Spaces of the Southwestern United States. December 2-5, 2002. San Diego, Ca. PSW-GTR-189. Pages 301-308.

Reinhardt, Elizabeth D.; **Joe H. Scott**; Robert E. Keane; Kathy Gray. 2007. Canopy fuel and tree biomass data from the Interior West. Geospatial Data Presentation Form: tabular digital data. Fort Collins, CO: USDA Forest Service, Rocky Mountain Research Station.

- Scott, Joe H.** 2007. Nomographs for estimating surface fire behavior characteristics without a computer. RMRS-GTR-192. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 119 p.
- Scott, Joe H.** and E. D. Reinhardt. 2007. Effects of alternative treatments on canopy fuel characteristics in five conifer stands. *In: Powers, Robert F.*, tech. editor. Restoring fire-adapted ecosystems: proceedings of the 2005 national silviculture workshop. Gen. Tech. Rep. PSW-GTR-203, Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture: p. 193-209
- Scott, Joe H.** 2006. Off the Richter: Magnitude and Intensity Scales for Wildland Fire. Extend Abstract. AFE Fire Congress, November 2006, San Diego, CA. 3 p.
- Reinhardt, Elizabeth D.; **Scott, Joe H.**; Gray, Kathy; Keane, Robert E. 2006. Comparison of indirect methods of estimating canopy fuel load and bulk density. *Can. J. For. Res.* 36: 2803-2814.
- Scott, Joe H.** 2006. An analytical framework for quantifying wildland fire risk and fuel treatment benefit. *In: Andrews, Patricia L. Butler, Bret W.*, comps. Fuels Management—How to Measure Success: Conference Proceedings. 2006 28-30 March; Portland, OR. Proceedings RMRS-P-41. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. p.169-184.
- Scott, Joe H.** 2006. Comparison of crown fire modeling systems used in three fire management systems. RMRS-RP-58. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 25 p.
- Scott, Joe H.**; R. E. Burgan. 2005. Standard fire behavior fuel models: A comprehensive set for use with Rothermel's surface fire spread model. RMRS-GTR-153. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 72 p.
- Scott, Joe H.**; E. D. Reinhardt. 2005. Stereo Photo Guide for Estimating Canopy Fuel Characteristics in Conifer Stands. RMRS-GTR-145. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 49 p. plus stereoscope
- Keane, R. E; E.D. Reinhardt; **Joe H. Scott**; Kathy Gray; James A. Reardon. 2005. Estimating forest canopy bulk density using six indirect methods. *Can. J. For. Res.* 35(3):724-739.
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- Scott, Joe H.** and Elizabeth D. Reinhardt. 2002. NEXUS: A spreadsheet-based crown fire hazard assessment system. *In: Proceedings of the symposium: Fire in California Ecosystems: Integrating Ecology, Prevention and Management.* 17-20 November, 1997, San Diego, CA. Association for Fire Ecology Misc. Pub. 1: 377-381.
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- Scott, Joe H.** 1999. NEXUS: A system for assessing crown fire hazard. *Fire Management Notes* 59(2): 21-24.
- Scott, Joe H.** 1998. Sensitivity analysis of a method for assessing crown fire hazard in the northern Rocky Mountains, USA. In: Proceedings of the III International Conference on Forest Fire Research and 14th Conference on Fire and Forest Meteorology, Luso, Portugal. 16/20 November 1998, VOL II, p. 2517-2532.
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- Scott, Joe H.** 1998. Reduce fire hazards in ponderosa pine by thinning. *Fire Management Notes* 58(1): 20-25.
- Scott, Joe H.** 1998. Fuel reduction in residential and scenic forests: a comparison of three treatments in a western Montana ponderosa pine stand. Research Paper RMRS-RP-5. Ogden, UT: USDA Forest Service, Rocky Mountain Research Station; 19 p.
- Scott, Joe H.** 1996. Restoring recreational and residential forests. In: Hardy, Colin C., and Arno, Stephen F., eds. 1996. The use of fire in forest restoration. General Technical Report INT-GTR-341. Ogden, UT: USDA Forest Service, Intermountain Research Station, p. 44-45.
- Arno, Stephen F., **Joe H. Scott** and Mike Hartwell. 1995. Age-class structure of old growth ponderosa pine/Douglas-fir stands and its relationship to fire history. Research Paper INT-RP-481. Ogden, Utah: USDA Forest Service, Intermountain Research Station, 25 p.
- Arno, Stephen F., Elizabeth D. Reinhardt and **Joe H. Scott**. 1993. Forest structure and landscape patterns in the subalpine lodgepole pine type: a procedure for quantifying past and present conditions. General Technical Report INT-294. Ogden, Utah: USDA Forest Service, Intermountain Research Station. 17 p.
- Scott, Joe H.** and Stephen F. Arno. 1992. Using a power increment borer to determine the age structure of old-growth conifer stands. *Western Journal of Applied Forestry*. 7(4): 100-102.
- Martin, R. E. and **Joe H. Scott**. 1991. Observations on the glowing combustion of duff. In: Proceedings of the 1991 SAF National Convention, August 4-8 1991, San Francisco, CA.