



Alexandra Dunya Syphard, Ph.D.

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Alexandra is a research scientist who has spent nearly three decades analyzing the drivers and impacts of global change, particularly focusing on wildfire across diverse ecosystems. She investigates how landscape change has occurred in the past, how it is likely to occur in the future, and how different policy or management alternatives may impact human and ecological well-being. Alexandra has concentrated intensely on wildfire risk to communities and identifying the best approaches for balancing fire risk reduction with biodiversity conservation. She developed her own wildfire risk model to inform the pricing for a wildfire-focused homeowners insurance company. She further designed the company's homeowner inspections program for wildfire safety. Her current research focuses on the interactions among wildfire patterns, fire-climate relationships, land use change and urban growth, vegetation dynamics, invasive species, social vulnerability, and species' range shifts.

EDUCATION

2005 – Ph.D., San Diego State University and UC Santa Barbara, Geography.
1998 – M.S., Virginia Commonwealth University, Environmental Studies.
1994 – MPH, Medical College of Virginia, Public Health.
1992 – BA, University of Mary Washington, English/communications.

POSITIONS HELD

2007 - current. Senior Research Scientist, Conservation Biology Institute
2011 - current. Adjunct Professor, Geography, San Diego State University, CA
2022 – 2023. Wildfire Advisor, Google X
2021 – 2023. Wildfire Consultant, State of CA, Office of the Attorney General
2018 - 2020. Chief Scientist, Vertus Wildfire Insurance Holdings, LLC
2015-2019. Associate Editor, Diversity & Distributions
2007-2008. Postdoctoral Fellow, Biology, San Diego State University, CA
2005-2007. Postdoctoral Fellow, Forest & Wildlife Ecology, UW- Madison, WI.
1998-1999. GIS Analyst/Environmental Planner, VHB, Williamsburg, VA
1995-1998. Publications writer, Alliance for the Chesapeake Bay, Richmond, VA

CURRENT PROFESSIONAL ACTIVITIES

2024 – Science Advisory Panel, California Wildfire Safety Task Force

2024 – Science Advisory panel, California Department of Insurance

2021 –International advisory panel, Center for Climate and Resilience Research, Chile

2022 –International advisory panel, FIRE-RES, Fire resilient communities in Europe

2020 - Associate Editor, International Journal of Wildland Fire

2019 - Board Member, California Wildfire Safety Advisory Board

PEER-REVIEWED PUBLICATIONS

Journal articles

- (106) Penman, T., Syphard, A.D., et al. In prep. Response diversity approach to decrease house loss due to wildfires.
- (105) Syphard, A.D., Keeley, J.E., Conlisk, E., Gough, M. In revision. Variability in ignition sources explains as much fire activity as climate and population growth across the United States.
- (104) Syphard, A.D., Rustigian-Romsos, H., Franco, D., Forrestel, A. In review. Lessons learned using species' distribution models for conservation planning in the Golden Gate Biosphere reserve
- (103) West, K.R.L., Stow, D.A., O'Leary, J.F., Roberts, D.A., Syphard, A.D., Jennings, M.K., Carvalho, L.M.V. In review. Evaluation of herbaceous cover fraction and wildfire ignition association in San Diego County, California, USA shrublands (1992-2020).
- (102) Backus, G.A., Rose, B.M., Velazco, S.J.E., Franklin, J., Syphard, A.D., Regan, H.M. In review. Population decline for plants in the California Floristic Province: Does demography or geography determine climate change vulnerability?
- 101 West, K.R.L., Stow, D.A., Sousa, D.J., O'Leary, J.F., Roberts, D.A., Syphard, A.D., Carvalho, L.M.V. 2025 (In press). Spectral unmixing of Landsat time-series to reconstruct herbaceous fractional cover dynamics in San Diego County, California, USA shrublands (1988-2020).
- 100 Keeley, J.E., Flannigan, M., Brown, T.J., Rolinski, T., Cayan, D., Syphard, A.D., Guzman-Morales, J., Gershunov, A. 2024. Climate and weather drivers in southern California Santa Ana Wind and non-Santa Ana Wind fires. International Journal of Wildland Fire.
- 99 Pausas, J.G., Keeley, J.E., Syphard, A.D., 2024. Top-down factors drive boreal forest fire regimes. Philosophical Transactions of the Royal Society B.
- 98 González, M.E., Syphard, A.D., Fischer, A.P., Muñoz, A.A., Miranda, A. 2024 Valparaíso hills on fire: unprecedented tragedy and disaster in the wildland-urban interface. Science.
- 97 Conlisk, E., Butsic, V., Syphard, A.D., Evans, S., Jennings, M. 2024. Evidence of increasing wildfire damage with decreasing home price in Southern California fires.

- 96 Syphard, A.D., Velazco, S.J.E., Rose, M.B., Franklin, J., Regan, H.M. 2024. The importance of geography in forecasting future fire patterns under climate change. *Proceedings of the National Academy of Sciences*.
- 95 Schumann, R.L., Emrich, C.T., Butsic, V., Mockrin, M.H., Zhou, Y., Johnson Gaither, C., Price, O., Syphard, A.D., Whittaker, J., Aksha, S. 2024. The geography of social vulnerability and wildfire occurrence (1984 – 2018) in the conterminous United States. *Natural Hazards*.
- 94 Miranda, A., Ovalle, J., Syphard, A.D., Berdugo, M., Carrasco, J., Gómez-González, S., Squeo, F., Delpiano, C., Vargas, S., Mentler, R., Miranda, M., Dobbs, C., Lara, An., Garreaud, R. 2023. Widespread and synchronous Mediterranean forest canopy collapse driven by increasing aridity. *Nature Plants*.
- 93 Mockrin, M.H., Locke, D.H., Syphard, A.D., O’Neill-Dunne, J. 2023. Using high-resolution LiDAR imagery to assess the role of defensible space relative to other factors determining building. *Journal of Environmental Management*.
- 92 Mockrin, M. H., R. Schumann, J. Whittaker, C. Johnson Gaither, R. A. Brooks, A. D. Syphard, O. Price, and C. T. Emrich. 2023. Creating fire-adapted communities through recovery: case studies from the United States and Australia. *Journal of Extreme Events*.
- 91 Backus, G.A., Rose, M.B., Velazco, S., Franklin, J., Syphard, A.D., Regan, H.M. 2023. Modeling the effects of spatially explicit patterns of climate and fire on future populations of a fire-dependent plant. *Frontiers in Ecology and Evolution* 11.
- 90 Syphard, A.D., Keeley, J.E., Gough, M., Lazarz, M., Rogan, J., 2022. What makes wildfires destructive in California? *Fire* 5 (5), 133.
- 89 Cayan, DeHaan, Gershunov, Guzman-Morale, Keeley, Mumford, Syphard. 2022. Autumn precipitation – the competition with Santa Ana winds in determining fire impacts in Southern California. *International Journal of Wildland Fire*.
- 88 Shuman, JK, Balch, JK, Barnes RT,...Syphard, AD,... Reimagine fire science for the Anthropocene. 2022. *PNAS Nexus* 1(3), pgac 115.
- 87 Keeley, J.E., Brennan, T.J., Syphard, A.D. 2022. The effects of prolonged drought on vegetation dieback and megafires in southern California chaparral. *Ecosphere* 13 (8), e4203.
- 86 Guiterman, C.H., et al. 2022. Vegetation type conversion of dry coniferous forests in the US Southwest and California: Field observations and perspectives from fire and ecosystem managers. *Fire Ecology* 18: 1-16.
- 85 Syphard, A.D., Brennan, T.J., Rustigian-Romsos, H., Keeley, J.E., 2022. Fire-driven vegetation type conversion in southern California. *Ecological Applications*: e2626.
- 84 Rojas, I.M, Jennings, M., Conlisk, E. Syphard, A.D., Mikesell, J., Kinoshita, A., West, K., Stow, D., Storey, E., De Guzman, M., Foote, D., Warneke, A., Pairis, A., Ryan, S., Flint, L., Flint, A., Lewison, R. 2021. Identifying and protecting refugia to advance conservation in a changing world. *Conservation Biology* 36, e13834.
- 83 Keeley, J.E., Syphard, A.D. 2021. Large California wildfires: 2020 fires in historical context. *Fire Ecology* 17: 1-11.

- 82 Schwartz, M.W., Syphard, A.D. 2021. Fitting the solutions to the problems in managing extreme wildfire. *Environmental Research Communications* 3: 081005.
- 81 Franklin, J., Regan, Helen M., Syphard, A.D. 2021. A framework linking biogeography and species traits to plant species vulnerability under global change in Mediterranean-type ecosystems. *Frontiers of Biogeography*.
- 80 Syphard, A.D., Rustigian-Romsos, H., Keeley, J.E. 2021. Multiple-scale relationships between vegetation, the wildland-urban interface, and structure loss to wildfire in California. *Fire* 1: 12.
- 79 Keeley, J.E., Guzman-Morales, J., Gershunov, A., Syphard, A.D., Cayan, D., Pierce, D.W., Flannigan, M., Brown, T. 2021. Ignitions explain more than temperature or precipitation in driving Santa Ana Wind fires. *Science Advances* 7, eabh2262.
- 78 Fusco, E.J., Balch, J.K., Mahood, A., Nagy, R.C., Syphard, A.D., Bradley, B.A. 2021. The human-grass-fire cycle: How the co-occurrence of people and invasive grass drives fire regimes. *Frontiers in Ecology and the Environment*.
- 77 Jenerette, G.D., Anderson, K., Cadenasso, M.L., Fenn, M., Franklin, J., Goulden, M.L., Larios, L., Pincetl, S., Regan, H.M., Rey, S.J., Santiago, L.S., Syphard, A.D. 2022. An Expanded Framework for Wildland-Urban Interfaces and their Management. *Frontiers in Ecology and the Environment*.
- 76 Kelly, L.T., Giljohann, K.M., Duane, A...Syphard, A.D., Tingley, M.W., Brotons, L., 2020. Fire and biodiversity in the Anthropocene. *Science* 320: eabb0355.
- 75 Miranda, A., Carrasco, J., González, M., País, C., Lara, A., Altamirano, A., Weintraub, A., Syphard, A.D. 2020. Evidence-based mapping of the wildland-urban interface to better identify human communities threatened by wildfires. *Environmental Research Letters* 15: 094069.
- 74 Syphard, A.D., Keeley, J.E. 2020. Why are so many structures burning in California? *Fremontia* 47: 28-35.
- 73 Keeley, J.E., Syphard, A.D. 2020. Nexus Between Wildfire, Climate Change and Population Growth in California. *Fremontia* 47: 18-27.
- 72 Syphard, A.D., Keeley, J.E. 2020. Mapping fire regime ecoregions in California. *International Journal of Wildland Fire* 29: 595-601.
- 71 Syphard, A.D., Keeley, J.E. 2019 Factors affecting structure loss in the 2013 – 2018 California wildfires. *Fire* 2(3), 49.
- 70 Schumann III, R.L., Mockrin, M. Syphard, A.D., Whittaker, J., Price, O., Johnson-Gaither, C., Emrich, C.T., Brennan-Kane, T.J. 2019. Wildfire as a “hot moment” for creating fire-adapted communities. *International Journal of Disaster Risk Reduction* 42:101354.
- 69 Syphard, A.D., Brennan, T.J., Keeley, J.E. 2019. Extent and drivers of vegetation type conversion in Southern California chaparral. *Ecosphere* 10: e02796.
- 68 Keeley, J.E., Syphard, A.D. 2019. Forum 21st Century California wildfires: fuel-dominated vs wind-dominated fires. *Fire Ecology* 15, 24.

- 67 Syphard, A.D., Rustigian-Romsos, H., Mann, M., Conlisk, E., Moritz, M.A., Ackerly, D. 2019. The relative influence of climate and housing pattern on current and projected fire distribution and structure loss across three California landscapes. *Global Environmental Change* 56: 41-66.
- 66 Keeley, J.E., Syphard, A.D. 2018. Historical patterns of wildfire ignition sources in California ecosystems. *International Journal of Wildland Fire* 27: 781-799.
- 65 Tracey, J.A., Rochester, C.J., Hathaway, S.A., Preston, K.L., Syphard, A.D., Vandergast, A.G., Diffendorfer, J.E., Franklin, J., MacKenzie, J.B., Oberbauer, T.A., Tremor, S., Winchell, C., and Fisher, R.N. 2018. Prioritizing conserved areas threatened by wildfire and fragmentation for monitoring and management. *PLoS ONE* 13 (9), e0200203.
- 64 Syphard, A.D., Brennan, T.J., Keeley, J.E. 2018. Drivers of chaparral vegetation type conversion to grassland in coastal Southern California. *Diversity & Distributions* 25: 90-101.
- 63 Syphard, A.D., Sheehan, T., Rustigian-Romsos, H., and Ferschweiler, K. 2018. Mapping future fire probability under climate change: Does vegetation matter? *PLoS ONE* 13: e0201680
- 62 Radeloff, V.C., Helmers, D., Alexandre, P., Bar Massada, A., Butsic, V., Hawbaker, T.J., Kramer, A., Martinuzzi, S., Mockrin, M.H., Syphard, A.D., and Stewart, S.I. 2018. Rapid growth of the Wildland Urban Interface from 1990 to 2010 across the United States exacerbates wildfire problems. *Proceedings of the National Academy of Sciences of the United States of America* 115: 3314-3319.
- 61 Syphard, A.D., Keeley, J.E., Pfaff, A., Ferschweiler, K. 2017. Human presence diminishes the importance of climate in driving fire activity across the United States. *Proceedings of the National Academy of Sciences of the United States of America* 114: 13750-13755.
- 60 Keeley, J.E., Syphard, A.D. 2017. Different historical fire-climate patterns in California. *International Journal of Wildland Fire* 26: 253-268.
- 59 Syphard, A.D., Keeley, J.E., Abatzoglou, J.T. 2017. Trends and drivers of fire activity vary across California aridland ecosystems. *Journal of Arid Environments* 21: 140-147.
- 58 Syphard, A.D., Brennan, T.J., Keeley, J.E. 2017. The importance of building construction materials relative to other factors affecting structure survival during wildfire. *International Journal of Disaster Risk Reduction* 21: 140-147.
- 57 Davis, F.W., Sweet, L.C., Serra-Diaz, J.M., McCullough, I.M., Dingman, J.R., Flint, A.L., Flint, L.E., Franklin, J., Syphard, A.D., Regan, H.M., Moritz, M.A., Hannah, L., Redmond, K., Sork, V.L. 2016. Shrinking windows of opportunity for oak seedling establishment in southern California mountains. *Ecosphere* 7.
- 56 Keeley, J.E., and Syphard, A.D. 2016. Climate change and future fire regimes: Examples from California. *Geosciences*. 2016: 37.
- 55 Syphard, A.D., Keeley, J.E. 2016. Historical reconstructions of California wildfires vary by data source. *International Journal of Wildland Fire* 25: 1221-1227.
- 54 Franklin, J., Serra-Diaz, J.M., Syphard, A.D., Regan, H.M. 2016. Linking big data across scales for understanding plant community dynamics. *Global Ecology and Biogeography* 26: 6-17.

- 53 Syphard, A.D., Butsic, V., Keeley, J.E., Bar-Massada, A., Tracey, J. 2016. Setting priorities for private land conservation in fire-prone landscapes: Are fire risk reduction and biodiversity conservation competing or compatible objectives? *Ecology and Society* 21: 3.
- 52 Butsic, V., Syphard, A.D., Keeley, J.E., Bar Massada, A. Can private land conservation reduce wildfire risk to homes? 2017. A case study in San Diego County, California, USA. *Landscape and Urban Planning* 157: 161-169.
- 51 Alexandre, P.M. Stewart, S.I., Mockrin, M.H., Keuler, N.S., Clayton, M.K., Bar-Massada, A., Syphard, A.D., Radeloff, V.C. 2016. Factors related to building loss due to wildfires in the conterminous United States. *Ecological Applications* 26: 2323-2338.
- 50 Franklin, J., Serra-Diaz, J.M., Syphard, A.D., Regan, H.M. 2016. Global change and terrestrial plant community dynamics. *Proceedings of the National Academy of Sciences of the United States of America* 113: 3725-3734.
- 49 McCullough, I.M., Davis, F.W., Dingman, J.R., Flint, L.E., Flint, A.L., Serra-Diaz, J.M., Syphard, A.D., Moritz, M.A., Hannah, L., Franklin, J. 2016. High and dry: high elevations disproportionately exposed to regional climate change in Mediterranean-climate landscapes. *Landscape Ecology* 31: 1063-1075.
- 48 Serra-Diaz, J.M., Franklin, J., Sweet, L., McCullough, I.M., Syphard, A.D., Regan, H.M., Flint, L.E., Flint, A.L., Dingman, J.R., Moritz, M.A., Redmond, K. Hannah, L., Davis, F.W. 2015. Averaged 30-year climate change projections mask opportunities for species establishment. *Ecography* 38: 001-002.
- 47 Serra-Diaz, J.M., Dillon, W.W., Franklin, J., Syphard, A.D., Davis, F.W., Meentenmeyer, R.K. 2015. California forests show early indications of both range shifts and local persistence under climate change. *Global Ecology and Biogeography* 25: 164-175.
- 46 Alexandre, P.M., Stewart, S.I., Mockrin, M.H., Keuler, N.S., Syphard, A.D., Bar Massada, A., Clayton, M.K., Radeloff, V.C. 2015. The relative impacts of vegetation, topography and spatial arrangement on building loss to wildfires in case studies of California and Colorado. *Landscape Ecology* 31: 415-430.
- 45 Hannah, L., Flint, L., Syphard, A.D., Moritz, M.A. and Hall, A, Buckley, L.B. 2015. Place and Process in Conservation Planning for Climate Change: a reply to Keppel & Wardell-Johnson. *Trends in Ecology and Evolution* 169: 5347.
- 44 Serra-Diaz, P., Scheller, R.M., Syphard, A.D., Franklin, J. 2015. Disturbance and climate microrefugia mediate tree range shifts during climate change. *Landscape Ecology* 2015: 1-15.
- 43 Conlisk, E., Syphard, A.D., Franklin, J., and Regan, H.M. 2015. Predicting the impact of fire on a vulnerable multi-species community in a dynamic vegetation model. *Ecological Modelling* 301: 27-39.
- 42 Syphard, A.D., Keeley, J.E, 2015. Location, timing, and extent of wildfire varies by cause of ignition. *International Journal of Wildland Fire* 24: 37-47.
- 41 Keeley, J.E., and Syphard, A.D. 2015. Different fire-climate relationships on forested and non-forested landscapes in the Sierra Nevada ecoregion. *International Journal of Wildland Fire* 24: 27-36.

- 40 Moritz, M.A., Batllori, E., Bradstock, R.A., Gill, A.M., Handmer, J., Hessburg, P.F., Leonard, J., McCaffrey, A., Odion, D., Schoennagel, T., Syphard, A.D. Learning to coexist with fire. 2014. *Nature* 515: 58-66.
- 39 Penman, T.D., Collins, L., Syphard, A.D., Keeley, J.E., Bradstock, R.A. 2014. Relative influence of fuels, weather and the built environment on the exposure of property to wildfire in San Diego, California. *PLoS ONE* 10):e111414
- 38 Syphard, A.D., Brennan, T.J., Keeley, J.E., 2014. The role of defensible space for residential structure protection during wildfires. *International Journal of Wildland Fire* 23: 1165-1175.
- 37 Hannah, L., Flint, L., Syphard, A.D., Moritz, M.A. and Hall, A, Buckley, L.B. 2014. Fine-scale modeling of vegetation response to climate change. *Trends in Ecology and Evolution* 29: 390-397.
- 36 Syphard, A.D., Bar Massada, A., Butsic, V., and Keeley, J.E. 2013. Land use planning and wildfire: development policies influence future probability of housing loss. *PLoS ONE* 8(8): e71708.
- 35 Franklin, J., Regan, H.M., and Syphard, A.D. 2013. Linking spatially explicit species distribution and population models to plan for the persistence of species under global change. *Environmental Conservation* 41: 97-109.
- 34 Syphard, A.D., Regan, H.M., Franklin, J., Swab, R.M., and Bonebrake, T.C. 2013. Does functional type vulnerability to multiple threats depend on spatial context in Mediterranean-climate ecosystems? *Diversity and Distributions* 19: 1263-1274.
- 33 Beltran, B.J., Franklin, J., Syphard, A.D., Regan, H.M., Flint, L.E., Flint, A.L., 2013. Effects of climate change and urban development on the distribution and conservation of vegetation in a Mediterranean Type Ecosystem. *International Journal of Geographical Information Science* 28: 1561-1589.
- 32 Bonebrake, T.C., Syphard, A.D., Regan, H.M., Franklin, J., Anderson, K.E., Mizerek, T., Winchell, C. 2014. Fire management, managed relocation and land conservation options for a rare shrub species under global change. *Conservation Biology* 28: 1057-1067.
- 31 Serra-Diaz, P., Franklin, J., Ninyerola, M., Davis, F.D., Syphard, A.D., Regan, H.M., Ikegami, M. 2013. Species-specific exposure to climate change in time and space: from climate velocity to bioclimatic-velocity. *Diversity and Distributions* 20: 169-180.
- 30 Franklin, J., Davis, F.W., Ikegami, M., Syphard, A.D., Flint, L.E., Flint, A.L., Hannah, L. 2012. Modeling plant species distributions under future climates: how fine-scale do climate projections need to be? *Global Change Biology* 19: 473-483.
- 29 Conlisk, E., Syphard, A.D., Franklin, J., Flint, L., Flint, A., Regan, H.M. 2013. Uncertainty in assessing the impacts of global change with spatially dynamic population models. *Global Change Biology* 18: 858-869.
- 28 Bar-Massada, A., Syphard, A.D., Stewart, S.I., Radeloff, V.C. 2012. Wildfire ignition modeling: a comparative study in the Huron National Forest, Michigan, USA. *International Journal of Wildland Fire* 22: 174-183.

- 27 Price, O.F., Bradstock, R.A., Keeley, J.E., Syphard, A.D. 2012. Antecedent fire area has no effect on wildfire area in coastal southern California. *Journal of Environmental Management* 113: 301-307.
- 26 Syphard, A.D., Keeley, J.E., Bar Massada, A., Brennan, T.J., Radeloff, V.C. 2012. Housing arrangement and location determine the likelihood of housing loss due to wildfire. *PLoS ONE* 7: e33954. doi:10.1371/journal.pone.0033954.
- 25 Conlisk, E., Lawson, D., Syphard, A.D., Franklin, J., Flint, A., Flint, L., Regan, H.M. 2012. The roles of dispersal, fecundity, and predation on the population viability of an oak species (*Quercus engelmannii*) under global change. *PLoS ONE* 7(5): e36391. doi:10.1371/journal.pone.0036391.
- 24 Regan, H.M. Syphard, A.D., Franklin, J., Swab, R. Markovchick, L. Flint, A., Flint, L., Zedler, P. 2012. Evaluation of assisted colonization strategies under climate change for a rare, fire-dependent plant. *Global Change Biology* 18: 936-947.
- 23 Scheller, R.M., Spencer, W.D., Rustigian, H., Syphard, A.D., Ward, B.W., Strittholt, J.R. 2011. Using stochastic simulation to evaluate competing risks of wildfires and fuels management on an isolated forest carnivore. *Landscape Ecology* 26: 1491-1504.
- 22 Syphard, A.D., Clarke, K.C., Franklin, J., Regan, H.M., McGinnis, M. 2011. Forecasts of habitat loss and fragmentation due to urban growth are sensitive to source of input data. *Journal of Environmental Management* 92: 1882-1893.
- 21 Syphard, A.D., Keeley, J.E., Brennan, T.J. 2011. Comparing the role of fuel breaks across southern California national forests. *Forest Ecology and Management* 26: 2038-2048.
- 20 Syphard, A.D., Keeley, J.E., Brennan, T.J. 2011. Factors affecting fuel break effectiveness in the control of large fires in the Los Padres National Forest, California. *International Journal of Wildland Fire* 20: 764-775.
- 19 Syphard, A.D., Scheller, R.M. Ward, B.C. Spencer, W.D. Strittholt J.R. 2011. Simulating landscape-scale effects of fuels treatments in the Sierra Nevada, California, USA. *International Journal of Wildland Fire* 20:364-383.
- 18 Bar Massada, A., Syphard, A.D., Radeloff, V.C., Hawbaker, T.J., Stewart, S.I. 2011. Effects of ignition models on the spatial patterns of simulated fires. *Environmental Modelling & Software* 26: 583-592.
- 17 Sturtevant, B.R., Scheller, R.M., Miranda, B.R., Shinneman, D., Syphard, A.D. 2010. Simulating dynamic and mixed-severity fire regimes: A process-based fire extension for LANDIS-II. *Ecological Modelling* 220: 3380-3393.
- 16 Syphard, A.D., Franklin, J. 2010. Species' traits affect the performance of species' distribution models for plants in southern California. *Journal of Vegetation Science* 21: 177-189.
- 15 Syphard, A.D., Franklin, J. 2009. Differences in spatial predictions among species distribution modeling methods vary with species traits and environmental predictors. *Ecography* 32: 907-918.
- 14 Syphard, A.D., Radeloff, V.C., Hawbaker, T.J., Stewart, S.I. 2009. Conservation threats due to human-caused increases in fire frequency in Mediterranean climate ecosystems. *Conservation Biology* 23: 758-769.

- 13 Syphard, A.D., Stewart, S.I., McKeefry, J., Hammer, R., Fried, J., Holcomb, S., Radeloff, V.C. 2009. Assessing housing growth when census boundaries change. *International Journal of Geographic Information Science* 23: 859-876.
- 12 Hawbaker, T.J., Radeloff, V.C., Syphard, A.D., Zhu, Z., Stewart, S.I. 2009. Detection rates of the MODIS active fire product. *Remote Sensing of the Environment* 112: 2656-2664.
- 11 Syphard, A.D., Radeloff, V.C., Keuler, N.S., Taylor, R.S., Hawbaker, T.J., Stewart, S.I., and Clayton, M.K. 2008. Predicting spatial patterns of fire on a southern California landscape. *International Journal of Wildland Fire* 17: 602 - 613.
- 10 Syphard, A.D., Yang, J., Franklin, J. He, H.S., Keeley, J.E. 2007. Calibrating a forest landscape model to simulate high fire frequency in Mediterranean-type shrublands. *Environmental Modelling & Software* 22: 1641-1653.
- 9 Syphard, A.D., Radeloff, V.C. Keeley, J.E. Hawbaker, T.J. Clayton, M.K. Stewart, S.I., Hammer, R.B. 2007. Human influence on California fire regimes. *Ecological Applications* 17: 1388-1402.
- 8 Syphard, A.D., Clarke, K.C., Franklin, J. 2007. Simulating frequent fire and urban growth in southern California coastal shrublands, USA. *Landscape Ecology* 22: 431-445.
- 7 Syphard, A.D., Franklin, J., Keeley, J.E. 2006. Simulating the effects of frequent fire on southern California coastal shrublands. *Ecological Applications* 16: 1744-1756.
- 6 Franklin, J, Syphard, A.D., He, H.S., Mladenoff, D.J. 2006. The effects of altered fire regimes on patterns of plant succession in the foothills and mountains of southern California. *Ecosystems* 8: 885-898.
- 5 Syphard, A.D., Clarke, K.C., Franklin, J. 2005. Using a cellular automaton model to forecast the effects of alternate scenarios of urban growth on habitat fragmentation in southern California. *Ecological Complexity* 2: 185-203.
- 4 Akcakaya, R., Franklin, J., Syphard, A.D., Stephenson, J. 2005. Viability of the sage sparrow under altered fire regimes: integrated landscape and metapopulation modeling. *Ecological Applications* 15: 521-531.
- 3 Syphard, A.D., Franklin, J. 2004. The effect of aggregation of landscape attributes on the simulation of fire disturbance and succession using the LANDIS model. *Ecological Modelling* 180: 21-40.
- 2 Syphard, A.D., Garcia, M. W. 2001. Human- and beaver- induced wetland changes in the Chickahominy River watershed from 1953 to 1994. *Wetlands* 21: 342-353.
- 1 Franklin, J., Syphard, A.D. Mladenoff, D.J. He, H.S., Simons, D.K., Martin, R.P., Deutschman, D., O'Leary, J.F. 2001. Simulating the effects of different fire regimes on plant functional groups in Southern California. *Ecological Modelling* 142: 261 - 283.

2. Peer-Reviewed Book Chapters

- 10 Syphard, A.D., Islam, A., Greer, A., Keeley, J.E. *Wildfires: Firestorms, Smoke, and Unintended Consequence*. 2024. *Disaster Management*.

- 9 Syphard, A.D. 2022. What is normal and why is it new? Exploring how, where, and why fire regimes are changing through the lens of California. *Environmental Sciences Proceedings* 17 (1), 84.
- 8 Syphard, A.D., Gershunov, A., Lawson, D., Huerta, H.R., Guzman-Morales, J., Jennings, M. 2018. San Diego Wildfires: Drivers of Change and Future Outlook. In A Report for: California's Fourth Climate Change Assessment. California's Fourth Climate Change Assessment, California Energy Commission. Publication number: CCCA4-EXT-2018-010
- 7 Ganteaume, A., Syphard, A.D. 2018. Ignition sources. In *Encyclopedia of Wildland Urban Interface Fires*. Springer, Cham.
- 6 Syphard, A.D., Brennan, T.J., Keeley, J.E., 2018. Chaparral Landscape Conversion in Southern California, In *The Ecological Value of Chaparral Landscapes: Ecosystem Services and Resource Management*. Springer.
- 5 Keeley, J.E., Syphard, A.D. 2018. South coast bioregion. Chapter in: J. W. van Wagtenonk, N. G. Sugihara, S. L. Stephens, A. E. Thode, K. E. Shaffer, and J. Fites-Kaufman. *Fire in California's Ecosystems: Second Edition, Revised*. University of California Press, Berkeley, California, USA.
- 4 Holmes, P.M., Syphard, A.D. 2018. Land use change in an urbanizing world: a comparison between City of Cape Town, South Africa and Los Angeles County, CA. In Esler, K.J., Jacobsen, A.L., Pratt, R.B. (eds.) *The Biology of Mediterranean Type Ecosystems*. Oxford University Press, Oxford UK. Pp. 251-257.
- 3 Halsey, R.W., Syphard, A.D. 2015. High intensity fire in chaparral: Cognitive dissonance in the shrublands. In DellaSala, D.A., Hanson, C.T. (eds.) *The Ecological Importance of Mixed-Severity Fires Nature's Phoenix*. Elsevier Inc. pp. 177-209.
- 2 Keeley, J.E., Syphard, A.D., and Fotheringham, C.J. 2013. The 2003 and 2007 wildfires in southern California. In: Boulter, S., J. Palutikof, D.J. Karoly, D. Guitart (eds.) *Natural Disasters and Adaptation to Climate Change*. Oxford: Cambridge University Press. 204p.
- 1 Miller, C., Abatzoglou, J., Brown, T., Syphard, A.D. 2011. Wilderness fire management in a changing environment. In: *The Landscape Ecology of Fire*. Edited by Don McKenzie, Carol Miller, Don Falk, and Lara-Karena Kellogg. Pp. 269-294.

SELECT PROFESSIONAL ACTIVITIES

External PhD and masters student committees at several universities, currently with San Diego State, University of Wisconsin-Madison, Clark University.

Working groups, committee membership, and invited workshops: national and international workshops, working groups, wildfire-related steering committees.

Policy advisor: meetings with California state government; presentations at the US House of Representatives & US Senate.

Media and public education: Regularly featured in film, radio, and online news outlets.

National Academy of Sciences Committee for workshop Socio-ecological consequences

FIRST-AUTHOR PRESENTATIONS & INVITED LECTURES

Wildfire and biodiversity: Global perspective and California example. Hosted panel at the COP 16 Biodiversity convention, Cali, Colombia, October 2024.

WUI typologies: a multi-dimensional land classification for balancing fire risk reduction with natural resource conservation. Ecological Society of America. August 2024.

Drivers and Consequences of altered fire regimes in Southern California. Volcan Mountain Symposium. April, 2023.

Landscapes of Change and Wildfire in California: Lessons in Complexity. IALE, Riverside, CA. Keynote speaker. April, 2023.

Unraveling the complex effects of global change on wildfire in California. MEDECOS, South Africa. Keynote speaker, September, 2022.

What is normal and why is it new? Exploring how, where, and why fire regimes are changing through the lens of California. 3rd International Conference on Fire Behaviour and Risk. Alghero, Sardinia, Italy. Keynote speaker, May 2022.

Trends in Wildfire & Structure Loss in California: A review of the data. Santa Clara County FireSafe Council, 2021.

El riesgo de incendios en las zonas de interfaz urbana-rural en Chile, el Centro del Fuego y Resiliencia de Socioecosistemas (FireSES), Conservatorio Videoconference, 2020.

California wildfire trends and the importance of land use.

Sierra Club California Conservation Committee Statewide Videoconference, 2020.

Sierra Club, Redwood Chapter, Videoconference, 2020

California League of Conservation Voters, Videoconference, 2020

Los Angeles City Council meeting, Videoconference, 2020

Trends and drivers of wildfire activity and structure loss in California, Reinsurance Association of America, Cat Risk Management, Orlando, FL, 2020.

Factors affecting structure loss in California wildfires. Association of Fire Ecology Congress, Tucson, AZ, 2019

Why do houses burn in California wildfires? The state of the science and the future of the insurance industry, Invited Speaker, University of Tasmania, City of Hobart Public Lecture, 2019.

Fires of the future: how climate change and housing development may affect long-term patterns of fire and structure loss. Keynote speaker at Bushfire Building Conference, Blue Mountains, Australia, 2019.

The new normal? A California perspective of WUI fires under global change. Invited paper, WUI workshop, Fire Behavior and Fuels Workshop, Marseilles, France, 2019.

The new normal? What we know and don't know about wildfires under global change: A California Perspective. Invited Seminar, University of Massachusetts, MA, 2019.

Fire in our future. Yosemite Environmental Law Conference, Fish Camp, CA, 2018.

Factors driving wildfire activity: What do we know? International Association of Wildland Fire, Missoula, MT, 2018.

The wildfire connection: Is the WUI a bunch of Hooey? The Jane Block lecture in Conservation Biology: The Wildland Urban Interface. University of California, Riverside, 2018.

Environmental correlates with type conversion. The 3rd California chaparral symposium: Global change and the vulnerability of chaparral ecosystems. Arcadia, CA, 2018.

Housing patterns, wildfire, and community vulnerability: Historical perspective and future possibilities. Living with Fire Symposium, Santa Rosa, CA, 2018.

Fire activity in aridland ecosystems. State of Biodiversity Symposium San Diego Natural History Museum. San Diego, CA, 2018.

Are biodiversity conservation and fire risk reduction competing or compatible objectives in fire-prone landscapes? 7th International Fire Ecology & Management Congress. Orlando, FL. 2017.

How important is the species' establishment niche in mediating simulated range shifts in a dynamic, disturbance-prone landscape? International Association of Landscape Ecology Annual Meeting. Baltimore, MD. 2017.

Are fire risk reduction and biodiversity conservation competing or compatible objectives in fire-prone landscapes? MEDECOS Conference XIII. Olmue, Sevilla, Spain. 2017.

Chaparral landscape conversion after a century of global change. Natural Areas Conference. Davis, CA. 2016.

Modeling vegetation dynamics under global change: Approaches, challenges, and examples. Invited speaker at annual symposium for the California Native Plant Society. Morro Bay, CA. 2016.

Balancing fire risk reduction with biodiversity conservation: Lessons from Southern California. Invited keynote speaker at Forest Fire 2016, International conference on forest fires and WUI fires. Aix-en-Provence, France, 2016.

Fire at the Wildland Urban Interface in Southern California. Invited speaker at Association of Environmental Professionals Conference. San Diego, CA, 2016.

The role of microenvironments, competition, and disturbance in mediating species' response to climate change. International Association for Landscape Ecology World Congress. Portland, OR. 2015.

Trends in chaparral landscape conversion. Invited speaker at the 2nd Southern California Chaparral Symposium, USFS. Arcadia, CA. 2015.

Fire in Southern California: Balancing fire ecology & management. Invited speaker at the California State Parks Annual Meeting. Marshall, CA. 2015.

Plant species persistence under climate change in the context of multiple threats. California Native Plant Society. San Jose, CA. 2015.

Fire at the wildland-urban interface: Lessons from southern California. MEDECOS Conference XII. Olmue, Chile. 2014.

Webinar: A tale of two fires: fire ecology and management with an eye to the future in S. California. 2013.

The Wildland Urban Interface and fire in southern California USA. 5th annual FUME meeting, Toledo, Spain. 2013.

The role of fire and fuels management in chaparral restoration. Invited lecture at USFS chaparral restoration workshop. Pasadena, CA. 2013.

Balancing fire ecology and management. Invited lecture to Sierra Club Santa Margarita. 2013.

From intervention to prevention: How can fire distribution models inform management and conservation? Fire and strategic plan workshop, San Diego County, CA, 2013.

Land use planning to reduce housing loss to wildfire in southern California. Association for Fire Ecology, Portland OR, 2012.

Analysis of geographic influence on reducing wildfire risks and ecological impacts. San Diego partners for Biodiversity meeting, San Diego, CA, 2011.

Land use planning to reduce wildfire risk in southern California. MEDECOS Conference XII. Los Angeles, CA. 2011.

A modeling framework for assessing adaptation strategies for plants threatened by climate, land use, and altered fire regimes in Mediterranean-type ecosystems. 7th European Conference on Ecological Modelling – Riva del Garda, Italy. 2011.

Evaluating the relative impact of climate change and other threats to the persistence of rare plant species in southern California. Invited lecture, U.S. Fish and Wildlife Service, U.S. Geological Survey and California Department of Fish & Game, Bridging the Gap climate change communications workshop, Sacramento, CA. 2010.

Does translocation of a rare fire-dependent plant mitigate the effects of climate change? Invited lecture, Tecate cypress symposium, Rancho Jamul Ecological Preserve, CA. 2010.

Humans alter the spatial pattern of fire in Mediterranean ecosystems. Invited lecture, Department of Geography, San Diego State University

The role of pre-fire fuel management on reducing impacts of large fires in the Los Padres National Forest, California. 4th International Fire Congress – Savannah, GA. 2009.

Modeling interactions among humans, fire, and vegetation in California. Invited lecture, Department of Biology, San Diego State University. 2008.

Humans alter the spatial pattern of fire in Mediterranean ecosystems. Pacific Coast Fire Conference: Changing Fire Regimes, Goals and Ecosystems. California Association of Fire Ecology – San Diego, CA. 2008.

Southern Sierra Nevada Fisher Baseline Assessment and Prediction of Future Habitat Conditions Under Changing Fire Regimes. Association for Fire Ecology Regional Conference 2008 – Tucson, AZ. 2008.

Interactions among humans, fire, and vegetation on southern California landscapes. Invited lecture, Department of Botany, University of California, Riverside. 2007.

Modeling and mapping human influence on California fire regimes. Invited lecture, University of Wisconsin-Madison, Chaos and Complex Systems Seminar. 2007.

Using global satellite data to predict human influence on fire in Mediterranean ecosystems. 4th International Wildland Fire Conference – Seville, Spain. 2007.

Humans and fire in California: predicting influences and simulating impacts. Invited lecture, Department of Geology & Geography, University of West Virginia. 2006.

Predicting spatial patterns of fire in a southern California landscape. Third International Fire Ecology & Management Congress – San Diego, CA. 2006.

Effects of human activities on California fire regimes. International Association for Landscape Ecology Annual Meeting – San Diego, CA. 2006.

Simulating the combined effects of urban growth and high fire frequency on native shrublands in southern California. Association of American Geographers Annual Meeting – Chicago, IL. 2006.

Simulating the effects of frequent fire on the distribution of dominant plant functional types in southern California shrublands. Society for Conservation Biology Annual Meeting – Brasilia, Brazil. 2005.

Simulating alternate scenarios of habitat fragmentation in California native shrublands using a cellular automaton urban growth model. Ecological Society of America Annual meeting - Portland OR. 2004.

Modeling alternate scenarios of urban growth on habitat fragmentation in southern California. The 19th Annual Symposium International Association Landscape Ecology- Las Vegas, NV. 2004.

Modeling long-term effects of altered fire regimes and urbanization on vegetation succession. International Association for Landscape Ecology World Congress - Darwin, Australia. 2003.

Simulation modeling of the long-term effects of altered fire regimes on vegetation succession in the Peninsular Ranges of San Diego County. Fire Conference: Managing Fire and Fuels in the Remaining Wildlands and Open Spaces of the Southwestern United States - San Diego, CA. 2003.

AWARDS

2002-2005. NASA Earth System Science Fellowship

2002. “Ecosystem Management in Cultural Landscapes” training in Europe, funded by FIPSE.

2002. McFarland Scholarship, San Diego State University

Recent Project Experience

2024 – Analysis of wind direction and magnitude relative to fire in different California ecosystems.

2024 – San Diego Zoo and Safari Park Wildfire Risk Analysis.

2024 – Golden Gate Bioserve Network. Species Distribution Modeling.

- 2023 – The Wildlands Urban Interface as a Dynamic Socio-Environmental System: Analyzing Interactions between Housing, Fire, Habitat, and Land Stewardship in an Exurban Region. UC. Santa Cruz.
- 2023 – Evaluating optimal placement and timing of fuel treatments across dynamic Southern California landscapes. BLM Joint Fire Science Program.
- 2023 – Forecasting the impacts of climate change, land use change, and management on wildfire risk and downstream impacts in Southern California's montane forests and surrounding shrublands, Cal Fire.
- 2023 – Historical analysis of fire ignition sources across the United States from 1940 – 2019. USGS.
- 2022 – Comparing American and Eurasian boreal forests and fire regimes. USGS.
- 2021 – Applying New Science to Develop a Collaborative Decision Support System for Forest Management in the Southern Sierra Nevada. Cal Fire.
- 2020 – Protecting a Community from Wildfire with Progressive Land Use Planning. Paradise Recreation and Park District and The Nature Conservancy.
- 2020 – Santa Monica Mountains Woolsey Fire Recovery and Adaptation Program. National Fish and Wildlife Program.
- 2019 – Does geography play a bigger role than species traits in explaining the vulnerability of plants to global change? National Science Foundation. 2018 – Effects of Wind, Temperature and Drought Extremes on Fire Activity, Southwest Climate Adaptation Science Center (SW CASC)