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Editorial

Recognizing Women Leaders in Fire Science: Revisited

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Abstract: In August, 2018, an editorial in Fire entitled *Recognizing Women Leaders in Fire Science* was published. This was intended to ignite a conversation into diversity in fire science by highlighting several women leaders in fire research and development. This editorial was released alongside a new Topical Collection in Fire called *Diversity Leaders in Fire Science*. The response on social media was fantastic, leading to numerous recommendations of women leaders in fire science that had been inadvertently missed in the first editorial. In this editorial, we acknowledge 145 women leaders in fire science to promote diversity across our disciplines. Fire is continually committed to improving diversity and inclusion in all aspects of the journal and welcomes perspectives, viewpoints, and constructive criticisms to help advance that mission.

Keywords: leadership; women in science

1. Introduction

Following the release of the initial editorial, *Recognizing Women Leaders in Fire Science* [1], we received over 100 recommendations from Twitter and other forms of social media of potential other women leaders in fire science. As such, this follow-up editorial seeks to acknowledge these women leaders in fire science to promote diversity across our disciplines.

2. Approach

The approach differed from the first editorial, whereby the absence of a women in fire science database or search heuristic (e.g., being able to search "women" AND "fire science") resulted in recommendations being predominately derived through the co-authors' own knowledge of the discipline and conversations across an extended network of international collaborators. In this version, we evaluated recommendations highlighted through the social media coverage following the release of the first editorial [1] and the hashtags *#iamawomenfirescientist*, *#womeninfire*, and *#FireKnowsNoGender*. In addition, several recommendations were directly communicated to the authors. After this, numerous Google Scholar keyword searches, such as "biomass burning", "fire", "fire Africa", "fire Asia", "fire Russia", "fire Australia", "fire China", "fire Greece", and "fire Brazil", among many others, were conducted. This was also repeated by biomes such as "fire forest", "fire savanna", "fire boreal", etc. In each case, we checked all Google Scholar accounts contained within the first 100 hits for whether each woman fire scientist met the leader criteria, as described below. Although this does limit the search for women scientists to those who have a Google Scholar account, we did enable a wider geographic distribution of women fire scientists to be highlighted than the previous approach. We also checked profiles of female scientists without a GoogleScholar profile on Web of Science.

Differing from the initial editorial [1], the scientists in Section 2 are presented in descending order of H-index as assessed on 9 November 2018. The values are not reported, as they are subject

to change. As with the initial editorial [1], research emphasis areas were collated from public vitae, institutional and personal websites, ResearchGate, Google Scholar, Russian eLibrary, and Web of Science, as available. Scientists were initially evaluated if their H-index was above 13. Scientists that had fewer than three publications with the words fire, emission, burn, char, or smoke (or translated equivalent) in the publication titles were excluded. We decided to expand the threshold from 15 to 13 to ensure that we were not inadvertently excluding scientists that would otherwise meet the original threshold of 15 within the next year. In cases where multiple sources were available, the highest H-index was used as the determining factor. As with the initial editorial [1], we acknowledge that, although values of 15 are often attributed to what is expected by an associate professor, the use of any break point is completely arbitrary. This process identified 146 women as leaders in fire science (Table 1a–e), but one of these fire scientists requested to not be named personally. The global geographic distribution of these women leaders in fire science is shown in Figure 1.

Table 1. Women leaders in fire science in (**a**) North America, (**b**) Eurasia, (**c**) South America, (**d**) Oceania and (**e**) Africa.

(**a**) North America			
Scientist	**Country**	**Scientist**	**Country**
Suzanne Brais	Canada	Kathleen Kavanagh	United States
Lori Daniels	Canada	Maureen Kennedy	United States
Sylvie Gauthier	Canada	Sally Koerner	United States
Sarah Henderson	Canada	Crystal Kolden	United States
Jill Johnstone	Canada	Meg Krawchuk	United States
S. Ellen Macdonald	Canada	Erica Kuligowski	United States
Tara McGee	Canada	Beverly Law	United States
Alison Munson	Canada	Karen Launchbaugh	United States
Sylvie Quideau	Canada	Tatiana Loboda	United States
Evelyne Thiffault	Canada	Jennifer Logan	United States
Merritt Turetsky	Canada	Michelle Mack	United States
Olga L. Mayol-Bracero	Puerto Rico	Kendra McLauchlan	United States
Allison Aiken	United States	Jennifer Marlon	United States
Patricia Andrews	United States	Sara McAllister	United States
Mary Arthur	United States	Sarah McCaffrey	United States
Dominique Bachelet	United States	Loretta Mickley	United States
Roya Bahreini	United States	Constance Millar	United States
Jennifer Balch	United States	Carol Miller	United States
Rebecca Bird	United States	Penelope Morgan	United States
Nicola Blake	United States	Branda Nowell	United States
Tami Bond	United States	Amber Ortega	United States
Bethany Bradley	United States	Anupma Prakash	United States
Hannah Brenkert-Smith	United States	Haiganoush Preisler	United States
Carla D'Antonio	United States	Elizabeth Reinhardt	United States
Janice Coen	United States	Anna Sala	United States
Susan Conard	United States	Tania Schoennagel	United States
Patricia Champ	United States	Carolyn Sieg	United States
Virginia Dale	United States	Melinda Smith	United States
Ruth DeFries	United States	Erica Smithwick	United States
Sue Ferguson	United States	Amber Soja	United States
Karla Longo de Feritas	United States	Carla Staver	United States
A. Paige Fischer	United States	Toddi Steelman	United States
Nancy French	United States	Eva Strand	United States
Sandra Haire	United States	Elaine Sutherland	United States
Gayle Hagler	United States	Alexandra Syphard	United States
Jennifer Harden	United States	Anne Thompson	United States
Katherine Hayhoe	United States	Sarah Trainor	United States
Amy Hessl	United States	Valerie Trouet	United States

Table 1. *Cont.*

Emily Heyerdahl	United States	Monica Turner	United States
Sharon Hood	United States	Christine Wiedinmyer	United States
Sally Horn	United States	Cathy Whitlock	United States
Tara Hudiburg	United States		
Lyatt Jaegle	United States		
Yufang Jin	United States		

(**b**) Eurasia

Scientist	**Country**	**Scientist**	**Country**
Yingyi Zhang	China	Daniela Stroppiana	Italy
Claire Belcher	England	Cathelijne Stoof	Netherlands
Angela Benedetti	England	Vigdis Vandvik	Norway
Sandy Harrison	England	Celia Gouveia	Portugal
Imma Oliveras	England	Ana Miranda	Portugal
Susan Page	England	Maria de Vasconcelos	Portugal
Catherine Parr	England	Galina Ivanova	Russia
Carly Reddington	England	Caroline Lehmann	Scotland
Christelle Hely	France	Christina Montiel-Molina	Spain
Barbara Drossel	Germany	Elsa Pastor	Spain
Angelica Fuerdean	Germany	Eulalia Planas	Spain
Silvia Kloster	Germany	Marie-Charlotte Nilsson Hegethorn	Sweden
Gitta Lasslop	Germany	Jenny Rissler	Sweden
Rajni Tewari	Inida	Petra Kaltenrieder	Switzerland
Sofia Bajocco	Italy	Christina Santin Nuno	Wales
Rosa Lasaponara	Italy	Daniela Stroppiana	Italy

(**c**) South America

Scientist	**Country**	**Scientist**	**Country**
Ana Alencar	Brazil	Dalva Maria da Silva Matos	Brazil
Mercedes Bustamante	Brazil	Gabriela Nardoto	Brazil
Giselda Durigan	Brazil	Vania Pivello	Brazil
Alessandra Fidelis	Brazil	Margot Guerra Sommer	Brazil
Heloisa Miranda	Brazil	Dolors Armenteras	Columbia

(**d**) Oceania

Scientist	**Country**	**Scientist**	**Country**
Wendy Anderson (née Cathchpole)	Australia	Sarah Legge	Australia
Tina Bell	Australia	Lynda Prior	Australia
Lauren Bennett	Australia	Samantha Setterfield	Australia
Christine Eriksen	Australia	Kathyrn Williams	Australia
Angie Haslem	Australia	Marta Yebra	Australia
Lesley Head	Australia	Janet Wilmshurst	New Zealand
Fay Johnston	Australia	Sarah Richardson	New Zealand
Kirsten Knox	Australia	Kasturi Devi Kanniah	Malaysia

(**e**) Africa

Scientist	**Country**	**Scientist**	**Country**
Sally Archibald	South Africa	Helen de Klerk	South Africa
Karen Esler	South Africa		

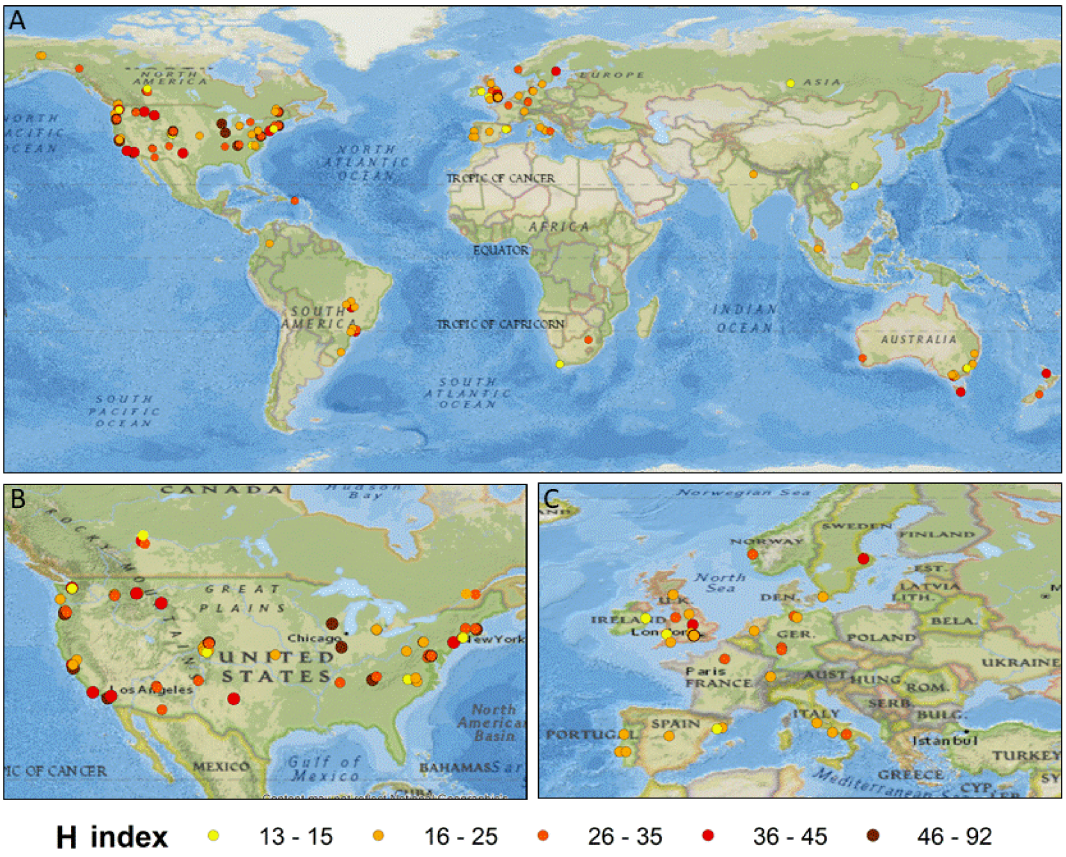

Figure 1. Global distribution and impact of woman leaders in fire science. Woman leaders in fire science, color coded by H-index, worldwide (**A**), in the conterminous United States (**B**), and in Western Europe (**C**). Map source: National Geographic, via Environmental Systems Research Institute (ESRI).

3. Recognizing Women Leaders in Fire Science

The leaders that were previously identified in the original editorial [1] are included in this section again to ensure a comprehensive record at the time of this editorial.

Beverly Law is a professor of Global Change Biology and Terrestrial Systems Science at Oregon State University in Corvallis, United States. Dr. Law is a Fellow of the American Geophysical Union and an Aldo Leopold Leadership Fellow. Dr. Law previously served as the editor for both Global Change Biology and Oecologia. Dr. Law's research focuses on the impacts of fires, climate change, and land management on carbon and water cycling. Her notable works include an assessment of carbon cycling in temperate and boreal forests that include fires [2–4]. Her recent works include assessing tree mortality from fires, harvesting, and bark beetles during an extended period of drought in the western United States [5], and an assessment of land-use strategies to mitigate carbon dioxide emissions [6].

Sandy Harrison is a professor at the University of Reading in Reading, England. Dr. Harrison's research focuses on paleoclimates and biogeochemical cycles. Her notable works include contributions to a seminal synthesis of fire on Earth [7], contributions to a synthesis on the climatic and human influences on biomass burning over the last two millennia [8], contributions to a synthesis and assessment of fire regimes since the last glacial maximum using a synthesis of charcoal data [9], and the use of lakes in Europe ad paleoclimatic indicators [10]. Her recent works include contributions to the Fire Modeling Intercomparison Project [11], and an assessment of the contribution of biomass burning to the climate–carbon-cycle feedback [12].

Jennifer Logan is a senior research fellow at Harvard University in Cambridge, United States. Dr. Logan is a Fellow of the American Geophysical Union and is a Fellow of the American Association

for the Advancement of Science. Dr. Logan's research focuses on the use of global models to understand processes impacting atmospheric composition and climate, and impacts of human activity. Her notable works include seminal syntheses on global perspectives of tropospheric chemistry [13,14], and an assessment of the interannual and seasonal variation of biomass burning emissions [15]. Her recent works include a predictive assessment of emissions from North American wildfires under 2050 climates [16–18].

Anne Thompson is a senior scientist at the United States National Aeronautics and Space Administration (NASA) at the Goddard Space Flight Center in Greenbelt, United States. Dr. Thompson is a Fellow of the American Geophysical Union, a Fellow of the American Meteorological Society, and a Fellow of the American Association for the Advancement of Science. Dr. Thompson's research focuses on atmospheric chemistry and dynamics. Her notable works include contributions to the 2001 Intergovernmental Panel on Climate Change Working Group 1, the Smoke, Clouds, and Radiation Brazil (SCAR-B) experiment [19], and assessments of biomass burning in the tropics [20]. Recent works include assessments of ozone from biomass burning in the tropics [21].

Ruth DeFries is the Denning Family professor of sustainable development at Columbia University in New York, United States. Dr. DeFries is a member of the National Academy of Sciences. Dr. DeFries is a Fellow of the Ecological Society of America, a Fellow of the American Geophysical Union, and a Fellow of the American Association for the Advancement of Science. Dr. DeFries holds two honorary doctorates from McGill University and the University of Leuven. Dr. DeFries's research focuses on understanding how the global demand for ecosystem goods and services are impacting land use, biodiversity, and human development. Her notable works include an assessing of deforestation due to urban population growth and agriculture [22,23], contributions to the global synthesis of global fire challenges [7,24], and the impacts of deforestation, fire, and drought in the Amazon basin [25]. Her recent works include assessing the impacts of biomass burning on air pollution [26,27], and a recent review that presented that ecosystem management should be considered as a wicked problem [28].

Monica Turner is the Eugene P. Odum professor of Ecology and a Vilas research professor at the University of Wisconsin in Madison, United States. Dr. Turner is a member of the National Academy of Sciences. Dr. Turner is a Fellow of the Ecological Society of America. Dr. Turner's research focuses on understanding the drivers and impacts of landscape heterogeneity. Her notable works include the importance of scaling when considering landscape patterns [29,30], assessments of biogeochemical cycling following wildfires [31], and assessing the impacts of fires on landscape dynamics such as within Yellowstone National Park [32–34]. Her recent works include a focus on ecosystem services [35,36], and contributions to a synthesis calling for more adaptation to wildfires in western North American forests [37].

Jennifer Harden is a scientist emeritus at the United States Geological Survey and is currently a visiting scholar at Stanford University, United States. Dr. Harden is a Fellow of the American Association for the Advancement of Science. Dr. Harden's research focuses on geology, paleoclimates, carbon cycling, and biogeochemical cycling in soil systems. In recent years, Dr. Harden shifted her focus to also include the impacts of disturbances such as wildfires, erosion, and permafrost degradation on soil carbon and nutrient cycling. Dr. Harden is a fellow of the American Association for the Advancement of Science. Her notable works include the impacts of boreal forests on climate change [38], and understanding the role that fires play in the boreal carbon budget [39,40]. Her recent work includes a focus on improving understanding of soil carbon and nitrogen sequestration rates [41].

Virginia Dale is an Emeritus Research Fellow at the Oak Ridge National Laboratory and an adjunct professor at the University of Tennessee, United States. Dr. Dale was part of the international science community that provided contributions to the Intergovernmental Panel on Climate Change Scientific Assessment that received the Nobel Peace Prize in 2007. Dr. Dale's research focuses on landscape ecology. Her notable works include a seminal article highlighting the challenges associated with developing and using ecological indicators to assess environmental conditions [42], and a seminal study that highlighted how fire and other disturbances in forests are impacted by climate change [43].

Recent works include a guest editorial focusing on risk and resilience in a world where ecological disturbances seem to be occurring at a great frequency and intensity [44].

Christine Wiedinmyer is the associate director for science at the Cooperative Institute for Research in Environmental Sciences (CIRES), which is a partnership between the National Oceanic and Atmospheric Administration and the University of Colorado in Boulder, United States. Dr. Wiedinmyer's research focuses on how land-use and land-cover change impact the emissions of trace gases and particulates and how they, in turn, impact atmospheric composition, air quality, and climate. Her notable works include a synthesis of global terrestrial isoprene emissions using the model of emissions of gases and aerosols from nature (MEGAN) [45], the development of high-resolution models to estimate emissions from biomass burning [46], and integrating fire emissions into air quality assessments [47]. Her recent work includes improving information on black carbon deposition on the Greenland ice sheet [48].

Sylvie Gauthier is a research scientist at the Laurentian Forestry Centre of the Canadian Forest Service and is an adjunct professor at the University of Quebec in Quebec City, Canada. Dr. Gauntier's research focuses on characterizing future fire regimes in eastern Canada and assessing the impacts of fires on forest succession in softwood and mixed boreal forests. Her notable works include contributions to syntheses focusing on sustainable management of Canadian boreal forests under natural fire regimes [49,50], and the role of fire regime on jack pine serenity [51]. Her recent work includes an assessment of whether some eastern Canadian boreal forest landscapes moved outside their natural range of variability [52].

Nicola Blake is an atmospheric researcher at the University of California in Irvine, United States. Dr. Blake's research focuses on tropospheric composition, chemistry, and air pollution. Her notable works include an assessment of the vertical distributions of biomass burning emissions in the South Atlantic region during the NASA transport and atmospheric chemistry near the equator Atlantic (TRACE A) experiment [53], as well as spatial assessments of the transport of non-methane hydrocarbons over the Pacific [54]. Recent works include an assessment of organic aerosols in the northeastern United States during the wintertime investigation of transport, emissions, and reactivity (WINTER) 2015 campaign [55].

Tami Bond is a professor at the University of Illinois at Urbana-Champaign, United States. Dr. Bond is a Fellow of the American Geophysical Union. Dr. Bond's research focuses on the remote measurement of emissions and their mitigation, as well as the chemical, physical, and optical characteristics of particulates, and quantifying air pollutant emission inventories. Her notable works include leading a seminal assessment on the role of black carbon in the climate system [56], and a global inventory of black and organic carbon emissions from combustion [57]. Her recent works include contributions to a synthesis assessing black carbon emissions in Russia [58], and assessment of anthropogenic emissions of reactive gases and aerosols from 1750–2014 via the Community Emissions Data System [59].

Melinda Smith is a professor at Colorado State University in Fort Collins, United States. Dr. Smith's research focuses on plant community ecology and the role of patterns, determinants, and species diversity on ecosystem function. Her notable works include an assessment of the variability and temporal dynamics of aboveground primary production across biomes [60], a seminal framework outlining an ecological perspective on extreme climatic events [61], and the impacts of grazing and fires on plant community structure in tallgrass prairies [62]. Her recent works include an assessment of plant responses to climatic extremes from organism to ecosystem scales [63].

Mercedes Bustamante is an associate professor of ecology at the Universidade de Brasilia, Brazil. Dr. Bustamante in 2014 was the first corresponding author to the Intergovernmental Panel on Climate Change (IPCC) Working Group III, Mitigation of Climate Change, Agriculture, Forestry, and Other Land Uses [64]. Dr. Bustamante's research focuses on plant physiology and fire in savanna ecosystems. Her notable works include contributions to syntheses relating to nitrogen deposition impacts on plant diversity [65], and the impacts of deforestation, fire, and drought in the Amazon basin [25]. Her recent

work includes the development of an integrated monitoring approach for assessing the impacts of tropical forest degradation and impacts on carbon and biodiversity [66].

Marie-Charlotte Nilsson Hegethorn is a faculty chair in forest regeneration at the Swedish University of Agricultural Sciences in Uppsala, Sweden. Dr. Nilsson Hegethorn's research focuses on the interactions of understory dwarf shrubs and feather mosses in boreal forest systems with seedlings and soil processes. Her notable works include assessments of the impacts of fire-derived charcoal on forest ecosystems [67,68], and an assessment of nitrogen dynamics across a fire chronosequence [69]. Her recent work includes assessing understory responses to fire in boreal forests [70].

Merritt Turetsky is an associate professor and Canada Research Chair at the University of Guelph in Ontario, Canada. Dr. Turetsky's research focuses on the impacts of wildfires and retreating permafrost on plant communities and biogeochemical cycling, with a focus on boreal systems. Her notable works include a spatio-temporal assessment of how fire patterns changed in the boreal regions of Canada and Alaska [71], an assessment of how climate change may impact fire activity and management in boreal forests [72], and the impacts of fires on carbon cycling in Alaskan forests and peatlands [40,73,74]. Her recent works include contributions to a synthesis to consider the plant characteristics that lead to the flammability of ecosystems [75], and research advancing the understanding of peat combustion and resultant effects [76,77].

Roya Bahreini is an associate professor at the University of California at Riverside, United States. Dr. Bahrenini's research focuses on air quality, remote measurements of aerosol composition and properties, and the direct and indirect impacts of aerosols on climate. Her notable works include an assessment of the chemical properties of secondary organic aerosols [78], and an assessment of arctic haze resulting from biomass burning in Siberia and Kasakhstan [79]. Her recent works include an assessment of the sources and characteristics of summertime organic aerosols from measurements and Weather Research and Forecasting coupled with Chemistry (WRF-Chem) modeling [80].

Katherine Hayhoe is a professor a Texas Tech University in Lubbock, United States. Dr. Hayhoe's research focuses on climate impacts, modeling, atmospheric science, and climate policy. Her notable works include an assessment of greenhouse gas emission pathways and impacts in California [81], a global assessment of the current and future distribution of wildfires [82], and an assessment of how climate change may impact global fire activity [83]. Her recent works include a perspective on the resistance of some against the scientific facts related to climate science [84].

Susan Page is a professor at the University of Leicester, England. Dr. Page's research focuses on disturbance–recovery cycles, fire in tropical and temperate peatland ecosystems, greenhouse gas mitigation, and peatland ecosystem services. Her notable works include assessments of the carbon within tropical peatlands and released from peat and forest fires [85,86]. Her recent works include an assessment of global vulnerability of peatlands to fire and carbon loss [87], and an assessment of carbon losses from frequent fires in drained tropical peatlands [88].

Giselda Durigan is a researcher at the Instituto Florestal de Sao Paulo, Brazil. Dr. Durigan's research focuses on ecology, conservation, and restoration of Cerrado and Atlantic forests. Her notable works include contributions to an assessment of how savanna vegetation–fire–climate relationships differ across continents [89]. Her recent works include a call for consistent fire policy in Cerrado conservation [90], and an assessment of short-term flowering following fires in Cerrado ecosystems [91].

Lesley Head is a professor at the University of Melbourne, Australia. Dr. Head's research focuses on human–environment interactions and cultural dimensions of climate change. Her notable works include furthering the understanding of aboriginal fire use in northern Australia [92], and an assessment of the gendered dimensions of bushfires in Australia [93]. Her recent works include works looking at the social dimensions of invasive plants [94].

Haiganoush Preisler is a statistical scientist at the United States Forest Service in Albany, United States. Dr. Preisler's research focuses on the development of probability risk models and approaches to improving the predictions that disturbances such as fires and insect outbreaks have

on forest ecosystems. Her notable works include the development of a probability-based model for assessing the risk of wildfires [95], and the modeling of California wildfire occurrences and areas burned under climate change [96]. Her recent works include a near-term prediction of significant wildfire events for the western United States [97], and the development and incorporation of wildfire simulations in the virtual landscapes Envision modeling system [98]. In additional to articles in international journals, Dr. Preisler published five general technical reports.

S. Ellen Macdonald is a professor and chair at the University of Alberta in Edmonton, Canada. Dr. Macdonald's research focuses on forest ecology, plant ecology, and evolution. Her notable works include an assessment of the impacts of fires on the reduction of organic-layer depth in North American boreal forests [99], and assessments of fire on white spruce regeneration [100,101]. Her recent works include an assessment of resilience in boreal forests following wildfires [102].

Carla D'Antonio is a professor of ecology at the University of California in Santa Barbara, United States. Dr. D'Antonio's research focuses on problems at the interface of plant community ecology and ecosystem ecology. Her notable works include furthering the understanding of the pathways and processes that drive the impacts of exotic plant invasions on ecosystem structure and function [103], and the impacts of invasive species on disturbance regimes [104–106]. Her recent work includes a 25-year assessment of how fire followed by invasive grasses prevented subtropical woodlands from returning to the pre-fire ecosystem condition [107].

Lyatt Jaeglé is a professor at the University of Washington in Seattle, United States. Dr. Jaeglé's research focuses on understanding the chemistry of natural atmospheres and how they change due to human activities. Her notable works include an assessment of nitrogen oxide (NOx) sources from biomass burning, soil emissions, and fossil fuel combustion [108], and an assessment of the long-range transport of biomass burning emissions from Siberia [109]. Her recent works include contributions to a synthesis from the Southeast Atmosphere Studies program [110].

Cathy Whitlock is a professor of Earth sciences at Montana State University in Bozeman, United States. Dr. Whitlock is a Fellow of the Geological Society of America and is a Fellow of the American Association for the Advancement of Science. Dr. Whitlock's research focuses on quaternary climate change and the role of humans and climate change in forming fire regimes. Her notable works include assessing the climate controls of fire occurrence and large-scale patterns in the Holocene [111], and reconstructing multi-thousand-year-old fire histories [112,113]. Her recent works include contributions to a synthesis calling for more adaptation to wildfires in western North American forests [37], and further research on late-glacial and Holocene fire activity [114,115].

Anna Sala is a professor at the University of Montana in Missoula, United States. Dr. Sala's research focuses on plant physiology and mechanisms, with an emphasis on trees, in response to ecosystem disturbances such as fire, beetles, and drought. Her notable works include furthering the understanding of the mechanisms behind drought-induced mortality of trees [116,117], furthering the understanding of carbon and non-structural-carbohydrate dynamics within trees [118,119], and understanding how fire alters nitrogen dynamics in ponderosa pine stands [120]. Her recent works include furthering the understanding of genetic effects in tree survival [121], and assessing the ability of fires and thinning to help increase resistance to beetle attacks [122,123].

Janet Wilmshurst is the Director of the Long-Term Ecology Laboratory at Landcare Research and is also an associate professor at the Joint Graduate School for Biodiversity and Biosecurity, School of Environment, University of Auckland, New Zealand. Dr. Wilmshurst's research focuses on paleoecology with interests in reconstructing past New Zealand ecosystems and detecting the impact of fires, volcanic eruptions, and earthquakes on past vegetation using pollen, charcoal, and sediment records. Her notable works include using reconstructions of historic New Zealand ecosystems to assess the impacts of human colonization [124,125]. Her recent works include an assessment of prehistoric fires in New Zealand using biomass burning indicators from lake sediments [126].

Loretta Mickley is a senior research fellow at Harvard University in Cambridge, United States. Dr. Mickley's research focuses on the effects of climate change on smog episodes and wildfires,

impacts on aerosols in regional climate, and the characteristics of paleo-atmospheres. Her notable works include a seminal synthesis of global tropospheric chemistry models [14], and an assessment of the impacts of the 1997 Indonesian wildfires on tropospheric chemistry [127]. Her recent works include a predictive assessment of emissions from North American wildfires under 2050 climates [16–18].

Lynda Prior is a research fellow at the University of Tasmania in Sandy Bay, Australia. Dr. Prior is an associate editor of the journal Fire. Dr. Prior's research focuses on fire ecology, with a focus on the impacts of fires on tree demography, fine fuel flammability, and the eco-physiological impacts of fire on the conifer Callitris. Her notable works include the growth of trees under warming climates and fire [128,129], and research advancing our understanding of plant flammability [130]. Her recent work includes developing new frameworks for conceptualizing flammability [131].

Barbara Drossel is a professor at Darmstadt University of Technology in Germany. Dr. Drossel's research focuses on complex systems, including biological, ecological, and evolutionary processes, as well as material sciences. Her notable works include the development of a forest-fire model that is self-organized and includes lightning probabilities [132]. Recent works include considerable research on the complexity of food webs [133,134].

Jill Johnstone is a freelance researcher at the Northern Plant Ecology Lab (NPEL) in the Yukon Territory, Canada. Dr. Johnstone was formerly a professor at the University of Saskatchewan and is now an adjunct professor at the University of Saskatchewan and an affiliate research scientist at the University of Alaska, Fairbanks. Dr. Johnstone's research focuses on how disturbances and climate interact to impact boreal and tundra ecosystem dynamics. Her notable works include how changes in fire regimes are altering Alaskan boreal forests [135–137], and how fire impacts on soils impact post-fire tree recruitment and regeneration in boreal forests [138]. Her recent works include an analysis of tree rings in black spruce forests to predict future ecosystem resilience to fires [139], and a synthesis looking at ecological memory and forest resilience under changing disturbance regimes [140].

Michelle Mack is a professor of ecosystem ecology at Northern Arizona University in Flagstaff, United States. Dr. Mack is a Fellow of the Ecological Society of America. Dr. Mack's research focuses on plant community ecology and what biological and environmental drivers impact ecosystem dynamics under global change. Her notable works include contributions to a synthesis seeking to further understand the impacts of changing biodiversity on ecosystem processes and resilience [141], the impacts of nutrient fertilization on carbon storage in the Arctic Tundra [142], and assessing how fires in boreal and arctic systems impact carbon processes and radiative forcing [38,143]. Her recent work includes an analysis of tree rings in black spruce forests to predict future ecosystem resilience to fires [139].

Karen Esler is a professor and department chair at Stellenbosch University, South Africa. Dr. Esler's research focuses on restoration and conservation ecology, socio-ecological systems, and invasion biology. Her notable works include an assessment of the impacts of smoke on the germination of succulents in South Africa [144], and contributions to a synthesis assessing the quantification of socioeconomic benefits of restoration [145]. Her recent works include an assessment of post-burn removal methods to facilitate indigenous plant recovery [146].

Rosa Lasaponara is a researcher at the Italian Research Council Institute for Environmental Monitoring and the University of Basilicata in Potenza, Italy. Dr. Lasaponara's research focuses on the remote sensing of fires, archaeology, and risk monitoring. Her notable works include the development of remote sensing approaches to detect forest fires [147], and the assessment of vegetation anomalies through the use of principal component analysis (PCA) [148]. Her recent work includes the development of new approaches to detect burned and unburned pixels [149].

Catherine Parr is a professor of ecology at the University of Liverpool, England. Dr. Parr's research focuses on invertebrates and how they interact within the context of savanna ecology, community ecology, and fire ecology. Her notable works include understanding the impacts of spatial burn heterogeneity on biodiversity in tropical and subtropical savannas [150], the effects of savanna fires on ant communities [151], and further understanding tropical grassy biomes [152]. Her recent

work includes a synthesis that called for further research into the evolutions and adaptations that have occurred in animals in response to fire [153].

Allison Aiken is a research scientist at Los Alamos National laboratory, United States. Dr. Aiken's research focuses on atmospheric aerosols, black carbon, and biomass burning emissions. Her notable works include contributions to an assessment of the evolution of organic aerosols in the atmosphere [154], an assessment of primary, secondary, and ambient organic aerosols via mass spectrometry [155], and an assessment of the impacts of black carbon on the "brownness" of organics in biomass burning emissions [156]. Her recent works include an assessment of aerosols form pyrotechnics smoke [157].

Dominique Bachelet is a senior climate change scientist and associate professor at Oregon State University in Corvallis, United States. Dr. Bachelet's research focuses on the impacts of vegetation due to climate change and disturbances. Her notable works include assessing the impacts of climate change on both the distribution of vegetation and associated impacts on carbon budgets [158–161]. Her recent work includes contributing to a large synthesis on the current status of global fire modeling [162].

Karla Longo de Feritas is a senior scientist at the National Aeronautics and Space Administration Goddard Space Flight Center in Greenbelt, United States. Dr. Longo's research focuses on the remote sensing of biomass burning in South America. Her notable works include contributions to characterize fire emissions during the Smoke, Clouds, and Radiation Brazil (SCAR-B) experiment [19,163], and research to assess plume rise in vegetation fires [164]. Her recent works include evaluating emissions form Cerrado fires and modeling the impacts of biomass burning aerosol emissions from Amazonian fires [165,166].

Alexandra Syphard is a senior research scientist at the Conservation Biology Institute in Oregon, United States. Dr. Syphard's research focuses on how landscapes change under human and natural disasters, with an emphasis on wildfires, urbanization, and climate change. Her notable works include characterizing the human impacts on California fire regimes [167], the evaluation of spatial patterns from wildfires [168], and contributions to a synthesis on how to coexist with wildfires [169]. Her recent work includes evaluating the increased risk of wildland fires due to rapid urbanization [170].

Valerie Trouet is an associate professor at the University of Arizona in Tuscon, United States. Dr. Trouet's research focuses on using tree-rings to study past climates and forests, with a focus on fire–climate interactions, carbon cycle science, and human–environment interactions. Her notable works include climate reconstructions and fire–climate interactions over the last 100–500 years [171–173]. Her recent works include understanding the role of sociological factors in impacting fire activity over the last 400 years in the Sierra Nevada [174], and evaluating the impacts of fires on season radial growth in trees [175].

Mary Arthur is a professor of forest ecology at the University of Kentucky in Lexington, United States. Dr. Arthur's research focuses on the biogeochemistry of Rocky Mountain subalpine forests, the fire ecology of upland oak ecosystems, and ecosystem processes related to non-native invasive species. Her notable works include the impacts of repeated fires on the survival and regeneration of plant species in oak–pine forests [176], and nitrogen cycling in forested ecosystems [177, 178]. Her recent works include assessments of how fuel composition, stand structure, and forest health changes in Appalachian hardwood forests after repeated fires [179,180].

Sarah Legge is an associate professor at the Australian National University in Canberra, Australia. Dr. Legge's research focuses on terrestrial and behavioral ecology, population and evolutionary genetics, animal physiology, and speciation, extinction, and life histories. Her notable works include an assessment of how fire and grazing impacts fine-scale habitats of feral cats [181], the impacts of high intensity fires on vertebrates in tropical savannas of northern Australia [182], and as assessment of the role of fire in restoring biodiversity [183]. Her recent works include a highlight of women in conservation science [184], and an Australian perspective on how to improve threatened species management [185].

Slyvie Quideau is a professor at the University of Alberta in Edmonton, Canada. Dr. Quideau's research focuses on soil biogeochemistry. Her notable works include an assessment of the chemical composition and nutrient availability of boreal forest understory following wildfires and harvesting [186], and an assessment of the relationship between forest vegetation type and soil organic matter composition [187]. Her recent works include an assessment of pyrogenic carbon production during early-season boreal black spruce forest fires [188].

Bethany Bradley is an associate professor at the University of Massachusetts at Amherst, United States. Dr. Bradley's research focuses on plant invasion and fire ecology, biogeography, and modeling the risk and potential shifts of plant invasions under global change. Her notable works include modeling potential risks of species invasions [189,190], and documenting the role of introduced grass species on fire activity in the western United States [106]. Her recent works include evaluating the role of cheat grass distribution on fire regimes [191], and the role that human ignitions and high winds play in promoting the occurrence of large wildfires [192–194].

Sarah Richardson is an ecologist at Landcare Research in Lincoln, New Zealand. Dr. Richardson's research focuses on vegetation science, community ecology, and biogeography. Her notable works include assessing the role of bark thickness on the susceptibility of Australian and New Zealand temperate rain forests to fire [195,196]. Her recent works include assessing flammability of dry and fresh leaves in 115 native New Zealand woody and herbaceous species [197].

Nancy French is the deputy and senior scientist of the Environmental, Transportation, and Decision Support Lab at the Michigan Tech Research Institute in Ann Arbor, United States. Dr. French's research focuses on the spatial characterization of fires and fire emissions. Her notable works include assessments of changes in boreal forests under climate change [198], evaluating burned areas in Alaskan boreal forests [199,200], and evaluating burn severity in North American boreal forests [201]. Her recent works include improvements to regional atmospheric CO_2 inversion models [202], and impacts of fires on land surface albedo in the Alaskan tundra [203].

Rebecca Bird is a professor of anthropology at Pennsylvania State University in State College, United States. Dr. Bird's research focuses on human behavioral ecology, fire ecology, indigenous conservation and land management, signaling theory, and landscape ecology. Her notable works include seminal work in signaling theory [204], and assessments of Australian Aboriginals' use of fire [205–207]. Her recent works include the role of Aboriginal burning on promoting fire diversity and native predators [208], and work exploring human–climate–fire relationships [209].

Angelica Fuerdean is a researcher at the Senckenberg Research Institute and Natural History Museum and LOEWE Biodiversity and Climate Research Centre (BiK-F) in Frankfurt, Germany. Dr. Fuerdean's research focuses on paleoecology in temperate forests, grasslands, and wetlands of Central and Eastern Europe, with an emphasis on combining multi-proxies with modeling to assess a wide range of time-scales. Her notable works include an assessment of 12,000 years of fire regimes in central eastern Europe [210]. Her recent works include an assessment of the long-term fire regime dynamics in boreal/hemi-boreal forests [211], and an assessment of the role of fire on forest dynamics in Central Eastern European temperate forests [212].

Sally Horn is a professor at the University of Tennessee in Knoxville, United States. Dr. Horn's research focuses on fire history and ecology, prehistoric human impacts, and quaternary paleoclimates. Her notable works include contributions to a synthesis and assessment of fire regimes since the last glacial maximum using a synthesis of charcoal data [9], an assessment of fires in Costa Rica during the Holocene [213], and an assessment of pre-Columbian and postglacial land use and fire history in Costa Rica [214,215]. Her recent works include an assessment of a 23,000-year charcoal record from ponds in Tennessee [216].

Carol Miller is a research ecologist at the Aldo Leopold Wilderness Research Institute in Missoula, United States. Dr. Miller's research focuses on assessing the biophysical drivers behind fire regimes, investigating interactions between fire regimes, climate, and the patterns and processes of vegetation, assessing the balance between fire suppression and restoring fire within functioning ecosystems,

and evaluating the impacts of climate on fire regimes. Her notable research includes furthering the understanding of scaling when considering fire regimes [217], and synthesizing risk analysis approaches used in wildland fire management [218]. Her recent works include assessing refugia following large fires [219,220], and a synthesis of progress in wilderness fire science [221].

Carolyn Sieg is a research ecologist at the Rocky Mountain Research Station, United States Forest Service in Flagstaff, United States. Dr. Sieg's research focuses on improving the understanding of how to effectively manage forests that are impacted by severe wildfires insect infestations and invasive plant species. Her notable works include evaluating the fire history within the interior ponderosa pine forests found in South Dakota [222,223]. Her recent works include understanding the role of high-severity fires on spatial patterns of ponderosa pine regeneration [224], and the interactions of fires and bark beetles in ponderosa pine forests [225].

Erica Kuligowski is the lead scientist and sociologist in the Wildland Urban Interface (WUI) Fire Group of the Fire Research Division of the Engineering Laboratory at the National Institute of Standards and Technology (NIST) in Gaithersburg, United States. Dr. Kuligowski's research focuses on developing science to lower the risk of fire spread in WUI communities and the development of improved public alert systems for fire risk. Her notable works include furthering the understanding of how humans react during fires [226]. Her recent work includes research on evacuations from structures [227].

Sally Archibald is an associate professor at the University of the Witwatersrand in Johannesburg, South Africa. Dr. Archibald's research focuses on the dynamics of savanna ecosystems under fire, grazing, and global change. Her notable works include further understanding the fire–tree–grazer cycles in global savannas [89,228–230], an assessment of the evolution of human-driven fire regimes in Africa [231], and an assessment what factors limit burned areas in southern Africa [232]. Her recent works include further understanding the role of humans in these dynamic savanna ecosystems [233], and contributions to a synthesis to consider the plant characteristics that lead to the flammability of ecosystems [75].

Olga Mayol-Bracero is a faculty member at the Institute for Tropical Ecosystem Studies at the University of Puerto Rico. Dr. Mayol-Bracero's research focuses on the emissions of aerosols form biomass burning and other sources as well as the chemical, physical, and optical properties of those aerosols and their impact on climate. Her notable works include the characterization of water-soluble organic compounds in aerosols emitted from biomass burning [234,235]. Her recent works include an assessment of transported Asian and African mineral dust [236].

Alison Munson is a professor at Laval University in Quebec City, Canada. Dr. Munson's research focuses on forest biogeochemistry, soil carbon and nitrogen dynamics, and plant functional traits. Her notable works include an assessment of the chemical composition and nutrient availability of boreal forest understory following wildfires and harvesting [186], and a comparative assessment of wildfire and harvesting impacts on soil chemistry and tree nutrition [237]. Her recent works include an assessment of pyrogenic carbon production during early-season boreal black spruce forest fires [188].

Toddi Steelman is the Stanback Dean of the Nicholas School of the Environment at Duke University in Durham, United States. Dr. Steelman's research focuses on governance, community decision-making, and policy associated with environmental and natural resource governance, as well as adaptation, mitigation, preparedness, and response to wildfires. Her notable works include understanding perspectives of land management personnel and the public in natural resource decision making [238,239]. Her recent works include evaluating what types of information people trust and find useful during wildfire disasters [240], and contributions to a synthesis evaluating wildfire risk in socioecological systems [241].

Penelope Morgan is a professor at the University of Idaho in Moscow, United States. Dr. Morgan is certified as a senior fire ecologist by the Association for Fire Ecology. Dr. Morgan's research focuses on understanding patterns and drivers of post-fire heterogeneity. Her notable works include studies to further understand the role of promoting natural variability in management strategies to promote

biological diversity [242], and assessing fire regimes and fire effects at landscape scales [243,244]. Her recent works included focusing on improving the extension of fire science synthesis to land managers [245], evaluating over 100 years of high-severity data to evaluate potential trends [246], and contributions to a synthesis calling for more adaptation to wildfires in western North American forests [37].

Susan Conard is an emeritus ecologist at the United States Forest Service and is the current co-editor-in-chief of the International Journal of Wildland Fire. Dr. Conard is affiliated with George Mason University in Fairfax, United States. Dr. Conard is widely known for her work on carbon emissions of fires. Her notable works include one of the earliest spatial assessments of fire severity and the impacts of fire on carbon cycling in Russian boreal forests [247,248], and the development of new algorithms for determining carbon-cycle products in satellite sensor imagery [200]. Her recent work includes evaluating the pine forest succession following high-intensity fires [249], and an editorial article highlighting the 25th anniversary of the International Journal of Wildland Fire [250].

Silvia Kloster is a researcher at the Max-Planck-Institut für Meteorologie in Hamburg, Germany. Dr. Kloster's research focuses on global fire process modeling, aerosol emissions, air pollution, and biochemical feedback cycles. Her notable works include simulating fire dynamics in the 20th century using the Community Land Model [251,252]. Her recent works include contributions to the Fire Modeling Intercomparison Project [11], an assessment of the contribution of biomass burning to the climate–carbon-cycle feedback [12], and development of the spead and intensity in fire (SPITFIRE) models for use in Earth system models [253].

Meg Krawchuk is an assistant professor at Oregon State University in Corvallis, United States. Dr. Krawchuk's research focuses on landscape ecology, biogeography, and conservation science. Her notable works include projections of future global geographic distributions of wildfires [82], and furthering the understanding of the biotic and abiotic constraints on fire occurrence [254,255]. Her recent works include further understanding the spatial patterns of burned areas, refugia, and fire occurrence [219,256], and contributions to a synthesis calling for more adaptation to wildfires in western North American forests [37].

Vanya Pivello is a professor of ecology at the Universidade de São Paulo in Brazil. Dr. Pivello's research focuses on the ecology of the Cerrado of Brazil. Her notable works include understanding the role of invasive grasses on the biodiversity of the Cerrado [257], and a synthesis of human use of fire in both the Cerrado and the Amazon rainforest [258]. Her recent work includes understanding the role of fire on seed germination in neotropical savannas [259].

Elaine Sutherland is a researcher at the United States Forest Service in Missoula, United States. Dr. Sutherland's research focuses on fire ecology, dendrochronology, tree-ring analysis, and disturbance ecology. Her notable works include the assessment of the impacts of repeated prescribed fires on mixed-oak forests in Ohio [260,261], and an assessment of fire-scar formations in oak species [262]. Her recent works include an assessment of fire scars in three North American conifer species [263], and contributions to a recent perspective on the future of dendrochronology in fire science [264].

Vigdis Vandvik is a professor at the University of Bergen in Norway. Dr. Vandvik's research focuses on how human and natural drivers impact communities and ecosystems across spatial and temporal scales. Her notable works include an assessment of the role of grazing and variability of environmental factors on post-fire vegetation recovery and succession [265]. Her recent works include assessing how alpine plant communities respond to climate change [266]

Christelle Hély is faculty at the École Pratique des Hautes Études, a college of the Paris Sciences et Lettres (PSL) Research University in Paris, France. Dr. Hély's research focuses on forest ecosystem responses to climate change, modeling, and fire science. Her notable works include the impacts of vegetation and weather on predicted fire behavior in boreal forests [267,268], and understanding dynamics of vegetation and fires in Africa and boreal North America during the Holocene [269,270]. Her recent work includes understanding the drivers behind extreme fires in Mediterranean regions of France [271].

Fay Johnston is an associate professor at the University of Tasmania and a senior research fellow at the Menzies Institute for Medical Research in Hobart, Australia. Dr. Johnston's research focuses on assessing environmental factors on poor health, such as the epidemiology of smoke pollution, as well as health impacts of airborne allergens and heatwaves. Her notable works include human impacts of wildfires, such as public health costs and projected mortality rates from smoke exposure [272–274]. Her recent works continue building on research to quantify the health and economic impacts on the public from wildfire smoke [275], as well as other studies aimed at better informing the public of the air quality risk [276].

Jennifer Marlon is a research scientist at the Yale School of Forestry and Environmental Science in New Haven, United States. Dr. Marlon's research focuses on the social and physical factors of climate change to assess human perceptions to extreme events and reconstruct past climates, respectively. Her notable works include evaluating the climatic and human drivers in global biomass burning events over the last 2000 years [8,277], contributions to a synthesis and assessment of fire regimes since the last glacial maximum using a synthesis of charcoal data [9], and the response of North American wildfires to abrupt changes in climate [278]. Her recent works include reconstructing biomass burning records of fire location, timing, spatial extent, and frequency [279].

Sarah McCaffrey is a research forester with the United States Forest Service in Fort Collins, United States. Dr. McCaffrey's research focuses on improving the understanding of the social factors and dynamics of fire management. Her notable works include further understanding the role of social science research in wildfire management [280], and contributions to a synthesis focusing on how to adapt and coexist with wildfires [169]. Her recent works include a synthesis of lessons learned in public responses to wildfires from 2010–2015 [281], and evaluating what types of information people trust and find useful during wildfire disasters [240].

Samantha Setterfield is an associate professor at the University of Western Australia in Perth, Australia. Dr. Setterfield's research focuses on the effects of fire on savanna vegetation, restoration ecology, weeds, and the reproductive ecology of savanna vegetation. Her notable works include an assessment of the grass–fire cycle in the tropical savannas of northern Australia [282], an assessment of the impacts of fire frequency on biodiversity conservation [283], and an assessment of the impact of invasive species on fire behavior in northern Australian savannas [284]. Her recent works include an assessment of the interactions between fire and seed predation by ants in seasonal tropics in Australia [285].

Ana Isabel Couto Neto da Silva Miranda is a professor at the Universidade de Aveiro in Portugal. Dr. Miranda's research focuses on emissions, air quality modeling, and climate change. Her notable works include furthering the understanding of the sources of particulate matter in Europe [286], and modeling fire activity, air quality, and particulate matter emissions in Portugal [287–290]. Her recent works continue building on furthering the understanding of particulate matter emissions [291,292].

Constance Millar is a senior research ecologist with the Pacific Southwest Research Station of the United States Forest Service in Albany, United States. Dr. Millar's research focuses on historic and ongoing climate change in high-elevation forest ecosystems of the Great Basin Mountains, including the eastern Sierra Nevada. Her notable works include a seminal thought paper that presented a conceptual framework for how to manage forest ecosystems in the future when the exact future is uncertain [293], and a synthesis of forest health when considering fires and insect disturbances interacting with droughts and other disturbances [294]. Her recent work includes the identification of climate refugia in low-elevation ravines [295].

Amy Hessl is a professor of geography at West Virginia University in Morgantown, United States. Dr. Hessl's research focuses on the interactions between humans, past climates, and forest ecosystem processes. Her notable works include an evaluation of the impacts of drought and regional climate on fire occurrence in the northwestern United States [296,297], and the interaction of fires, herbivory, and humans on aspens stands in western Wyoming [298]. Her recent works include an assessment of

climate and fire in Mongolia over the last 500 years [299], and contributions to an article calling for advances in the use of dendrochronological assessments of fires in the United States [264].

Gabriela Nardoto is a professor at the Universidade de Brasilia in Brazil. Dr. Nardoto's research focuses on ecosystem ecology, biogeochemistry, and the use of stable isotopes. Her notable works include an assessment of global patterns in foliar nitrogen isotopes [300], and the impacts of fire on the savannas of Central Brazil [301]. Her recent works include an assessment of the nitrogen dynamics in mangrove forests from stable isotope analysis [302].

Patricia Champ is a research economist at the United States Forest Service in Fort Collins, United States. Dr. Champ's research focuses economic valuation methods, economic and social analysis of wildfires, invasive species and climate change, and assessing metrics of public preferences, attitudes and behaviors. Her notable works include seminal contributions on how to place values on environmental and natural resource amenities [303,304], assessing wildfire mitigation decisions among residents within the wildland–urban interface [305,306], and assessing the connection between wildfire risk and housing prices [307]. Her recent works include assessing the economic cost of health impacts from wildfire smoke exposure during the 2007 Southern California fires [308], and social assessments of attitudes on fire adaptation [309].

Sarah Henderson is an assistant professor at the University of British Columbia and the senior environmental health scientist at the British Columbia Center for Disease Control in Vancouver, Canada. Dr. Henderson's research focuses on air pollution, extreme weather events, and environmental health and safety. Her notable works include projected health impacts and mortality rates from smoke exposure [274,310]. Her recent works include improved methods to predict the minimum height of forest fire smoke [311], and improving approaches to better understand the health impacts of fires on the public [312].

Yufang Jin is an associate professor at the University of California in Davis, United States. Dr. Jin's research focuses on ecosystem responses to climate change, fires, and management. Her notable works include contributions to a synthesis of global fire emissions [313], the impacts of boreal forests on climate change [38], and the assessment of burn severity and vegetation recovery in North American boreal forests [314]. Her recent works include evaluating the potential for different fire regimes within Southern California [315], and an assessment of fires in Southern California under periods with and without Santa Ana winds [316].

Daniela Stroppiana is a researcher at the Italian National Research Council Institute for Electromagnetic Sensing of the Environment (IREA) in Naples, Italy. Dr. Stroppiana's research focuses on the remote sensing of biomass burning. Her notable works include an assessment of a decade of fire in Africa [317], a global assessment of fires in the year 2000 [318], and the development of methods to assess area burned with remote-sensing data [319]. Her recent works include exploring the use of multispectral unmanned aerial vehicle (UAV) datasets [320].

Suzanne Brais is a professor at the Université du Québec en Abitibi-Témiscamingue in Canada. Dr. Brais' research focuses on forest soils, silviculture, and forest mortality and recovery. Her notable works include an assessment of wildfire severity, coarse woody debris dynamics, and salvage harvesting on the nutrient dynamics of jack pine and black spruce forests [321,322]. Her recent works include an assessment of fertilization through wood ash in Canadian boreal forests [323].

Tania Schoennagel is a research scientist at the University of Colorado in Boulder, United States. Dr. Schoennagel's research focuses on the causes and impacts of fires and other disturbances on western forests. Her notable works include a study evaluating the interaction of fires, fuels, and climate [324], research on the role of droughts on fire occurrence in subalpine forests [325], an assessment of national fire plan treatments in the wildland–urban interface [326], and contributions to a synthesis focusing on how to adapt and coexist with wildfires [169]. Her recent work includes a synthesis calling for improved human adaptation to wildfires in western North American forests [37].

Erica Smithwick is a professor of geography at the Pennsylvania State University in State College, United States. Dr. Smithwick serves as an Associate Editor for the journal Ecosystems. Dr. Smithwick's

research focuses on the interactions of landscape and ecosystem ecology with an emphasis on pyrogeographic impacts on biogeochemistry and carbon dynamics. Her notable works include assessments of biogeochemical cycling following wildfires [31,327], and understanding carbon storage in Pacific Northwest forests [328]. Her recent works include a correspondence calling for the fire science community to include social and economic factors within wildfire risk assessments [329].

Kathyrn Williams is an associate professor at the University of Melbourne in Australia. Dr. Williams' research focuses on social and psychological aspects of environmental management. Her notable works include assessing human preferences for landscapes under different management scenarios [330,331], and using agent-based models and virtual environments in complex decision-making processes [332]. Her recent works include understanding the role of "plant blindness" on how the public views plant conservation [333], and the development of socially relevant criteria and indicators to inform sustainable forest management [334].

Maria Perestrelo de Vasconcelos is a researcher with the Instituto de Investigação Científica Tropical in Lisbon. Portugal. Dr. Vasconcelos's research focuses on forest monitoring, land-use and land cover change, and climate change. Her notable works include an evaluation of logistic regression and neural network methods to spatially predict fire ignitions [335], and an assessment of what land-cover types in Portugal are more likely to exhibit wildfires [336]. Her recent work includes the development of a new method to assess burned areas in satellite sensor imagery [337].

Wendy Anderson (née Catchpole) is an honorary senior lecturer at the University of New South Wales in Kensington, Australia. Dr. Anderson's research focuses on the statistics and mathematics of fire behavior, including the development of fire behavior equations for heathland in Australia and New Zealand. Her notable works include a review of methods to estimate plant biomass [338], and the assessment of fire behavior in experimental wind-tunnel fires [339]. Recent works include the development of an empirical-based model for predicting the rate of spread of fires in shrub lands [340], and an assessment of the impact of aspect and vegetation on fine fuel moisture content in eucalypt forests [341].

Angela Benedetti is a senior scientist at the European Centre for Medium-Range Weather Forecasts in Reading, United Kingdom. Dr. Benedetti's research focuses on atmospheric science, aerosols, and biomass burning emissions. Her notable works include contributions to a global assessment of biomass burning emissions from fire radiative power [342], and development of aerosol assimilation systems [343]. Her recent works include an assessment of two global datasets to assess daily fire emission injection heights [344].

Eulalia Planas is a professor at the Center for Technological Risk Studies at the Universitat Politècnica de Catalunya in Barcelona, Spain. Dr. Planas' research focuses on hydrocarbon pool fires, fire risk, and accidents. Her notable works include assessing hydrocarbon pool fires [345,346], the development of mathematical models to assess wildland fire behavior [347], and a review of the effectiveness of long-term forest fire retardants [348]. Her recent works include further development of wildland fire behavior models [349].

Jenny Rissler is an associate professor at Lund University in Sweden. Dr. Rissler's research focuses on air pollution and the impacts on emissions and aerosols on human health. Her notable works include characterization of the size distribution and properties of aerosols from dry- and wet-season Amazonian fires [350–352]. Her recent works include assessing the impacts of inhaled nanoparticles on pulmonary disease in humans [353].

Eva Strand is an associate professor at the University of Idaho in Moscow, United States. Dr. Strand's research focuses on landscape ecology, fire ecology, and rangeland ecology. Dr. Strand is an Associate Editor for Fire. Her notable works include the development of spatial mapping tools to assess fuels in rangeland ecosystems [354], and assessing successional rates of western aspen woodlands [355]. Her recent works include assessing the impacts of fire severity and duff distribution on vegetation recovery in sagebrush steppe ecosystems [356], and further understanding of western aspen species through long-term monitoring [357].

Kendra McLauchlan is a professor at Kansas State University in Manhattan, United States. Dr. McLauchlan's research focuses on characterizing the properties of past ecosystems through reconstructing biogeochemical cycling, fire histories, and vegetation in grassy ecosystems. Her notable works include evaluating nitrogen-cycle dynamics during the Holocene [358], an assessment of global patterns in foliar nitrogen isotopes [327], and work to reconstruct disturbance histories and their impacts on biogeochemical cycling [359]. Her recent work includes reconstructing fire history in grasslands using sedimentary charcoal [360].

Lauren Bennett is an associate professor at the University of Melbourne, Australia. Dr. Bennett's research focuses on measuring and valuing ecosystem services, including quantifying carbon stocks and fluxes in natural ecosystems. Her notable works include assessing the impacts of fire in growth and nutrient dynamics of perennial grasslands [361], and evaluating the impact of repeated prescribed fires on carbon stocks in coarse woody debris and other carbon pools in temperate eucalypt forests [362,363]. Her recent works include assessing the impacts of fire on carbon stability in fire-tolerant forests [364].

Tina Bell is an associate professor at the University of Sydney, Australia. Dr. Bell's research focuses on fire ecology, soil–plant interactions, and smoke. Her notable works include a response to fire of root morphology, anatomy, and starch distributions in the southwest of the Australian Epacridaceae [365], and the post-fire growth to the southwestern Australian Epacridaceae [366]. Her recent works include understanding the impacts of fuel reduction to optimize post-fire carbon-, water-, and vegetation-related ecosystem goods and services [367,368].

Anupma Prakash is the Provost and Executive Vice Chancellor at University of Alaska Fairbanks, United States. Dr. Prakash's research focuses on the use of remote-sensing and geographic information system (GIS) data of peat and coal fires. Her notable works include an assessment of land-use mapping in coal-mining areas of India [369], an analysis of using Landsat imagery to assess ground temperature and depth of sub-surface coal fires [370], and contributions to a review of using remote sensing to assess coal fires [371]. Her recent works include development of new methods to detect high- and low-intensity fires at high latitudes [372].

Emily Heyerdahl is a research forester with the United States Forest Service in Missoula, United States. Dr. Heyerdahl's research focuses on the spatial and temporal variation of historical fire regimes. Her notable works include understanding the spatial variation and climate drivers of fire regimes [297,373,374]. Her recent works include mortality assessments of ponderosa pine 21 years after fire-scarred partial cross-sections were removed [375], the role of low-severity fires in increasing tree defenses to bark beetles [122], and contributions to a recent perspective on the future of dendrochronology in fire science [264].

Kathleen Kavanagh is an associate dean for research at Oregon State University in Astoria, United States. Dr. Kavanagh's research focuses on forest science, with topics including investigating the role of plant–water interactions in response to fires. Her notable works include assessing how stomatal closure is related to soil water and leaf–atmosphere interactions [376], and the factors impacting xylem cavitation in Douglas-fir seedlings [377]. Recent works include further understanding the potential mechanism of tree mortality due to fires [378,379].

Karen Launchbaugh is a professor at the University of Idaho in Moscow, United States. Dr. Launchbaugh's research focuses on targeted grazing, foraging behavior, and fenceless rangeland systems. Her notable works include understanding landscape patterns of livestock as a result of foraging behavior [380], and the interactions between grazing, vegetation, and fire behavior in rangelands [381,382]. Recent works include an assessment of how targeted grazing can be applied to manage fuels and fire behavior [383].

Dolors Armenteras is a professor of landscape ecology at the Universidad Nacional de Colombia in Bogota. Dr. Armenteras's research focuses on fire ecology, biodiversity, deforestation, and land-use work in conservation and sustainability. Her notable works include an assessment of the patterns and drivers of deforestation in the Colombian Amazon [384], and a study of the influence of forest fragmentation on fire occurrence and intensity in forests in Amazonia [385]. Her recent works include

evaluating changing patterns of fire occurrence in tropical Amazon forests [386], and predicting reducing emissions from deforestation and forest degradation (REDD) deforestation rates from remote-sensing fire products [387].

Gayle Hagler is an engineer at the United States Environmental Protection Agency in Durham, United Stated. Dr Hagler's research focuses on the sources, quantities, and trajectories of pollutants in the air. Her notable works include assessing the chemical composition and sources of particulate matter [388,389]. Her recent works include assessing particulate matter and black carbon emissions from prescribed fires [390], and assessing the impacts of California wildfires on near-road air quality [391].

Crystal Kolden is an associate professor at the University of Idaho in Moscow, United States. Dr. Kolden is on the editorial board of the journal Fire. Dr. Kolden's research focuses on the relationships between climate and fire, the impacts of fires on socio-ecological–hydrological systems, and the remote sensing of fuels and fire effects. Her notable works include studies to assess the relationships between climate and burned areas [392], and assessing unburned areas and refugia within fire perimeters [292–394]. Her recent works include studies focused on how to live with fires across the world [395,396], assessing future worldwide increases in fire activity and risks to human populations [397,398], and an analysis of the spatial distribution of the 2017 Californian wildfires that were ignited under katabatic or non-katabatic wind conditions [399].

Margot Guerra-Sommer is a professor at the Federal University of Rio Grand do Sul in Porto Alegre, Brazil. Dr. Guerra-Sommer's research focuses on paleobotany and wood anatomy. Her notable works include an assessment of fires in Gondwana through analysis of paleobotanical techniques [400], and the assessment of historic South American fires from Paleozoic charcoal [401,402]. Her recent works include an assessment of wildfires in the Triassic epoch of Gondwana [403].

Kasturi Devi Kanniah is a faculty member at the Universiti Teknologi Maylasia in Shah Alam, Maylasia. Dr. Kanniah's research focuses on carbon-cycle science, terrestrial vegetation, and atmospheric aerosols. Her notable works include an assessment of gross primary productivity in tropical savannas in Australia [404], and modeling fire risk in Iran using remote-sensing and spatial datasets [405]. Her recent works include the modeling of fire hazards [406], and the assessment of aboveground biomass in tropical rainforests using terrestrial laser scanners [407].

Sofia Bajocco is a researcher at the Council for Agricultural Research and Economics and Research Centre for Agriculture and Environment (CREA-AA) in Rome, Italy. Dr. Bajocco is on the editorial board of the journal Fire. Dr. Bajocco's research focuses on landscape ecology, vegetation phenology, fire ecology, and remote sensing. Her notable works include assessments of what land-cover classes in Italy are most sensitive to desertification and wildfires [408,409]. Her recent works include studies to assess the linkages between fire ignitions and fuel phenology [410], and the spatial mapping of forest fuels via phenology [411].

Tatiana Loboda is an associate professor at the University of Maryland, in College Park, United States of America. Dr. Loboda's research focuses on the interactions of wildland fires, biodiversity, public health, and local change with human and physical landscape properties. Her notable works include the development of new algorithms for determining burned area and carbon-cycle products in satellite sensor imagery [200], and assessing fire risk in Russia [412]. Her recent works include efforts to assess black carbon emissions from cropland burning in Russia, with impacts on the Arctic [413,414].

Rajni Tewari is a scientist at the Birbal Sahni Institute of Palaeobotany in Lucknow, India. Dr. Tewari's research focuses on paleobotany, Gondwana, and palynology. Her notable works include an assessment of fires in Gondwana through analysis of paleobotanical techniques [400], and an assessment of evidence of Triassic forest fires in Antarctica [415]. Her recent works include an assessment of repeated fire events in early Permian peat in India [416].

Cathelijne Stoof is an assistant professor at Wageningen University and Research in Wageningen, Netherlands. Dr. Stoof's research focuses on understanding the drivers of how humans, fires,

and land-use change impact soils, hydrological cycles, and landscapes. Her notable works include assessment fuel load and fire intensity as drivers of fire-induced soil heating [417], and assessment of fire and ash impacts on assessing the impacts of fires and resultant ash on soil hydrological soil processes [418,419]. Her recent works include assessing the role of plants in controlling fire impact on soils and water [420], and bringing together scientists and stakeholders to better understand fire risk and fire impact in temperate countries [421].

Gitta Lasslop is a researcher at the Max-Planck-Institut für Meteorologie in Hamburg, Germany. Dr. Lasslop's research focuses on terrestial ecosystem modeling, biogeochemical cycling, global fire modeling and data analysis, and assessing the impacts of disturbances on vegetation dynamics. Her notable works include contributions to a seminal synthesis on global terrestrial gross carbon dioxide uptake [422], and development of the SPITFIRE models for use in Earth system models [253]. Her recent work includes contributing to a large synthesis on the current status of global fire modeling [162] and contributions to the Fire Modeling Intercomparison Project [11].

Carly Reddington is a research fellow at the University of Leeds in Leeds, England. Dr. Reddington's research focuses on atmospheric aerosols, air quality, climate, and biomass burning. Her notable works include an assessment of how natural aerosols contribute to the uncertainty in indirect forcing [423], and an assessment of the relative contribution of primary versus secondary particles in the European boundary layer [424]. Her recent works include an assessment of particulate emissions form tropical biomass burning [425], and an assessment of air quality improvements from reductions in deforestation fires in Brazil [426].

Celia Gouveia is a senior researcher at the Universidade de Lisboa in Lisbon, Portugal. Dr. Gouveia's research focuses on climate variability, vegetation dynamics, remote sensing, droughts, and wildfires. Her notable works include an assessment of post-fire vegetation recovery in Portugal using remote-sensing data [427], and an assessment of fire activity across Mediterranean Europe using Meteosat-8 data [428]. Her recent works include modeling fire activity under different weather conditions [429].

Jennifer Balch is an assistant professor at the University of Colorado Boulder. Dr. Balch is on the editorial board of the journal Fire. Dr. Balch's research focuses on the patterns and processes of fire disturbances and the recovery of ecosystems. Dr. Balch's work seeks to understand the sustainability of tropical and other fire-affected ecosystems. Notable works by Dr. Balch include documenting the role of introduced grass species on fire activity in the western United States [106], and the role of fires in Amazonia and other tropical regions [25,430]. Her recent works include being the corresponding author to a global synthesis of global fire challenges [7], as well as research focused on understanding the role of climate and a wider assessment of what triggers a fire season [431], studies of the role that human ignitions and high winds play in promoting the occurrence of large wildfires [192], and contributions to a synthesis calling for improved human adaptation to wildfires in western North American forests [37].

Alessandra Fidelis is an assistant professor at the Universidade Estadual Paulista in São Paulo, Brazil. Dr. Fidelis's research focuses on understanding how fire affects tropical savannas and grassland, with an emphasis on using fire to manage invasive species and vegetation dynamics. Her notable works include contributions to a synthesis on current ecological knowledge of the South Brazilian Campos biome [432]. Her recent work includes assessments of fire behavior and effects on plants and seeds in Cerrado fires [433,434].

Caroline Lehmann is a senior lecturer at the University of Edinburgh, Scotland. Dr. Lehmann focuses on the ecology and evolution of tropical ecosystems, with an emphasis on savannas and how their dynamics are impacted by climate and fire. Dr. Lehmann also works on improving our understanding of the evolution of C_4 grasslands, and improving knowledge of how savannas and tropical biomes are defined more broadly. Her notable works include describing the distributions of savannas [435], and further understanding the global dynamics of savanna vegetation–fire–climate relationships [89,128]. Her recent works include assessing the degree of

savanna woody encroachment [436], contributions to a synthesis to consider the plant characteristics that lead to the flammability of ecosystems [75], and further understanding tropical grassy biomes [152].

Ana Alencar is the program director at the Amazon Environmental Research Institute (IPAM) in Brasilia, Brazil. Dr. Alencar's research focuses on fires in Brazil, with a focus on environmental policy and sustainability. Her notable works include contributions to syntheses evaluating the impacts of fires, deforestation, and land-use in forests in Amazonia [437,438]. Her recent works included contributions to articles seeking a policy solution to Brazil's illegal deforestation [439], and the development of an integrated monitoring approach for assessing the impacts of tropical forest degradation and impacts on carbon and biodiversity [66].

Cristina Montiel-Molina is a professor at the Universidad Complutense in Madrid, Spain. Dr. Montiel-Molina's research focuses on pyrogeography, environmental history, forest management, spatial planning, and sustainable development. Her notable works include an assessment of polices and best practices of fire use in Europe as part of the FIRE PARADOX integrated project [440,441]. Her recent works include reconstructing fire records from charcoal records and tree-ring datasets [442], and the assessment of different fire scenarios in Spain [443].

Amber Ortega is an air quality meteorologist at the Colorado Department of Public Health and Environment in Denver, United States. Dr. Ortega's research focuses on meteorological measurements, modeling, and statistical analysis. Her notable works include an assessment of aerosols emissions from biomass burning smoke [444], and an assessment of secondary organic aerosol formation [445]. Her recent work includes an assessment of long-term particulate matter modeling in California [446].

Claire Belcher is an associate professor in Earth system science at the University of Exeter, England. Dr. Belcher's research focuses on the impact and flammability of wildfires in both contemporary and ancient ecosystems. Dr. Belcher's work seeks to further understand what role wildfires play in maintaining the various Earth-system processes that enable the Earth to be habitable. Dr. Belcher recently edited "Fire Phenomena and the Earth System: An interdisciplinary Guide to Fire Science" [447]. Notable works by Dr. Belcher include understanding the lower limits of oxygen under wildfires that occurred in the Mesozoic [448], and the flammability of Earth's ecosystems during the Carboniferous through the present periods of Earth's history [449]. Her recent work includes contributions to a synthesis to consider the plant characteristics that lead to the flammability of ecosystems [75].

Sharon Hood is a research ecologist with the United States Forest Service in Missoula, United States. Dr. Hood's research focuses on the mechanisms of post-fire tree mortality, the impacts of changing fire regimes on forest succession and resilience, and the impacts of fire on the susceptibility of bark beetles to attack trees. Her notable works include research to evaluate post-fire conifer mortality [117,450]. Her recent works continue building on post-fire tree mortality [451], and assessing the long-term impacts of fuel treatments [452].

Evelyne Thiffault is a professor at Laval University in Quebec City, Canada. Dr. Thiffault's research focuses on forest bioenergy and forest soils. Her notable works include an assessment of the chemical composition and nutrient availability of boreal forest understory following wildfires and harvesting [186], and a comparative assessment of wildfire and harvesting impacts on soil chemistry and tree nutrition [188]. Her recent works include an assessment of the spatial distribution of forest biomass in fire-damaged stands [453].

Sarah Trainor is an assistant professor at the University of Alaska in Fairbanks, United States. Dr. Trainor's research focuses on climate-change adaptation and the bridge between science and policy. Her notable works include an assessment of the problems of increasing fires in Alaskan boreal forests [454], and an assessment of community-based research in considering wildfires in Alaska [455]. Her recent works include presenting a framework to conceptualize the science–policy interface [456].

Heloisa Miranda is a professor at the Instituto De Ciências Farmacêuticas at the Universidade de Brasilia, Brazil. Dr. Miranda's research focuses on fire ecology in tropical and savanna ecosystems. Her notable works include the assessment of carbon fluxes in tropical savannas [457], and assessments

of soil and air temperatures during prescribed Cerrado fires [458]. Her recent works include a synthesis of fire behavior and effects in the Cerrado biomes to identify knowledge and research gaps for the practical use of fire [459], and contributions to an analysis assessing relationships between fire regimes and vegetation structure in tropical ecosystems [460].

Janice Coen is a project scientist at the National Center for Atmospheric Research in Boulder, Colorado. Dr. Coen's research focuses on wildland fire behavior and its interaction with weather. Her notable works include research to develop coupled atmosphere–fire models [461,462]. Her recent work includes a simulation of a windstorm-driven wildfire in Colorado [463].

Lori D. Daniels is a professor at the University of British Columbia in Vancouver, Canada. Dr. Daniels' research focuses on the use of dendroecological methods to assess the impacts of climate and disturbances on the vegetation dynamics of temperature forests. Her notable works include the role of climate on the altitudinal tree lines [464], and contributions to a synthesis furthering the understanding of tree mortality rates across the western United States [465]. Her recent works include assessing the roles of humans and climate on fire regimes [466], and improving approaches to derive mean fire intervals [467].

Angie Haslem is a research fellow at La Trobe University in Melbourne, Australia. Dr Haslem's research focuses on fire ecology, conservation biology, and landscape ecology. Her notable works include assessments to balance managing for multiple objectives such as maintaining habitats for biodiversity and reducing fire hazard [468], and the impacts of fires on avian species [469]. Her recent works include assessments of how fires impact the distribution of birds, small mammals, and plant species [470,471].

Branda Nowell is a professor at North Carolina State University in Raleigh, United States. Dr. Nowell's research focuses on inter-organizational relationships, social networks, and community capacity for collaborations within and across groups to solve complex problems. Her notable works include contributions adding to concept of a psychological sense of community [472]. Her recent works include improving the public understanding of fire management [473].

Dalva Maria da Silva Matos is a researcher at the Universidade Federal de São Carlos, Sao Paulo, Brazil. Dr. Matos' research focuses on ecology and conservation. Her notable works include an assessment of fires within an urban forested environment [474], and contributions to a synthesis evaluating ecosystem services research in Latin America [475]. Her recent works include an assessment of dry season fires on the reproduction of two neotropical savanna shrubs [476].

Imma Oliveras is a research lecturer at the University of Oxford, England. Dr. Oliveras' research focuses on the drivers affecting tropical vegetation structure changes across abiotic gradients and how those changes impact processes at the community and ecosystem scale. Her notable works include assessments of the hydraulic properties of roots and stems in woody species [477,478], and assessing the impacts of fires on soil biogeochemistry in savanna ecosystems [479]. Her recent works include contributions to an analysis assessing relationships between fire regimes and vegetation structure in tropical ecosystems [460], and assessing post-fire recovery in tropical montane cloud forests [480].

Kirsten Knox is a researcher at the University of New England in Armidale, Australia. Dr. Knox's research focuses on fire effects in nutrient availability, shrub recruitment, and plant ecology. Her notable works include an assessment of resprouting as a key functional traits following fires [481], an assessment of landscape patterns of woody plants in response to crown fires [482], and an assessment of the impacts of fire season and intensity on shrub recruitment in temperate sclerophyllous woodlands [483]. Her recent works include an assessment of fire severity metrics in sclerophyllous forest fires [484].

Petra Boltshauser-Kaltenrieder is a researcher at the University of Bern in Bern, Switzerland. Dr. Boltshauser-Kaltenrieder's research focuses on palaeoecology, vegetation history, and plant macroforests. Her notable works include contributions to a synthesis and assessment of fire regimes since the last glacial maximum using a synthesis of charcoal data [9], and an assessment of vegetation

and fire history in the Holocene [485]. Her recent works include further assessment of fire history and vegetation dynamics in Italy during the Holocene [486].

A. Paige Fischer is an assistant professor at the University of Michigan in Ann Arbor, United States. Dr. Fischer's research focuses on human behaviors in response to natural hazards and climate change impacting the sustainability of socioecological systems. Her notable works include the integration of traditional ecological knowledge and local ecological knowledge when considering conservation of forest biodiversity [487], and furthering the understanding of fire-affected landscapes as coupled human and ecological systems [488]. Her recent work includes leading a synthesis where risk of wildfires is characterized by a complex array of challenging interactions between social and ecological systems across scales [241]. Other recent works include further understanding the role of adaptation to climate change and fire risk [489–491].

Helen de Klerk is a senior lecturer at the Stellenbosch University in Stellenbosch, South Africa. Dr. de Klerk's research focuses on spatial analysis, biogeography, species modeling, and fire ecology. Her notable works include an assessment of fire management in Mediterranean-climate shrub lands of South Africa [492], and the development of a Bayesian model of wildfire [493]. Her recent work includes research to understand the reseeder–resprouter dichotomy in Mediterranean-type vegetation [494], and the development of a framework to select remote-sensing products, algorithms, and methods to support environmental management [495].

Elsa Pastor is an assistant professor at the Center for Technological Risk Studies at the Universitat Politècnica de Catalunya in Barcelona, Spain. Dr. Pastor's research focuses on wildfires and risk analyses. Her notable works include the development of mathematical models to assess wildland fire behavior [347], and a review of the effectiveness of long-term forest fire retardants [348]. Her recent works include an introduction to a special issue focused on vulnerability and resilience of socio-ecological systems [496], and further development of wildland fire behavior models [349].

Marta Yebra is a research fellow at the Australian National University in Canberra, Australia. Dr. Yebra is also a senior scientist at the Center for Water and Landscape Dynamics. Dr. Yebra's research focuses on using spatial datasets to monitor and predict the impacts of natural disasters on landscapes. Her notable works include the use of remote-sensing data and geographic information systems to develop tools and framework for wildfire risk assessment [497–499]. Her recent works include the development of methods to evaluate fuel moisture and flammability using remote-sensing data [500].

Galina A. Ivanova is the leading research scholar for the Laboratory for Forest Pyrology at the V.N. Sukachev Institute of Forest in Krasnoyarsk, Russia. Dr. Ivanova's research focuses on forestry and forest fires, with a focus in zonal and ecological properties of forest fires and fire impacts on Siberian light-coniferous forests. Dr. Ivanova published more than 200 publications and seven monographs, although many are only available in Russian and are not shown on Web of Science. Her notable works include the impact of fire severity on emissions and the carbon cycle in Russian boreal forests [248,291]. Her recent work includes evaluating pine forest succession following high-intensity fires [249].

Tara McGee is a professor at the University of Alberta in Edmonton, Canada. Dr. McGee's research focuses on hazards, wildfires, and public participation. Her notable works include an assessment of wildfire preparedness in rural Australia [501], an assessment of the influence of prior hazard experience on the perceptions of wildfire risk [502], and an assessment of wildfire mitigation and preparedness at the neighborhood level in Canada, the United States, and Australia [503]. Her recent works include contributions to a synthesis seeking to define extreme wildfire events [504].

Amber Soja is a senior research scientist at the National Institute of Aerospace in collaboration with the National Aeronautics and Space Administration at Langley, United States. Dr. Soja's research focuses on fire emissions and the feedback of fires into climate change. Her notable works include assessments of how different boreal regions respond to climate change [198,505], and evaluating burned areas in Alaskan boreal forests [200]. Her recent works include an assessment of the contributions of crop residue and rangeland burning into emission inventories [506].

A. Carla Staver is an assistant professor at Yale University in New Haven, United States. Dr. Staver's research focuses on the distribution and dynamics of biomes at the intersection of savannas and forests. Her notable works include contributions to a synthesis of how to measure worldwide plant functional traits [507], an assessment of the role of fire and rainfall on savanna tree cover [229], and an assessment of the evolution of human-driven fire regimes in Africa [231]. Her recent works include an assessment of the role of soils and fire in driving vegetation structure in African savannas [508].

Christine Eriksen is a senior lecturer at the University of Wollongong, Australia. Dr. Eriksen research focuses on the social, cultural, and political aspects of disasters, the role of faith and gender in disaster management, resilience, and vulnerability, and research into the role of indigenous and local environmental knowledge. Her notable works include an assessment of societal attitudes to fire risk and awareness in diverse landowners in southeastern Australia [509], the role of fire by indigenous peoples in southern Africa [510], and the role of landowner gender in awareness, preparedness, and response to bushfires in southeast Australia [93]. Her recent works include assessing the role of affluence in vulnerability [511], and research highlighting the challenges of gender diversity in Australian wildland fire management [512]. Dr. Eriksen also authored a position paper to the Association of Fire Ecology in 2016 entitled "*Sexual Harassment and Gender Discrimination in Wildland Fire Management Must Be Addressed*".

Hannah Brenkert-Smith is a researcher at the University of Colorado in Boulder, United States. Dr. Brenkert-Smith's research focuses on environmental sociology, social dimensions of risk, place attachment, and gender. Her notable works include assessing wildfire mitigation decisions among residents within the wildland–urban interface [305,306,309]. Her recent work includes contributions to a synthesis calling for more adaptation to wildfires in western North American forests [37].

Maureen Kennedy is an assistant professor University of Washington in Seattle, United States. Dr. Kennedy's research focuses on biostatistics and the use of statistical approaches to solve ecology and environmental science problems. Her notable works include an assessment of fuel treatment impacts on landscape patterns of burn severity [513,514], and assessing stochastic models and cross-scale analyses to evaluate drivers of historic fire regimes [515]. Her recent works include an assessment of forest floor and woody fuel consumption during prescribed fires [516], and an assessment of the balance between uncertainty and complexity in including fire spread within eco-hydrological models [517].

Sandra Haire is a research fellow at the University of Massachusetts in Amherst, United States. Dr. Haire's research focuses on landscape and fire ecology. Her notable works include assessing the patterns of severity and forest recovery at the landscape scale [518,519]. Her recent works include further understanding the spatial patterns of burned areas, refugia, and fire occurrence [219,220].

Christina Santin Nuno is a research fellow at Swansea University, Wales. Dr. Santin's research focuses on pyrocarbon emissions and carbon dynamics, ash production, and hydrological impacts of fires. Her notable works include a global assessment of pyrogenic carbon emissions [520], and contributions to a synthesis of wildland fire ash production, composition, and impacts [521]. Her recent works include assessing the impact of fire severity in eucalypt forests on soil phosphorous [522], and the impacts of prescribed fires on ecosystem services in the United Kingdom [523].

Tara Hudiburg is an assistant professor at the University of Idaho in Moscow, United States. Dr. Hudiburg's research focuses on global change, biogeochemistry, land-use change, greenhouse gas emissions, and ecosystem modeling. Her notable works include an assessment of carbon dynamics and potential land carbon storage in Oregon and northern California forests [524], an assessment of how thinning may mitigate the impacts of fire in old forests [525], and an assessment of forest recovery following disturbances under changing climate conditions [526]. Her recent works include an assessment of how variability in fire regimes impact forest carbon dynamics over millennia [527], and an assessment of land-use strategies to mitigate carbon dioxide emissions [6].

Sally Koerner is an assistant professor at the University of North Carolina in Greensboro, United States. Dr. Koerner's research is focused on community ecology, biodiversity, and global

change biology. Her notable works include an assessment of what differences are apparent in the response of North American and South African grasslands to fire and grazing [528], and an assessment of the interaction of grazing, drought, and fire on grassland plant communities [529]. Her recent works include an assessment of how fire frequency impacts habitat selection of herbivores in African savannas [530].

Yingyi Zhang is a researcher at South China University of Technology in Guangzhou, China. Dr. Zhang's research focuses on primary and secondary organic aerosols. Her notable works include an assessment of the spatial and temporal properties of biomass burning emissions in the Pearl River Delta area of China [531]. Her recent works include modeling both natural and anthropogenic sources of secondary organics [532].

4. Special Mentions

As with the original editorial [1], this section recognizes scientists that published predominately technical reports or national journal titles that do not register in Web of Science. Although the data for these scientists were incomplete, each contributed significantly to fire science, and we wanted to err on the side of inclusion.

Elizabeth Reinhardt was formerly the assistant director of fire and aviation management at the United States Forest Service in the United States. Dr. Reinhardt's research broadly focused on fuels and fire ecology. Her notable works include the development of models to develop post-fire mortality, fire effects, and burning rates of large woody fuels [532–535]. In additional to articles in international journals, Dr. Reinhardt published 14 general technical reports.

Patricia Andrews was formerly a research physical scientist at the United States Forest Service Missoula Fire Sciences Laboratory in the United States. Dr. Andrews's research focused on science integration and the application of fire behavior and fire danger research. Her notable works include advances in the understanding of fire danger [536], and the development of the BehavePlus fire modeling system [537]. In additional to articles in international journals, Dr. Andrews published six general technical reports.

Sara McAllister is a research mechanical engineer at the United States Forest Service Missoula Fire Science Laboratory in the United States. Dr. McAllister's research focuses on understanding ignition of fuel particles, physical fire processes, and combustion fundamentals. Her notable works include being the lead author on a textbook entitled "*Fundamentals of Combustion Processes*" [538], contributions to a synthesis calling for a theory of wildland fire spread [539], and furthering the understanding of the combustion of live forest fuels [540]. Her recent works include contributions to a seminal paper outlining a new framework for fire spread models using buoyant flame dynamics [541], and an assessment of wood ignition processes under convective and radiative heating [542,543]. Dr. McAllister published four general technical reports.

Sue Ferguson (deceased) was formerly a member of the Fire and Environmental Research Applications Team at the Pacific Northwest Research Station of the United States Forest Service. Dr. Ferguson founded the Atmosphere and Fire Interactions Research and Engineering Team and the Northwest Regional Modeling Center. Her notable works include an assessment of lighting-based wildfire ignitions in the Pacific Northwest [544], and an article published posthumously recognizing her work [545].

5. Conclusions

Overall, 145 women leaders in fire science are highlighted. We again acknowledge that this compilation in no way encompasses all current women leaders in fire science. However, we hope that this will continue the conversation of how we can all work to promote diversity in our discipline. The geographic distribution of those identified does highlight a Western bias. This is perhaps an artefact of traditional funding sources in fire science, or that women fire scientists in Asia use different profiles than Google Scholar, or publish in venues not covered by Google Scholar or Web of Science.

Clearly, a good approach to increase visibility in science is to create and maintain scientific social media profiles; however, we recognize that, in some countries, this is not an option.

We freely acknowledge that just highlighting women leaders in this and similar editorials is not enough to improve diversity and inclusion within fire science [546]. As outlined by Reference [546], at the time of the first editorial [1], only 20% of the Editorial Board of Fire were women. In large part due to the proactive recommendations of that author, the Editor-in-Chief of Fire has already taken steps to increase the gender diversity of the Associate Editors and wider Editorial Board. As of this issue (pending webpage updates), 35% of the Associate Editors in Fire are women and the Editorial Board representation increased to 25% women. We acknowledge that this is still not sufficient. Following the recommendations of Reference [546], the current Editor-in-Chief of Fire is committed by 2021 to the target of increasing the percentage of women Associate Editors of Fire to 50%, with at least 33% on the broader Editorial Board of Fire. Equally, as highlighted in both Reference [546] and in the initial editorial [1], we seek to avoid a productivity tax that can arise from overworking a core group of women Associate Editors. Geographic diversity is also a clear area that needs to be addressed in Fire, as there is too much bias toward Western countries. Following the recommendations of Reference [546], we will seek to recruit more diverse Associate Editors and Editorial Board members through working with diverse role models that already have good working relationships with strong up-and-coming women fire scientists.

In closing, Fire is committed to improving diversity and inclusion in all aspects of the journal and welcomes perspectives, viewpoints, and constructive criticisms to help advance that mission. It is our hope that, through these editorials and the structural changes proposed by Reference [546], that Fire not only helps promote diversity across fire science, but also enables Fire as a journal to serve as a role model for other journals. We also hope that this list will be used by other Fire science organizations to help promote diversity in our discipline. Through these changes and similar efforts in other science disciplines [547,548], we hope that we can help make the *#allmalepanel* become a shameful curiosity consigned to the history books.

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