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Physical, social, and biological attributes for improved understanding and prediction of wildfires: FPA FOD-Attributes dataset

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Table S1. Detailed description of attributes included in FPA FOD-Attributes and their sources.

Category	Variable	Description	Additional Information and Source
FPA FOD	FOD_ID	Unique numeric record identifier	
	FPA_ID	Unique identifier that contains information necessary to track back to the original record in the source dataset	
	SOURCE_SYSTEM_TYPE	Type of source database or system that the record was drawn from (federal, nonfederal, or interagency)	
	SOURCE_SYSTEM	Name of or other identifier for source database or system that the record was drawn from	
	NWCG_REPORTING_AGENCY	Active National Wildlife Coordinating Group (NWCG) Unit Identifier for the agency preparing the fire report (BIA = Bureau of Indian Affairs, BLM = Bureau of Land Management, BOR = Bureau of Reclamation, DOD = Department of Defense, DOE = Department of Energy, FS = Forest Service, FWS = Fish and Wildlife Service, IA = Interagency Organization, NPS = National Park Service, ST/C&L = State, County, or Local Organization, and TRIBE = Tribal Organization)	
	NWCG_REPORTING_UNIT_ID	Active NWCG Unit Identifier for the unit preparing the fire report	
	NWCG_REPORTING_UNIT_NAME	Active NWCG Unit Name for the unit preparing the fire report	
	SOURCE_REPORTING_UNIT	Code for the agency unit preparing the fire report, based on code/name in the source dataset	
	SOURCE_REPORTING_UNIT_NAME	Name of reporting agency unit preparing the fire report, based on code/name in the source dataset	
	LOCAL_FIRE_REPORT_ID	Number or code that uniquely identifies an incident report for a particular reporting unit and a particular calendar year	

Category	Variable	Description	Additional Information and Source
	LOCAL_INCIDENT_ID	Number or code that uniquely identifies an incident for a particular local fire management organization within a particular calendar year	
	FIRE_CODE	Code used within the interagency wildland fire community to track and compile cost information for emergency fire suppression (https://www.firecode.gov/)	
	FIRE_NAME	Name of the incident, from the fire report (primary) or ICS-209 report (secondary)	
	ICS_209_PLUS_INCIDENT_JOIN_ID	Primary identifier needed to join into operational situation reporting data for the incident in the ICS-209-PLUS dataset	
	ICS_209_PLUS_COMPLEX_JOIN_ID	If part of a complex, secondary identifier potentially needed to join to operational situation reporting data for the incident in the ICS-209-PLUS dataset (2014 and later only)	
	MTBS_ID	Incident identifier, from the MTBS perimeter dataset	
	MTBS_FIRE_NAME	Name of the incident, from the MTBS perimeter dataset	
	COMPLEX_NAME	Name of the complex under which the fire was ultimately managed, when discernible	
	FIRE_YEAR	Calendar year in which the fire was discovered or confirmed to exist	
	DISCOVERY_DATE	Date on which the fire was discovered or confirmed to exist	
	DISCOVERY_DOY	Day of year on which the fire was discovered or confirmed to exist	
	DISCOVERY_TIME	Time of day that the fire was discovered or confirmed to exist	

Category	Variable	Description	Additional Information and Source
	NWCG_CAUSE_CLASSIFICATION	Broad classification of the reason the fire occurred (Human, Natural, Missing data/not specified/undetermined)	
	NWCG_GENERAL_CAUSE	Event or circumstance that started a fire or set the stage for its occurrence (Arson/incendiarism, Debris and open burning, Equipment and vehicle use, Firearms and explosives use, Fireworks, Misuse of fire by a minor, Natural, Power generation/transmission/distribution, Railroad operations and maintenance, Recreation and ceremony, Smoking, Other causes, Missing data/not specified/undetermined)	
	NWCG_CAUSE_AGE_CATEGORY	If cause attributed to children (ages 0-12) or adolescents (13-17), the value for this data element is set to Minor; otherwise null	
	CONT_DATE	Date on which the fire was declared contained or otherwise controlled (mm/dd/yyyy where mm=month, dd=day, and yyyy=year)	
	CONT_DOY	Day of year on which the fire was declared contained or otherwise controlled	
	CONT_TIME	Time of day that the fire was declared contained or otherwise controlled (hhmm where hh=hour, mm=minutes)	
	FIRE_SIZE	The estimate of acres within the final perimeter of the fire	
	FIRE_SIZE_CLASS	Code for fire size based on the number of acres within the final fire perimeter (A=greater than 0 but less than or equal to 0.25 acres, B=0.26-9.9 acres, C=10.0-99.9 acres, D=100-299 acres, E=300-999 acres, F=1000-4999, G=5000+ acres)	
	LATITUDE	Latitude (NAD83) for point location of the fire (decimal degrees)	
	LONGITUDE	Longitude (NAD83) for point location of the fire (decimal degrees)	
	OWNER_DESCR	Name of primary owner or entity responsible for managing the land at the point of origin of the fire at the time of the incident	

Category	Variable	Description	Additional Information and Source
	STATE	Two-letter alphabetic code for the state in which the fire burned (or originated), based on the nominal designation in the fire report	
	COUNTY	County, or equivalent, in which the fire burned (or originated), based on nominal designation in the fire report	
	FIPS_CODE	Five-digit code from the Federal Information Process Standards (FIPS) publication 6-4 for representation of counties and equivalent entities, based on the nominal designation in the fire report	
	FIPS_NAME	County name from the FIPS publication 6-4 for representation of counties and equivalent entities, based on the nominal designation in the fire report	
	Year	The year that fire discovers.	
Climate and Economic Justice Screening Tool (CEJST)	DF_PFS	Diagnosed diabetes among adults aged greater than or equal to 18 years (percentile)	
	AF_PFS	Current asthma among adults aged greater than or equal to 18 years (percentile)	
	HDF_PFS	Coronary heart disease among adults aged greater than or equal to 18 years (percentile)	
	DSF_PFS	Diesel particulate matter exposure (percentile)	
	EBF_PFS	Energy burden (percentile)	
	EALR_PFS	Expected agricultural loss rate (Natural Hazards Risk Index) (percentile)	
	EBLR_PFS	Expected building loss rate (Natural Hazards Risk Index) (percentile)	
	EPLR_PFS	Expected population loss rate (Natural Hazards Risk Index) (percentile)	
	HBF_PFS	Housing burden (percent) (percentile)	
	LLEF_PFS	Low life expectancy (percentile)	
	LIF_PFS	Linguistic isolation (percent) (percentile)	

Category	Variable	Description	Additional Information and Source
	LMI_PFS	Low median household income as a percent of area median income (percentile)	
	MHVF_PFS	Median value ($) of owner-occupied housing units (percentile)	
	PM25F_PFS	PM2.5 in the air (percentile)	
	HSEF	Percent individuals age 25 or over with less than high school degree	
	P100_PFS	Percent of individuals < 100% Federal Poverty Line (percentile)	
	P200_PFS	Percent of individuals below 200% Federal Poverty Line (percentile)	
	LPF_PFS	Percent pre-1960s housing (lead paint indicator) (percentile)	
	NPL_PFS	Proximity to NPL sites (percentile)	
	RMP_PFS	Proximity to Risk Management Plan (RMP) facilities (percentile)	
	TSDF_PFS	Proximity to hazardous waste sites (percentile)	
	TPF	Total population	
	TF_PFS	Traffic proximity and volume (percentile)	
	UF_PFS	Unemployment (percent) (percentile)	
	WF_PFS	Wastewater discharge (percentile)	
	M_WTR	Water Factor (Definition M*)	Definition M: True / False variable for whether a tract is a Disadvantaged Community (DAC)
	M_WKFC	Workforce Factor (Definition M)	
	M_CLT	Climate Factor (Definition M)	
	M_ENY	Energy Factor (Definition M)	

Category	Variable	Description	Additional Information and Source
	M_TRN	Transportation Factor (Definition M)	
	M_HSG	Housing Factor (Definition M)	
	M_PLN	Pollution Factor (Definition M)	
	M_HLTH	Health Factor (Definition M)	
	SM_C	Definition M (communities)	Identified as disadvantaged
	SM_PFS	Definition M (percentile)	
	EPLRLI	Greater than or equal to the 90th percentile for expected population loss rate, is low income, and has a low percent of higher ed students?	
	EALRLI	Greater than or equal to the 90th percentile for expected agriculture loss rate, is low income, and has a low percent of higher ed students?	
	EBLRLI	Greater than or equal to the 90th percentile for expected building loss rate, is low income, and has a low percent of higher ed students?	
	PM25LI	Greater than or equal to the 90th percentile for PM2.5 exposure, is low income, and has a low percent of higher ed students?	
	EBLI	Greater than or equal to the 90th percentile for energy burden, is low income, and has a low percent of higher ed students?	
	DPMLI	Greater than or equal to the 90th percentile for diesel particulate matter, is low income, and has a low percent of higher ed students?	
	TPLI	Greater than or equal to the 90th percentile for traffic proximity, is low income, and has a low percent of higher ed students?	
	LPMHVLI	Greater than or equal to the 90th percentile for lead paint, the median house value is less than 90th percentile, is low income, and has a low percent of higher ed students?	

Category	Variable	Description	Additional Information and Source
	HBLI	Greater than or equal to the 90th percentile for housing burden, is low income, and has a low percent of higher ed students?	
	RMPLI	Greater than or equal to the 90th percentile for proximity to RMP sites, is low income, and has a low percent of higher ed students?	
	SFLI	Greater than or equal to the 90th percentile for proximity to superfund sites, is low income, and has a low percent of higher ed students?	
	HWLI	Greater than or equal to the 90th percentile for proximity to hazardous waste facilities, is low income, and has a low percent of higher ed students?	
	WDLI	Greater than or equal to the 90th percentile for wastewater discharge, is low income, and has a low percent of higher ed students?	
	DLI	Greater than or equal to the 90th percentile for diabetes, is low income, and has a low percent of higher ed students?	
	ALI	Greater than or equal to the 90th percentile for asthma, is low income, and has a low percent of higher ed students?	
	HDLI	Greater than or equal to the 90th percentile for heart disease, is low income, and has a low percent of higher ed students?	
	LLELI	Greater than or equal to the 90th percentile for low life expectancy, is low income, and has a low percent of higher ed students?	
	LILHSE	Greater than or equal to the 90th percentile for households in linguistic isolation, has low HS attainment, and has a low percent of higher ed students?	
	PLHSE	Greater than or equal to the 90th percentile for households at or below 100% federal poverty level, has low HS attainment, and has a low percent of higher ed students?	

Category	Variable	Description	Additional Information and Source
	LMILHSE	Greater than or equal to the 90th percentile for low median household income as a percent of area median income, has low HS attainment, and has a low percent of higher ed students?	
	ULHSE	Greater than or equal to the 90th percentile for unemployment, has low HS attainment, and has a low percent of higher ed students?	
	EPL_ET	Greater than or equal to the 90th percentile for expected population loss	
	EAL_ET	Greater than or equal to the 90th percentile for expected agricultural loss	
	EBL_ET	Greater than or equal to the 90th percentile for expected building loss	
	EB_ET	Greater than or equal to the 90th percentile for energy burden	
	PM25_ET	Greater than or equal to the 90th percentile for pm2.5 exposure	
	DS_ET	Greater than or equal to the 90th percentile for diesel particulate matter	
	TP_ET	Greater than or equal to the 90th percentile for traffic proximity	
	LPP_ET	Greater than or equal to the 90th percentile for lead paint and the median house value is less than 90th percentile	
	HB_ET	Greater than or equal to the 90th percentile for housing burden	
	RMP_ET	Greater than or equal to the 90th percentile for RMP proximity	
	NPL_ET	Greater than or equal to the 90th percentile for NPL (superfund sites) proximity	
	TSDF_ET	Greater than or equal to the 90th percentile for proximity to hazardous waste sites	
	WD_ET	Greater than or equal to the 90th percentile for wastewater discharge	
	DB_ET	Greater than or equal to the 90th percentile for diabetes	

Category	Variable	Description	Additional Information and Source
	A_ET	Greater than or equal to the 90th percentile for asthma	
	HD_ET	Greater than or equal to the 90th percentile for heart disease	
	LLE_ET	Greater than or equal to the 90th percentile for low life expectancy	
	UN_ET	Greater than or equal to the 90th percentile for unemployment	
	LISO_ET	Greater than or equal to the 90th percentile for households in linguistic isolation	
	POV_ET	Greater than or equal to the 90th percentile for households at or below 100% federal poverty level	
	LMI_ET	Greater than or equal to the 90th percentile for low median household income as a percent of area median income	
	IA_LMI_ET	Low median household income as a percent of territory median income in 2009 exceeds 90th percentile	
	IA_UN_ET	Unemployment (percent) in 2009 exceeds 90th percentile	
	IA_POV_ET	Percentage households below 100% of federal poverty line in 2009 exceeds 90th percentile	
	TC	Total threshold criteria exceeded	
	CC	Total categories exceeded	
	IAULHSE	Greater than or equal to the 90th percentile for unemployment and has low HS education in 2009 (island areas)?	
	IAPLHSE	Greater than or equal to the 90th percentile for households at or below 100% federal poverty level and has low HS education in 2009 (island areas)?	
	IALMILHSE	Greater than or equal to the 90th percentile for low median household income as a percent of area median income and has low HS education in 2009 (island areas)?	

Category	Variable	Description	Additional Information and Source
	IALMIL_87	Low median household income as a percent of territory median income in 2009 (percentile)	
	IAPLHS_88	Percentage households below 100% of federal poverty line in 2009 for island areas (percentile)	
	IAULHS_89	Unemployment (percent) in 2009 for island areas (percentile)	
	LHE	Low high school education and low percent of higher ed students	
	IALHE	Low high school education in 2009 (island areas)	
	IAHSEF	Percent individuals age 25 or over with less than high school degree in 2009	
	CA	Percent enrollment in college or graduate school	
	NCA	Percent of population not currently enrolled in college or graduate school	Percent of residents who are not currently enrolled in higher ed
	CA_LT20	Percent higher ed enrollment rate is less than 20%	
	M_CLT_EOMI	At least one climate threshold exceeded	
	M_ENY_EOMI	At least one energy threshold exceeded	
	M_TRN_EOMI	At least one traffic threshold exceeded	
	M_HSG_EOMI	At least one housing threshold exceeded	
	M_PLN_EOMI	At least one pollution threshold exceeded	
	M_WTR_EOMI	At least one water threshold exceeded	
	M_HLTH_102	At least one health threshold exceeded	
	M_WKFC_103	At least one workforce threshold exceeded	
	FPL200S	Is low income?	

Category	Variable	Description	Additional Information and Source
	M_WKFC_105	Both workforce socioeconomic indicators exceeded	
	M_EBSI	Is low income and has a low percent of higher ed students?	
	UI_EXP	UI_EXP	
	THRHLD	THRHLD	
Annual Climate	Annual_etr	Annual total reference evapotranspiration (mm)	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	Annual_precipitation	Annual total precipitation (mm)	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	Annual_temperature	Annual average temperature (k)	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	Aridity_index	Ratio of precipitation to reference evapotranspiration (P/PET)	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
CheatGrass	CheatGrass	Cheatgrass percent cover	https://www.sciencebase.gov/catalog/item/61716970d34ea36449a77130
	ExoticAnnualGrass	Non-native annual grass percent cover	https://www.sciencebase.gov/catalog/item/61716970d34ea36449a77130
	Medusahead	Medusahead percent cover	https://www.sciencebase.gov/catalog/item/61716970d34ea36449a77130
	PoaSecunda	Poa secunda percent cover	https://www.sciencebase.gov/catalog/item/61716970d34ea36449a77130
Climate Normals	pr_Normal	Long term average precipitation	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	tmmn_Normal	Long term average minimum temperature	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	tmmx_Normal	Long term average maximum temperature	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html

Category	Variable	Description	Additional Information and Source
	rmin_Normal	Long term average minimum relative humidity	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	rmax_Normal	Long term average maximum relative humidity	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	sph_Normal	Long term average specific humidity	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	srad_Normal	Long term average surface downward shortwave radiation	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	fm100_Normal	Long term average 100-hour dead fuel moisture	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	fm1000_Normal	Long term average 1000-hour dead fuel moisture	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	bi_Normal	Long term average burning index	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	vpd_Normal	Long term average mean vapor pressure deficit	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	erc_Normal	Percentile of energy release component	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
GRIDMET	pr	Precipitation amount (mm)	https://www.climatologylab.org/gridmet.html
	tmmn	Minimum temperature (K)	https://www.climatologylab.org/gridmet.html
	tmmx	Maximum temperature (K)	https://www.climatologylab.org/gridmet.html
	rmin	Minimum relative humidity (%)	https://www.climatologylab.org/gridmet.html
	rmax	Maximum relative humidity (%)	https://www.climatologylab.org/gridmet.html
	sph	Specific humidity (kg/kg)	https://www.climatologylab.org/gridmet.html

Category	Variable	Description	Additional Information and Source
	vs	Wind velocity at 10 m above ground (m/s)	https://www.climatologylab.org/gridmet.html
	th	Wind direction (degrees clockwise from north)	https://www.climatologylab.org/gridmet.html
	srad	Surface downward shortwave radiation (W/m^2)	https://www.climatologylab.org/gridmet.html
	etr	Daily reference evapotranspiration (alfalfa, mm)	https://www.climatologylab.org/gridmet.html
	fm100	100-hour dead fuel moisture (%)	https://www.climatologylab.org/gridmet.html
	fm1000	1000-hour dead fuel moisture (%)	https://www.climatologylab.org/gridmet.html
	bi	Burning index (NFDRS fire danger index)	https://www.climatologylab.org/gridmet.html
	vpd	Mean vapor pressure deficit (kPa)	https://www.climatologylab.org/gridmet.html
	erc	Energy release component (NFDRS fire danger index)	https://www.climatologylab.org/gridmet.html
	pr_5D_mean	Precipitation average in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	tmmn_5D_mean	Minimum temperature average in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	tmmx_5D_mean	Maximum temperature average in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	rmin_5D_mean	Minimum relative humidity average in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	rmax_5D_mean	Maximum relative humidity average in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	sph_5D_mean	Specific humidity average in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	vs_5D_mean	Wind velocity average in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	th_5D_mean	Wind direction average in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html

Category	Variable	Description	Additional Information and Source
	srad_5D_mean	Surface downward shortwave radiation average in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	etr_5D_mean	Daily reference evapotranspiration average in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	fm100_5D_mean	100-hour dead fuel moisture average in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	fm1000_5D_mean	1000-hour dead fuel moisture average in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	bi_5D_mean	Burning index average in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	vpd_5D_mean	Vapor pressure deficit average in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	erc_5D_mean	Energy release component average in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	pr_5D_min	Minimum precipitation in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	pr_5D_max	Maximum precipitation in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	tmmn_5D_max	Maximum minimum temperature in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	tmmx_5D_max	Maximum maximum temperature in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	rmin_5D_min	Minimum minimum relative humidity in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	rmax_5D_min	Minimum maximum relative humidity in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html

Category	Variable	Description	Additional Information and Source
	sph_5D_min	Minimum specific humidity in a 5-day window centered ont the fire discovery date	https://www.climatologylab.org/gridmet.html
	vs_5D_max	Maximum wind velocity in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	th_5D_max	Maximum wind direction in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	srad_5D_max	Maximum surface downward shortwave radiation in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	etr_5D_max	Maximum daily reference evapotranspiration in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	fm100_5D_min	Minimum 100-hour dead fuel moisture in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	fm1000_5D_min	Minimum 1000-hour dead fuel moisture in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	bi_5D_max	Maximum burning index in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	vpd_5D_max	Maximum vapor pressure deficit in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
	erc_5D_max	Maximum venergy release component in a 5-day window centered on the fire discovery date	https://www.climatologylab.org/gridmet.html
Climate Percentiles	tmmn_Percentile	Percentile range of minimum temperature	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	tmmx_Percentile	Percentile range of maximum temperature	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	sph_Percentile	Percentile range of specific humidity	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html

Category	Variable	Description	Additional Information and Source
	vs_Percentile	Percentile range of wind velocity	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	fm100_Percentile	Percentile range of 100-hour dead fuel moisture	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	bi_Percentile	Percentile range of burning index	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	vpd_Percentile	Percentile range of vapor pressure deficit	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
	erc_Percentile	Percentile range of energy release component	http://thredds.northwestknowledge.net:8080/thredds/catalog/MET/climatologies/catalog.html
Climate Percentiles	Ecoregion_US_L4CODE	Ecoregion level 4 code in the United States	https://www.epa.gov/eco-research/ecoregions-north-america
	Ecoregion_US_L3CODE	Ecoregion level 3 code in the United States	https://www.epa.gov/eco-research/ecoregions-north-america
	Ecoregion_NA_L3CODE	Ecoregion level 3 code in the United States, Canada, and Mexico	https://www.epa.gov/eco-research/ecoregions-north-america
	Ecoregion_NA_L2CODE	Ecoregion level 2 code in the United States, Canada, and Mexico	https://www.epa.gov/eco-research/ecoregions-north-america
	Ecoregion_NA_L1CODE	Ecoregion level 1 code in the United States, Canada, and Mexico	https://www.epa.gov/eco-research/ecoregions-north-america
Digital Elevation Map	Elevation	Elevation in m	https://landfire.gov/topographic.php
	Aspect	0-360 indicating azimuth (0=N, 90=E, 180=S, 270=W)	https://landfire.gov/topographic.php
	Slope	0-90 degrees	https://landfire.gov/topographic.php
	TPI	Topographic Position Index	https://landfire.gov/topographic.php
	TRI	Terrain Ruggedness Index	https://landfire.gov/topographic.php

Category	Variable	Description	Additional Information and Source
	Elevation_1km	Average elevation in 1 km radius around the ignition point	https://landfire.gov/topographic.php
	Aspect_1km	Average aspect in 1 km radius around the ignition point	https://landfire.gov/topographic.php
	Slope_1km	Average slope in 1 km radius around the ignition point	https://landfire.gov/topographic.php
	TPI_1km	Average Topographic Position Index in 1 km radius around the ignition point	https://landfire.gov/topographic.php
	TRI_1km	Average Terrain Ruggedness Index in 1 km radius around the ignition point	https://landfire.gov/topographic.php
Vegetation	EVC	Existing Vegetation Cover - vertically projected percent cover of the live canopy layer for a specific area (%)	https://landfire.gov/evc.php
	EVC_1km	Existing Vegetation Cover in 1 km radius - vertically projected percent cover of the live canopy layer for a specific area (%)	https://landfire.gov/evc.php
	EVH	Existing Vegetation Height - average height of the dominant vegetation (m)	https://landfire.gov/evh.php
	EVH_1km	Existing Vegetation Height in 1 km radius - average height of the dominant vegetation	https://landfire.gov/evh.php
	EVT	Existing Vegetation Type - complexes of plant communities representing NatureServe's terrestrial ecological systems classification	https://landfire.gov/evt.php
	EVT_1km	Existing Vegetation Type in 1 km radius - complexes of plant communities representing NatureServe's terrestrial Ecological Systems classification	https://landfire.gov/evt.php
Risk Management Assistance	Evacuation	Estimated ground transport time in hours from the fire ignition point to a definitive care facility (hospital)	https://firenet365.sharepoint.com/sites/RiskManagementAssistance/Shared%20Documents/Forms/AllItems.aspx?ga=1&id=%2Fsites%2FRiskManagementAssistance%2FShared%20Documents%2FRMA%20Fires%2F%2BRMA%20Dashboard%20Analytics%2FEstimated%20Ground%20Evacuation%20%28from%20WFDSS%29&viewid=3762ae89%2Dac1f%2D4678%2D9b67%2Ddf3979859dfe
	SDI	Suppression Difficulty Index (Rodriguez y Silva et al. 2020): relative difficulty of fire control	https://firenet365.sharepoint.com/sites/RiskManagementAssistance/Shared%20Documents/Forms/AllItems.aspx?ga=1&id=%2Fsites%2FRiskManagementAssistance%2FShared%20Documents%2FRMA%20Fires%2F%2BRMA%

Category	Variable	Description	Additional Information and Source
			20Dashboard%20Analytics%2FSuppression%20Difficulty%20Index%20%28SDI%29%2F2022%2FRaster&viewid=3762ae89%2Dac1f%2D4678%2D9b67%2Ddf3979859dfe
Fire Regime Group	FRG	Fire regime group - presumed historical fire regime	https://landfire.gov/frg.php
	FRG_1km	Fire regime group in 1 km radius of ignition point	https://landfire.gov/frg.php
Fire Stations	No_FireStation_1.0km	Number of fire stations in a 1 km radius around the fire ignition point	https://hifld-geoplatform.opendata.arcgis.com/datasets/0ccaf0c53b794eb8ac3d3de6afdb3286_0/explore?location=40.454087%2C-120.631622%2C4.30
	No_FireStation_5.0km	Number of fire stations in a 5 km radius around the fire ignition point	https://hifld-geoplatform.opendata.arcgis.com/datasets/0ccaf0c53b794eb8ac3d3de6afdb3286_0/explore?location=40.454087%2C-120.631622%2C4.31
	No_FireStation_10.0km	Number of fire stations in a 10 km radius around the fire ignition point	https://hifld-geoplatform.opendata.arcgis.com/datasets/0ccaf0c53b794eb8ac3d3de6afdb3286_0/explore?location=40.454087%2C-120.631622%2C4.32
	No_FireStation_20.0km	Number of fire stations in a 1 km radius around the fire ignition point	https://hifld-geoplatform.opendata.arcgis.com/datasets/0ccaf0c53b794eb8ac3d3de6afdb3286_0/explore?location=40.454087%2C-120.631622%2C4.33
Geographic Area Coordination Center	GACCAbbrev	Geographical Area Coordination Center (GACC) abbreviation	
	GACC_PL	GACC Preparedness Level	
	GACC_New fire	Total number of new fires reported in each Geographic Area	
	GACC_New LF	Total number of new large fires that were previously not reported as a large fire in the IMSR report	

Category	Variable	Description	Additional Information and Source
	GACC_Uncont LF	Total number of uncontained large fires burning within the geographic area	
	GACC_Type 1 IMTs	Number of Type 1 Incident Management Teams assigned within the geographic area	
	GACC_Type 2 IMTs	Number of Type 2 Incident Management Teams assigned within the geographic area	
	GACC_NIMO Teams	Number of National Incident Management Organization Teams assigned within the geographic area	
	GACC_Area Command Teams	Number of Area Command Teams assigned within the geographic area	
	GACC_Fire Use Teams	Number of Fire Use Teams assigned within the geographic area	
Gap Analysis Project (GAP)	Mang_Type	The Manager type (Mang_Type) domain code and Manager Type domain description (MngTp_Desc) describes the general land manager description standardized for the U.S. See PAD-US Data Manual for “Agency Name to Agency Type Crosswalk” or geodatabase look up table for full domain descriptions. The domain code 'UNK' is assigned to non-padus areas within Census state boundaries.	https://www.usgs.gov/core-science-systems/science-analytics-and-synthesis/gap/pad-us-data-manual
	Mang_Name	The Manager Name (Mang_Nm) domain code and Manager Name domain description (MngNm_Desc) describe the land manager or administrative agency standardized for the U.S. See PAD-US Data Manual or geodatabase look up table for 'Agency Name'. The domain code 'UNK' is assigned to non-padus areas within Census state boundaries.	https://www.usgs.gov/core-science-systems/science-analytics-and-synthesis/gap/pad-us-data-manual
	Des_Tp	The Designation Type (Des_Tp) domain code and Designation Type (Des_TpDesc) domain description define the unit's land management designation standardized for the U.S. (e.g. 'Area of Critical Environmental Concern', 'Wilderness Area', 'State Park', 'Local Recreation Area', 'Conservation Easement'). See the PAD-US Data Manual for a crosswalk of 'Designation Type' from source data where 'Local Designation Type' may	https://www.usgs.gov/core-science-systems/science-analytics-and-synthesis/gap/pad-us-data-manual

Category	Variable	Description	Additional Information and Source
		include related designations in various formats (e.g. NWSR, National Recreation River, National Scenic River, Eligible - Recreational, Eligible - Wild, etc.). 'Designation Type' supports PAD-US queries and the categorical assignment of conservation measures (i.e. 'GAP Status Code', 'IUCN Category') and 'Public Access' in the absence of other information. The domain code 'UNK' is assigned to non-padus areas within the Census state boundary. It is not recommended to use Designation Type (Des_Tp) to query area (GIS_Acres) for specific designation types in the Raster Analysis Files as this field describes the result of the prioritization process to remove overlapping designations. Use the full inventory geodatabase (PAD_US3_0.gdb, https://doi.org/10.5066/P9Q9LQ4B) for Designation Type (Des_Tp) queries to obtain the original boundary area.	
	GAP_Sts	The 'GAP Status Code' domain code (GAP_Sts) and 'GAP Status Code' domain description (GAP_StsDes) classify management intent to conserve biodiversity. See PAD-US Data Manual for more information. The domain code '4' is assigned to non-padus areas within the Census state boundary. See PAD-US Data Manual for more information, including the GAP Status Code Assignment reference document that includes detailed GAP Status Code definitions, assumptions, criteria, and assignment methods. https://www.usgs.gov/core-science-systems/science-analytics-and-synthesis/gap/pad-us-data-manual	https://www.usgs.gov/core-science-systems/science-analytics-and-synthesis/gap/pad-us-data-manual
	GAP_Prity	The GAP Status Code reclassified to maintain prioritization during the Raster Analysis File development process. The GAP Priority (GAP_Prity) field was added during the Vector Analysis File prioritization process to facilitate rasterization from the vector file, as rasters prioritize higher numbers (Gap_Sts 1 becomes Gap_Prity 9, Gap_Sts 2 becomes Gap_Prity 8, Gap_Sts 3 becomes Gap_Prity 7, Gap_Sts 4 becomes Gap_Prity 6, Non-PADUS areas included through the boundaries of interest to stakeholders (State, Congressional District, County, Department of the Interior Region, EcoRegions I-IV, Landscape Conservation Cooperative, Urban Areas).	https://www.usgs.gov/core-science-systems/science-analytics-and-synthesis/gap/pad-us-data-manual
Gross Domestic Product	GDP	Annual Gross Domestic Product Per Capita	https://datadryad.org/stash/dataset/doi:10.5061/dryad.dk1j0

Category	Variable	Description	Additional Information and Source
Global Human Modification	GHM	Cumulative measure of the human modification of lands within 1 km of the fire ignition point	https://sedac.ciesin.columbia.edu/data/set/lulc-human-modification-terrestrial-systems
MODIS NDVI	MOD_NDVI_12m	Monthly NDVI in the 12 months prior to fire discovery	https://lpdaac.usgs.gov/products/mod13c2v061/
	MOD_EVI_12m	Monthly EVI in the 12 months prior to fire discovery	https://lpdaac.usgs.gov/products/mod13c2v061/
NOAA NDVI	NDVI_min	Monthly minimum NDVI for the point of ignition in the 12 months prior to fire discovery	https://www.ncei.noaa.gov/products/climate-data-records/normalized-difference-vegetation-index
	NDVI_max	Monthly maximum NDVI for the point of ignition in the 12 months prior to fire discovery	https://www.ncei.noaa.gov/products/climate-data-records/normalized-difference-vegetation-index
	NDVI_mean	Monthly mean NDVI for the point of ignition in the 12 months prior to fire discovery	https://www.ncei.noaa.gov/products/climate-data-records/normalized-difference-vegetation-index
	NDVI-1day	NDVI on the day prior to ignition	https://www.ncei.noaa.gov/products/climate-data-records/normalized-difference-vegetation-index
National Land Cover Database (NLCD	Land_Cover	Land cover at the fire ignition point for the year of the fire, or the closest year prior to ignition for which data are available. NLCD 2019 contains 34 products characterizing land cover and land cover change across 8 periods from 2001-2019.	https://www.mrlc.gov/
	Land_Cover_1km	Three dominant land cover types at the fire ignition point n for the year of the fire, or the closest year prior to ignition for which data are available	https://www.mrlc.gov/
National Preparedness Level (NPL)	NPL	National Preparedness Level	https://www.nifc.gov/nicc/incident-information/imsr doi: 10.5281/zenodo.7901237
Population	Population	Population density at the fire ignition point	https://hub.worldpop.org/geodata/summary?id=44751
	Popo_1km	Average population density within a 1 km radius around the fire ignition point	https://hub.worldpop.org/geodata/summary?id=44751

Category	Variable	Description	Additional Information and Source
Pyrome	NAME	Pyrome name	https://www.fs.usda.gov/rds/archive/catalog/RDS-2020-0020
Road	road_county_dis	Distance from country road (m)	https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.html
	road_interstate_dis	Distance from interstate road (m)	https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.html
	road_common_name_dis	Distance from common name road (m)	https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.html
	road_other_dis	Distance from other road (m)	https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.html
	road_state_dis	Distance from state road (m)	https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.html
	road_US_dis	Distance from US road (m)	https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.html
Social Vulnerability Index (SVI)	RPL_THEMES	Overall percentile ranking	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
	RPL_THEME1	Percentile ranking for Socioeconomic theme summary	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
	EPL_POV	Percentile Percentage of persons below poverty estimate	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
	EPL_UNEMP	Percentile Percentage of civilian (age 16+) unemployed estimate	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
	EPL_PCI	Percentile per capita income estimate	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html

Category	Variable	Description	Additional Information and Source
	EPL_NOHSDP	Percentile Percentage of persons with no high school diploma (age 25+) estimate	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
	RPL_THEME2	Percentile ranking for Household Composition theme summary	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
	EPL_AGE65	Percentile percentage of persons aged 65 and older estimate	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
	EPL_AGE17	Percentile percentage of persons aged 17 and younger estimate	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
	EPL_DISABL	Percentile percentage of civilian noninstitutionalized population with a disability estimate	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
	EPL_SNGPNT	Percentile percentage of single parent households with children under 18 estimate	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
	RPL_THEME3	Percentile ranking for Minority Status/Language theme	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
	EPL_MINRTY	Percentile percentage minority (all persons except white, non-Hispanic) estimate	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
	EPL_LIMENG	Percentile percentage of persons (age 5+) who speak English "less than well" estimate	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
	RPL_THEME4	Percentile ranking for Housing Type/Transportation theme	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
	EPL_MUNIT	Percentile percentage housing in structures with 10 or more units estimate	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
	EPL_MOBILE	Percentile percentage mobile homes estimate	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html

Category	Variable	Description	Additional Information and Source
	EPL_CROWD	Percentile percentage households with more people than rooms estimate	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
	EPL_NOVEH	Percentile percentage households with no vehicle available estimate	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
	EPL_GROUPQ	Percentile percentage of persons in group quarters estimate	https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html
Rangeland Pro	rpms	Annual vegetation biomass production at the ignition point	s/development-rangeland-production-monitoring-service-cc
	rpms_1km	Annual vegetation production in a 1 km radius around the ignition point	s/development-rangeland-production-monitoring-service-cc

Table S2. Climatic variables and fire indices from FPA FOD-Attributes (white background) and (Khorshidi et al., 2020) (green background; variables indicated with "_ref").

Fire name	Nichols	Pedley	166	Aliso	Evening	Banner	Otay 28
Fire year	1995	2010	2011	2002	2002	1999	1996
Discovery date	7/2/1995	5/12/2010	7/12/2011	3/21/2002	4/21/2002	6/9/1999	4/15/1996
fm100	11	12.2	8.5	10.8	11.7	9.3	11.2
fm100_ref	10.96	12.17	8.46	10.84	11.72	9.28	11.16
fm1000	13.1	13.3	10.1	13	12.8	11.9	14.9
fm1000_ref	13.09	13.32	10.11	12.97	12.75	11.9	14.92
erc	50	50	64	50	49	57	45
erc_ref	50.78	50.103	66.412	50.321	49.288	57.999	44.299
bi	41	42	48	37	36	51	32
bi_ref	40.5	41.84	48.16	36.62	35.6	51.22	32.16
vpd	1.92	1.39	1.68	0.95	0.93	1.32	1.6
vpd_ref	1.92	1.39	1.68	0.95	0.93	1.32	1.6

Table S3. Seven large fires across the United States selected for analysis of the temporal evolution of fire attributes.

Fire Name	State	Discovery Date	Containment Duration (days)	Fire Size (ha)
I-40	TX	3/12/2006	7	173,083
Florida Bugaboo	FL	5/8/2007	43	49,782
Camp	CA	11/8/2018	17	62,053
Cameron Peak	CO	8/13/2020	111	84,544
Two Four Two	OR	9/7/2020	33	5,857
Slater	CA	9/8/2020	95	63,645
East Troublesome	CO	10/14/2020	47	78,433

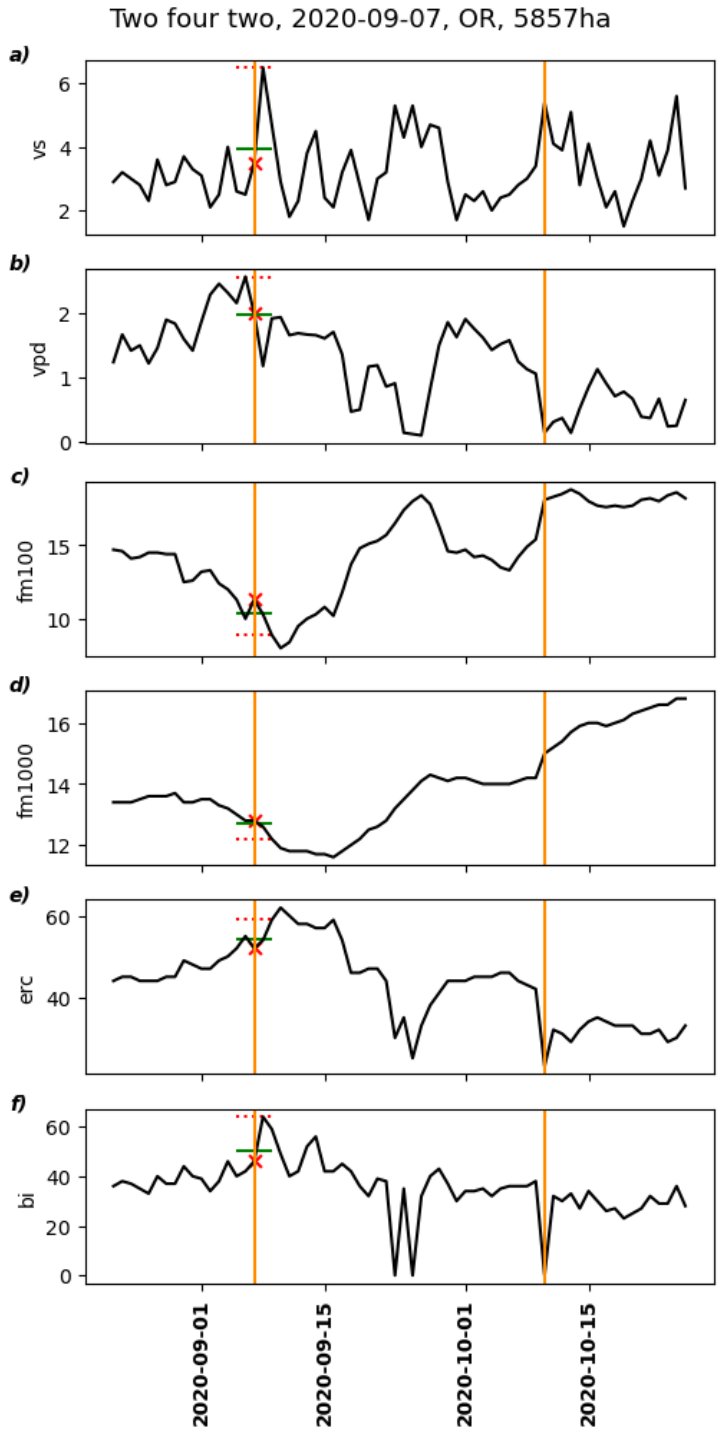

Figure S1. Evolution of meteorological and fire danger indices from late August to late October 2020 at the ignition point of the "Two four Two" fire in Oregon. Fire discovery and containment dates are indicated with vertical orange lines, the attribute value at the date of ignition is indicated with red asterisks, and the attributes' five-day average and maximum (VS, VPD, ERC, BI) or minimum (FM100, FM1000) value are indicated with green and red horizontal lines. Evolution of weather variables and fire danger indices match those indicated in the news media: https://ktvz.com/news/fire-alert/2020/09/08/two-four-two-fire-near-chiloquin-triples-in-size-to-6000-acres-new-evacuations/

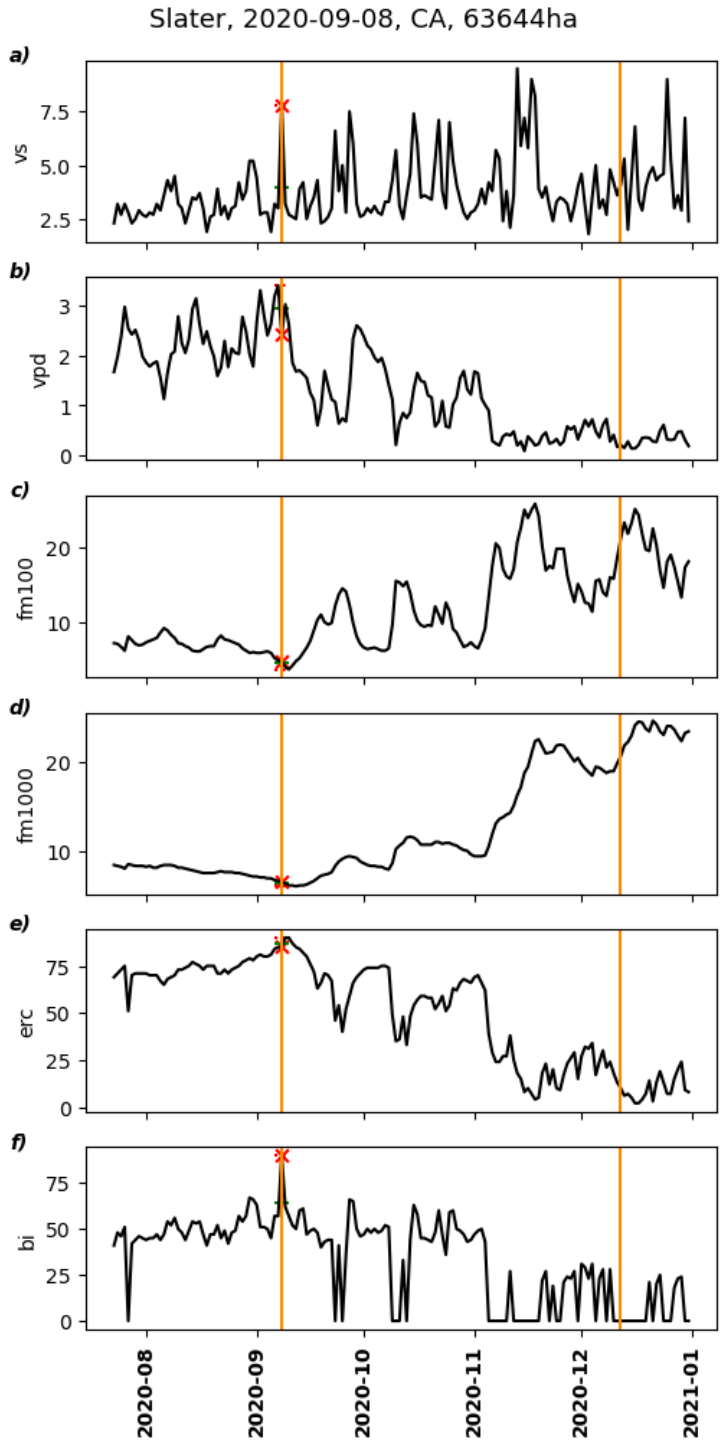

Figure S2. Evolution of meteorological and fire danger indices from late July to late December 2020 at the ignition point of the Slater fire in California. Fire discovery and containment dates are indicated with vertical orange lines, the attribute value at the date of ignition is indicated with red asterisks, and the attributes' five-day average and maximum (VS, VPD, ERC, BI) or minimum (FM100, FM1000) value are indicated with green and red horizontal lines. Evolution of weather variables and fire danger indices match those indicated in the National Weather Service report at https://storymaps.arcgis.com/stories/2e89e20bc5bf473686248b836cbd3721

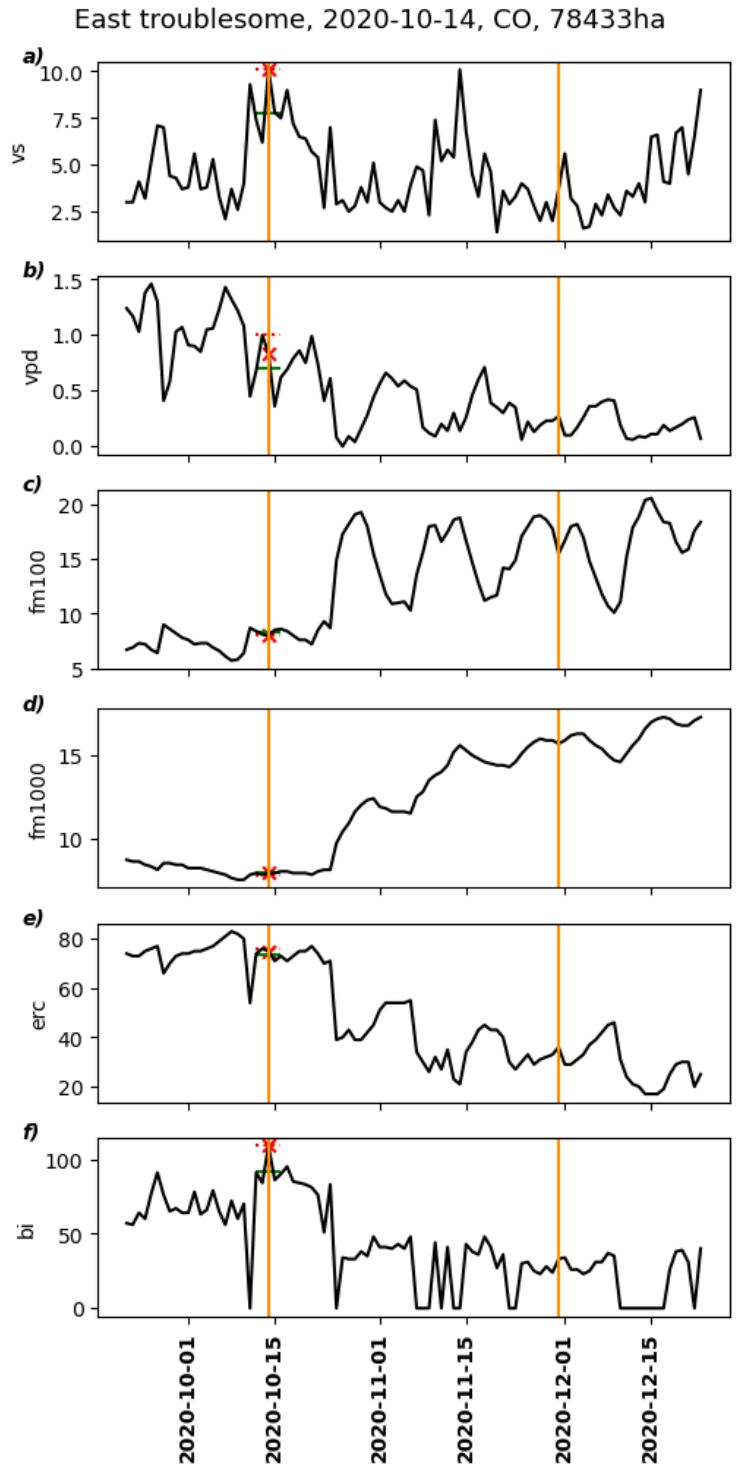

Figure S3. Evolution of meteorological and fire danger indices from late September to late December 2020 at the ignition point of the East Troublesome fire in Colorado. Fire discovery and containment dates are indicated with vertical orange lines, the attribute value at the date of ignition is indicated with red asterisks, and the attributes' five-day average and maximum (VS, VPD, ERC, BI) or minimum (FM100, FM1000) values are indicated with green and red horizontal lines. Evolution of weather variables and fire danger indices match those indicated in the National Weather Service report at https://storymaps.arcgis.com/stories/d8ef7c5f041d46e8931fc4498b3cad40

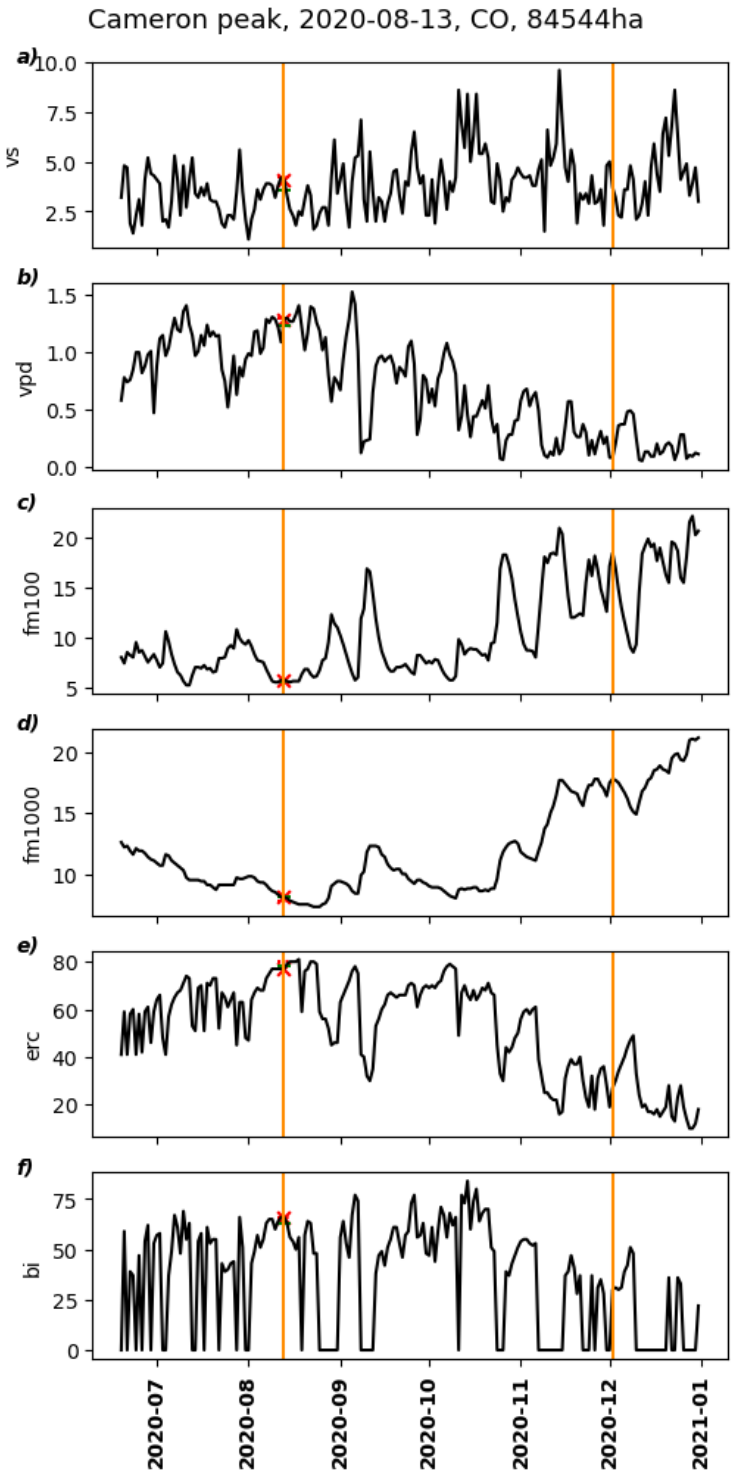

Figure S4. Evolution of meteorological and fire danger indices from late June to late December 2020 at the ignition point of the Cameron Peak fire in Colorado. Fire discovery and containment dates are indicated with vertical orange lines, the attribute value at the date of ignition is indicated with red asterisks, and the attributes' five-day average and maximum (VS, VPD, ERC, BI) or minimum (FM100, FM1000) values are indicated with green and red horizontal lines. Evolution of weather variables and fire danger indices match those indicated in the news media: https://www.coloradoan.com/story/news/2020/09/11/cameron-peak-fire-map-timelapse-shows-growth-fire/5770398002/

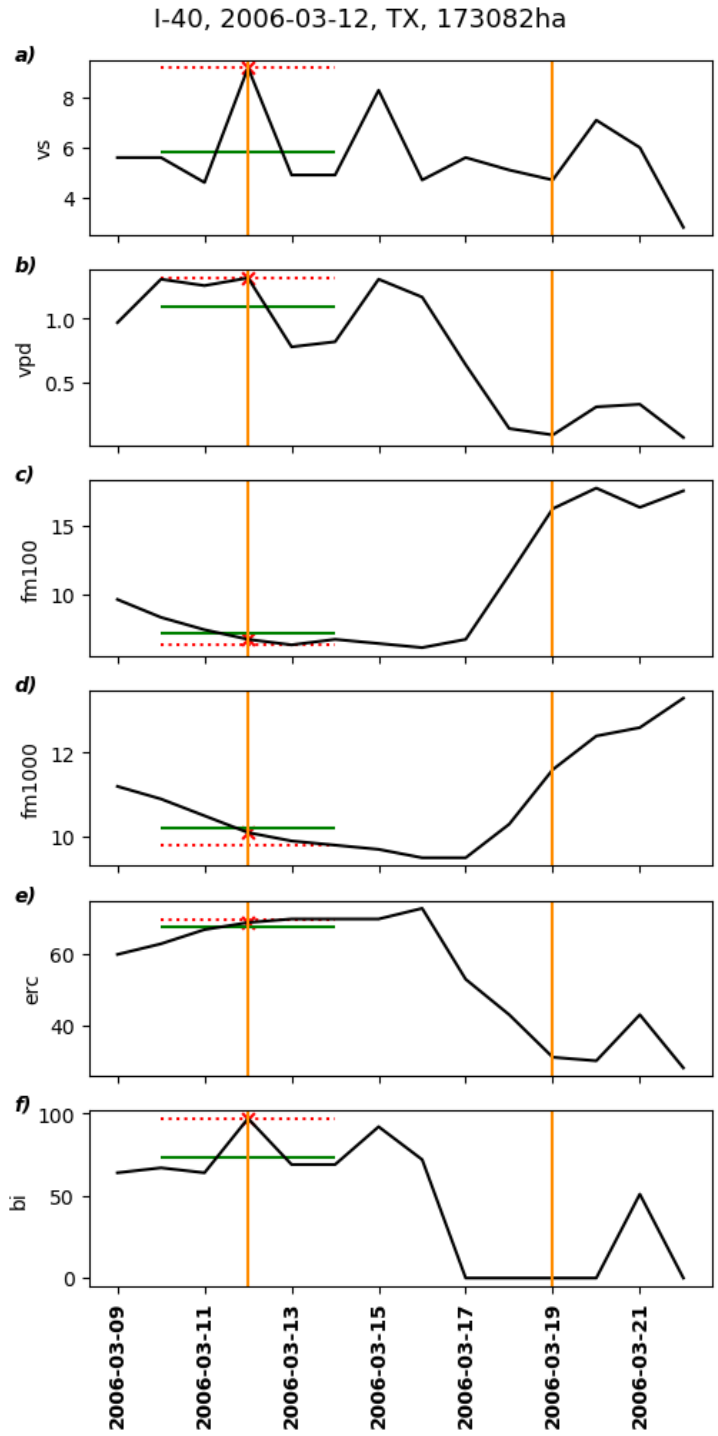

Figure S5. Evolution of meteorological and fire danger indices in March 2006 at the ignition point of the I-40 fire in Texas. Fire discovery and containment dates are indicated with vertical orange lines, the attribute value at the date of ignition is indicated with red asterisks, and the attributes' five-day average and maximum (VS, VPD, ERC, BI) or minimum (FM100, FM1000) value are indicated with green and red horizontal lines. Evolution of weather variables and fire danger indices match those indicated in the news media: https://abc7amarillo.com/news/local/11th-anniversary-of-deadly-2006-texas-panhandle-wildfires

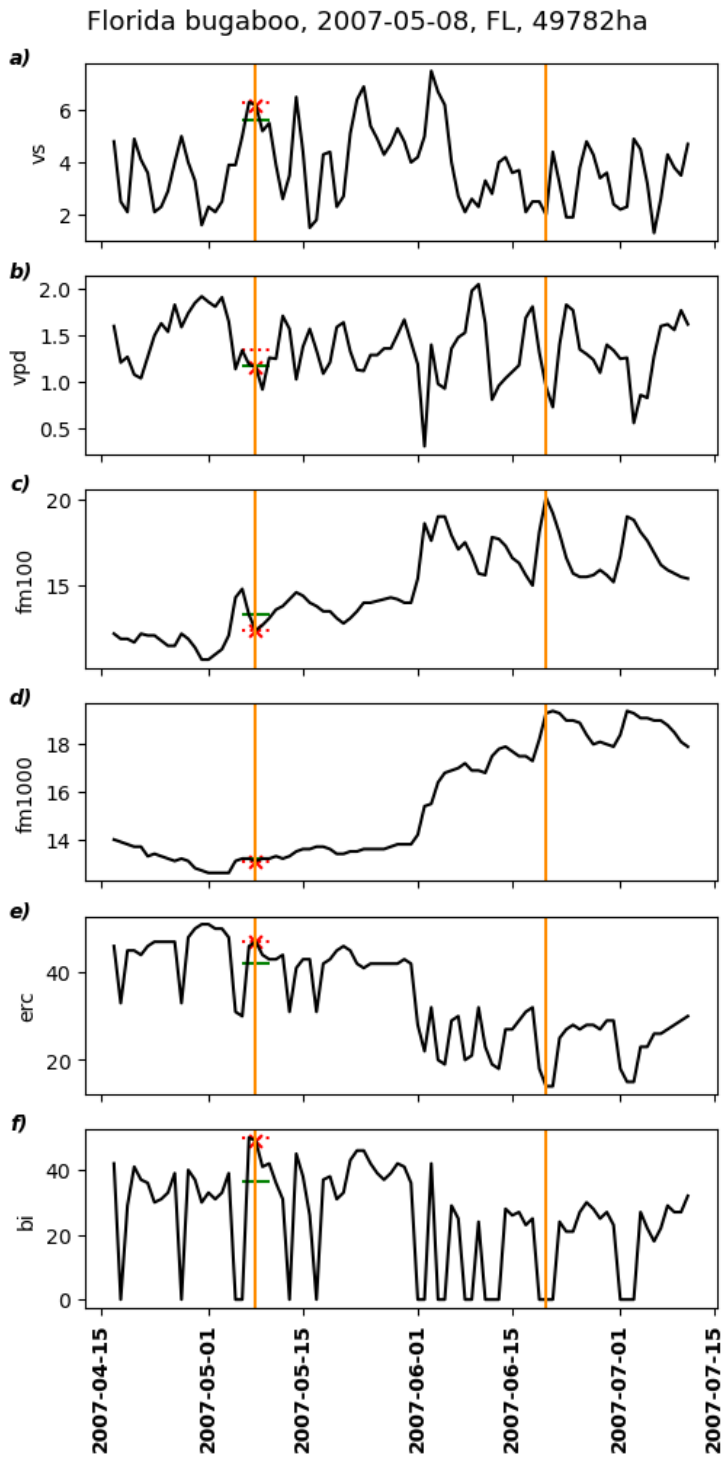

Figure S6. Evolution of meteorological and fire danger indices from mid-April to mid July 2007 at the ignition point of the Bugaboo fire in Florida. Fire discovery and containment dates are indicated with vertical orange lines, the attribute value at the date of ignition is indicated with red asterisks, and the attributes' five-day average and maximum (VS, VPD, ERC, BI) or minimum (FM100, FM1000) values are indicated with green and red horizontal lines. Evolution of weather variables and fire danger indices match those indicated in the news media and official reports at https://earthobservatory.nasa.gov/images/7682/bugaboo-fire-rages-in-georgia-and-florida

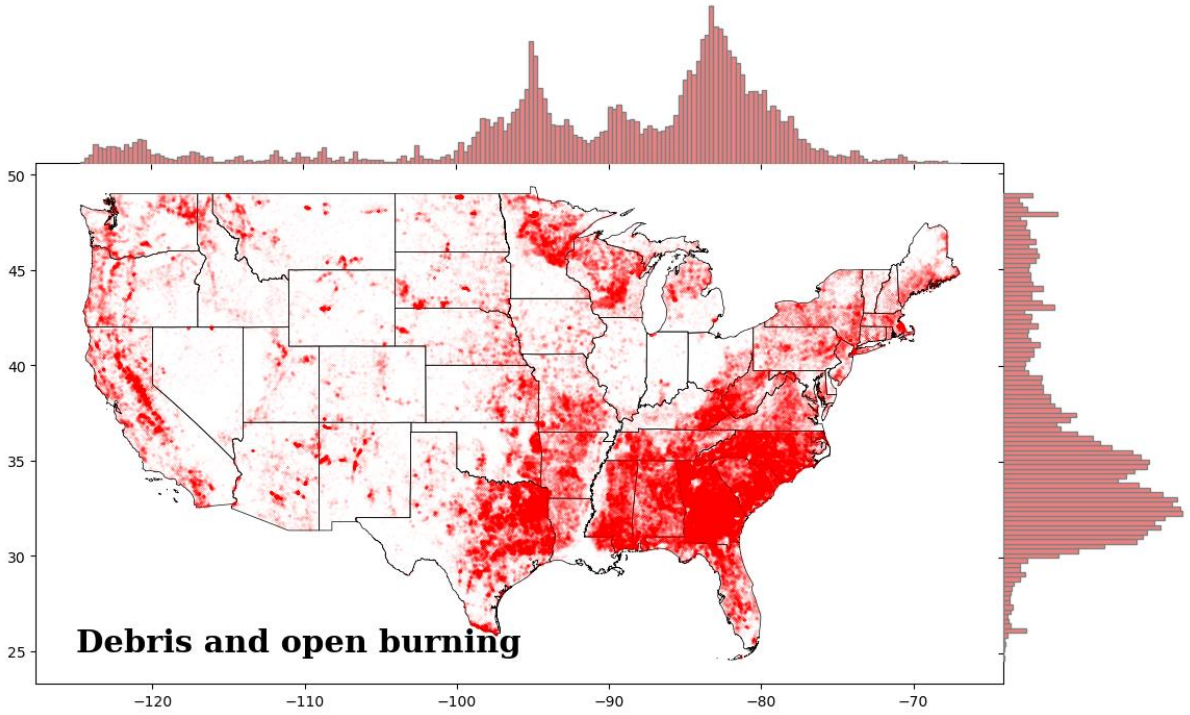

Figure S7. Spatial distribution of fire ignitions caused by debris and open burning in the contiguous United States from 1992-2020.

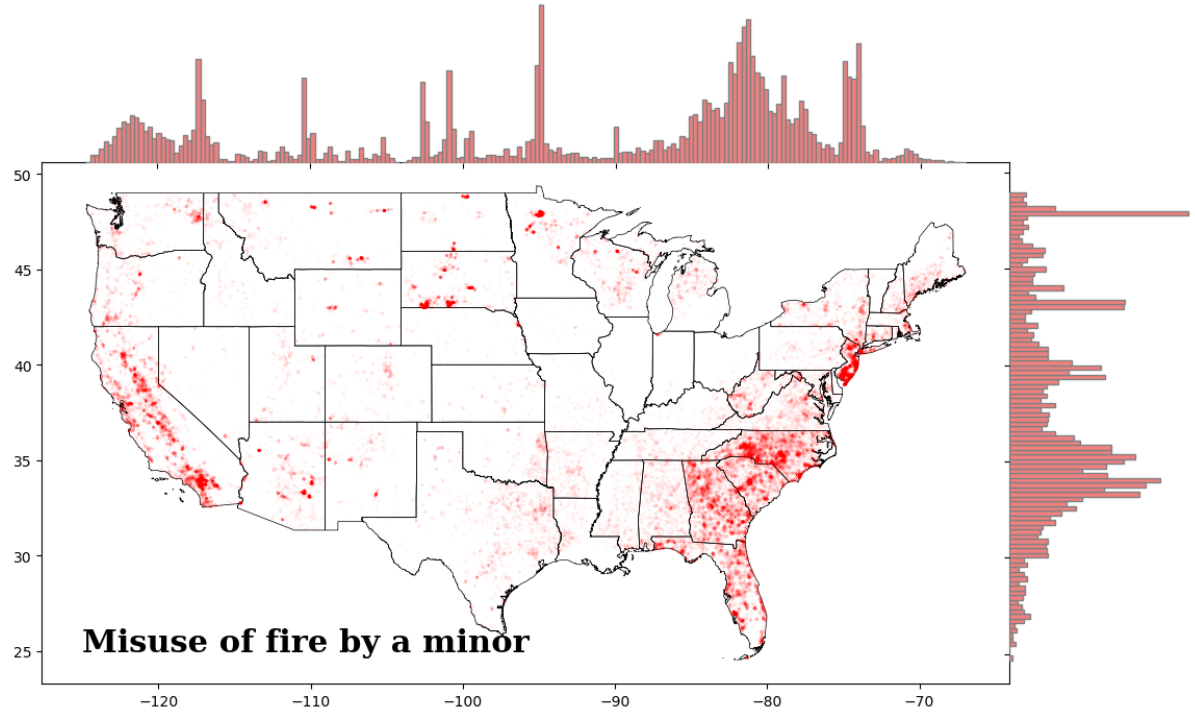

Figure S8. Spatial distribution of fire ignitions caused by misuse of fire by a minor in the contiguous United States from 1992-2020.

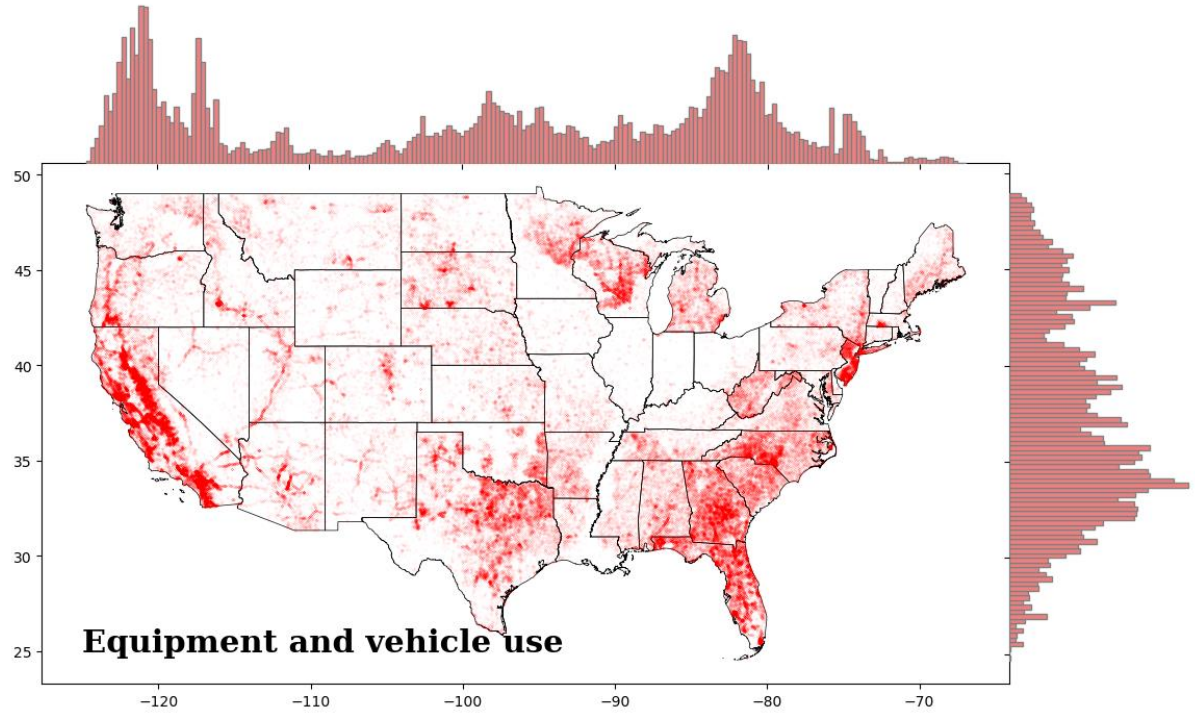

Figure S9. Spatial distribution of fire ignitions caused by equipment and vehicle use in the contiguous United States from 1992-2020.

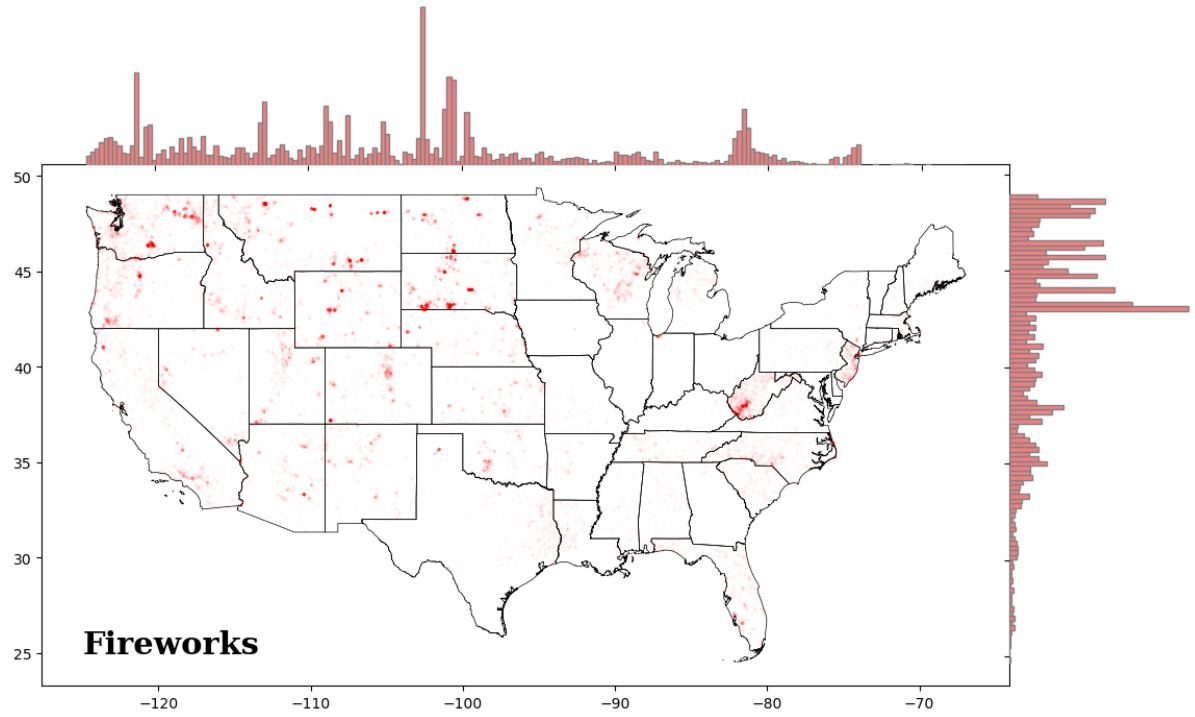

Figure S10. Spatial distribution of fire ignitions caused by fireworks in the contiguous United States from 1992-2020.

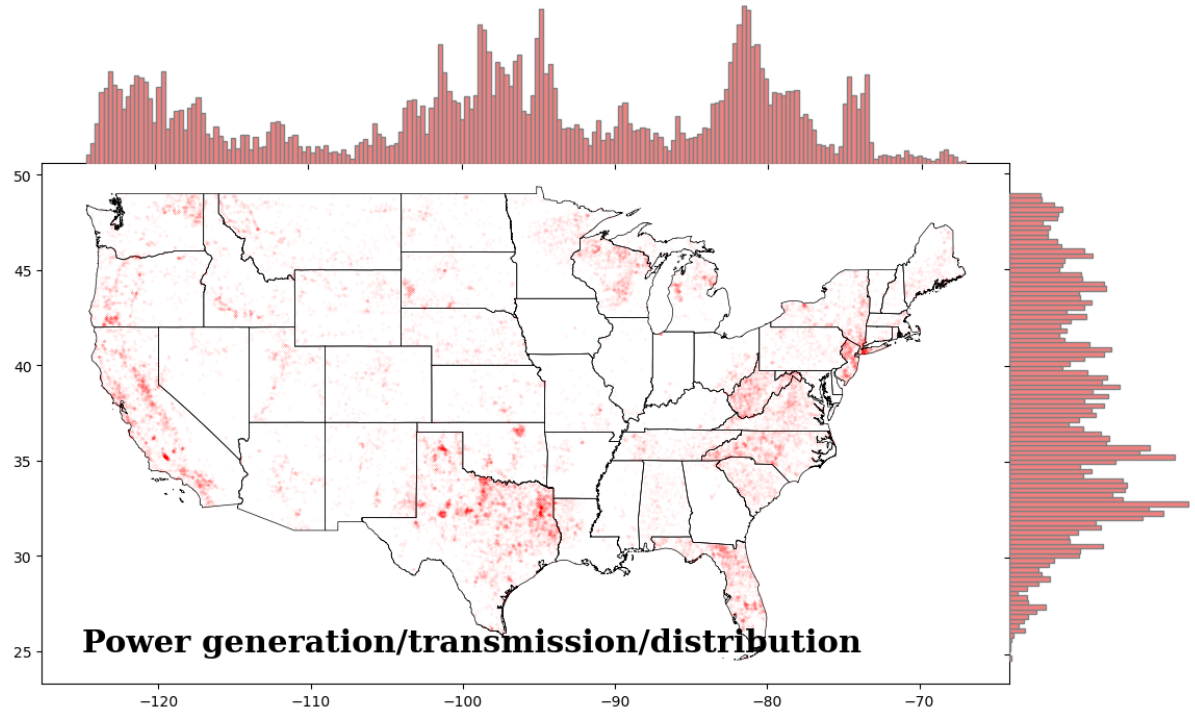

Figure S11. Spatial distribution of fire ignitions caused by power generation, transmission, or distribution in the contiguous United States from 1992-2020.

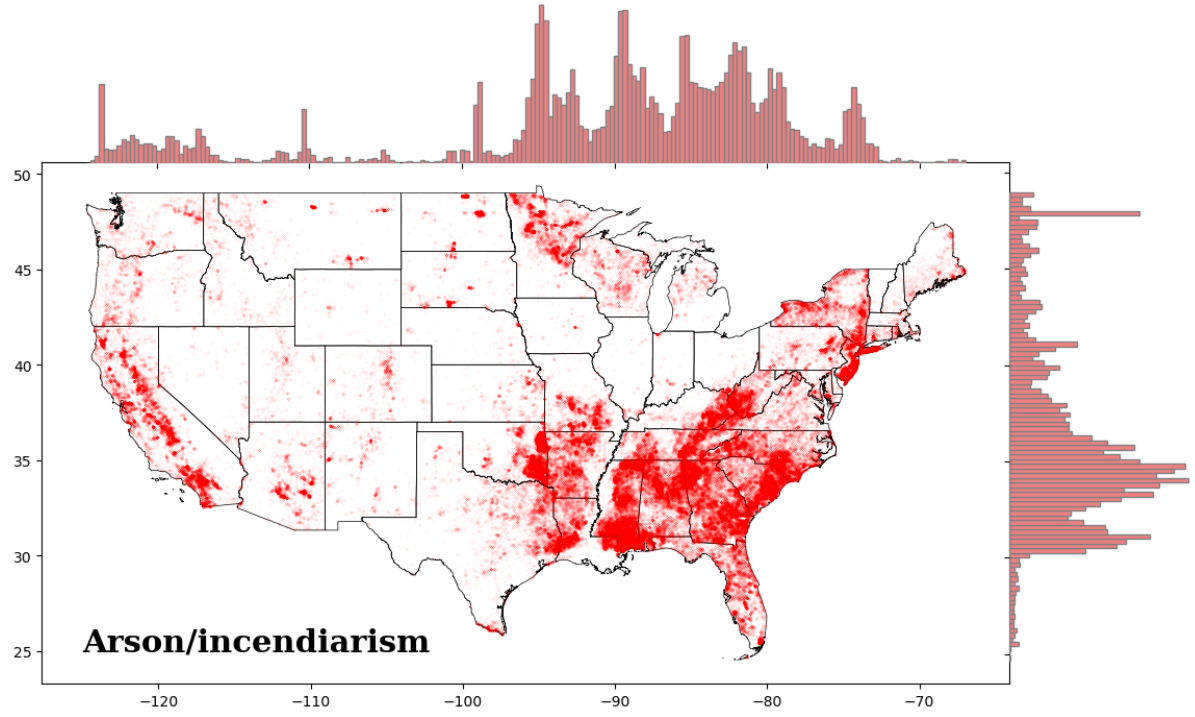

Figure S12. Spatial distribution of fire ignitions caused by arson or incendiarism in the contiguous United States from 1992-2020.

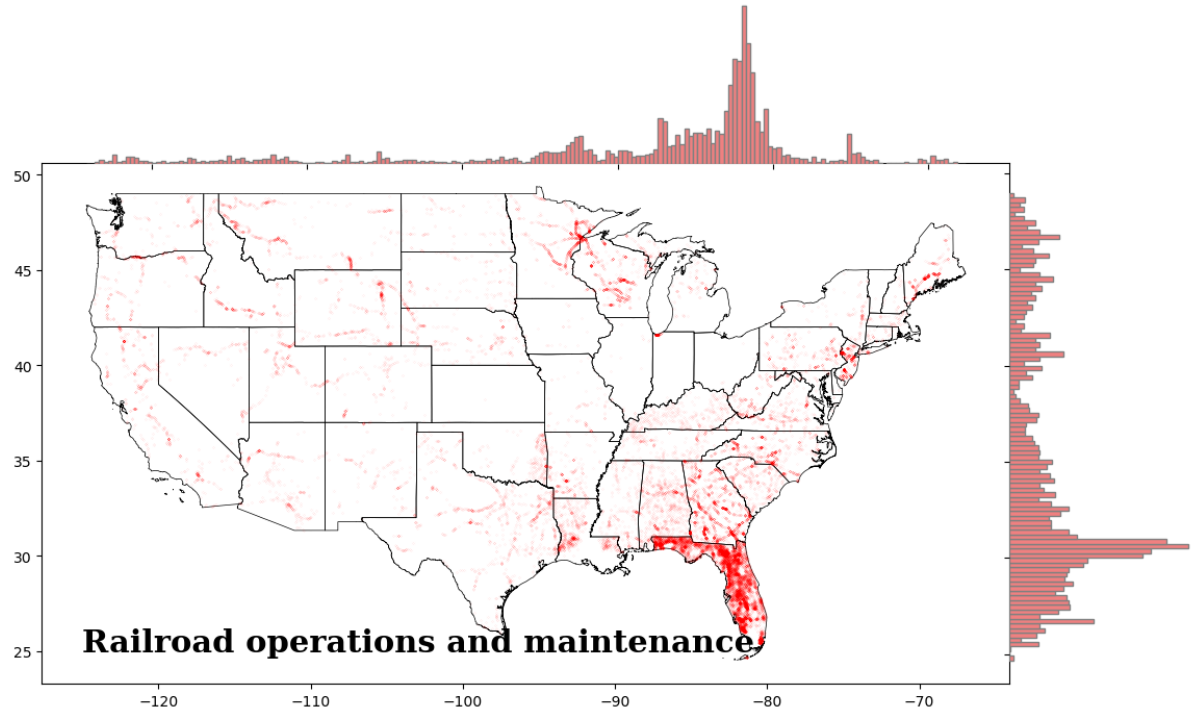

Figure S13. Spatial distribution of fire ignitions caused by railroad operations and maintenance in the contiguous United States from 1992-2020.

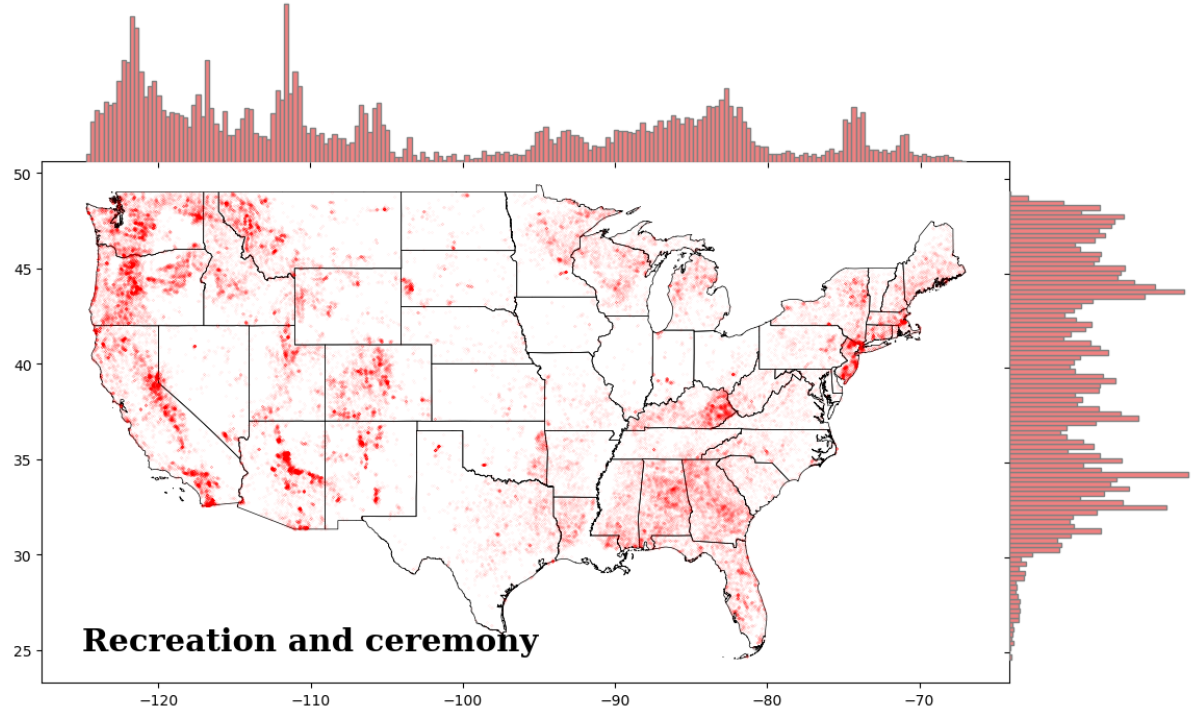

Figure S14. Spatial distribution of fire ignitions caused by recreation and ceremony in the contiguous United States from 1992-2020.

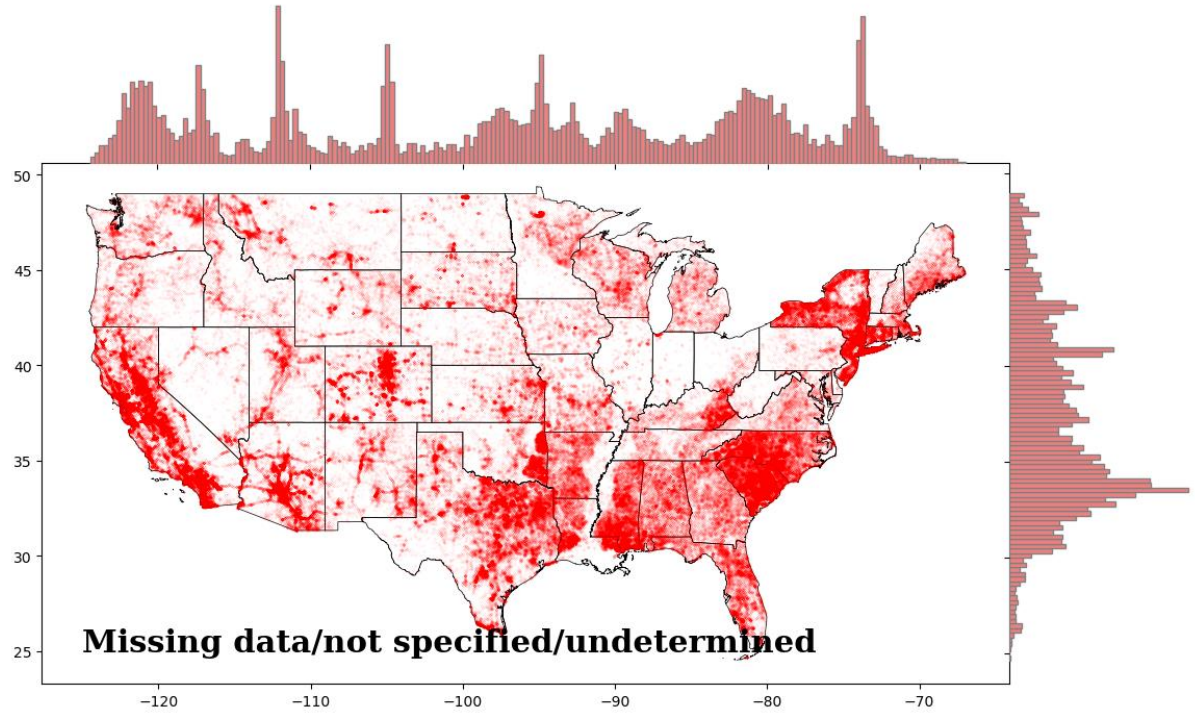

Figure S15. Spatial distribution of fire ignitions for which data are missing or for which a cause was not specified or was undetermined in the contiguous United States from 1992-2020.

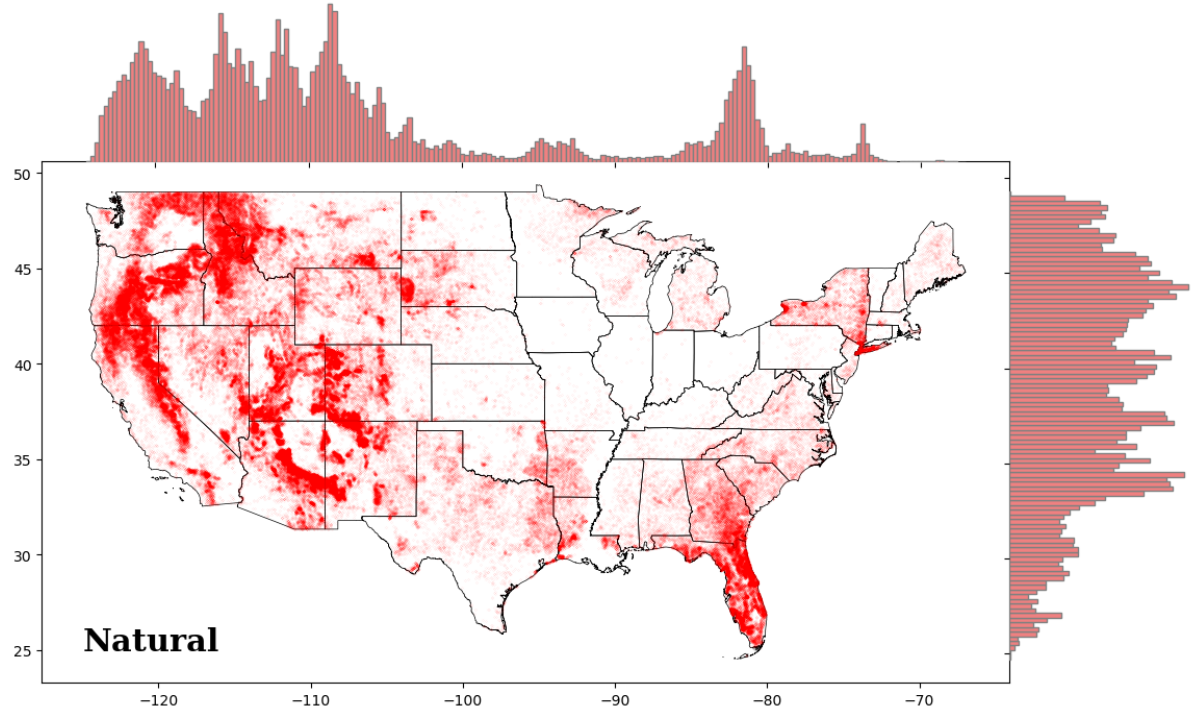

Figure S16. Spatial distribution of natural fire ignitions in the contiguous United States from 1992-2020.

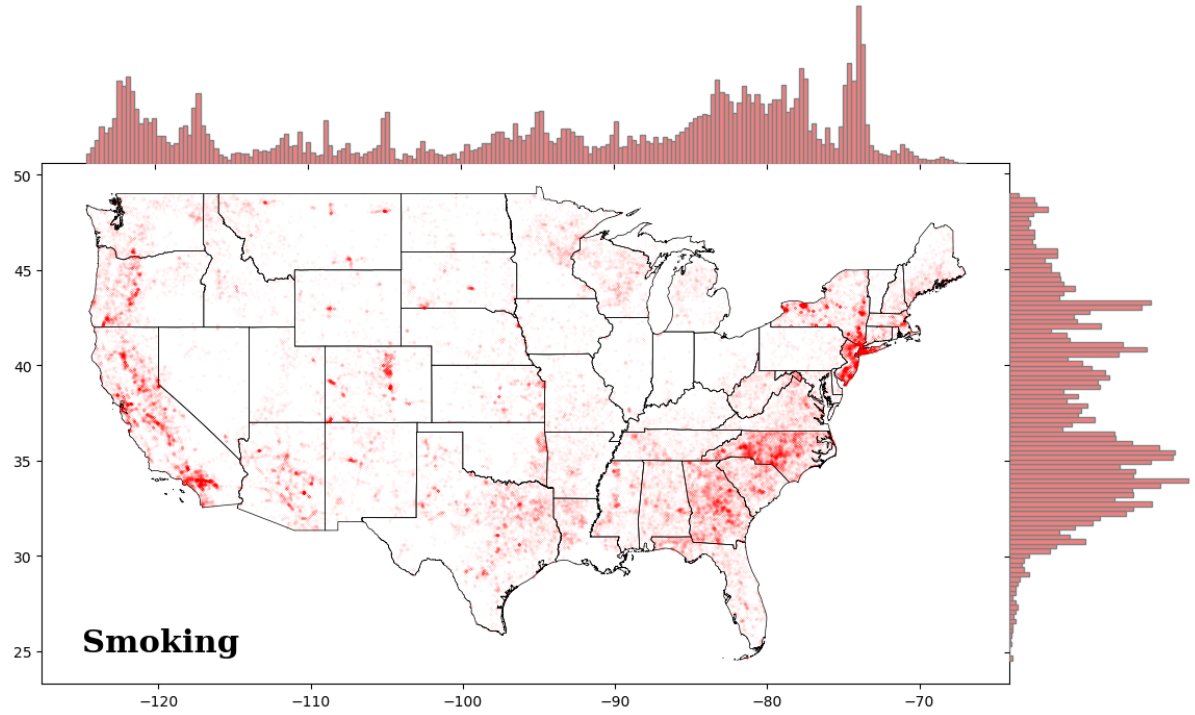

Figure S17. Spatial distribution of fire ignitions caused by smoking in the contiguous United States from 1992-2020.

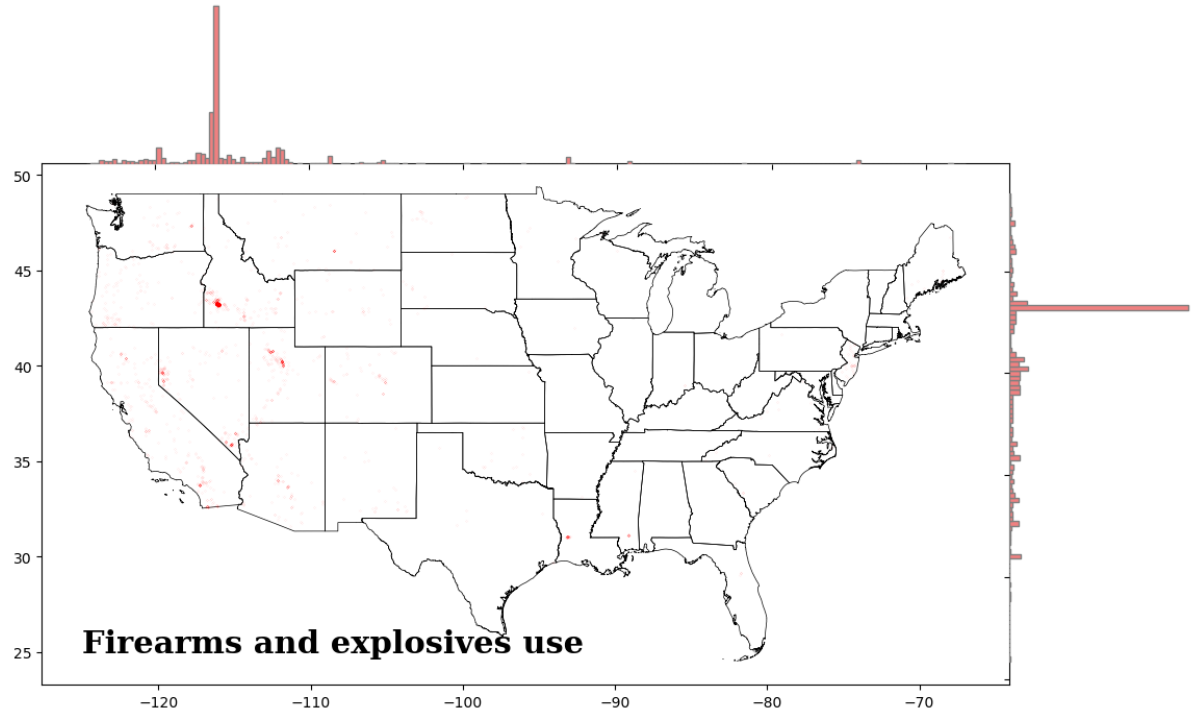

Figure S18. Spatial distribution of fire ignitions caused by firearms and explosives use in the contiguous United States from 1992-2020.

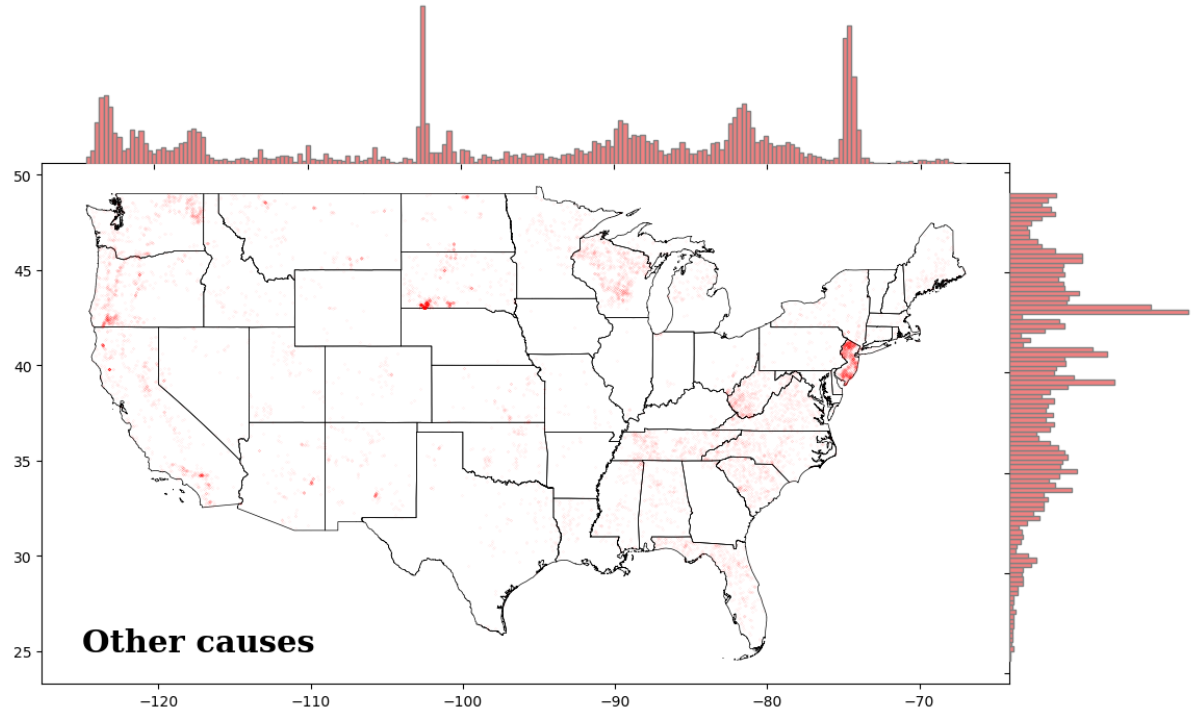

Figure S19. Spatial distribution of fire ignitions with causes not represented in Figures S1-12 in the contiguous United States from 1992-2020.