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Supplementary Material

Using transboundary wildfire exposure assessments to improve fire management programs: a case study in Greece

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Table S1. Live and dead fuel moisture estimates for the different fuel model classes

The only difference between Sani and Arnea weather stations was calculated for the 100-h fuel moisture size class. Grass–shrub (GS) fuel models with no overstorey are more frequent at lower elevations (Sani), applying a reduction of 2% for each dead fuel moisture class of base scenario to account for high sunlight exposure (live moistures were set at live herbaceous (LH) = 30% and live woody (LW) = 60%). Shrub fuel models are also more dominant at lower elevations (LH = 40%, LW = 60%), whereas timber–understorey (TU) fuel models are more frequent at higher elevations (Arnea) (LH = 40%, LW = 60%). Finally, for higher elevation timber–litter (TL) fuel models we added 1% to each dead fuel moisture class to account for the increased shading (LH = 60%, LW = 90%). GR, Grass; SH, Shrub

Fuel model class	Base scenario	GR and GS	SH	TU	TL
1-h (%)	7	5	7	7	8
10-h (%)	8	6	8	8	9
100-h (%)	10 Sani/12 Arnea	8	10	12	12
LH (%)	40	30	40	40	60
LW (%)	60	60	60	60	90

Table S2. Scene file for fire modelling with FconstMTT

Wind speed in 40 km h^{-1} for all scenarios

Wind direction	Duration (min)	Scenario probability	Wind direction probability
E	240	0.10	0.23
E	360	0.065	
E	600	0.065	
ESE	240	0.07	0.15
ESE	360	0.04	
ESE	600	0.04	
SSW	240	0.10	0.22
SSW	360	0.06	
SSW	600	0.06	
WNW	240	0.18	0.40
WNW	360	0.11	
WNW	600	0.11	

Table S3. Land use or land cover types with parameters and average values used to create input layers for wildfire simulations

CBH, canopy base height; CBD, canopy bulk density; WUI, wildland–urban interface; GR, grass; GS, grass-shrub; SH, shrub; TU, timber-understory; TL, timber litter; NB, non-burnable

Land use or land cover	Percentage	Area (ha)	Dominant fuel model	Average stand height (m)	Average CBH (m)	Average CBD (kg m^{-3})
Shrubland	24.1	80699	SH7	4	1	0.3
Annual crops	19.4	64935	GR1	0	0	0
Dense oak forests	8.4	28215	TL6	12	5	0.2
Mixed broadleaf forest	7.9	26617	TL9	8	2	0.35
Olive tree plantations	7.4	24639	GR1	5	2	0.05
Young conifer forest	4.5	15104	TU4	4	1	0.1
Low shrubs with grass	4.4	14676	SH2	0	0	0
Dense *Pinus halepensis*	4.3	14394	TU5	13	3	0.3
Sparse *Pinus halepensis*	3.4	11451	SH5	10	3	0.15
Orchards	3.5	8893	GR1	4	1	0.02
Sparse oak forests	2.3	7849	TU1	10	4	0.1
Urban areas	2.1	7126	NB1	0	0	0
Dense beech	2.0	6737	TL2	20	8	0.2
Dense *Pinus Nigra*	1.7	5596	TU1	18	5	0.3
Vineyards	1.1	3746	GR1	0	0	0
Chestnuts	1.0	3351	TL6	15	7	0.1
Sparse grasslands	0.91	3054	GR1	0	0	0
WUI	0.74	2496	GR2	0	0	0
Bare soils	0.55	1852	NB9	0	0	0
Sparse *Pinus nigra*	0.28	927	GS2	14	5	0.15
Fuel breaks	0.25	849	GS1	0	0	0
Grasslands	0.2	707	GS1	0	0	0
Coasts	0.16	550	NB9	0	0	0
Riparian vegetation	0.05	181	SH5	6	2	0.25
Water bodies	0.04	121	NB8	0	0	0
Abies forest	0.02	81	TL3	18	5	0.2

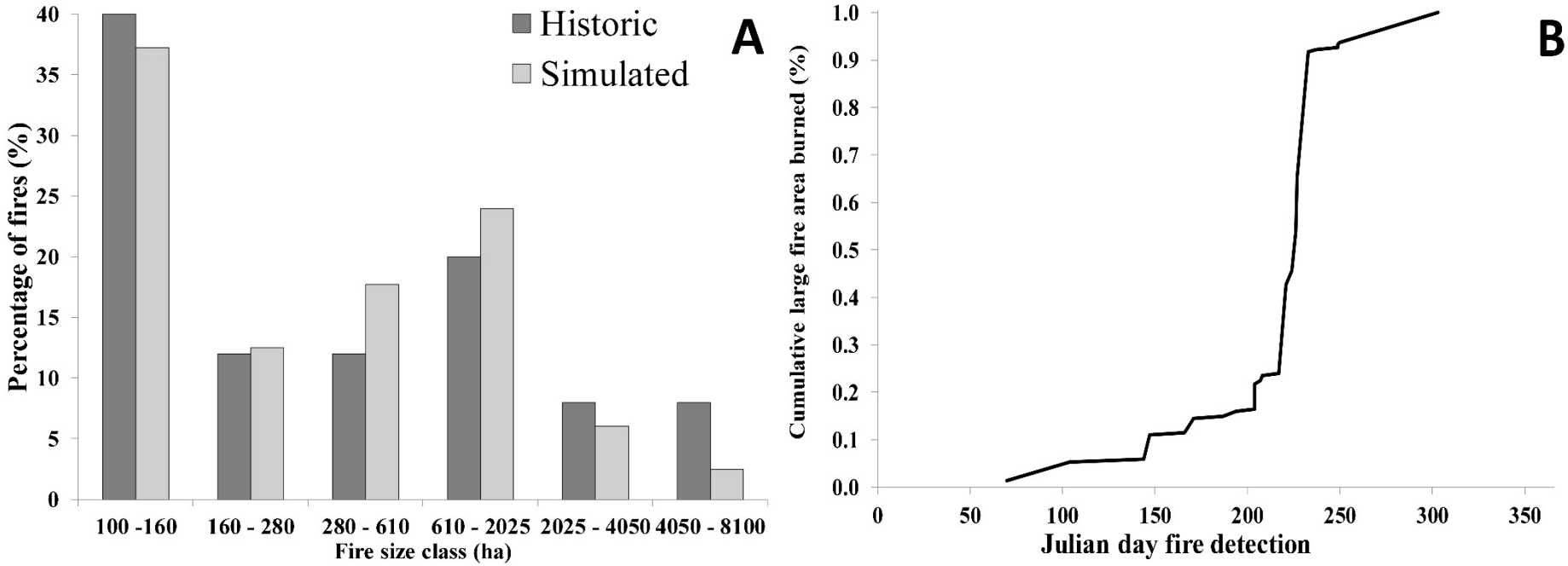

Fig. S1. (A) Fire modelling calibration for 25 observed and 30 000 simulated fires in the study area. (B) Large-fire (>100 ha) season chart.

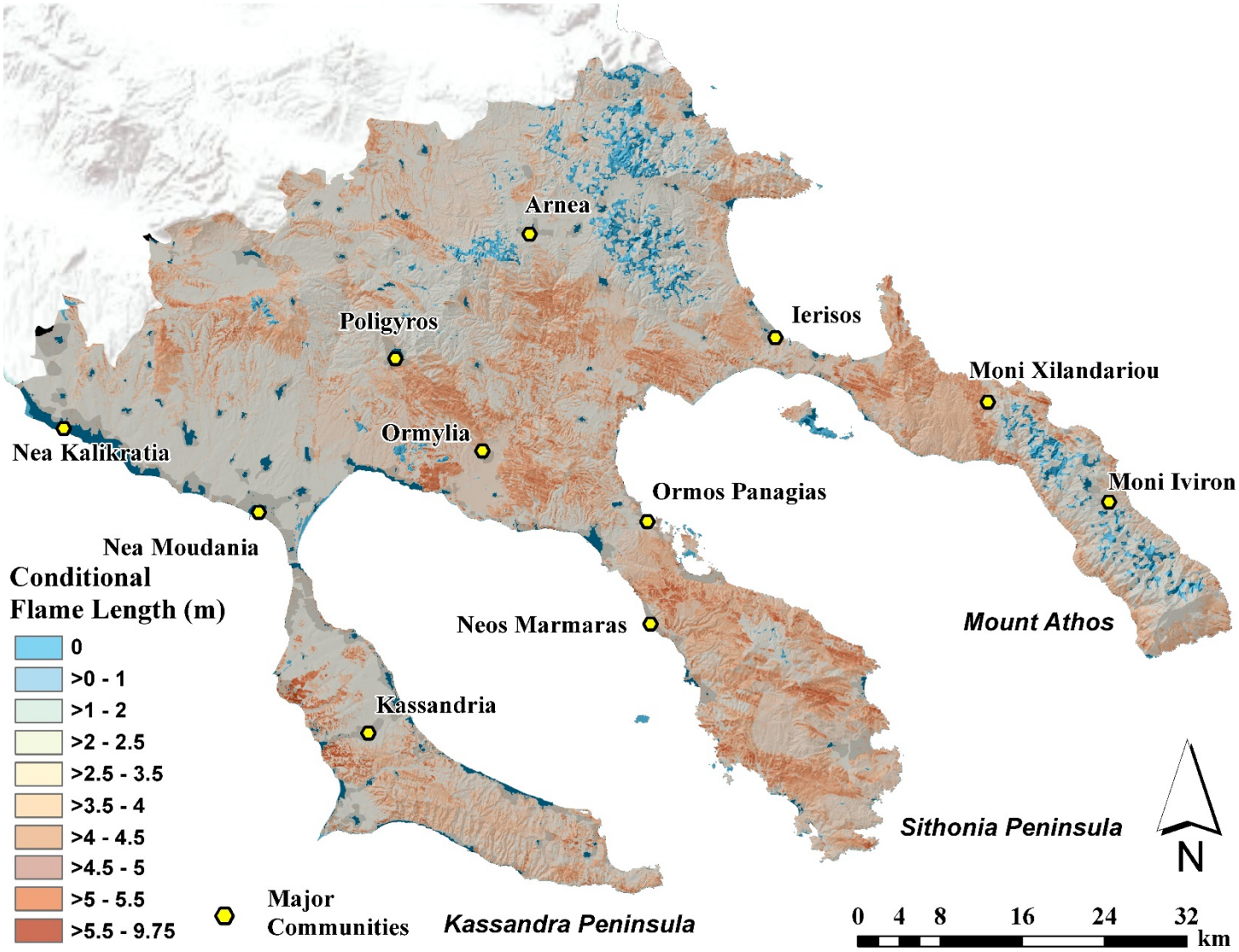

Fig. S2. Conditional flame length map of the study area in northern Greece.