Supplementary information

Polycyclic aromatic hydrocarbon occurrences in forest soils in response to fires: a summary across sites

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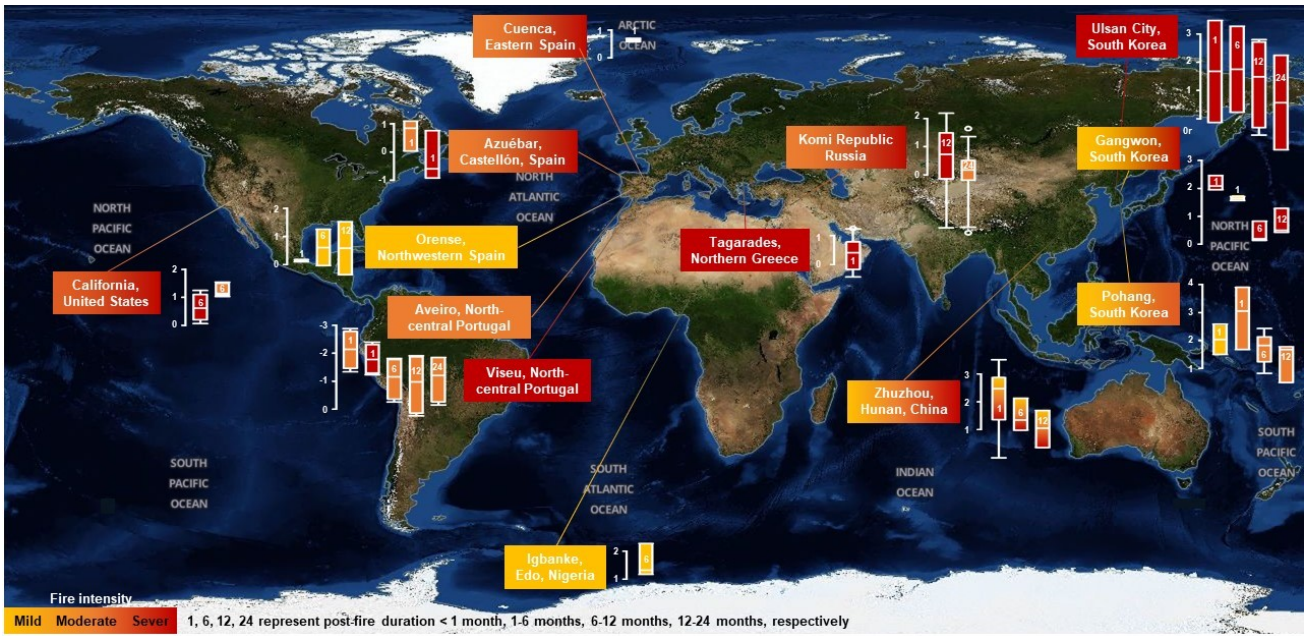

Figure S1. The geographical locations of study sites on the world map. The red, orange, and yellow colors indicate high-, moderate-, and mild-intensity fires, respectively. The box figures show the effect sizes of fire on the polycyclic aromatic hydrocarbon concentrations (i.e., lnRR of PAH concentrations). Numbers 1, 6, 12, 24 represent the post-fire duration of < 1 month, 1–6 months, 6–12 months, and 12–24 months, respectively.

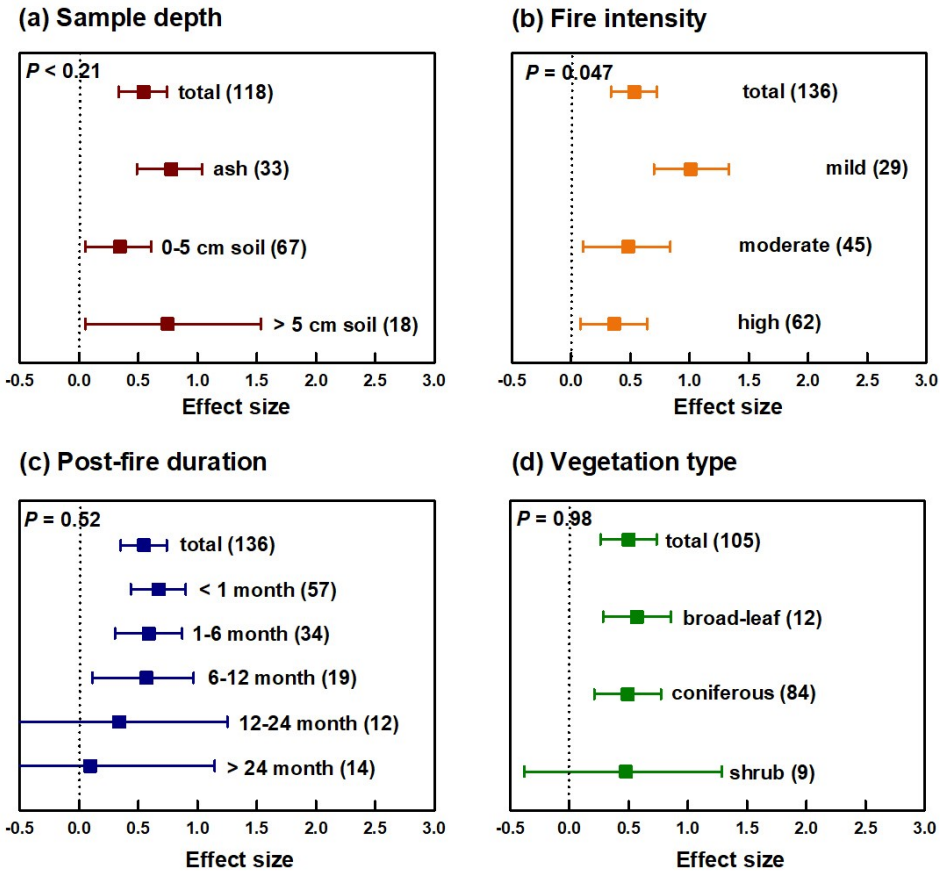

Figure S2. Changes in the PAH toxic equivalents at different (a) sample depth, (b) fire intensity, (c) post-fire duration, and (d) vegetation type. Effect sizes are given as mean weighted natural log response ratios (lnRR) and error bars display the 95% confidence intervals; an effect size of 0 indicates no change relative to the reference, while values > 0 or < 0 indicate an increase or decrease, respectively. Numbers in parentheses represent the number of observations (N) for each parameter. $P < 0.05$ indicates significant between-group heterogeneity.

Table S1. Related parameters used in chronic daily intake calculation

Parameter	Meaning	Unit	Child	Adult
IR_{soil}	Ingestion rate	$mg \cdot d^{-1}$	200	100
IR_{air}	Inhalation rate	$m^3 \cdot d^{-1}$	7.6	20
EF	Exposure frequency	$d \cdot a^{-1}$	180	180
ED	Exposure duration	a	6	24
CF	Conversion factor	$kg \cdot mg^{-1}$	1×10^{-6}	1×10^{-6}
BW	Body weight	kg	15	70
AT	Average lifespan	d	25550	25550
SA	Dermal exposure area	cm^2	1150	2145
AF_{soil}	Dermal adherence factor	$mg \cdot cm^{-2}$	0.20	0.07
ABS	Dermal adsorption factor	-	0.13	0.13
PEF	Particle emission factor	$m^3 \cdot kg^{-1}$	1.36×10^9	1.36×10^9

According to the Risk Assessment Guidance of US EPA

Table S2. Non-carcinogenic reference dose (R*f*D, kg·d·mg^{-1})

Compound	Ingestion R*f*D$_{ing}$	Dermal contact R*f*D$_{derm}$	Inhalation R*f*D$_{inh}$
Nap	0.0004	0.02	0.0008
Acy	0.06	0.03	0.03
Ace	0.06	0.03	0.03
Flu	0.04	0.02	0.02
Phe	0.03	0.015	0.015
Ant	0.3	0.15	0.15
Flt	0.04	0.02	0.02
Pyr	0.03	0.015	0.015
BghiP	0.030	0.015	0.015

According to the Risk Assessment Guidance of US EPA