

SUPPLEMENTARY MATERIAL

Title: Wildfires alter stream ecosystem functioning through effects on leaf litter

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This PDF contains 2 figures and 2 tables.

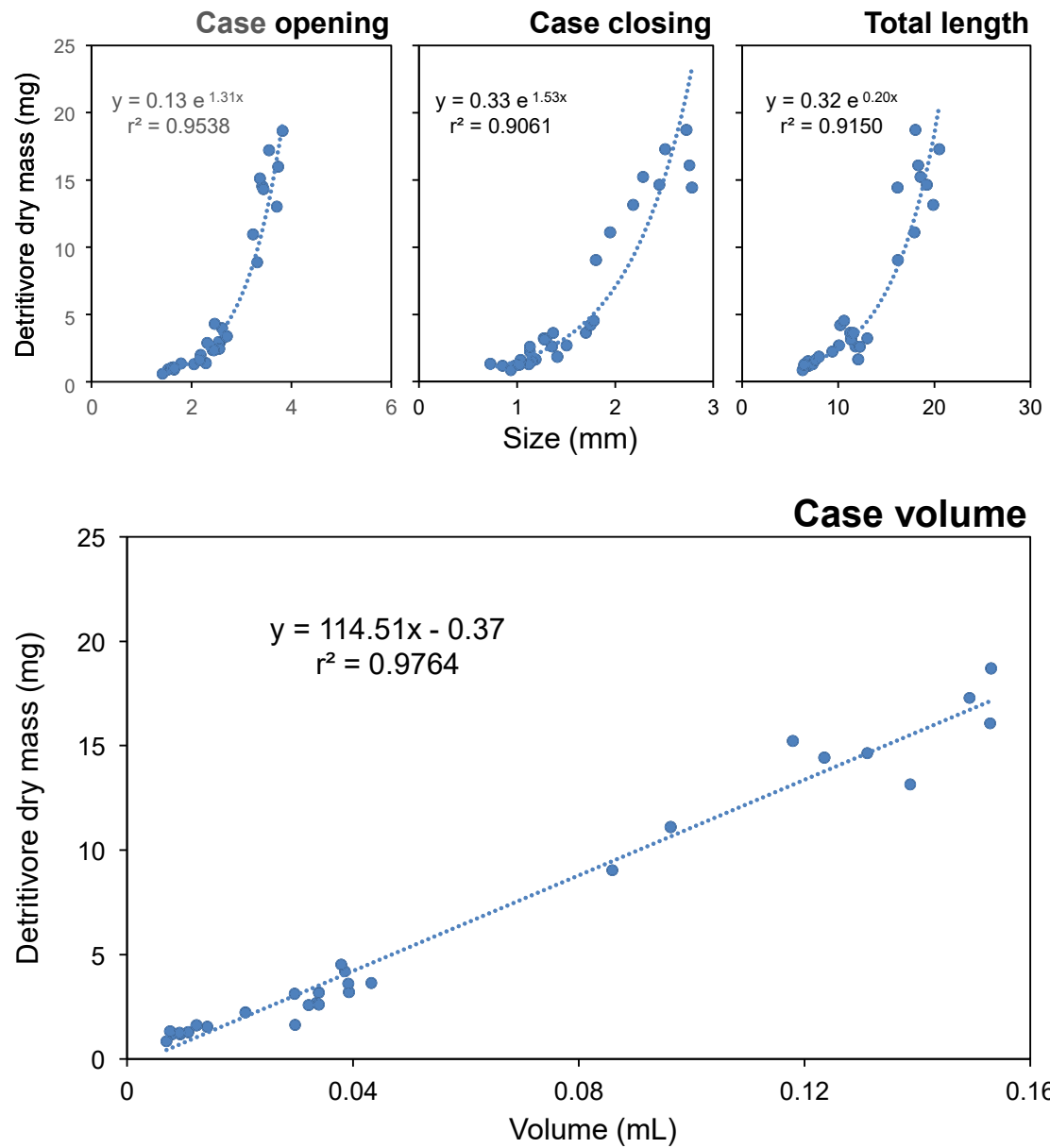


Figure S1: Four different size-mass relations of *Sericostoma pyrenaicum* at the beginning of the experiment from 29 extra larvae.

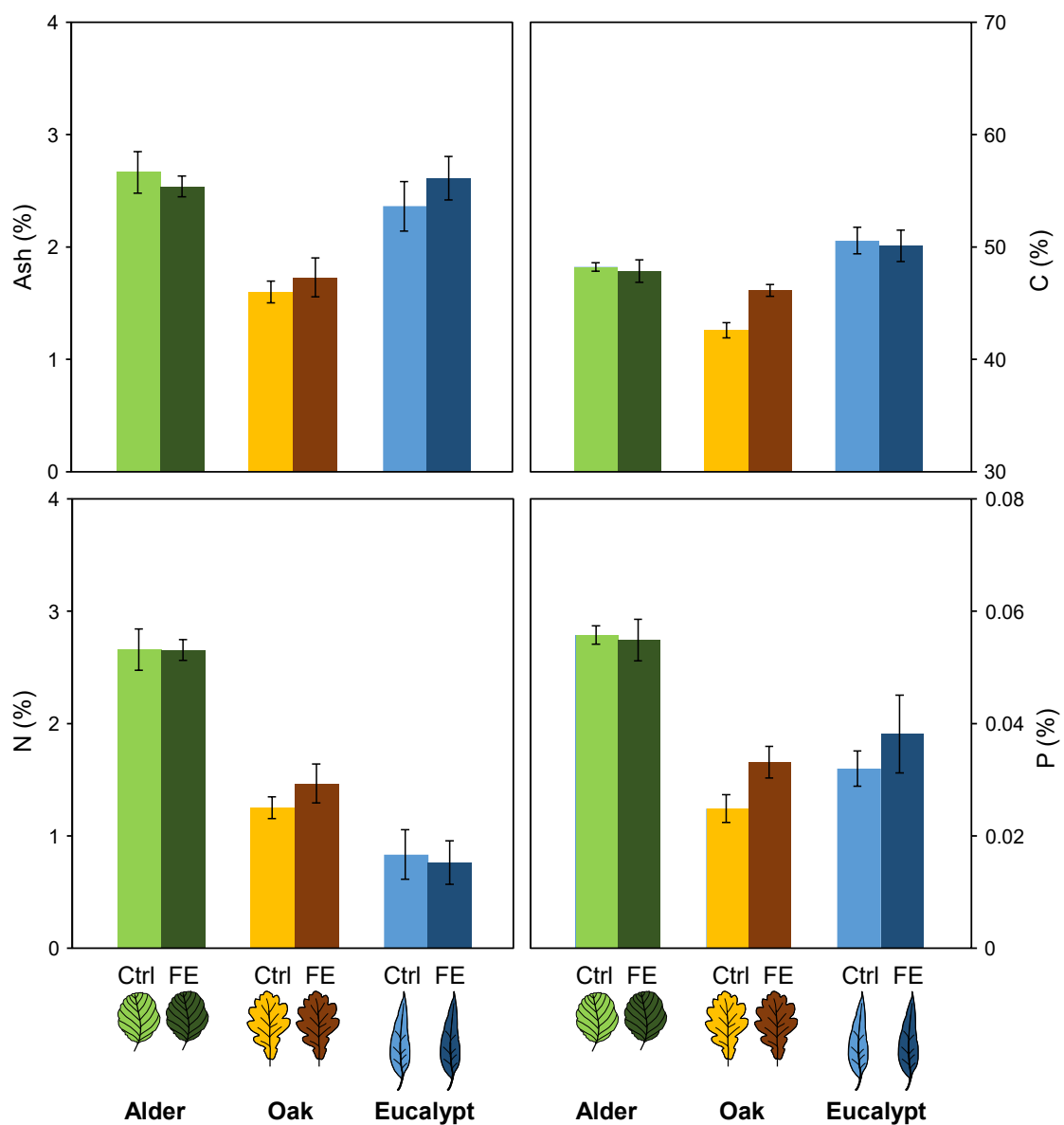


Figure S2. Pre-leaching concentrations of ash, C, N and P (% DM; mean $\pm$ SE, $n = 5$) of the three litter species (Alder, Oak & Eucalypt) after both pre-treatments (Control and Fire exposed).

Table S1: General linear model results on leaching (mass loss) and pre- and post-leaching traits of the six studied substrates (see Fig.1).

Category	Response variable	Factor	DF	F-value	p-value
Pre-leaching	Humidity (%)	Litter species (L)	24,2	12.6	0.0002
		Fire (F)	24,1	115.0	<0.0001
		L × F	24,2	0.6	0.5337
	Ash (%)	Litter species (L)	24,2	18.7	<0.0001
		Fire (F)	24,1	0.4	0.5394
		L × F	24,2	0.7	0.5234
	C (%)	Litter species (L)	24,2	25.6	<0.0001
		Fire (F)	24,1	8.1	0.009
		L × F	24,2	5.0	0.0152
	N (%)	Litter species (L)	24,2	185.5	<0.0001
		Fire (F)	24,1	0.3	0.5693
		L × F	24,2	1.1	0.332
	P (%)	Litter species (L)	24,2	46.9	<0.0001
		Fire (F)	24,1	2.1	0.1621
		L × F	24,2	0.8	0.4663
Leaching	LML leached (prop.)	Temperature (T)	36,2	19.3	<0.0001
		Litter species (L)	36,2	252.7	<0.0001
		Fire (F)	36,1	7.1	0.0114
		T × L	36,4	3.6	0.0136
		T × F	36,2	34.9	<0.0001
		L × F	36,2	8.7	0.0008
		T × L × F	36,4	0.4	0.8287
Post-leaching	Toughness (kPa)	Temperature (T)	36,2	4.1	0.0239
		Litter species (L)	36,2	220.4	<0.0001
		Fire (F)	36,1	1.1	0.3036
		T × L	36,4	2.1	0.0969
		T × F	36,2	1.9	0.1677
		L × F	36,2	2.6	0.0897
		T × L × F	36,4	1.7	0.1699
	SLA (mm ² mg ⁻¹)	Temperature (T)	36,2	1.5	0.2433
		Litter species (L)	36,2	358.8	<0.0001
		Fire (F)	36,1	0.2	0.6467
		T × L	36,4	1.4	0.2686
		T × F	36,2	0.9	0.3995
		L × F	36,2	1.8	0.1794
		T × L × F	36,4	0.7	0.5964
	Ash (%)	Temperature (T)	36,2	2.0	0.1545
		Litter species (L)	36,2	84.5	<0.0001
		Fire (F)	36,1	3.8	0.0576
		T × L	36,4	1.4	0.2510
		T × F	36,2	0.2	0.8361
		L × F	36,2	1.7	0.1941
		T × L × F	36,4	1.0	0.4342

C (%)	Temperature (T)	36,2	27.4	<0.0001
	Litter species (L)	36,2	245.0	<0.0001
	Fire (F)	36,1	0.0	0.9830
	T × L	36,4	2.4	0.0661
	T × F	36,2	8.1	0.0013
	L × F	36,2	5.3	0.0099
	T × L × F	36,4	1.8	0.1514
N (%)	Temperature (T)	36,2	0.0	0.9822
	Litter species (L)	36,2	547.9	<0.0001
	Fire (F)	36,1	0.0	0.9535
	T × L	36,4	1.0	0.4388
	T × F	36,2	0.3	0.7110
	L × F	36,2	1.9	0.1640
	T × L × F	36,4	0.4	0.7740
P (%)	Temperature (T)	36,2	2.6	0.0875
	Litter species (L)	36,2	48.6	<0.0001
	Fire (F)	36,1	0.3	0.6124
	T × L	36,4	0.6	0.6924
	T × F	36,2	0.4	0.6498
	L × F	36,2	0.5	0.6202
	T × L × F	36,4	0.4	0.8164

Table S2: Mean values of the litter traits after the leaching assay of the six studied substrates (see Fig.1) at three different temperatures.

Temperature	Litter species	Pre-treatment	Leach (%)	Ash (%)	Tough. (kPa)	SLA (mm ² mg ⁻¹)	C (%)	N (%)	P (%)
10 °C	Alder	Ctrl	15.4 ± 0.8	6.7 ± 2.2	1595.8 ± 223.7	17.0 ± 1.3	54.8 ± 1.1	3.39 ± 0.16	0.047 ± 0.004
		FE	18.1 ± 0.3	4.5 ± 0.2	1776.5 ± 163.3	15.3 ± 1.0	52.0 ± 0.1	3.16 ± 0.22	0.044 ± 0.007
	Oak	Ctrl	8.1 ± 1.1	5.1 ± 0.8	2600.1 ± 496.6	16.9 ± 1.3	44.4 ± 1.2	1.49 ± 0.09	0.024 ± 0.003
		FE	7.2 ± 1.0	5.8 ± 0.6	2412.0 ± 177.6	14.8 ± 1.7	52.8 ± 6.3	1.55 ± 0.22	0.021 ± 0.004
	Eucalypt	Ctrl	7.4 ± 0.4	4.3 ± 0.4	4252.1 ± 308.5	6.0 ± 0.4	57.3 ± 2.5	0.72 ± 0.13	0.026 ± 0.007
		FE	6.9 ± 0.4	3.3 ± 0.2	4538.0 ± 137.3	7.0 ± 0.5	55.4 ± 1.2	1.04 ± 0.04	0.026 ± 0.005
12.5 °C	Alder	Ctrl	19.5 ± 2.0	4.4 ± 0.3	2012.5 ± 146.4	18.6 ± 1.6	52.9 ± 1.7	3.35 ± 0.17	0.044 ± 0.008
		FE	22.1 ± 3.1	4.8 ± 0.3	1772.9 ± 247.8	16.9 ± 0.7	52.5 ± 0.3	3.36 ± 0.08	0.048 ± 0.001
	Oak	Ctrl	5.3 ± 0.9	5.6 ± 0.8	2601.8 ± 377.5	18.8 ± 2.7	44.2 ± 0.6	1.39 ± 0.08	0.027 ± 0.007
		FE	5.9 ± 0.6	4.9 ± 0.2	1826.1 ± 183.0	17.0 ± 1.9	47.1 ± 0.7	1.34 ± 0.14	0.019 ± 0.003
	Eucalypt	Ctrl	9.1 ± 0.9	3.2 ± 0.3	3842.0 ± 363.7	6.2 ± 0.3	57.8 ± 2.4	0.95 ± 0.21	0.016 ± 0.002
		FE	9.4 ± 1.8	2.6 ± 0.2	4810.2 ± 189.2	6.4 ± 0.3	57.7 ± 0.7	1.04 ± 0.13	0.019 ± 0.003
15 °C	Alder	Ctrl	19.9 ± 0.8	4.3 ± 0.3	1848.3 ± 197.2	18.6 ± 0.8	54.1 ± 0.4	3.47 ± 0.13	0.049 ± 0.004
		FE	16.2 ± 1.5	4.4 ± 0.3	1297.4 ± 57.4	18.5 ± 0.7	52.6 ± 1.6	3.31 ± 0.06	0.046 ± 0.007
	Oak	Ctrl	12.4 ± 1.5	5.6 ± 0.4	2512.5 ± 491.2	16.4 ± 1.3	49.1 ± 6.2	1.56 ± 0.12	0.024 ± 0.005
		FE	2.4 ± 0.6	5.3 ± 0.3	2142.2 ± 158.7	16.9 ± 1.5	44.0 ± 0.9	1.41 ± 0.12	0.022 ± 0.004
	Eucalypt	Ctrl	14.0 ± 1.2	3.5 ± 0.2	4285.4 ± 145.6	6.9 ± 0.3	55.7 ± 0.8	0.78 ± 0.05	0.023 ± 0.002
		FE	5.1 ± 0.8	2.6 ± 0.2	3783.3 ± 280.2	6.7 ± 0.3	60.3 ± 0.9	0.86 ± 0.03	0.021 ± 0.004