Significant increase in natural disturbance impacts on European forests since 1950

Patacca et al., 2022

Supplementary materials

Supplementary 1.

Fire-damage Conversion Factor for the countries included in the study.

calculated for the country	
average other countries of the same ecozone	
assumed Schelhaas et al., 2003	

Country	FCF_m3/ha
Austria	90.79487
Albania	1.831415
Belgium	25
Bosnia & Herzegovina	7.3
Bulgaria	97.77624
Croatia	16.97254
Cyprus	36.92379
Czech Republic	151.5152
Denmark	25
Estonia	39
Finland	39
France	25
Germany	25
Greece	36.92379
Hungary	151.5152
Ireland	25
Italy	35.32552
Latvia	39
Lithuania	39
Luxembourg	25
Netherlands	25
North Macedonia	16.97254
Norway	39
Poland	151.5152
Portugal	42.56113
Romania	151.5152
Serbia	11.90575
Slovakia	151.5152
Slovenia	28.5
Spain	6.452426
Sweden	39
Switzerland	90.79487
Turkey	36.92379
UK	25

Supplementary 2.

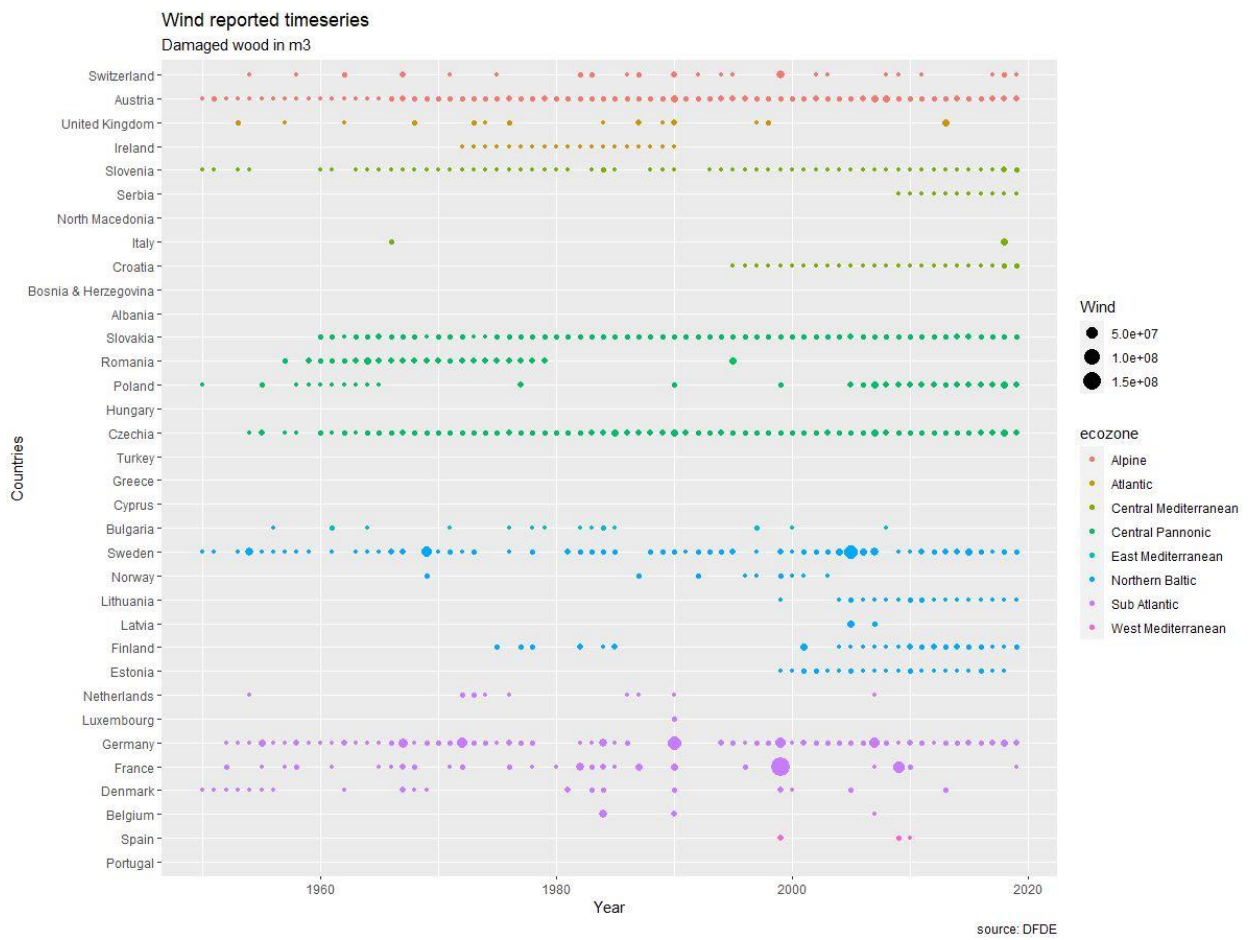Time-series overview based on reported data only.

Figure 2.1: Overview of constructed timeseries of Wind damage for the 34 countries involved in this study. The raw data are sourced from the DFDE and pre-processed.
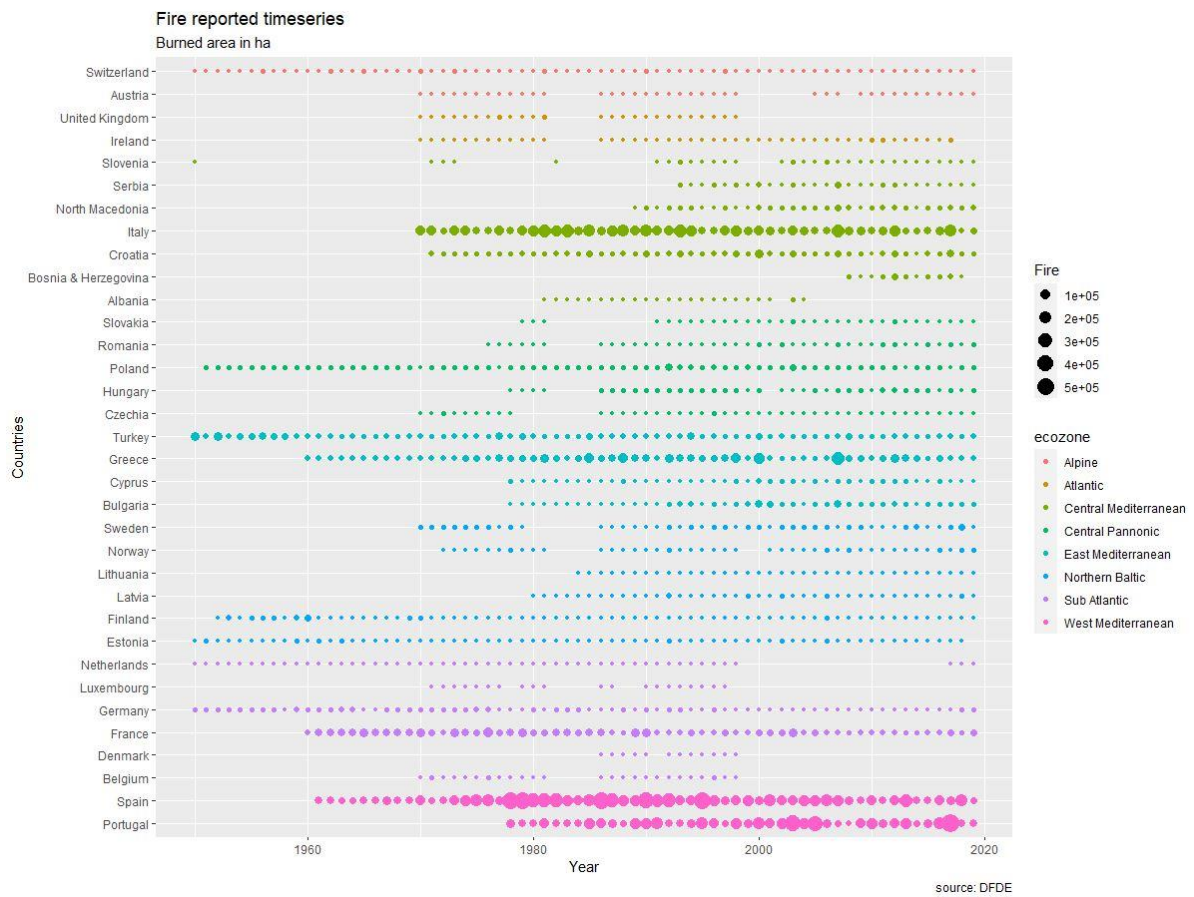
Figure 2.2: Overview of constructed timeseries of Fire damage for the 34 countries involved in this study. The raw data are sourced from the DFDE and pre-processed.
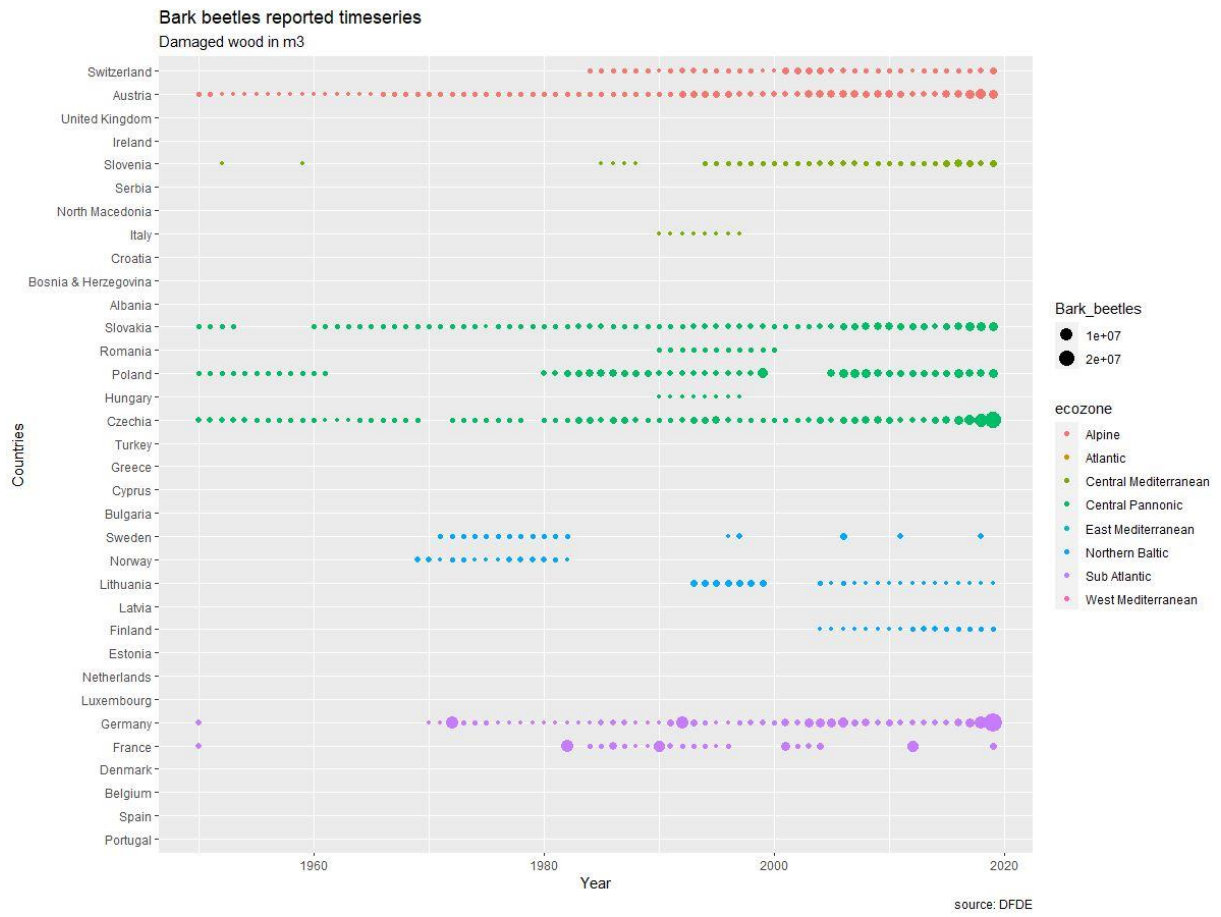
Figure 2.3: Overview of constructed timeseries of bark beetles damage for the 34 countries involved in this study. The raw data are sourced from the DFDE and pre-processed.
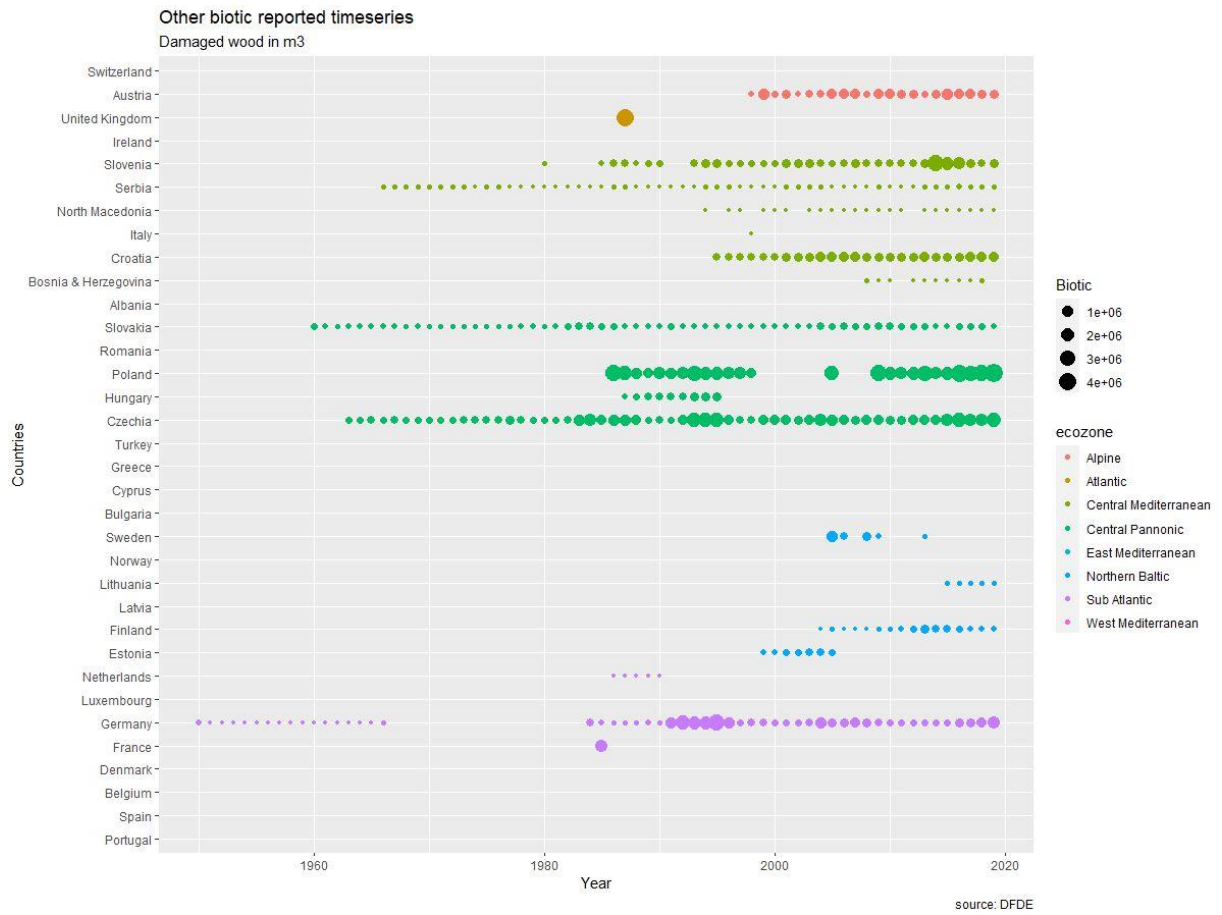
Figure 2.4: Overview of constructed timeseries of other biotic damage for the 34 countries involved in this study. The raw data are sourced from the DFDE and pre-processed.
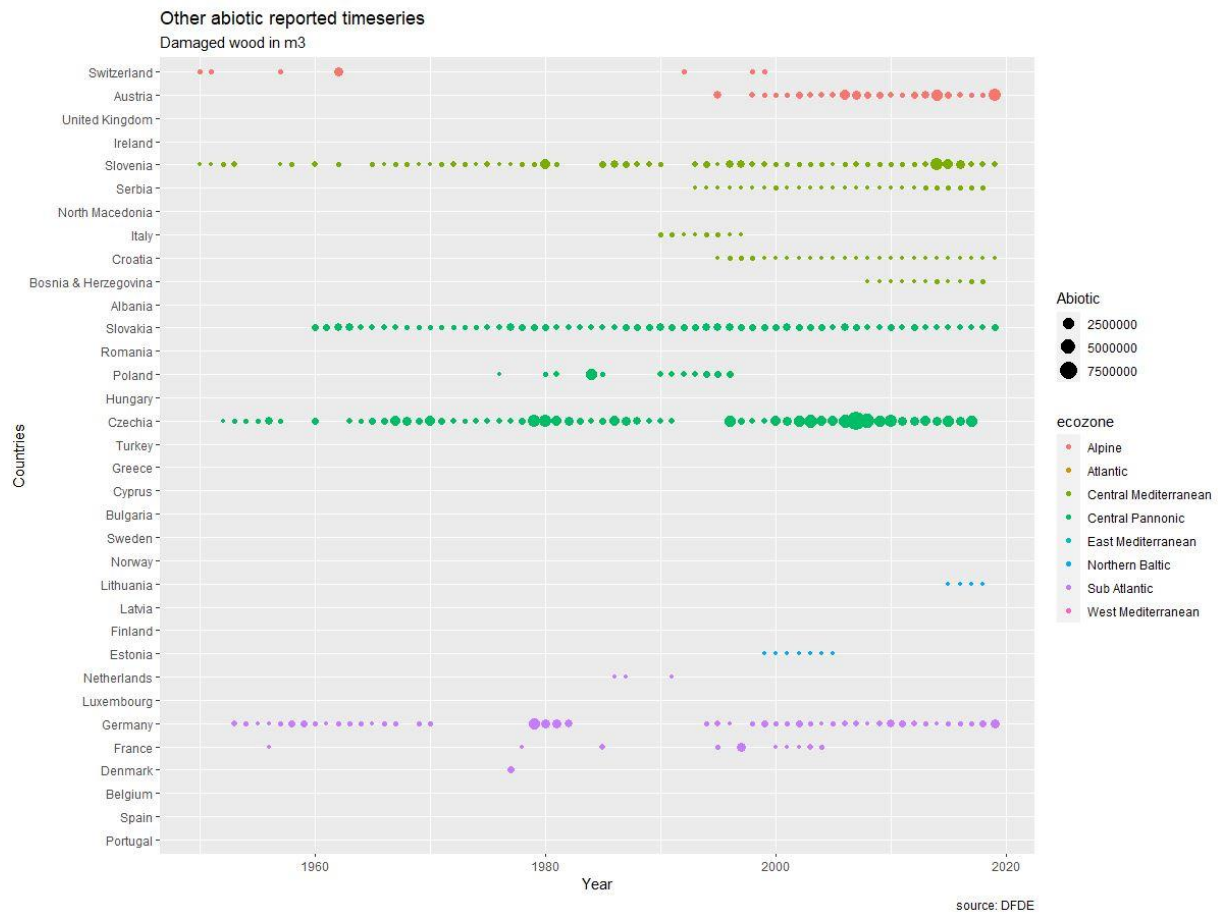
Figure 2.5: Overview of constructed timeseries of other abiotic damage for the 34 countries involved in this study. The raw data are sourced from the DFDE and pre-processed.

Table 2.1: Experts time-series interpretation, as percentage (%) of category.

		Alpine	Atlantic	Central Med	Central Pannonic	East Med	Northern/ Baltic	Sub-Atlantic	West Med	Total
Wind	complete	100%	50%	14%	60%	25%	17%	67%	50%	**41%**
	uncomplete	0%	50%	14%	20%	0%	83%	17%	0%	**26%**
	empty	0%	0%	71%	20%	75%	0%	17%	50%	**32%**
Fire	complete	50%	0%	0%	20%	25%	33%	17%	0%	**18%**
	uncomplete	50%	100%	100%	80%	75%	67%	83%	100%	**82%**
	empty	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Bark beetle	complete	50%	0%	14%	60%	0%	0%	33%	0%	**21%**
	uncomplete	50%	50%	14%	40%	0%	67%	0%	0%	**26%**
	empty	0%	50%	71%	0%	100%	33%	67%	100%	**53%**
Other biotic	complete	0%	0%	29%	40%	0%	0%	17%	0%	**15%**
	uncomplete	50%	0%	29%	40%	0%	67%	17%	0%	**29%**
	empty	50%	100%	43%	20%	100%	33%	67%	100%	**56%**
Other abiotic	complete	50%	0%	14%	40%	0%	0%	33%	0%	**18%**
	uncomplete	50%	0%	43%	20%	0%	33%	33%	0%	**26%**
	empty	0%	100%	43%	40%	100%	67%	33%	100%	**56%**

Total											
	complete	50%	10%	14%	44%	10%	10%	33%	10%	**22%**
	uncomplete	40%	40%	40%	40%	15%	63%	30%	20%	**38%**
	empty	10%	50%	46%	16%	75%	27%	37%	70%	**39%**

Supplementary 3.

Table 3.1: List of predicting variables used to train the Random Forests (RF) models.

Variable	Source	Type	Unit
Standing growing stock	1	Forest	m3
Conifer standing growing stock	1	Forest	m3
Forest area	1	Forest	ha
Forest average age	2	Forest	years
Share of old growth forest	2	Forest	%
Skeweness age class distribution	2	Forest	-
Spruce growing stock	1	Forest	m3
Share of spruce forest area	1	Forest	%
Mean annual temperature	3	Climate	˚C
Mean temperature DJF	3	Climate	˚C
Mean remperature MAM	3	Climate	˚C
Mean temperature JJA	3	Climate	˚C
Mean temperature SON	3	Climate	˚C
Lagged mean annual temperature	3	Climate	˚C
Lagged mean temperature DJF	3	Climate	˚C
Lagged mean temperature MAM	3	Climate	˚C
Lagged mean temperature JJA	3	Climate	˚C
Lagged mean temperature SON	3	Climate	˚C
Cumulative annual precipitation	3	Climate	mm
Comulative precipitation DJF	3	Climate	mm
Comulative precipitation MAM	3	Climate	mm
Comulative precipitation JJA	3	Climate	mm
Comulative precipitation SON	3	Climate	mm
Lagged cumulative annual precipitation	3	Climate	mm
Lagged cumulative precipitation DJF	3	Climate	mm
Lagged cumulative precipitation MAM	3	Climate	mm
Lagged cumulative precipitation JJA	3	Climate	mm
Lagged cumulative precipitation SON	3	Climate	mm
Annual maximum wind speed (daily)	3	Climate	m/s
Maximum wind speed DJF (daily)	3	Climate	m/s
Maximum wind speed MAM (daily)	3	Climate	m/s
Maximum wind speed JJA (daily)	3	Climate	m/s
Maximum wind speed SON (daily)	3	Climate	m/s
Annual maximum wind speed (monthly)	3	Climate	m/s
Maximum wind speed DJF (monthly)	3	Climate	m/s
Maximum wind speed MAM (monthly)	3	Climate	m/s

Maximum wind speed JJA (monthly)	3	Climate	m/s
Maximum wind speed SON (monthly)	3	Climate	m/s
Wind Weight Index DJF	4	Climate	Kg*m/s
Wind Weight Index MAM	4	Climate	Kg*m/s
Wind Weight Index JJA	4	Climate	Kg*m/s
Wind Weight Index SON	4	Climate	Kg*m/s

Sources:

1 - FOREST EUROPE, UNECE, FAO 2020, https://fra-data.fao.org/FE/panEuropean/home/

2 - Vilén, T., Gunia, K., Verkerk, P. J., Seidl, R., Schelhaas, M.-J., Lindner, M., & Bellassen, V. (2012). Reconstructed forest age structure in Europe 1950–2010. *Forest Ecology and Management*, *286*, 203–218. https://doi.org/10.1016/j.foreco.2012.08.048

3 - ERA5 reanalysis - Copernicus Climate Data Store (CDS) https://cds.climate.copernicus.eu/

4 – Computed using data from source 3.

Supplementary 4.

Table 4.1: Mann-Kendall trend test (MK) and Sen's slope test (SS) parameters of reported time-series. Parameters for each disturbance agent per ecozone as well as for their sum (total disturbance). Europe indicates the sum over the 34 countries included in the study. MK test indicates the direction of the trend (between -1 and +1) and the * indicate significance of the trend

reported only	Wind		Fire		Bark Beetles		Other biotic		Other abiotic		Total disturbance	
	MK tau	SS	MK tau	SS	MK tau	SS	MK tau	SS	MK tau	SS	MK tau	SS
Europe	**0.33***	**226602**	**0.48***	**213313**	**0.62***	**182759**	**0.73***	**93171**	**0.54***	**47305**	**0.60***	**842133**
Alpine	0.35*	31721	0.31*	-777	0.76*	31378	0.12	13748	0.48*	1217	**0.58***	**96959**
Atlantic	-0.08	0	0.23*	139	0.01	0	0.01	0	0	0	**0.06**	**35**
East Med.	-0.09	0	0.24*	14310	0	0	0	0	0	0	**0.22***	**13523**
Central Med.	0.51*	4237	0.32*	44459	0.72*	4457	0.76*	21936	0.37*	2661	**0.59***	**109495**
Central Pannonic	0.24*	32204	0.52*	15470	0.49*	54962	0.62*	27027	0.24*	4357	**0.56***	**184323**
Northern /Baltic	0.36*	37992	0.15	902	0.29*	1501	0.02	1225	-0.45	-1044	**0.41***	**61838**
Sub-Atlantic	0.2	24583	-0.1	-5437	0.59*	19774	0.44*	6075	0.22	1031	**0.39***	**101622**
West Med.	0.18	0	0.60*	92254	0	0	0	0	0	0	**0.61***	**99454**

*Table 4.2: Mann-Kendall trend test (MK) and Sen's slope test (SS) parameters of gap-filled time-series based on reported data. Parameters for each disturbance agent per ecozone as well as for their sum (total disturbance). Europe indicates the sum over the 34 countries included in the study. MK test indicates the direction of the trend (between -1 and +1) and the * indicate significance of the trend at α=0.05 confidence level. SS indicates the effect size, i.e., the average magnitude of the trend's yearly change (in m³).*

reported gap-filled	Wind		Fire		Bark Beetles		Other biotic		Other abiotic		Total disturbance	
	MK tau	SS	MK tau	SS	MK tau	SS	MK tau	SS	MK tau	SS	MK tau	SS
Europe	**0.51***	**358737**	**0.32***	**89029**	**0.68***	**187506**	**0.75***	**98689**	**0.45***	**40558**	**0.64***	**864375**
Alpine	0.35*	32378	-0.4*	-961	0.71*	30694	0.13	13748	0.18	1087	**0.57***	**93700**
Atlantic	0.41*	8196	0.23	62	0	0	0	0	0	0	**0.41***	**8474**

East Med.	-0.09	0	0.05	3152	0	0	0	0	0	0	**0.03**	**2452**
Central Med.	0.66*	8921	0.09	10660	0.73*	4062	0.72*	20137	0.33*	3093	**0.54***	**78511**
Central Pannonic	0.57*	144430	0.38*	12436	0.68*	99767	0.66*	43357	0.39*	27568	**0.78***	**367862**
Northern /Baltic	0.34*	50159	-0.09	-686	-0.45*	20771	0.47*	2976	-0.07	-19	**0.23***	**43625**
Sub-Atlantic	0.39*	63487	-0.31*	-9193	0.39*	30978	0.68*	9027	0.23*	1738	**0.47***	**139346**
West Med.	0.18	0	0.32*	43988	0	0	0	0	0	0	**0.31***	**49749**

Supplementary 5.

Standardized Disturbance Index (SDI, in m^3/ha/year) average per decade for all the countries. Time-series for reported, expert gap-filled and reported gap-filled, respectively.

Country	decade	SDI Reported	SDI Expert gapfilled	SDI Reported Gapfilled
Albania	1950s		0.00920723	0.05558071
Albania	1960s		0.01477867	0.066633
Albania	1970s		0.01360625	0.06616609
Albania	1980s	0.0003423	0.00988116	0.07377644
Albania	1990s	0.00126896	0.01531101	0.07816391
Albania	2000s	0.00105257	0.01591734	0.08236433
Albania	2010s		0.01976236	0.12447501
Austria	1950s	0.08076007	0.15637442	0.15789814
Austria	1960s	0.26292544	0.33346914	0.33698283
Austria	1970s	0.65324457	0.71915973	0.72002026
Austria	1980s	0.57982036	0.64784915	0.65104008
Austria	1990s	0.99042183	1.04133307	1.04128605
Austria	2000s	1.62513813	1.62602104	1.62598156
Austria	2010s	1.57819989	1.57819989	1.57819989
Belgium	1950s		0.01176198	0.81054901
Belgium	1960s		0.00883308	0.94980299
Belgium	1970s	0.02547457	0.02786548	1.3747369
Belgium	1980s	1.94560712	1.95177794	2.75210883
Belgium	1990s	0.8196367	0.82580546	2.04609409
Belgium	2000s	0.0439175	0.0578031	1.46992269

Belgium	2010s		0.01394317	1.86079377
Bosnia & Herzegovina	1950s		0.06511373	0.05454674
Bosnia & Herzegovina	1960s		0.08443535	0.06353325
Bosnia & Herzegovina	1970s		0.06795482	0.06335852
Bosnia & Herzegovina	1980s		0.0249639	0.05872419
Bosnia & Herzegovina	1990s		0.06819252	0.05926507
Bosnia & Herzegovina	2000s	0.0021512	0.16209233	0.07615305
Bosnia & Herzegovina	2010s	0.01061673	0.08891291	0.10729684
Bulgaria	1950s	0.00087326	0.10908275	0.10376189
Bulgaria	1960s	0.03155092	0.08550849	0.08652785
Bulgaria	1970s	0.00758096	0.02777083	0.02643302
Bulgaria	1980s	0.04217218	0.04217218	0.04217218
Bulgaria	1990s	0.19324919	0.19324919	0.19324919
Bulgaria	2000s	0.4094997	0.4094997	0.4094997
Bulgaria	2010s	0.1354645	0.1354645	0.1354645
Croatia	1950s		0.02245696	0.08289176
Croatia	1960s		0.09129624	0.16340757
Croatia	1970s	0.0532881	0.08621655	0.15769128
Croatia	1980s	0.09019734	0.15406702	0.18302967
Croatia	1990s	0.27735897	0.32574155	0.34966499
Croatia	2000s	0.53630517	0.53630517	0.53630517
Croatia	2010s	0.60758559	0.60758559	0.60758559
Cyprus	1950s		0.22921345	0.16561915
Cyprus	1960s		0.28052483	0.18947876
Cyprus	1970s	0.05428825	0.25299729	0.18722095
Cyprus	1980s	0.11398012	0.11572746	0.11398012
Cyprus	1990s	0.17140621	0.17389384	0.17140621
Cyprus	2000s	0.62994042	0.63149996	0.62994042
Cyprus	2010s	0.33744719	0.33906524	0.33744719
Czechia	1950s	0.36326918	0.40365085	0.68802138
Czechia	1960s	0.69147816	0.73755614	0.8366083
Czechia	1970s	1.17135429	1.21722123	1.26775444
Czechia	1980s	2.43383869	2.47413796	2.49489621
Czechia	1990s	1.92052965	1.9732805	2.07865045
Czechia	2000s	3.11784556	3.15759387	3.20215136
Czechia	2010s	4.14911946	4.18039708	4.34788264
Denmark	1950s	0.2213565	0.23076008	0.53319172
Denmark	1960s	0.80183239	0.81543554	1.28067289
Denmark	1970s	0.08734644	0.09440371	0.87325304
Denmark	1980s	0.95354702	0.96004992	1.60193904
Denmark	1990s	0.82652612	0.83111739	1.63546328
Denmark	2000s	0.38633402	0.39216971	1.21380601
Denmark	2010s	0.08204738	0.08977088	1.03117472
Estonia	1950s	0.01555219	0.42001601	0.47373035
Estonia	1960s	0.01512821	0.38803287	0.44397117
Estonia	1970s	0.00172621	0.35270118	0.40538032

Estonia	1980s	0.00187045	0.33177101	0.36435254
Estonia	1990s	0.01805364	0.25697982	0.27434817
Estonia	2000s	0.21026516	0.3010227	0.30029634
Estonia	2010s	0.07734268	0.1706195	0.16691411
Finland	1950s	0.0050114	0.02002669	0.0339069
Finland	1960s	0.00613914	0.02063585	0.04106523
Finland	1970s	0.02256997	0.03347145	0.05513743
Finland	1980s	0.03653819	0.0484582	0.07431661
Finland	1990s	0.00105088	0.02264825	0.0414179
Finland	2000s	0.03928881	0.04520781	0.0489387
Finland	2010s	0.11179167	0.11183663	0.11182802
France	1950s	0.02243596	0.06694719	0.11197971
France	1960s	0.12217672	0.12260832	0.1667812
France	1970s	0.10474737	0.10488986	0.1621709
France	1980s	0.37793446	0.37866576	0.41915296
France	1990s	1.34298547	1.34510557	1.42318827
France	2000s	0.35257931	0.35420003	0.44101513
France	2010s	0.078006	0.07907983	0.17662387
Germany	1950s	0.18681088	0.18681088	0.20796503
Germany	1960s	0.35081705	0.35081705	0.36029101
Germany	1970s	0.55899895	0.55899895	0.57025044
Germany	1980s	0.20311723	0.20311723	0.23288541
Germany	1990s	1.26719777	1.26719777	1.29907761
Germany	2000s	0.74520557	0.74520557	0.74520557
Germany	2010s	0.79478564	0.79478564	0.79478564
Greece	1950s		0.26689052	0.2528618
Greece	1960s	0.17220677	0.17222429	0.17220677
Greece	1970s	0.23766635	0.23767576	0.23766635
Greece	1980s	0.52149387	0.52150852	0.52149387
Greece	1990s	0.47414448	0.47416197	0.47414448
Greece	2000s	0.48616449	0.48618121	0.48616449
Greece	2010s	0.22920311	0.2292152	0.22920311
Hungary	1950s		0.05185346	0.71716771
Hungary	1960s		0.06442537	0.67397687
Hungary	1970s	0.00849211	0.06673248	0.6279708
Hungary	1980s	0.09394662	0.15709258	0.64264951
Hungary	1990s	0.26011168	0.30457767	0.70508916
Hungary	2000s	0.16341223	0.31777531	0.70874945
Hungary	2010s	0.34967292	0.48762092	0.99037397
Ireland	1950s		0	0.20890439
Ireland	1960s		0	0.10022103
Ireland	1970s	0.27345908	0.27345908	0.2851153
Ireland	1980s	0.20882004	0.20882004	0.20882004
Ireland	1990s	0.06590938	0.06590938	0.22183971
Ireland	2000s	0.01620711	0.01620711	0.15517518
Ireland	2010s	0.02005198	0.02005198	0.32801182

Italy	1950s		0.25255791	0.37406003
Italy	1960s	0.01454818	0.23768074	0.32173856
Italy	1970s	0.38380042	0.40875151	0.42211248
Italy	1980s	0.75858316	0.78285122	0.7985013
Italy	1990s	0.53442563	0.56490223	0.56868779
Italy	2000s	0.34160302	0.38575635	0.3921485
Italy	2010s	0.33574201	0.38842088	0.40142087
Latvia	1950s		0.23122703	0.27892996
Latvia	1960s		0.21688357	0.2614418
Latvia	1970s		0.2242469	0.26652515
Latvia	1980s	0.00100693	0.21860726	0.23987025
Latvia	1990s	0.01622526	0.17059003	0.17933656
Latvia	2000s	0.2533164	0.36606007	0.36560573
Latvia	2010s	0.00702608	0.10456872	0.10005119
Lithuania	1950s		0.32060206	0.44704509
Lithuania	1960s		0.30894755	0.43188677
Lithuania	1970s		0.40624102	0.50491586
Lithuania	1980s	0.00082672	0.45360887	0.47343252
Lithuania	1990s	0.46321098	0.64430372	0.66326021
Lithuania	2000s	0.09552732	0.21588625	0.21963787
Lithuania	2010s	0.11774767	0.13444288	0.13503912
Luxembourg	1950s		0.10666756	1.28913349
Luxembourg	1960s		0.08440893	0.98220484
Luxembourg	1970s	0.00173475	0.07965089	1.14851252
Luxembourg	1980s	0.00030117	0.10541267	1.2010199
Luxembourg	1990s	1.86570279	1.93061396	3.93686155
Luxembourg	2000s		0.08159169	2.36514118
Luxembourg	2010s		0.02332873	2.16311718
Netherlands	1950s	0.02131434	0.02719428	0.82619303
Netherlands	1960s	0.01017621	0.01556453	0.73304178
Netherlands	1970s	0.62811653	0.63207236	1.29145152
Netherlands	1980s	0.00422995	0.0083212	0.55392035
Netherlands	1990s	0.12579402	0.13150839	1.31578193
Netherlands	2000s	0.06769821	0.08153003	1.39247866
Netherlands	2010s	0.00762489	0.01908457	1.4561073
North Macedonia	1950s		0.00870653	0.06805322
North Macedonia	1960s		0.0099354	0.07250708
North Macedonia	1970s		0.01234126	0.07308118
North Macedonia	1980s	0.0003145	0.00956733	0.07390219
North Macedonia	1990s	0.03606862	0.04513741	0.09129001
North Macedonia	2000s	0.16143181	0.17469454	0.21783488
North Macedonia	2010s	0.1176585	0.13183352	0.19002246
Norway	1950s		0.03684955	0.0798116
Norway	1960s	0.0378198	0.06245874	0.0997437
Norway	1970s	0.05310038	0.06387975	0.10419681
Norway	1980s	0.03417682	0.05456634	0.08599001

Norway	1990s	0.03449895	0.05311897	0.06685974
Norway	2000s	0.00873901	0.02844735	0.03967246
Norway	2010s	0.00342512	0.01772791	0.03597369
Poland	1950s	0.13349123	0.13408441	0.36381002
Poland	1960s	0.08252116	0.14467084	0.32255598
Poland	1970s	0.0931157	0.22964244	0.62281729
Poland	1980s	0.37299576	0.47144766	0.7769649
Poland	1990s	0.55706796	0.57979379	0.81782364
Poland	2000s	0.5467812	0.72460938	1.00088574
Poland	2010s	1.0054325	1.01567585	1.05593334
Portugal	1950s		0.88690607	0.87002265
Portugal	1960s		0.89523778	0.87396078
Portugal	1970s	0.18411475	0.79445864	0.79350323
Portugal	1980s	1.04454902	1.04454902	1.04454902
Portugal	1990s	1.29865739	1.29865739	1.29865739
Portugal	2000s	1.95338525	1.95338525	1.95338525
Portugal	2010s	1.74054775	1.74054775	1.74054775
Romania	1950s	0.07495157	0.0978931	0.490292
Romania	1960s	0.58348331	0.68436651	0.83760494
Romania	1970s	0.54309103	0.67474333	0.75024374
Romania	1980s	0.00144331	0.58420623	0.79423785
Romania	1990s	0.14766693	0.69973141	0.79019978
Romania	2000s	0.03530345	0.7794374	1.04648932
Romania	2010s	0.04091184	0.90463129	1.40883441
Serbia	1950s		0.00800203	0.03505423
Serbia	1960s	0.00284333	0.01321146	0.0367393
Serbia	1970s	0.00546362	0.01716826	0.03570226
Serbia	1980s	0.00187195	0.01584681	0.03070431
Serbia	1990s	0.00993794	0.02621385	0.03255348
Serbia	2000s	0.02932091	0.04738637	0.0509693
Serbia	2010s	0.07087079	0.07444923	0.07754822
Slovakia	1950s	0.05409436	0.06280437	0.73794867
Slovakia	1960s	0.92160941	0.93495565	0.93553153
Slovakia	1970s	0.55081118	0.56217009	0.56214112
Slovakia	1980s	0.90139445	0.91732386	0.91615583
Slovakia	1990s	1.24668975	1.24861427	1.24841103
Slovakia	2000s	2.05204862	2.05204862	2.05204862
Slovakia	2010s	2.51456652	2.51470455	2.54305744
Slovenia	1950s	0.03526556	0.04008983	0.14365346
Slovenia	1960s	0.10664909	0.11222558	0.24309479
Slovenia	1970s	0.10175269	0.10547174	0.17398908
Slovenia	1980s	0.52653779	0.53294745	0.62597598
Slovenia	1990s	0.56789194	0.56969656	0.66708761
Slovenia	2000s	0.86074945	0.8619619	0.86211083
Slovenia	2010s	2.5289845	2.5289845	2.5289845
Spain	1950s		0.04060528	0.03824622

Spain	1960s	0.01349866	0.01530075	0.01516951
Spain	1970s	0.11925223	0.11925223	0.11925223
Spain	1980s	0.15903813	0.15903813	0.15903813
Spain	1990s	0.10823757	0.10823757	0.10823757
Spain	2000s	0.05094815	0.05094815	0.05094815
Spain	2010s	0.03547538	0.03547538	0.03547538
Sweden	1950s	0.08358513	0.09331609	0.09417147
Sweden	1960s	0.18384692	0.19501451	0.20205949
Sweden	1970s	0.04425618	0.04787412	0.05943489
Sweden	1980s	0.05210665	0.0629285	0.07681462
Sweden	1990s	0.06071254	0.07191478	0.0793072
Sweden	2000s	0.42449413	0.43662353	0.44244139
Sweden	2010s	0.117722	0.1297536	0.13018606
Switzerland	1950s	0.12352548	0.29645239	0.47829302
Switzerland	1960s	0.71996291	0.9652528	1.19284094
Switzerland	1970s	0.14823716	0.54176908	0.78354211
Switzerland	1980s	0.34780658	0.57145901	0.77043478
Switzerland	1990s	1.84021207	1.91186181	2.06254664
Switzerland	2000s	0.72164188	0.8171763	0.97638772
Switzerland	2010s	0.47959642	0.58303741	0.72914408
Turkey	1950s	0.17980951	0.17981191	0.17980951
Turkey	1960s	0.04844131	0.04844382	0.04844131
Turkey	1970s	0.105627	0.10562914	0.105627
Turkey	1980s	0.05325354	0.05325733	0.05325354
Turkey	1990s	0.03822534	0.03822684	0.03822534
Turkey	2000s	0.02642086	0.02642255	0.02642086
Turkey	2010s	0.0143412	0.01434327	0.0143412
United Kingdom	1950s	0.12906973	0.12906973	0.28118766
United Kingdom	1960s	0.08778679	0.08778679	0.19386441
United Kingdom	1970s	0.14333529	0.14333529	0.23365454
United Kingdom	1980s	0.15992879	0.15992879	0.2722479
United Kingdom	1990s	0.26055715	0.26055715	0.39441007
United Kingdom	2000s		0	0.19075791
United Kingdom	2010s	0.21695437	0.21695437	0.38022356