

Forest Condition in Europe

2018 Technical Report of ICP Forests

Online Supplementary Material

Report under the UNECE Convention
on Long-range Transboundary Air Pollution (Air Convention)

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S1 TREE CROWN CONDITION AND DAMAGE CAUSES – ADDITIONAL MAPS

S1-1 Mean plot defoliation of main tree species in 2017

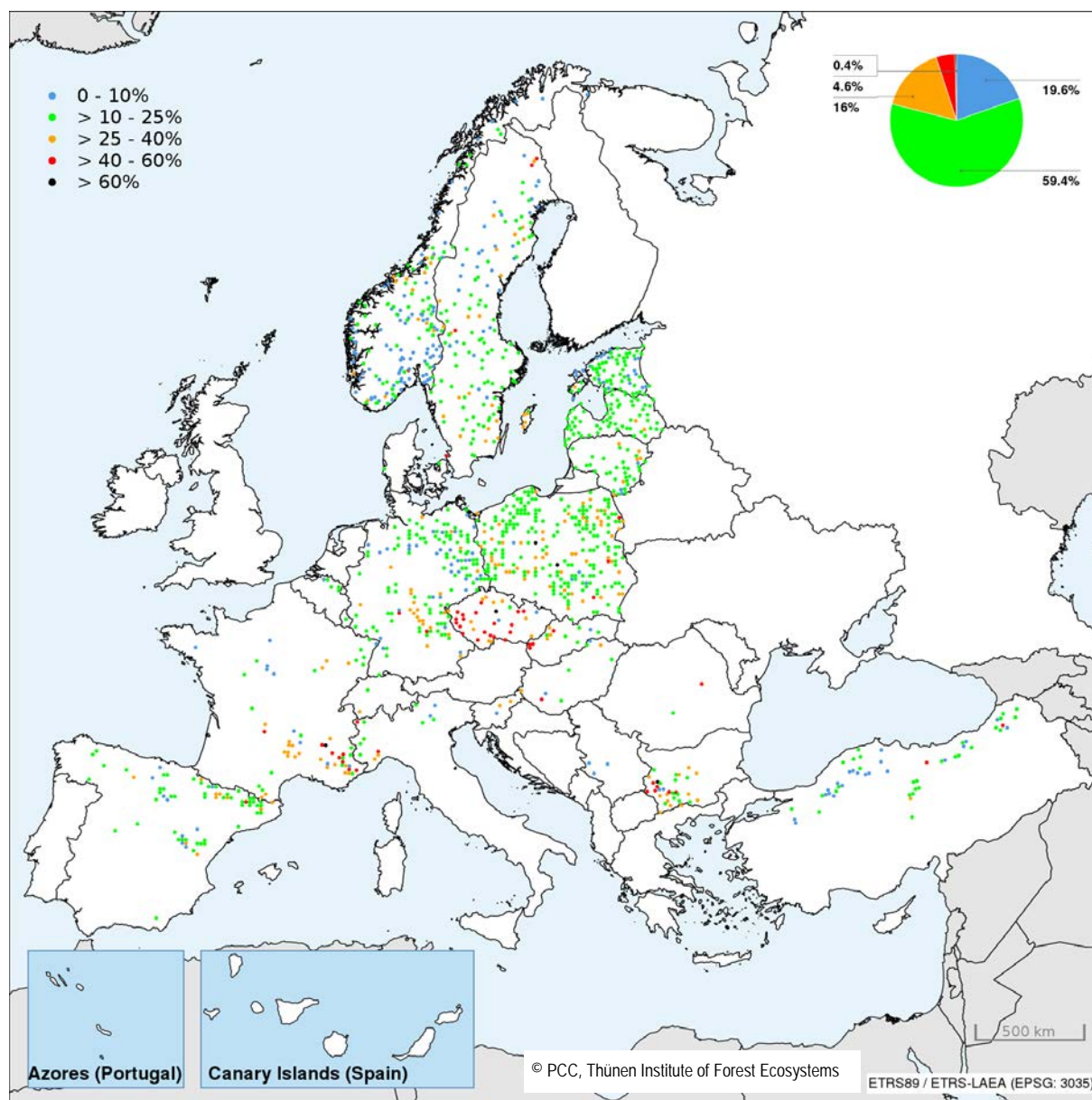


Figure S1-1: Mean plot defoliation of Scots pine (*Pinus sylvestris*) in 2017

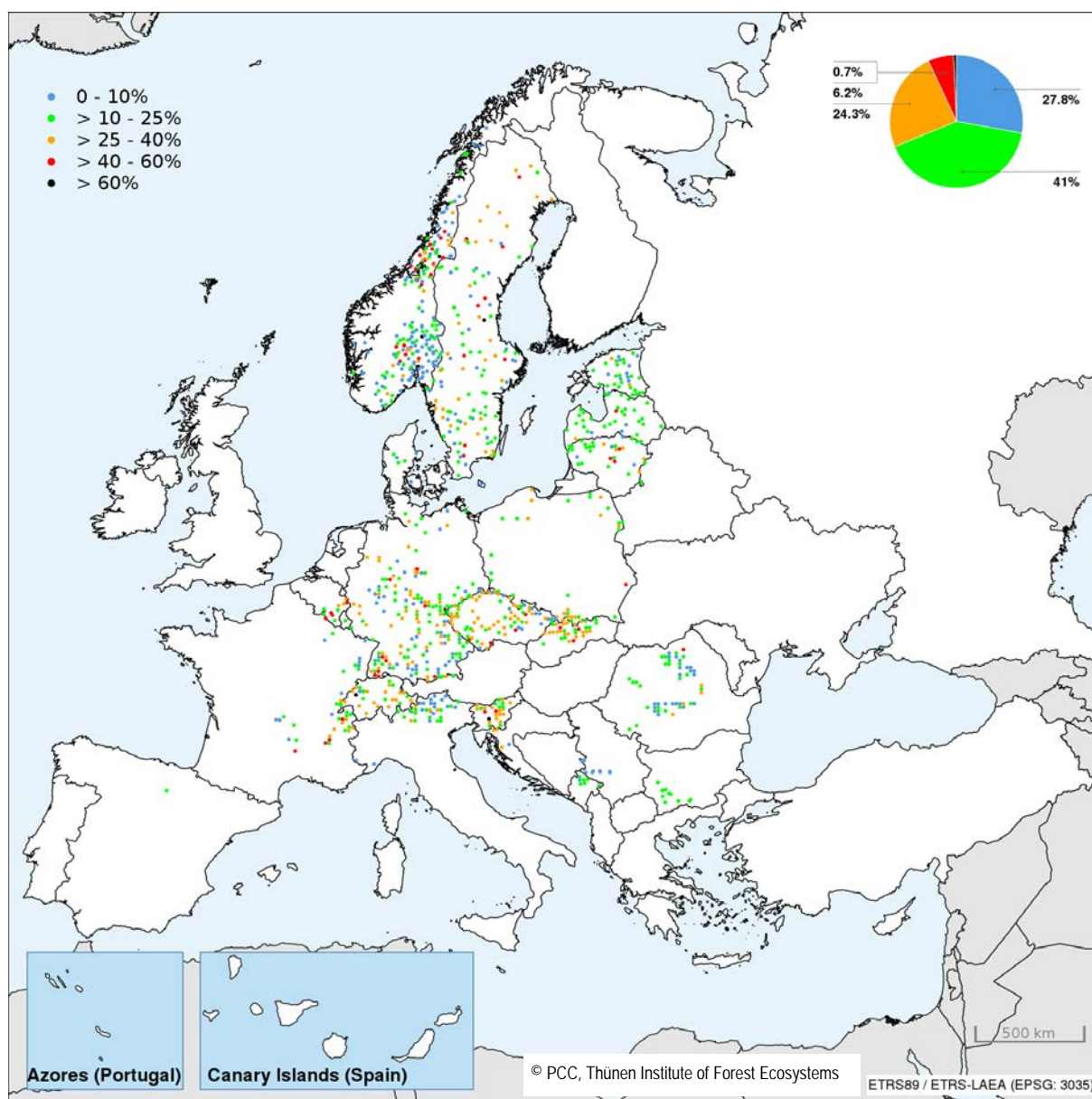


Figure S1-2: Mean plot defoliation of Norway spruce (*Picea abies*) in 2017

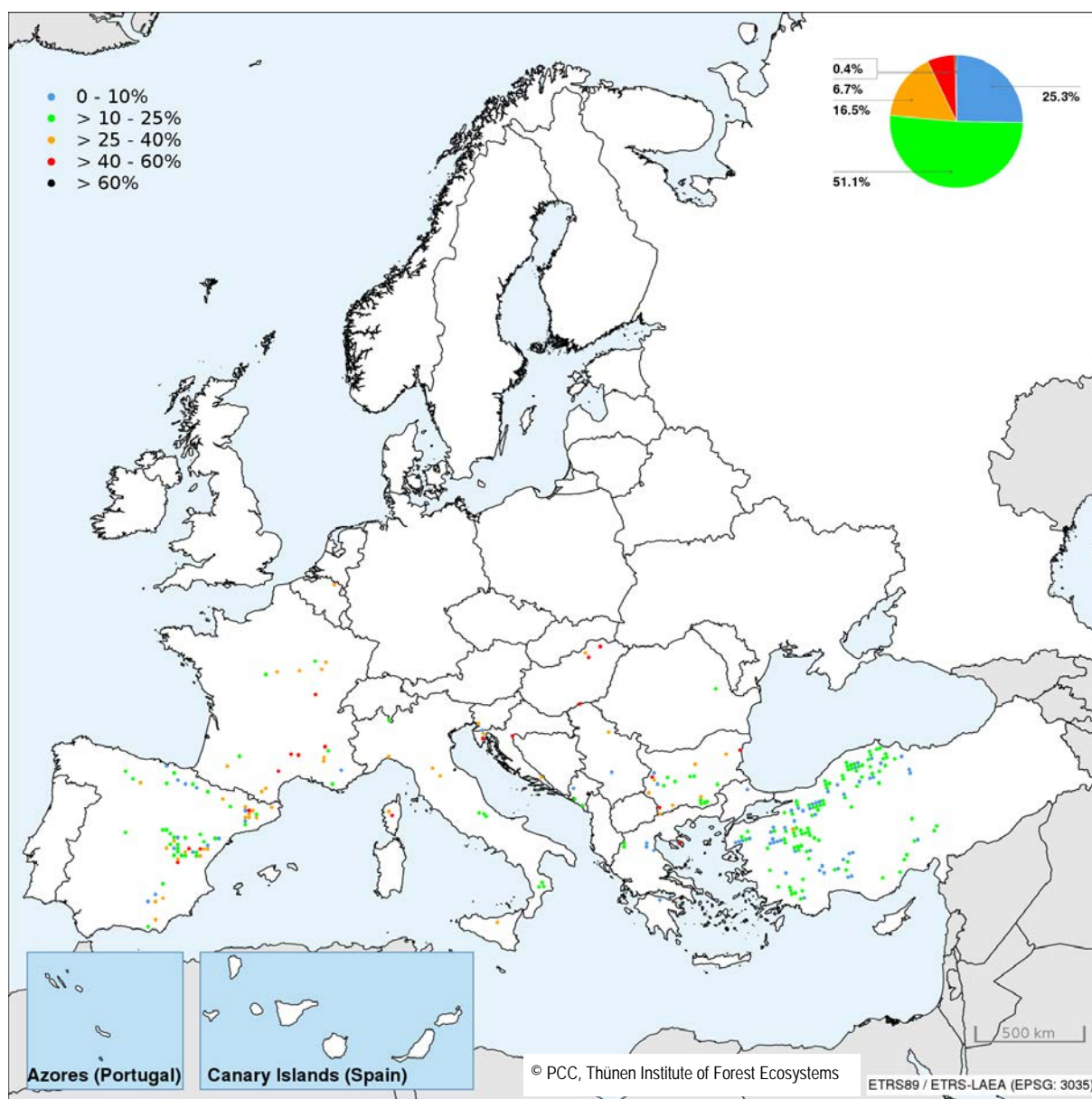


Figure S1-3: Mean plot defoliation of Austrian pine (*Pinus nigra*) in 2017

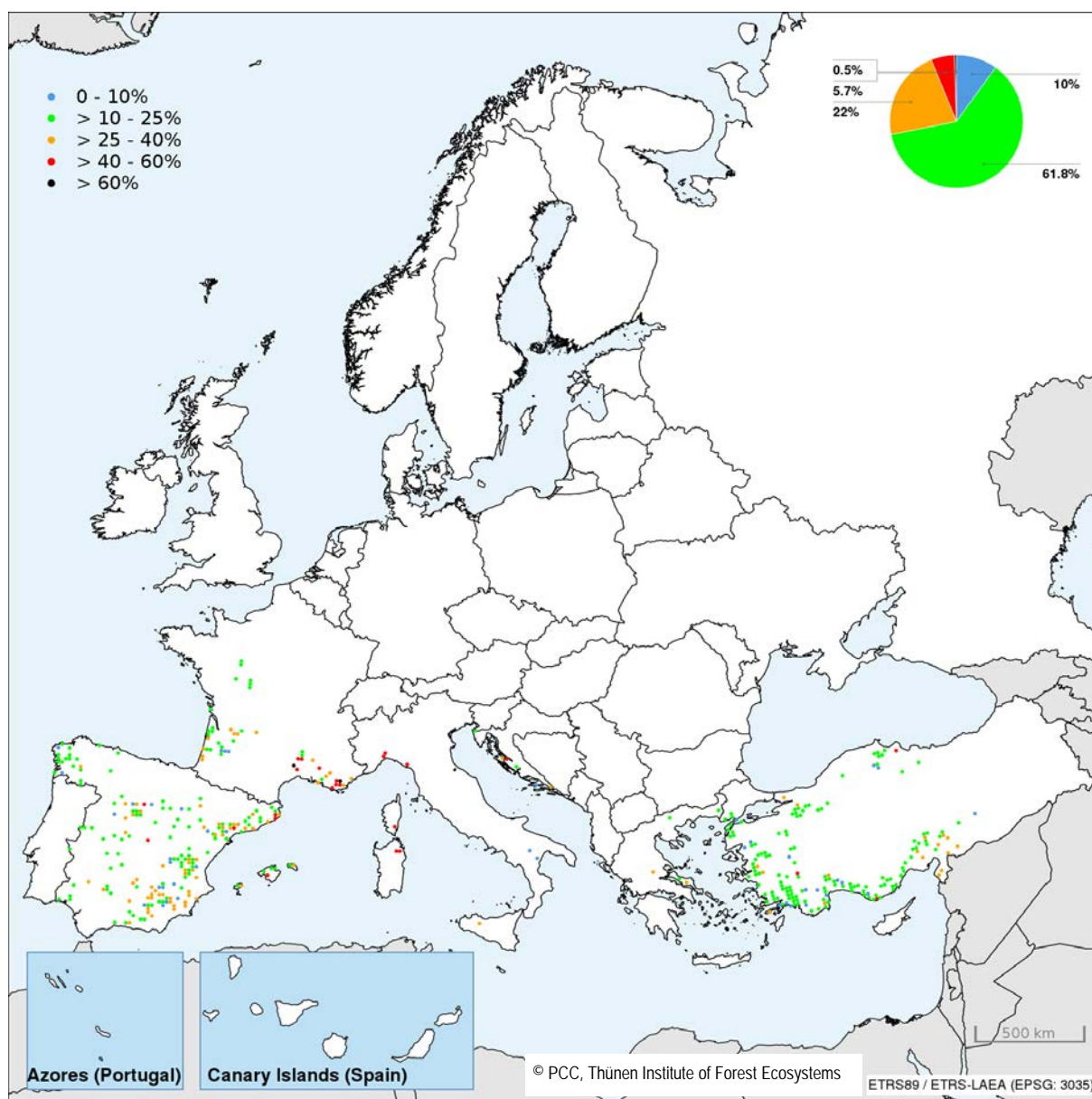


Figure S1-4: Mean plot defoliation of Mediterranean lowland pines (*Pinus halepensis*, *P. pinaster*, *P. pinea*, *P. brutia*) in 2017

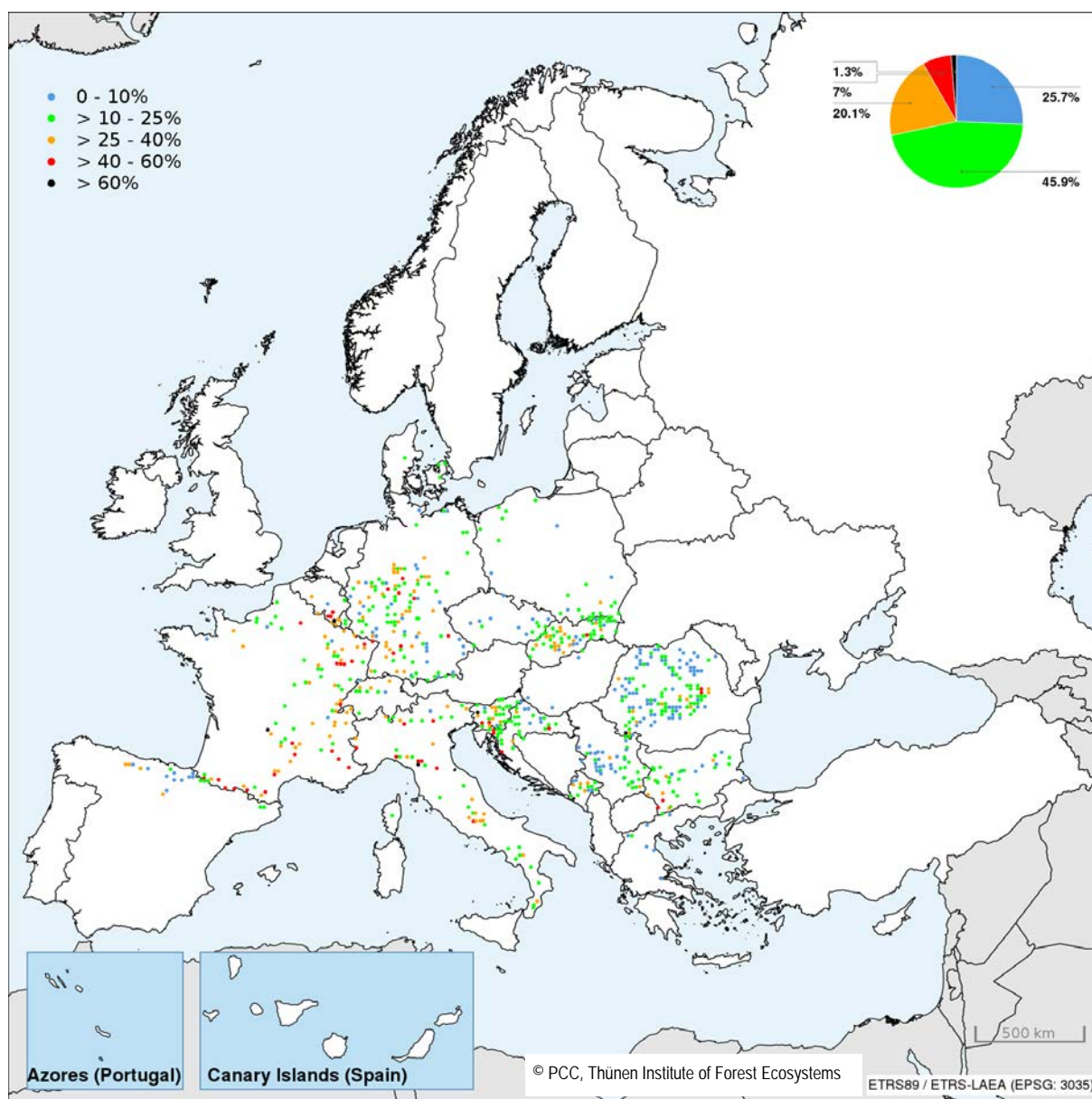


Figure S1-5: Mean plot defoliation of common beech (*Fagus sylvatica*) in 2017

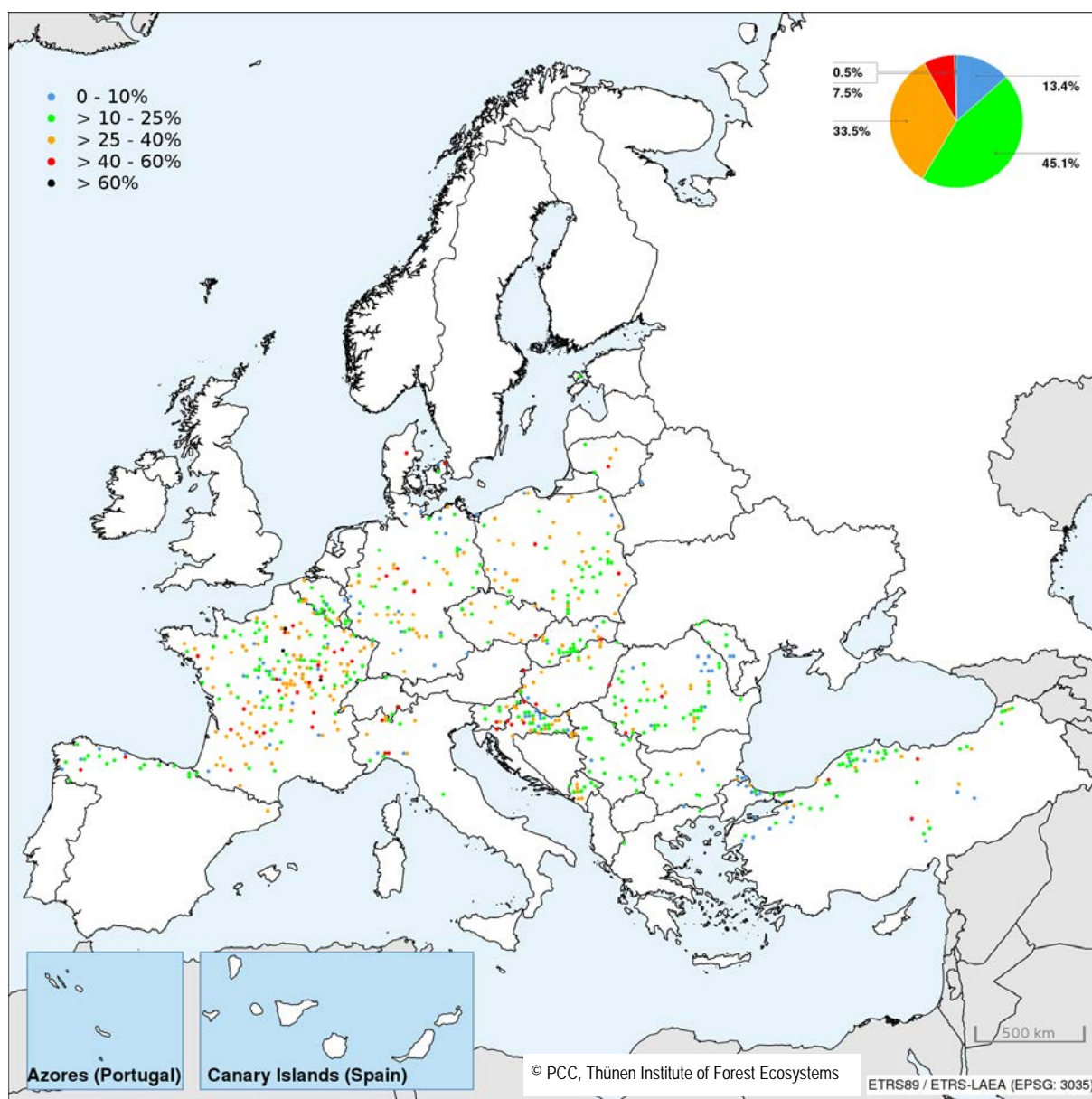


Figure S1-6: Mean plot defoliation of deciduous temperate oaks (*Quercus robur* and *Q. petraea*) in 2017

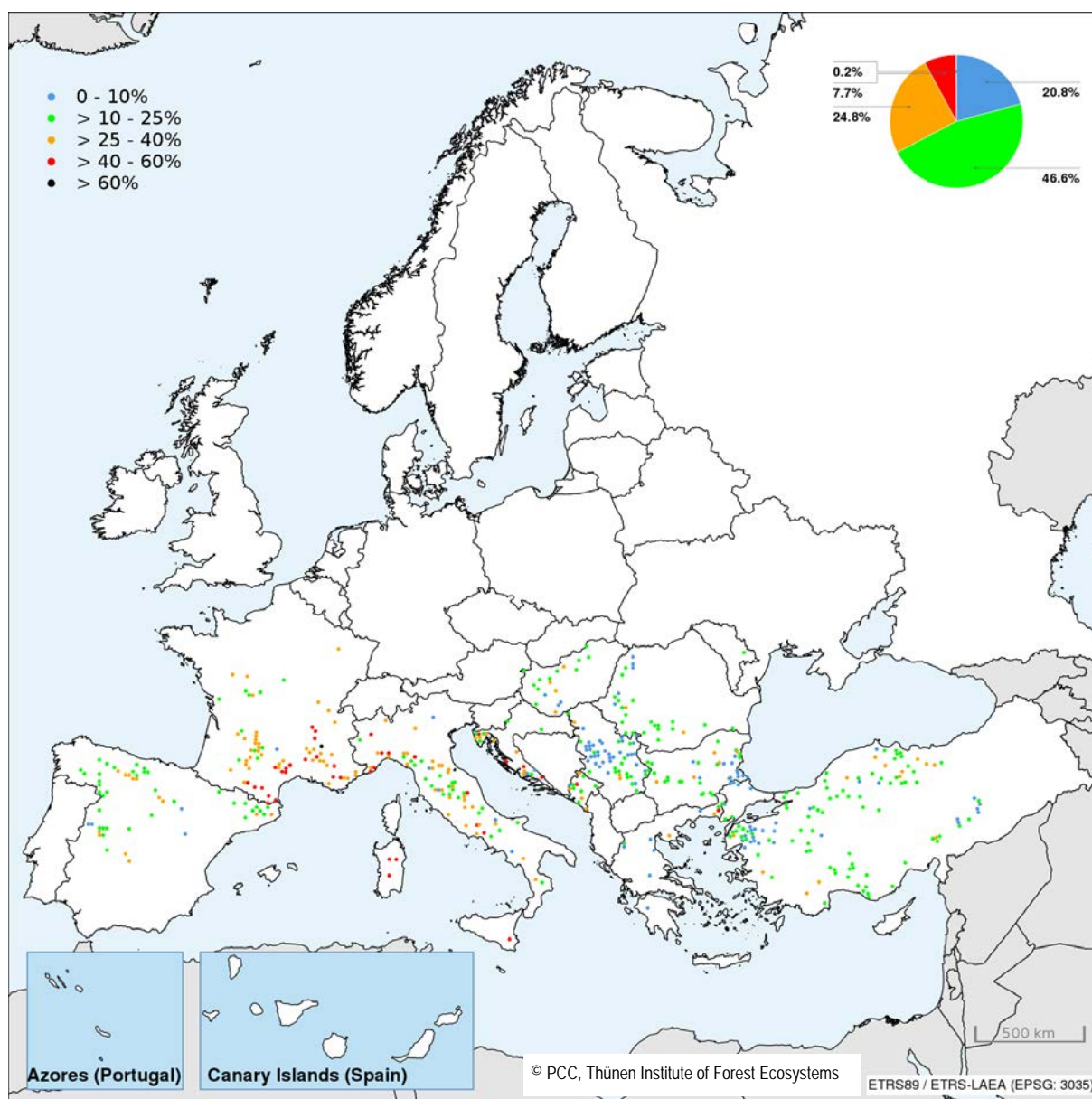


Figure S1-7: Mean plot defoliation of deciduous (sub-) Mediterranean oaks (*Quercus cerris*, *Q. frainetto*, *Q. pubescens*, *Q. pyrenaica*) in 2017

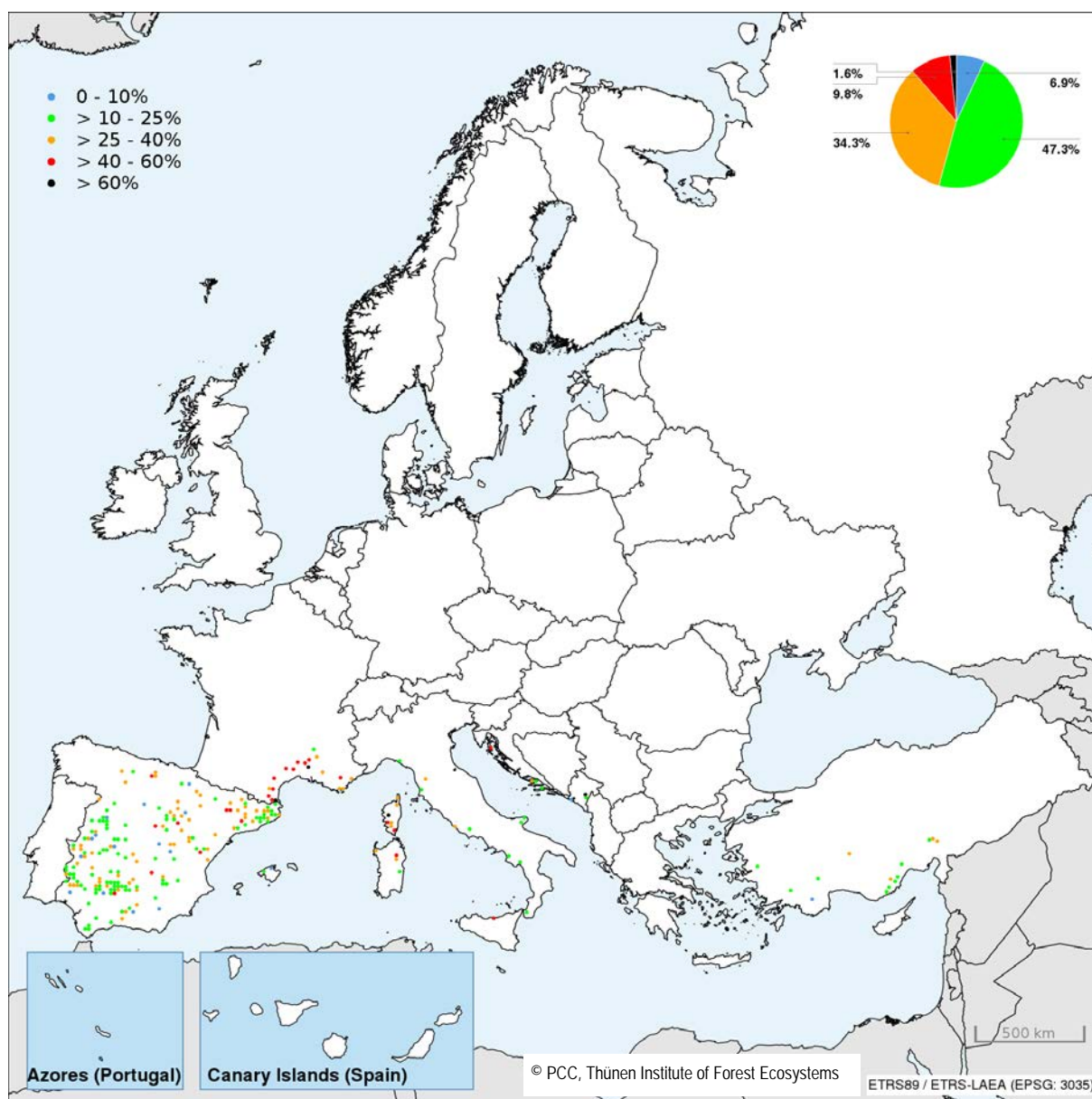


Figure S1-8: Mean plot defoliation of evergreen oaks (*Quercus coccifera*, *Q. ilex*, *Q. rotundifolia*, *Q. suber*) in 2017

S1-2 Trends in mean plot defoliation of the main tree species 2011–2017

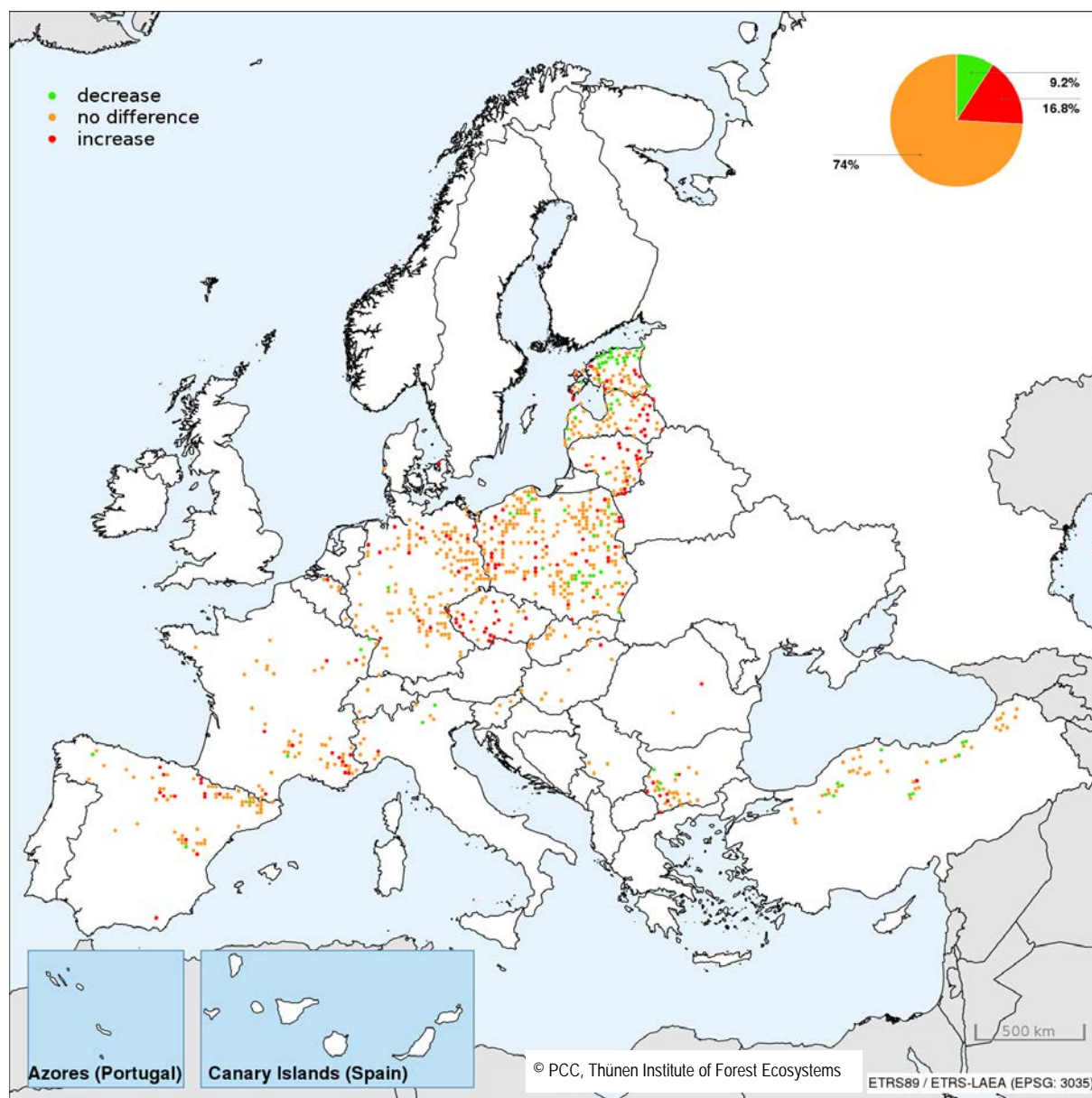


Figure S1-9: Trends in mean plot defoliation of Scots pine (*Pinus sylvestris*) between 2011 and 2017. Plots were included if assessments were available for at least 80% of the period.

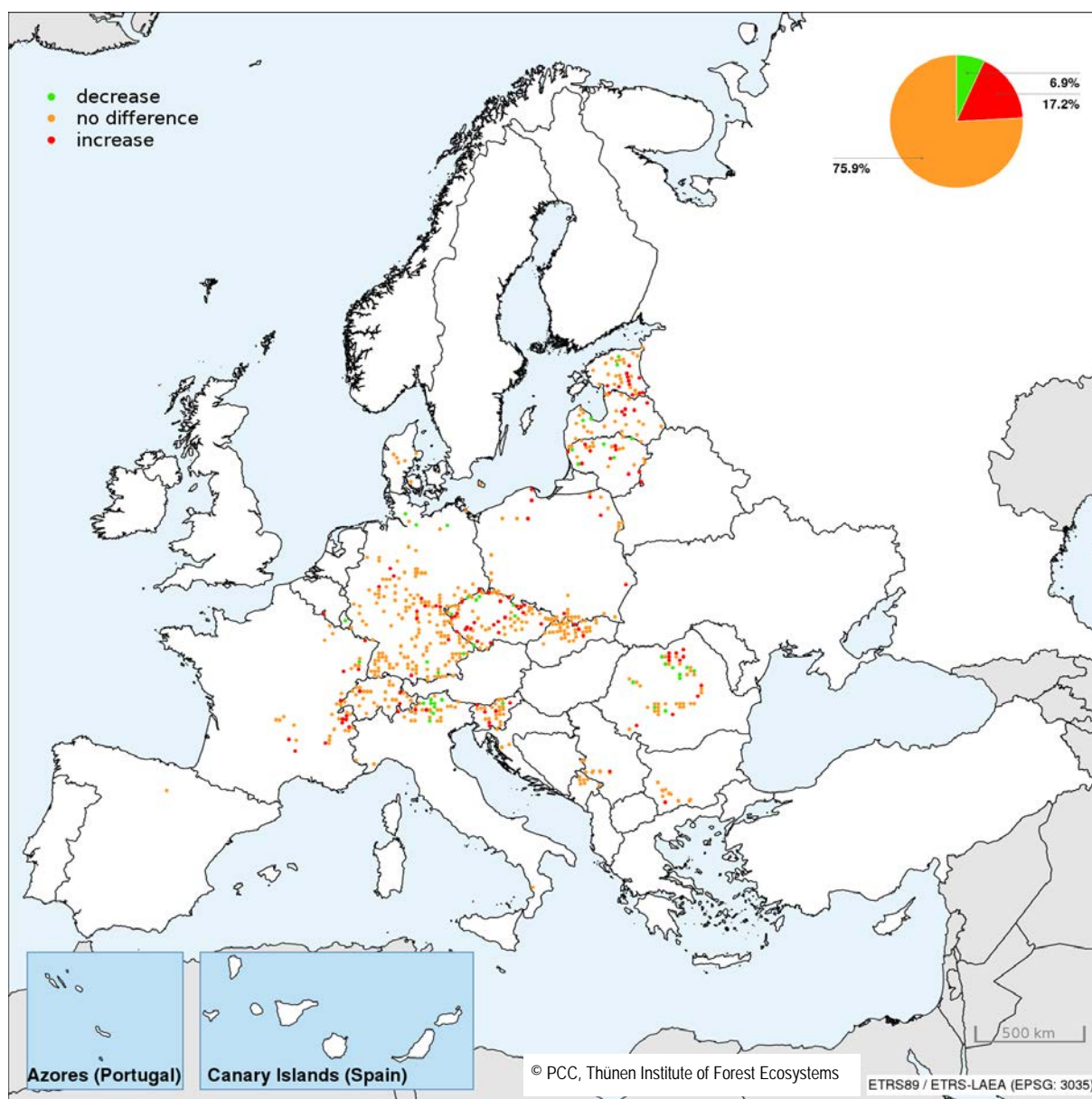


Figure S1-10: Trends in mean plot defoliation of Norway spruce (*Picea abies*) between 2011 and 2017. Plots were included if assessments were available for at least 80% of the period.

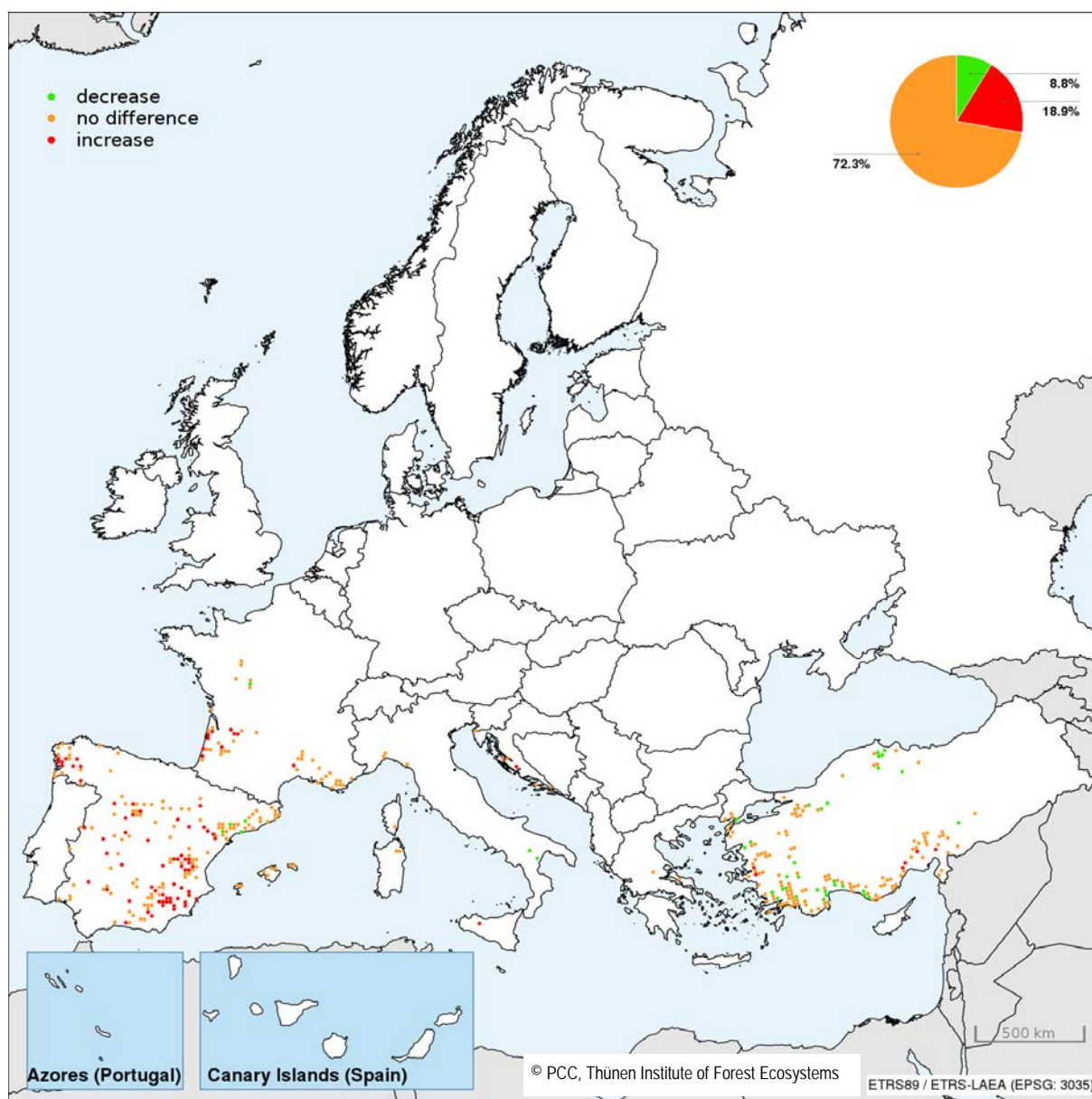


Figure S1-11: Trends in mean plot defoliation of Mediterranean lowland pines (*Pinus brutia*, *P. halepensis*, *P. pinaster*, *P. pinea*) between 2011 and 2017. Plots were included if assessments were available for at least 80% of the period.

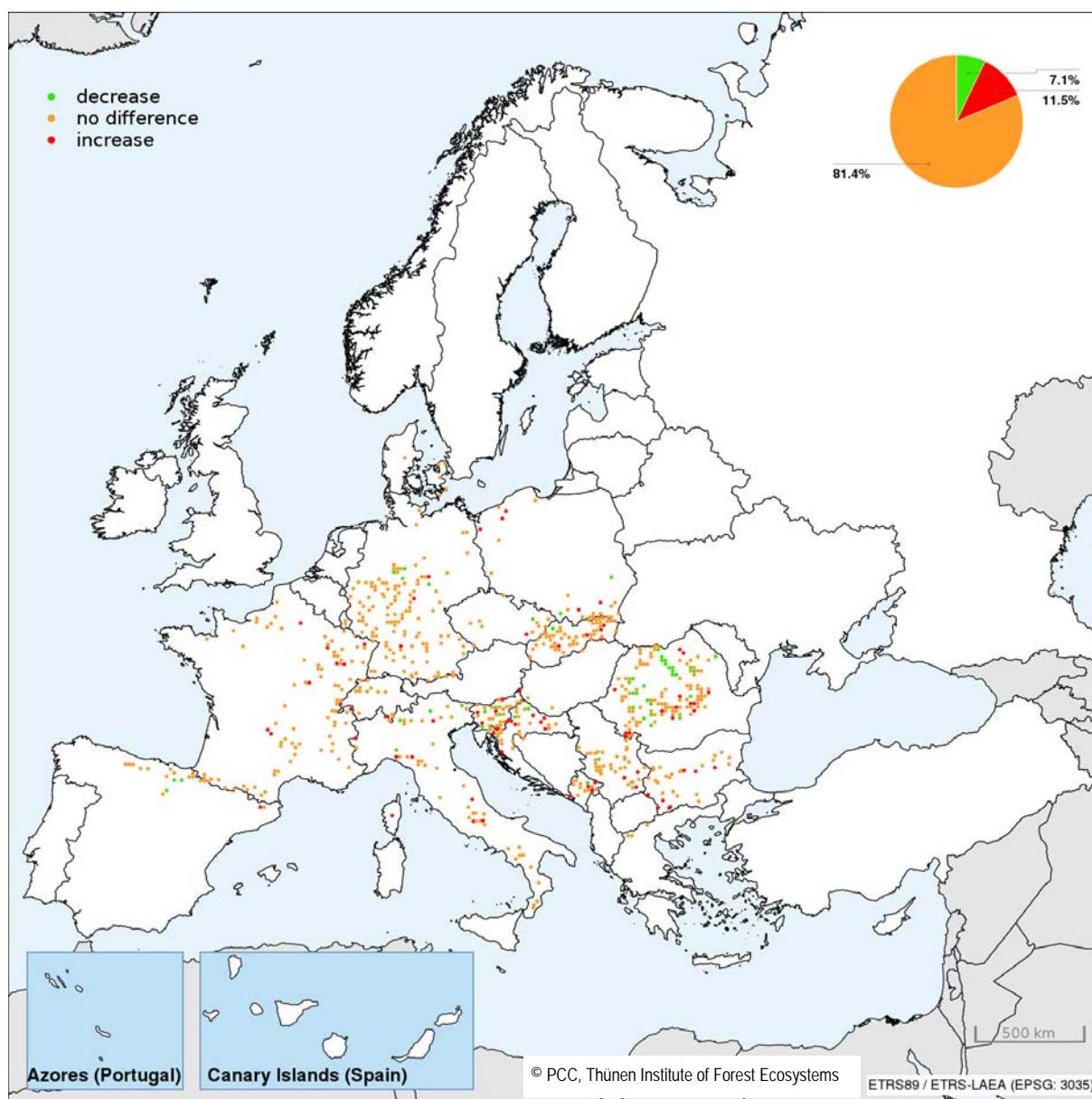


Figure S1-12: Trends in mean plot defoliation of common beech (*Fagus sylvatica*) between 2011 and 2017. Plots were included if assessments were available for at least 80% of the period.

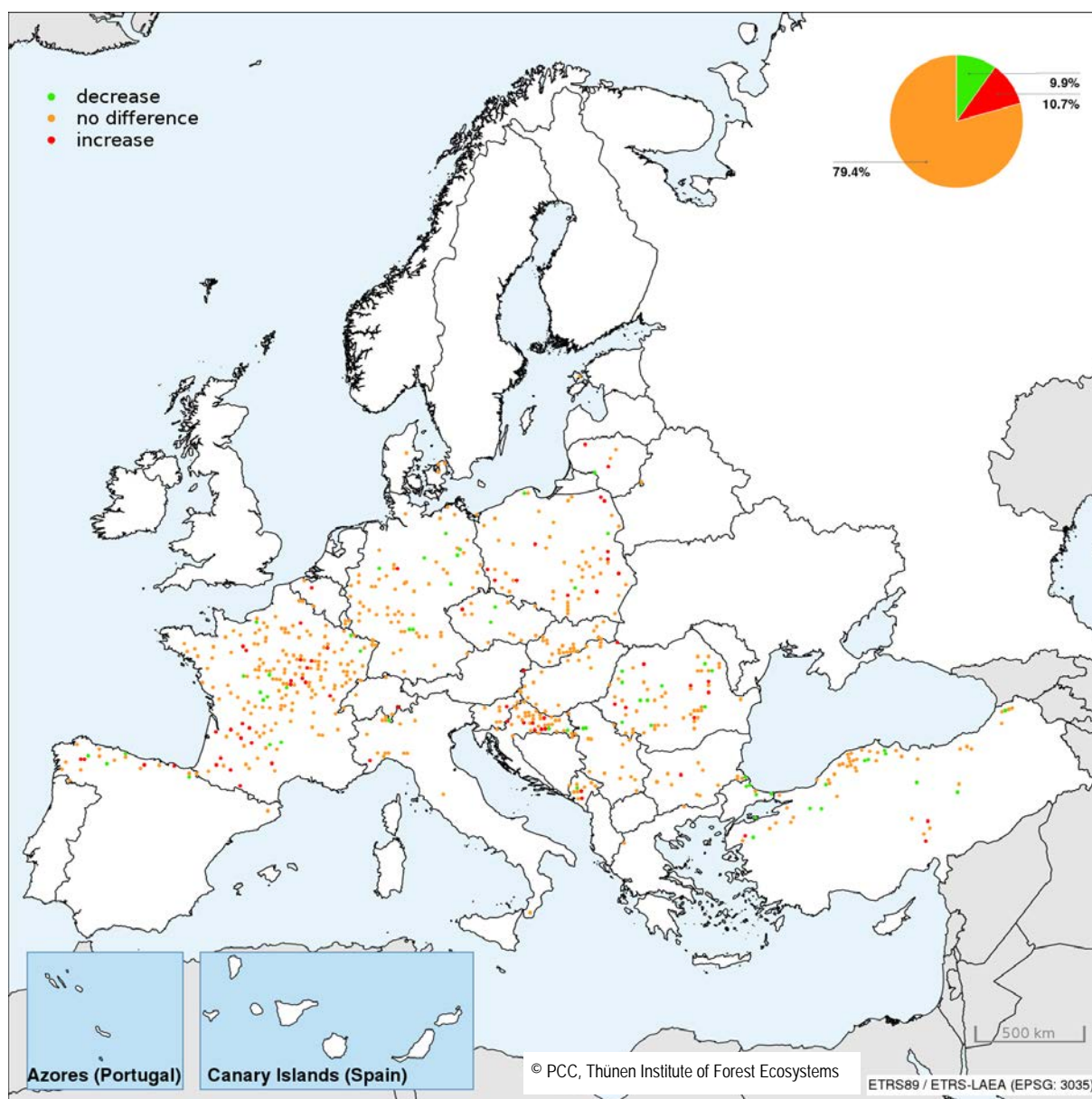


Figure S1-13: Trends in mean plot defoliation of deciduous temperate oaks (*Quercus robur* and *Q. petraea*) between 2011 and 2017. Plots were included if assessments were available for at least 80% of the period.

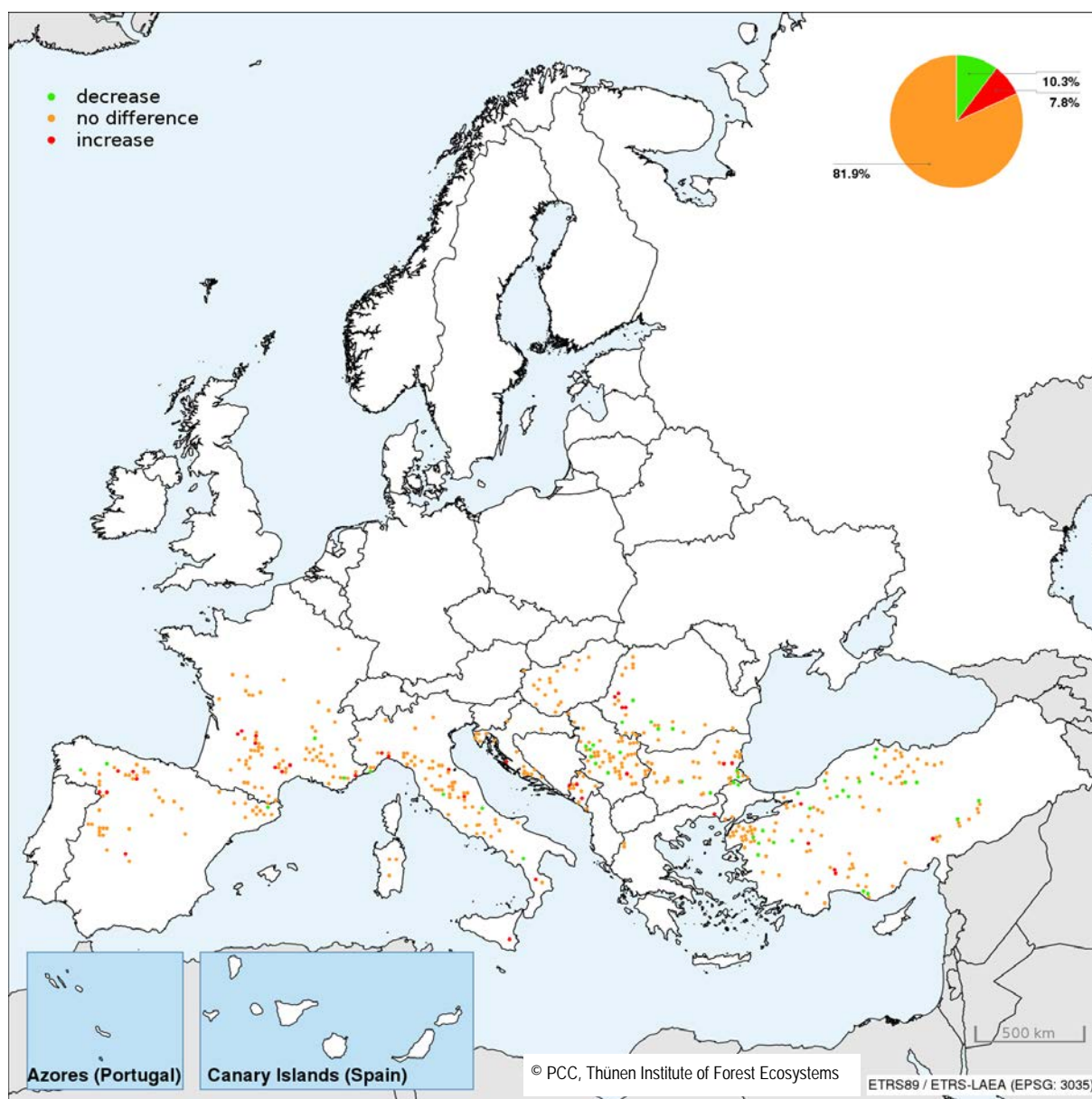


Figure S1-14: Trends in mean plot defoliation of deciduous (sub-) Mediterranean oaks (*Quercus cerris*, *Q. frainetto*, *Q. pubescens*, *Q. pyrenaica*) between 2011 and 2017. Plots were included if assessments were available for at least 80% of the period.

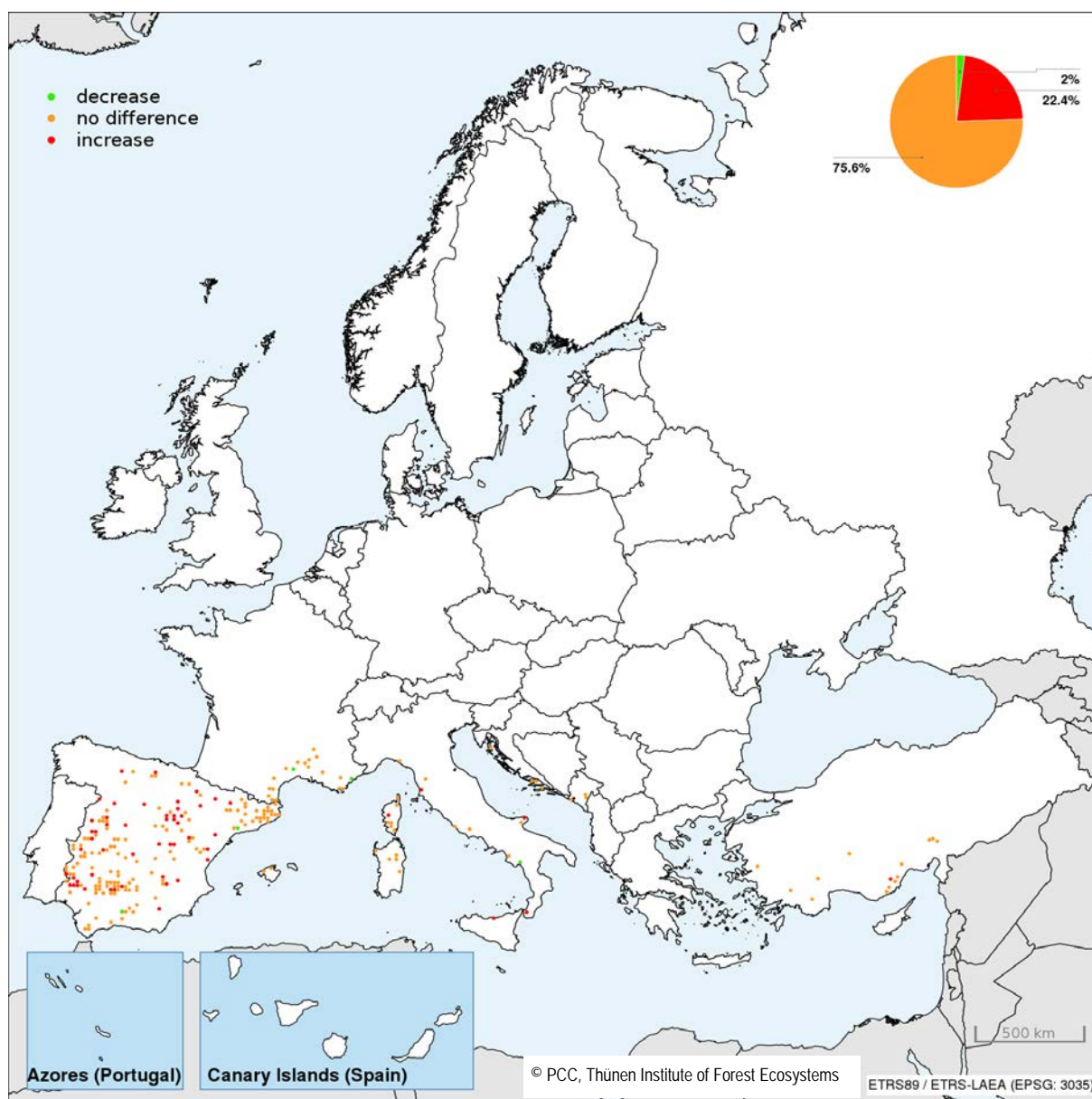


Figure S1-15: Trends in mean plot defoliation of evergreen oaks (*Quercus coccifera*, *Q. ilex*, *Q. rotundifolia*, *Q. suber*) between 2011 and 2017. . Plots were included if assessments were available for at least 80% of the period.

S1-3 Occurrence of various damaging agent groups in 2017

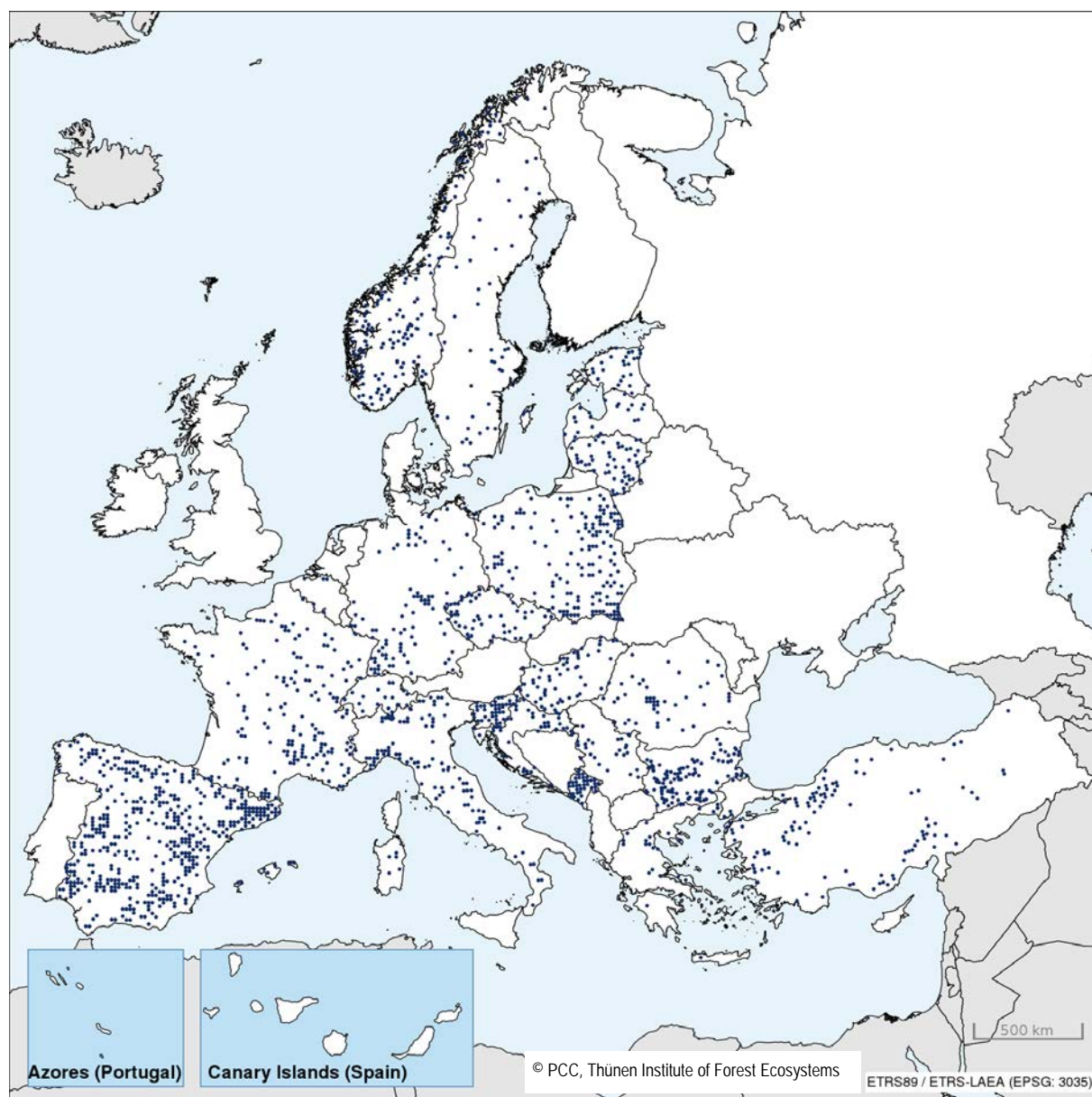


Figure S1-16: Occurrence of damaging agent group *Abiotic factors* in 2017

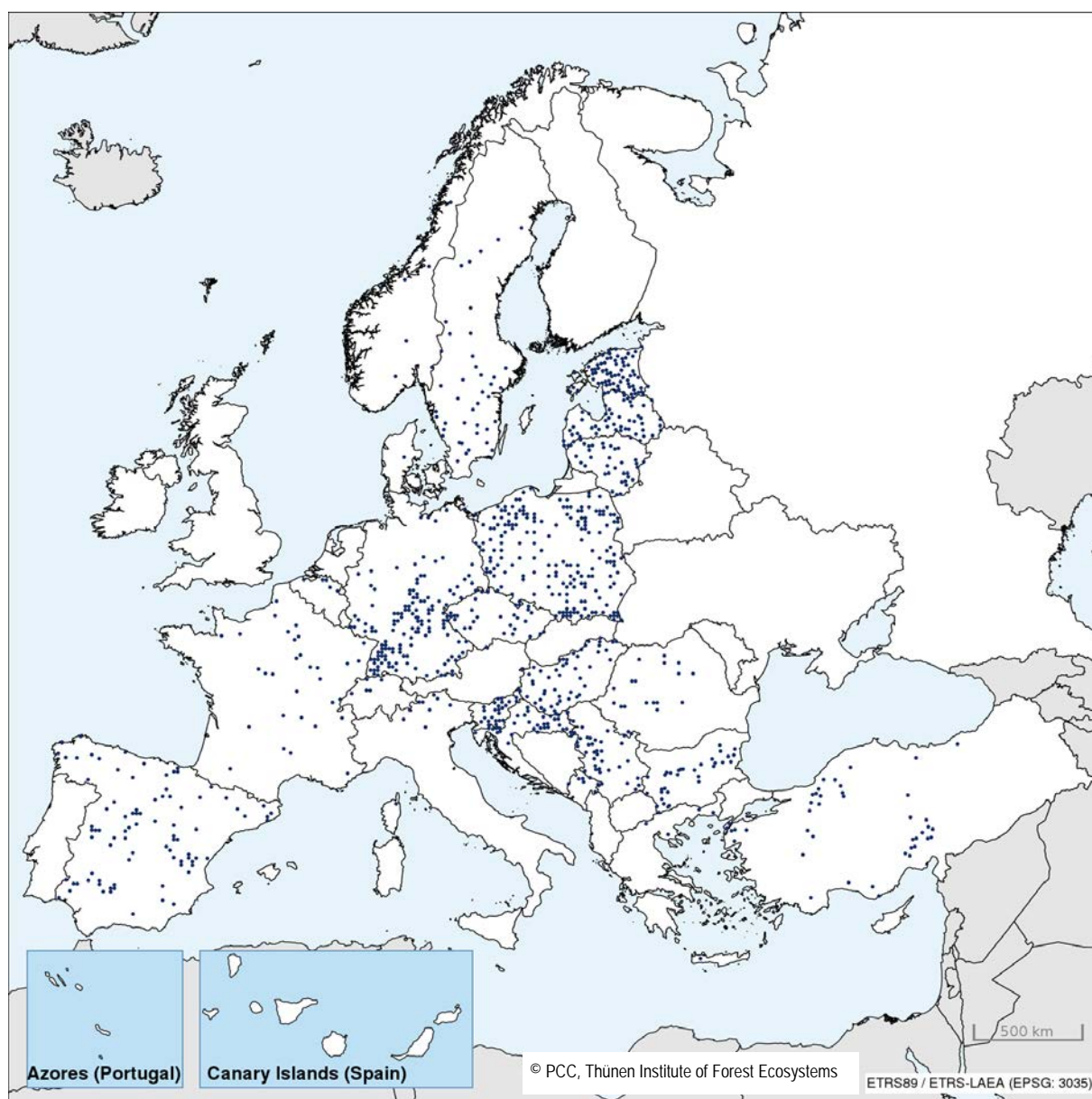


Figure S1-17: Occurrence of damaging agent group *Direct action of man* in 2017



Figure S1-18: Occurrence of damaging agent group *Fire* in 2017

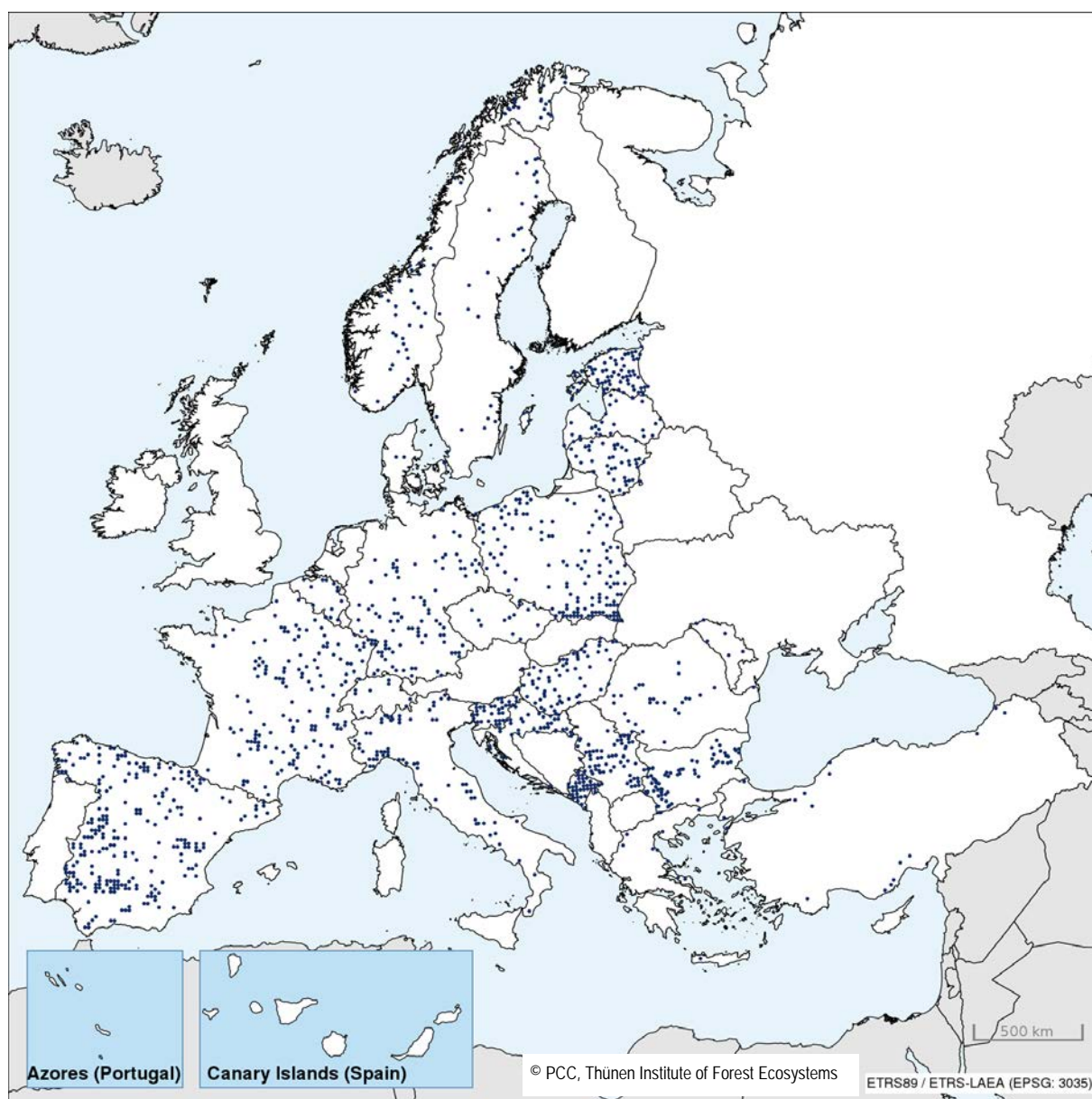


Figure S1-19: Occurrence of damaging agent group *Fungi* in 2017



Figure S1-20: Occurrence of damaging agent group *Game and grazing* in 2017

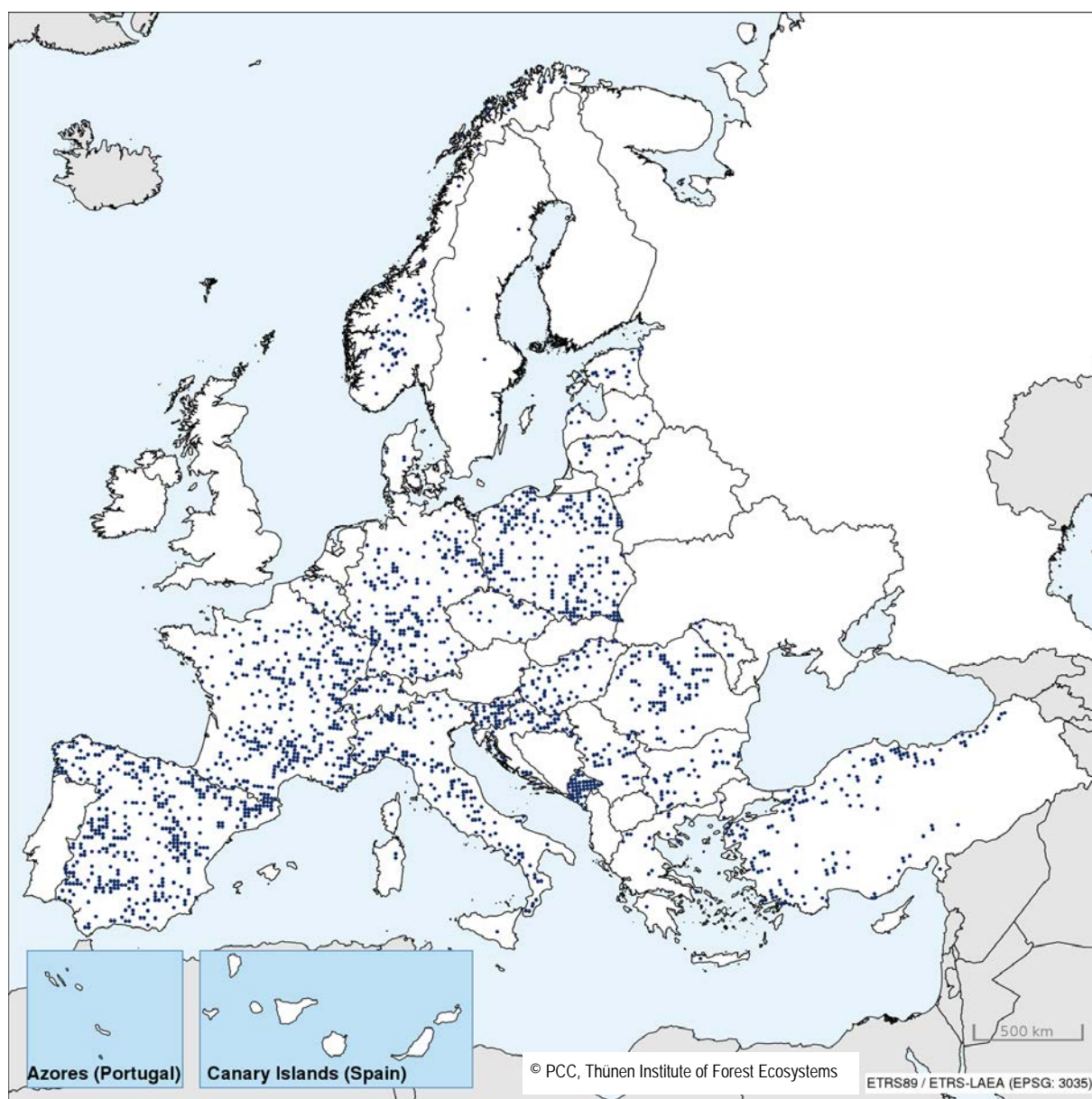


Figure S1-21: Occurrence of damaging agent group *Insects* in 2017

S2 RESULTS OF THE NATIONAL CROWN CONDITION SURVEYS

S2-1 Tree defoliation (%) in different defoliation classes from national crown condition surveys in 2017

Participating country	No. of sample trees	Defoliation classes					
		0 none (%)	1 slight (%)	2 moderate (%)	3 severe (%)	4 dead (%)	2-4 mod.-dead (%)
Andorra							
Broadleaves	5	40.0	60.0	0.0	0.0	0.0	0.0
Conifers	283	50.5	42.4	6.0	1.1	0.0	7.1
All trees	288	50.3	42.7	5.9	1.0	0.0	7.0
Belgium-Flanders							
Broadleaves	852	12.1	64.8	17.1	4.0	2.0	23.1
Conifers	686	5.1	76.3	18.2	0.3	0.1	18.6
All trees	1538	9.0	69.9	17.6	2.3	1.2	21.1
Belgium-Wallonia							
Broadleaves	197	25.3	35.1	29.8	9.8	0.0	39.6
Conifers	178	11.1	30.7	53.4	4.9	0.0	58.3
All trees	375	18.6	33.0	41.0	7.5	0.0	48.5
Bulgaria							
Broadleaves	3166	29.7	49.8	16.7	1.7	2.2	20.5
Conifers	2422	22.0	41.0	30.6	4.2	2.3	37.0
All trees	5588	26.3	46.0	22.7	2.7	2.2	27.7
Croatia							
Broadleaves	2013	40.2	35.9	20.4	2.6	0.9	24.0
Conifers	363	43.5	21.5	28.4	6.3	0.3	35.0
All trees	2376	40.7	33.7	21.6	3.2	0.8	25.6
Cyprus							
Broadleaves	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Conifers	360	20.3	56.1	21.9	1.7	0.0	23.6
All trees	360	20.3	56.1	21.9	1.7	0.0	23.6
Czechia							
Broadleaves	1192	22.1	46.3	30.3	0.9	0.4	31.6
Conifers	3868	11.5	28.2	55.6	4.6	0.2	60.3
All trees	5060	14.0	32.4	49.6	3.7	0.2	53.6
Denmark							
Broadleaves	773	55.9	29.8	12.5	1.9	0.0	14.4
Conifers	992	59.3	28.9	11.1	0.6	0.2	11.8
All trees	1765	57.8	29.3	11.7	1.1	0.1	12.9
Estonia							
Broadleaves	343	66.5	30.2	2.9	0.2	0.2	3.3
Conifers	2063	54.7	39.9	4.4	0.2	0.9	5.5
All trees	2406	56.4	38.5	4.2	0.2	0.8	5.2

Participating country	No. of sample trees	Defoliation classes					
		0 none (%)	1 slight (%)	2 moderate (%)	3 severe (%)	4 dead (%)	2-4 mod.-dead (%)
France							
Broadleaves	7028	12.4	34.4	47.1	6.7	0.4	54.2
Conifers	3784	28.6	32.6	34.0	4.6	0.2	38.8
All trees	10812	18.1	33.1	42.5	6.0	0.3	48.8
Germany							
Broadleaves	4020	29.4	43.1	25.3	1.8	0.4	27.5
Conifers	5982	38.0	42.5	17.9	1.1	0.5	19.5
All trees	10002	34.6	42.8	20.9	1.4	0.5	22.7
Greece							
Broadleaves	581	62.7	22.7	9.3	2.1	3.3	14.6
Conifers	274	27.0	40.9	31.0	0.7	0.4	32.1
All trees	855	51.2	28.5	16.3	1.6	2.3	20.2
Hungary							
Broadleaves	1670	29.4	29.9	30.6	8.3	1.7	40.6
Conifers	174	33.9	21.3	33.9	5.2	5.8	44.9
All trees	1844	29.9	29.1	31.0	8.0	2.0	41.0
Italy							
Broadleaves	3502	13.4	41.7	36.4	8.1	0.4	44.9
Conifers	1281	43.7	34.0	20.0	2.1	0.2	22.3
All trees	4783	21.6	39.6	32.0	6.5	0.3	38.8
Latvia							
Broadleaves	404	5.2	89.6	5.0	0.3	0.0	5.2
Conifers	1337	13.2	81.5	4.0	0.2	1.1	5.3
All trees	1741	11.4	83.3	4.3	0.2	0.9	5.3
Lithuania							
Broadleaves	2505	17.4	64.8	15.4	1.1	1.3	17.8
Conifers	3552	14.9	61.6	22.6	0.5	0.4	23.5
All trees	6057	15.9	63.0	19.6	0.7	0.8	21.1
Luxembourg							
Broadleaves	776	17.7	45.1	34.9	2.1	0.3	37.2
Conifers	424	51.4	30.9	14.9	1.7	1.2	17.7
All trees	1200	29.6	40.1	27.8	1.9	0.6	30.3
Montenegro							
Broadleaves	888	18.1	54.3	24.9	2.7	0.0	27.6
Conifers	288	28.1	48.2	13.9	9.7	0.0	23.6
All trees	1176	20.6	52.8	22.2	4.4	0.0	26.6
Norway							
Broadleaves	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Conifers	9774	45.7	35.4	15.7	3.1	0.2	19.0
All trees	9774	45.7	35.4	15.7	3.1	0.2	19.0

Participating country	No. of sample trees	Defoliation classes					
		0 none (%)	1 slight (%)	2 moderate (%)	3 severe (%)	4 dead (%)	2-4 mod.-dead (%)
Poland							
Broadleaves	14519	13.7	63.1	21.2	1.3	0.7	23.3
Conifers	25661	7.9	73.7	17.0	0.9	0.5	18.4
All trees	40180	10.0	69.8	18.5	1.1	0.6	20.2
Republic of Moldova							
Broadleaves	14172	34.5	36.8	26.0	1.1	1.6	28.7
Conifers	61	64.0	16.4	18.0	0.0	1.6	19.6
All trees	14233	34.7	36.6	26.0	1.1	1.6	28.7
Romania							
Broadleaves	4785	48.8	35.9	13.8	1.3	0.2	15.3
Conifers	1092	63.3	26.0	9.6	1.1	0.0	10.7
All trees	5877	51.5	34.0	13.0	1.2	0.2	14.5
Serbia							
Broadleaves	2597	69.6	18.6	10.0	1.7	0.1	11.8
Conifers	326	79.2	8.9	8.9	3.1	0.0	12.0
All trees	2923	70.7	17.5	9.9	1.8	0.1	11.8
Slovakia							
Broadleaves	2322	17.1	56.1	25.1	1.3	0.4	26.7
Conifers	1415	10.8	47.6	37.7	3.6	0.4	41.6
All trees	3737	14.6	52.7	30.1	2.2	0.4	32.6
Slovenia							
Broadleaves	689	17.9	47.0	29.0	5.7	0.4	35.1
Conifers	367	24.0	35.4	32.2	4.4	4.1	40.6
All trees	1056	20.0	43.0	30.1	5.2	1.7	37.0
Spain							
Broadleaves	7465	13.2	57.5	23.2	2.7	3.4	29.3
Conifers	7415	16.7	57.2	22.0	1.6	2.6	26.2
All trees	14880	14.9	57.4	22.6	2.2	3.0	27.8
Sweden							
Broadleaves	NA	NA	NA	NA	NA	NA	NA
Conifers	7965	46.9	34.9	15.9	2.2	0.1	18.2
All trees	7965	46.9	34.9	15.9	2.2	0.1	18.2
Switzerland							
Broadleaves	287	15.0	50.3	13.7	3.4	17.6	34.7
Conifers	757	11.4	55.2	25.0	0.1	8.3	33.4
All trees	1044	12.5	53.7	21.5	1.1	11.1	33.7
Turkey							
Broadleaves	5322	47.4	42.9	8.5	0.9	0.4	9.8
Conifers	8470	44.9	46.8	7.5	0.4	0.3	8.2
All trees	13792	45.9	45.3	7.9	0.6	0.3	8.8

S2-2 Percentage of moderately to severely defoliated trees (defoliation classes 2–4) between 2008 and 2017 – All species

Participating countries	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Change % points 2016/17
Albania						21.0					N/A
Andorra	15.3	6.8	15.3	8.3	5.6	3.4	5.3	4.5	3.4	7.0	+3.6
Austria			14.2								N/A
Belarus	8.0	8.4	7.4	6.1							N/A
Belgium	14.5	20.2	22.1	23.5	28.2	27.6	27.5	26.4	26.1	26.6	+0.5
Bulgaria	31.9	21.1	23.8	21.6	32.3	33.5	26.0	26.2	29.9	27.7	-2.2
Croatia	23.9	26.3	27.9	25.2	28.5	29.1	31.5	29.7	28.5	25.6	-2.9
Cyprus	47.0	36.2	19.2	16.4	10.6	8.9	13.3	12.5	35.0	23.6	-11.4
Czechia	56.7	56.8	54.2	52.7	50.3	51.7		52.0	54.3	53.6	-0.7
Denmark	9.1	5.5	9.3	10.0	7.3	4.9	7.0	8.7	14.8	12.9	-1.9
Estonia	9.0	7.2	8.1	8.1	7.8	8.0	6.7	6.7	6.4	5.2	-1.2
Finland	10.2	9.1	10.5	10.6	14.3						N/A
France	32.4	33.5	34.6	39.9	41.4	40.1	42.8	43.4	48.6	48.8	+0.2
Germany	25.7	26.5	23.2	28.0	24.6	22.7	26.2	23.8	28.0	22.7	-5.3
Greece		24.3	23.8				24.8	20.2		20.2	N/A
Hungary	12.4	18.4	21.8	18.9	20.2	22.4	24.2	24.0	34.6	41.0	+5.4
Ireland	10.0	12.5	17.5		1.0						N/A
Italy	32.8	35.8	29.8	31.3	35.7	33.7	30.8	29.8	34.7	39.0	+4.3
Latvia	15.3	13.8	13.4	14.0	9.2	6.4	5.1	4.4	5.7	5.3	-0.4
Lithuania	19.6	17.7	21.3	15.4	24.5	19.7	21.7	23.8	21.0	21.1	+0.1
Luxembourg						33.2		32.6	38.2	30.3	-7.9
Rep. of Moldova	33.6	25.2	22.5	18.4	25.6		19.9	26.1	26.5	28.7	+2.2
Montenegro						22.7		25.4	27.3	26.6	-0.7
Netherlands		18.2	21.6								0.7
Norway	22.7	21.0	18.9	20.9	18.8	17.7	15.9	16.5	15.5	19.0	+4.5
Poland	18.0	17.7	20.7	24.0	23.4	18.8	18.9	16.7	19.5	20.2	+0.7
Romania		18.9	17.8	13.9	13.9	13.6	13.5	13.1	13.4	14.5	+1.1
Russian Fed.		6.2	4.4	8.3							N/A
Serbia	11.5	10.3	10.8	7.6	10.3	14.7	12.4	10.7	11.3	11.8	+0.5
Slovakia	29.3	32.1	38.6	34.7	37.9	43.4		34.5	40.3	32.6	-7.7
Slovenia	36.9	35.5	31.8	31.4	29.1	30.9	38.3	37.8	33.9	37.0	+3.1
Spain	15.6	17.7	14.6	11.8	17.5	16.6	14.9		21.9	27.8	+5.9
Sweden	17.3	15.1	19.2	18.9	15.9	19.9		19.8	16.4	18.2	+1.8
Switzerland	19.0	18.3	22.2	30.9	31.3	26.0	30.6	24.8	25.2	33.7	+8.5
Turkey	24.6	18.7	16.8	13.6	12.4	10.2	11.0	9.5	9.8	8.8	-1.0
Ukraine	8.2	6.8	5.8	6.8	7.5	7.1	6.0	7.1			N/A
United Kingdom			48.5								N/A

Note that some differences in the level of defoliation between participating countries may be at least partly due to differences in standards used. This restriction, however, does not affect the reliability of the trends over time. In some countries there has been a change in the monitoring design at different points in time.

S2-3 Percentage of moderately to severely defoliated trees (defoliation classes 2–4) between 2008 and 2017 – Conifers

Participating countries	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Change % points 2016/17
Albania						21.0					N/A
Andorra	15.3	6.8	15.3	8.3	5.6	3.1	5.4	4.3	3.5	7.1	+3.6
Austria			14.5								N/A
Belarus	8.1	8.3	7.7	5.8							N/A
Belgium	13.2	13.6	16.2	15.2	20.3	19.7	22.8	27.9	24.6	26.8	+2.2
Bulgaria	45.6	33.0	31.1	33.3	35.1	40.8	34.1	40.1	39.9	37.0	-2.9
Croatia	59.1	66.5	56.9	45.1	54.7	48.3	49.7	56.0	51.0	35.0	-16.0
Cyprus	46.9	36.2	19.2	16.4	10.6	8.9	13.3	12.5	35.0	23.6	-11.4
Czechia	62.8	63.1	60.1	58.9	56.9	59.2		57.8	60.3	60.3	+/-0.0
Denmark	9.9	1.0	5.4	5.7	4.6	2.8	5.3	7.4	11.3	11.8	+0.5
Estonia	9.3	7.5	9.0	8.7	6.6	8.5	6.9	6.5	6.7	5.5	-1.2
Finland	10.1	9.9	10.6	11.7	14.6						N/A
France	25.1	26.8	27.4	31.9	32.2	33.7	36.6	38.0	39.3	38.8	-0.5
Germany	24.1	20.3	19.2	20.3	19.3	18.1	19.7	20.3	22.3	19.5	-2.8
Greece		26.3	23.7				26.7	27.2		32.1	N/A
Hungary	12.9	27.1	35.1	28.7	23.1	23.5	30.7	46.5	52.8	44.9	-7.9
Ireland	10.0	12.5	17.5		1.0						N/A
Italy	24.0	31.6	29.1	32.2	31.8	24.2	24.0	22.6	19.6	21.8	+2.2
Latvia	16.7	14.8	15.0	16.0	7.9	6.9	4.8	4.4	4.9	5.3	+0.4
Lithuania	19.1	17.4	19.8	16.3	26.9	23.1	21.1	25.0	21.7	23.5	+1.8
Luxembourg						17.5	93.3*	18.7	17.4	17.7	+0.3
Rep. of Moldova			33.3	32.1	44.3		29.4		21.6	19.6	-2.0
Montenegro						22.6		26.1	28.1	23.6	-4.5
Netherlands		14.1	18.9								N/A
Norway	19.2	17.9	16.4	17.3	16.1	17.7	15.9	16.5	15.5	19.0	+4.5
Poland	17.5	17.2	20.3	24.2	22.3	17.8	17.2	15.7	17.1	18.4	+1.3
Romania		21.7	16.1	15.9	14.9	13.9	13.7	8.0	10.4	10.7	+0.3
Russian Fed.		7.3	5.1	10.6							N/A
Serbia	13.0	12.6	12.0	11.1	11.0	13.0	14.6	14.5	13.5	12.0	-1.5
Slovakia	41.1	42.7	46.8	46.6	43.5	43.3		49.4	45.6	41.6	-4.0
Slovenia	40.7	38.8	37.8	33.6	31.3	31.3	38.1	41.0	38.6	40.6	+2.0
Spain	12.9	14.9	13.1	10.4	11.4	12.6	11.4		20.9	26.2	+5.3
Sweden	17.3	15.1	19.2	18.9	15.9	19.9	18.8	19.8	16.4	18.2	+1.8
Switzerland	18.7	18.8	20.9	31.5	30.6	23.3	31.7	24.0	24.9	33.4	+8.5
Turkey	16.2	16.0	14.5	11.6	9.9	6.9	7.2	8.6	9.1	8.2	-0.9
Ukraine	7.1	6.3	5.6	6.8	7.5	7.5	6.8	7.9			N/A
United Kingdom			38.6								N/A

Note that some differences in the level of defoliation between participating countries may be at least partly due to differences in standards used. This restriction, however, does not affect the reliability of the trends over time. In some countries there has been a change in the monitoring design at different points in time.

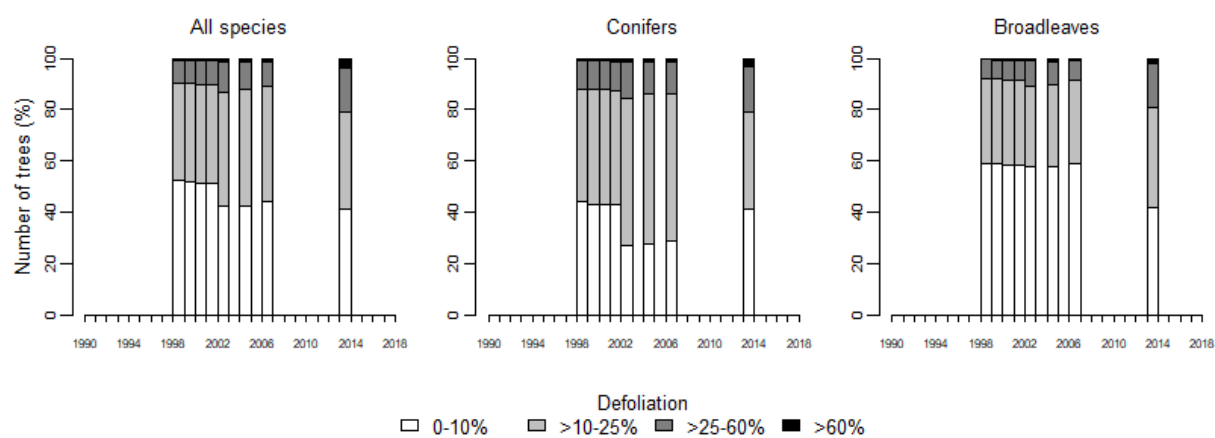
S2-4 Percentage of moderately to severely defoliated trees (defoliation classes 2–4) between 2008 and 2017 – Broadleaves

Participating country	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Change points 2016/17
Albania						19.0					N/A
Andorra						20.0	20.0	16.7	0.0	0.0	+/-0.0
Austria			10.5								N/A
Belarus	7.6	8.7	6.9	6.4							N/A
Belgium	15.3	23.4	24.6	26.7	32.9	29.4	31.4	25.1	27.4	26.2	-1.2
Bulgaria	17.8	12.2	18.2	12.8	29.8	28.0	20.0	15.6	22.3	20.5	-1.8
Croatia	19.1	20.7	21.9	21.5	23.7	25.7	28.1	25.3	24.7	24.0	-0.7
Cyprus									N/A	N/A	N/A
Czechia	32.2	32.9	32.2	31.2	28.4	25.7		32.7	34.7	31.6	-3.1
Denmark	8.0	10.0	12.1	12.8	10.9	7.9	9.0	10.8	19.7	14.4	-5.3
Estonia	3.4	3.5	2.5	3.0	14.9	5.3	5.7	8.0	5.2	3.3	-1.9
Finland	10.6	4.7	9.2	6.0	12.8						N/A
France	36.5	37.1	38.7	44.3	45.9	43.6	46.1	47.0	53.5	54.2	+0.7
Germany	28.4	36.1	29.4	38.0	32.5	29.8	36.1	29.0	35.7	27.5	-8.2
Greece		5.2	23.9				16.7	11.3		14.6	N/A
Hungary	12.4	17.1	19.7	17.3	19.9	22.3	23.3	21.4	32.5	40.6	+8.1
Ireland											N/A
Italy	35.8	36.8	30.1	32.7	37.2	37.1	33.4	32.1	39.5	45.0	+5.5
Latvia	11.5	11.6	9.4	8.8	12.9	4.4	6.1	4.2	8.3	5.2	-3.1
Lithuania	20.3	18.4	23.7	13.8	21.0	14.7	22.5	21.9	20.0	17.8	-2.2
Luxembourg						42.4	*34.6	40.3	49.0	37.2	-11.8
Rep. of Moldova	33.6	25.2	22.4	18.4	25.6		19.9	26.1	26.5	28.7	+2.2
Montenegro						22.8		25.2	27.1	27.6	+0.5
Netherlands		25.6	26.6								N/A
Norway	33.8	31.0	26.8	32.3	27.3	N/A	N/A	N/A	N/A	N/A	N/A
Poland	19.1	18.5	21.5	23.5	25.5	20.7	21.9	18.4	24.0	23.3	-0.7
Romania		18.3	18.0	13.4	13.6	13.6	13.0	13.9	14.2	15.3	+1.1
Russian Fed.		4.4	3.2	4.3							N/A
Serbia	11.3	9.9	10.7	7.2	10.2	14.9	12.1	10.1	11.0	11.8	+0.8
Slovakia	20.8	24.5	32.9	26.4	33.9	43.5	43.5	24.3	36.5	26.7	-9.8
Slovenia	34.6	33.3	28.1	30.0	27.7	30.6	38.4	35.9	31.1	35.1	+4.0
Spain	18.4	20.7	16.1	13.2	23.6	20.7	18.4		22.7	29.3	+6.6
Sweden										N/A	N/A
Switzerland	19.6	17.4	25.2	29.6	33.3	31.5	28.0	26.4	25.9	34.7	+8.8
Turkey	38.3	23.4	21.2	17.2	16.8	15.7	17.2	10.8	11.0	9.8	-1.2
Ukraine	9.1	7.2	6.4	6.7	7.5	7.0	5.5	6.3			N/A
United Kingdom			56.1								N/A

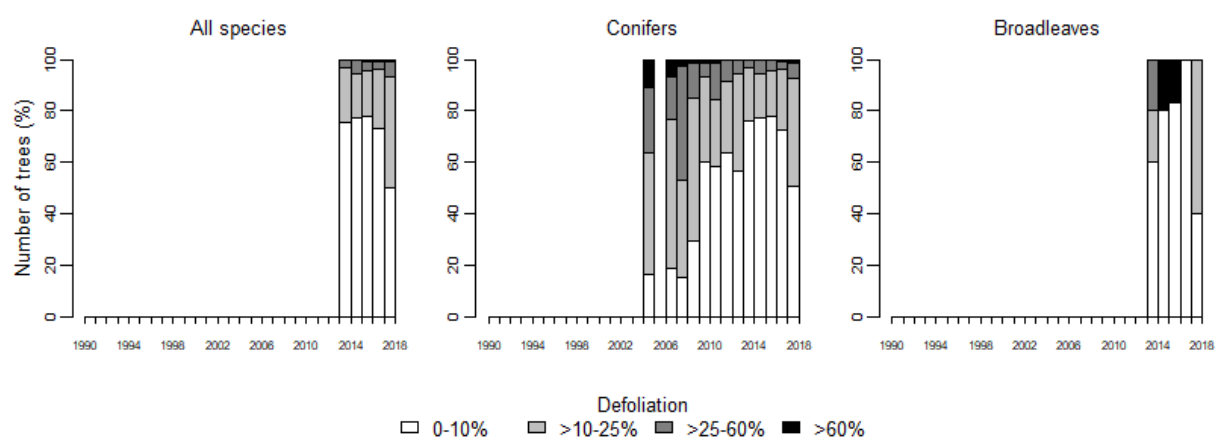
Note that some differences in the level of defoliation between participating countries may be at least partly due to differences in standards used. This restriction, however, does not affect the reliability of the trends over time. In some countries there has been a change in the monitoring design at different points in time.

S2-5 Change of tree defoliation over time (1990–2017) per country

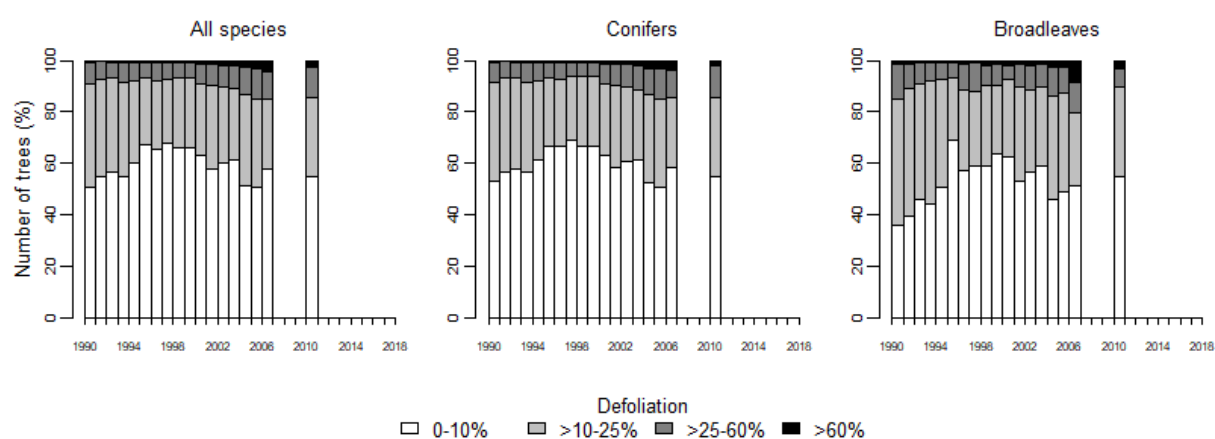
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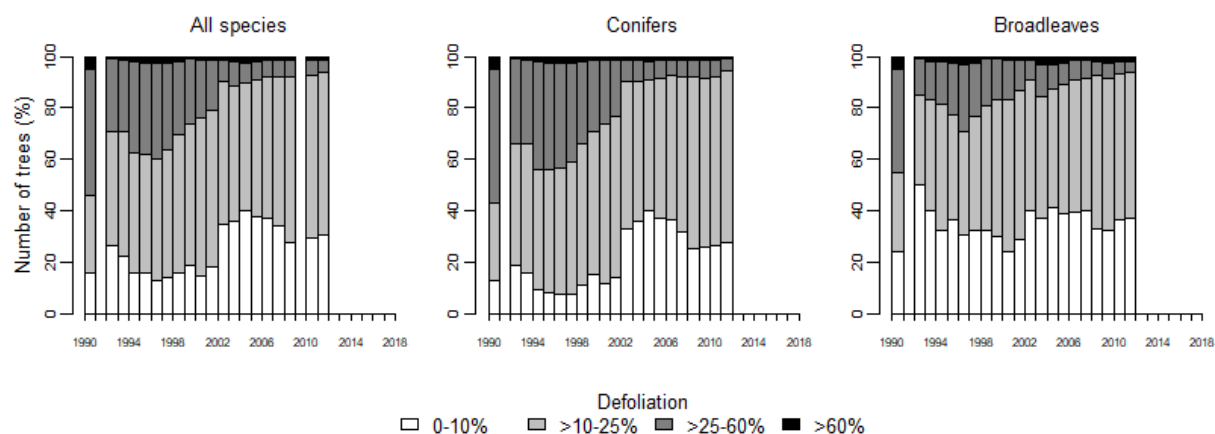
ANDORRA



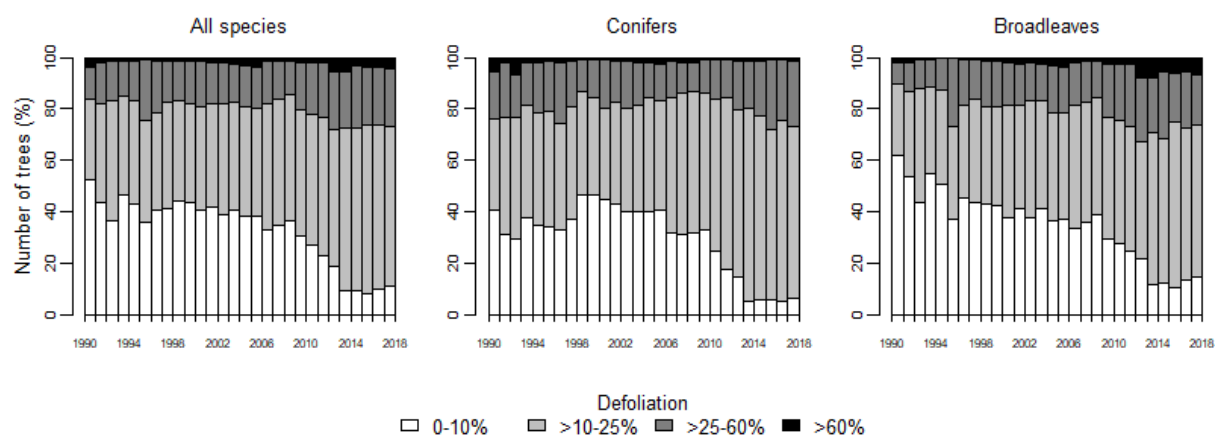
AUSTRIA



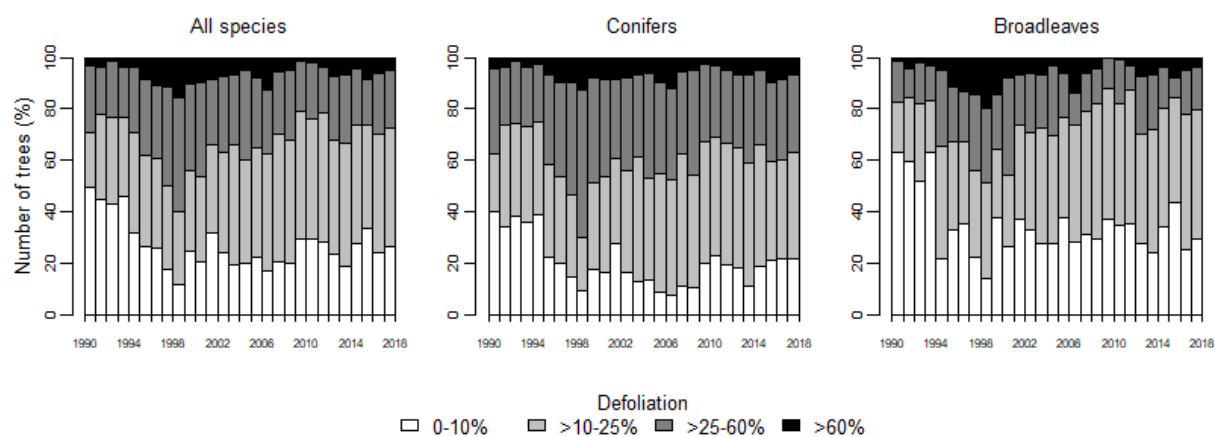
BELARUS



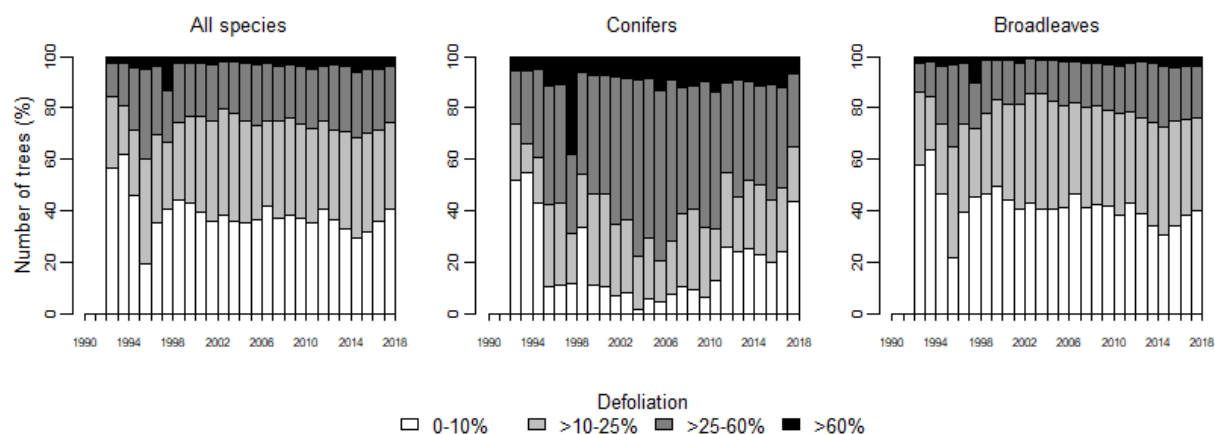
BELGIUM



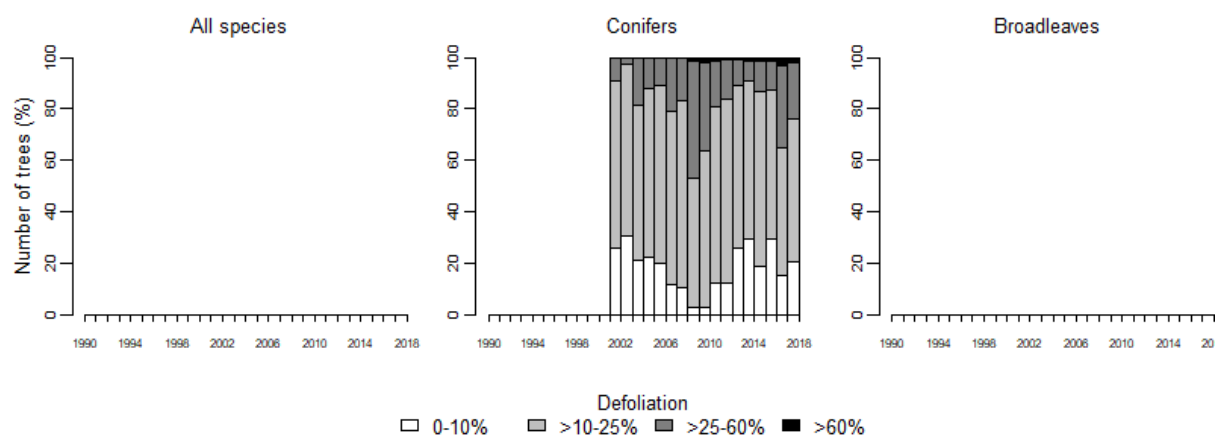
BULGARIA



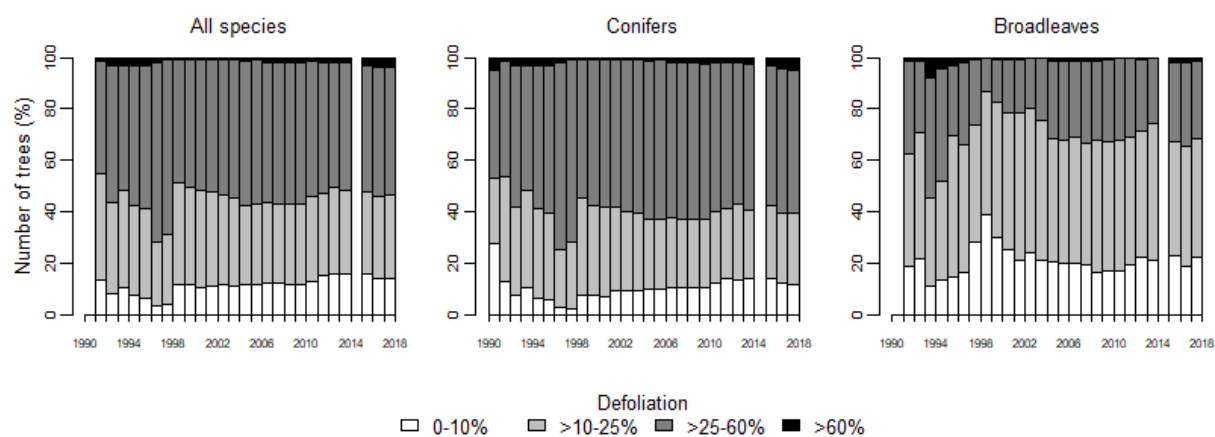
CROATIA



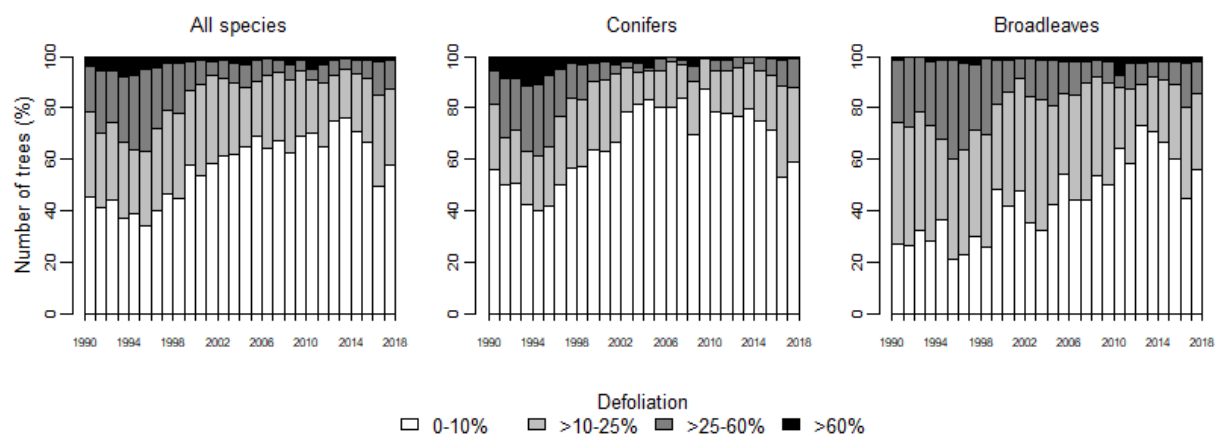
CYPRUS



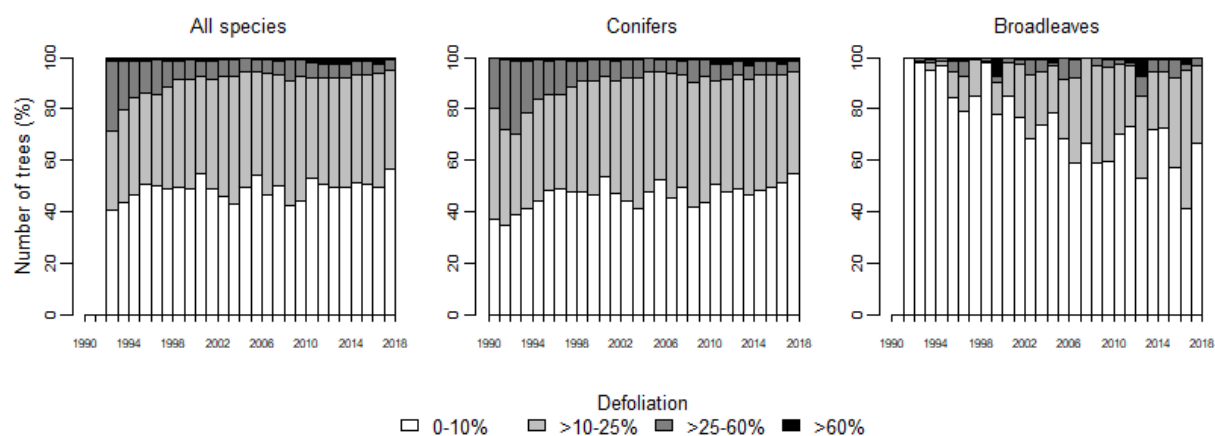
CZECHIA



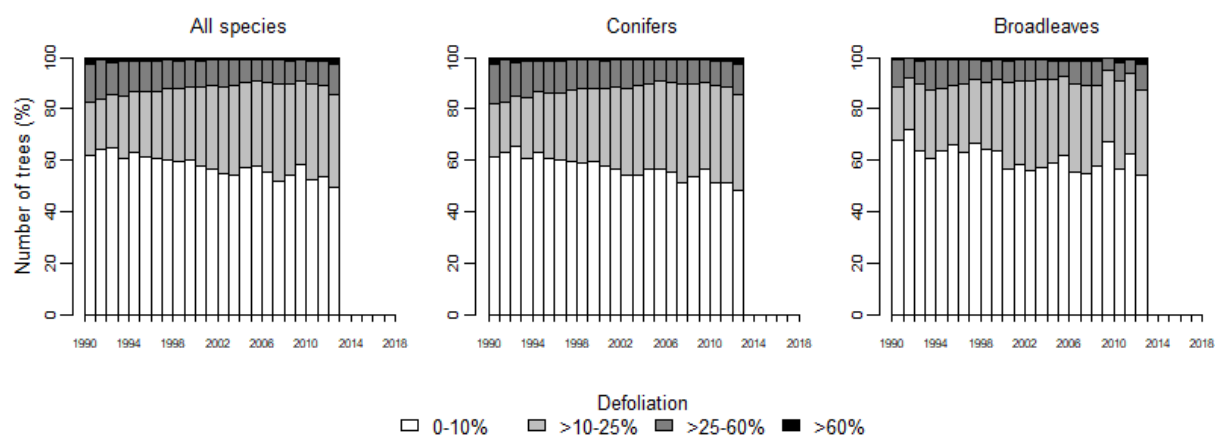
DENMARK



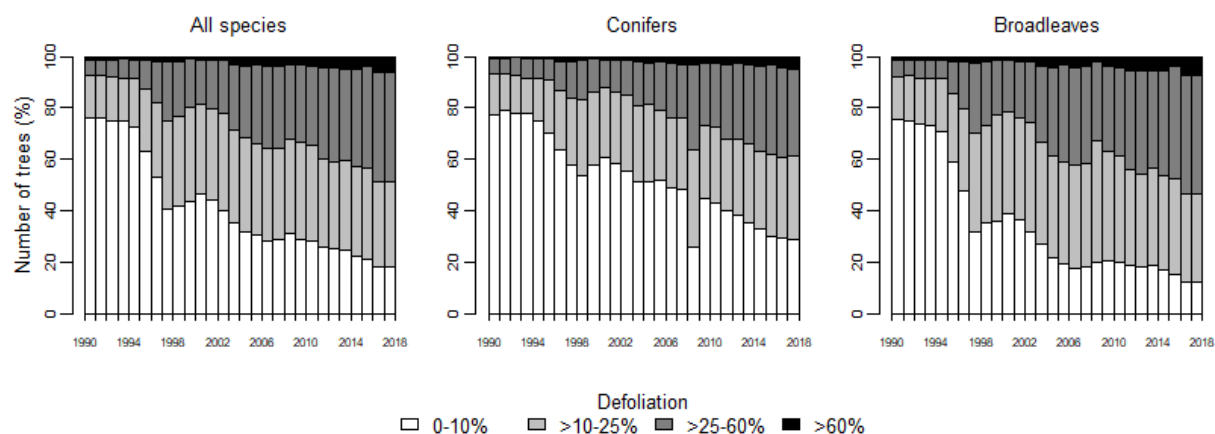
ESTONIA



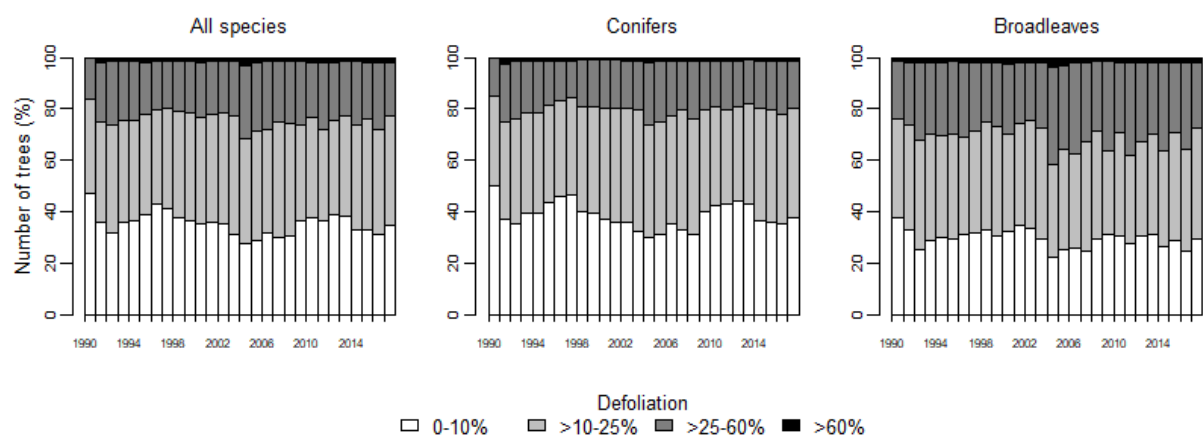
FINLAND



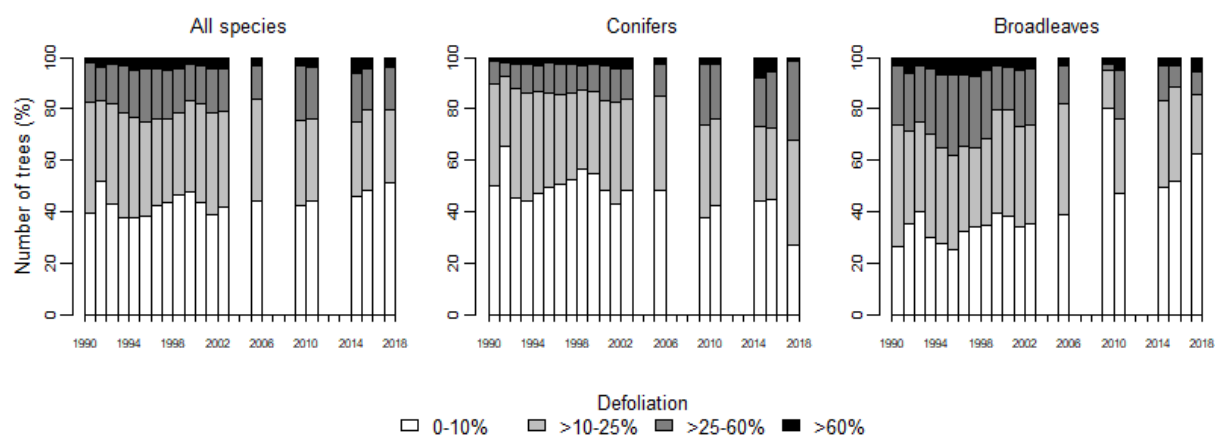
FRANCE



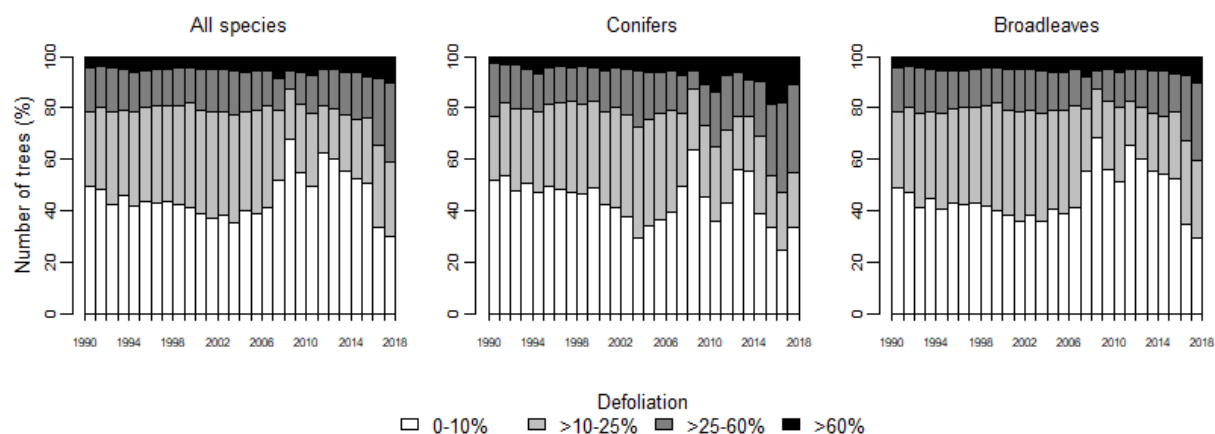
GERMANY



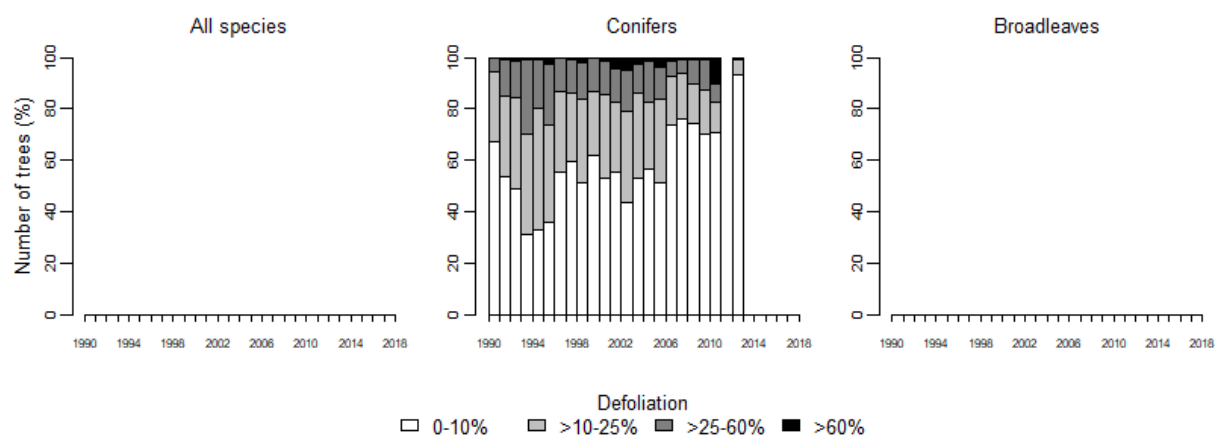
GREECE



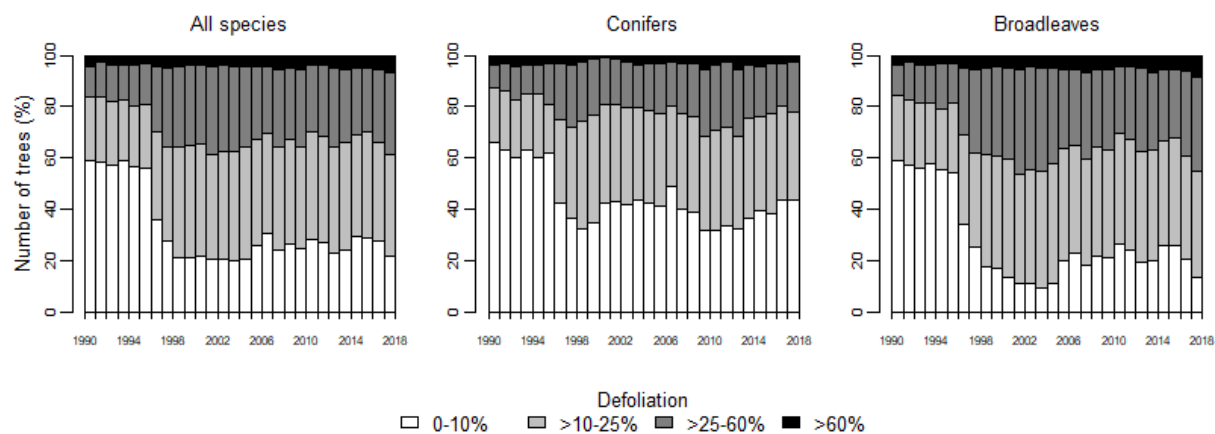
HUNGARY



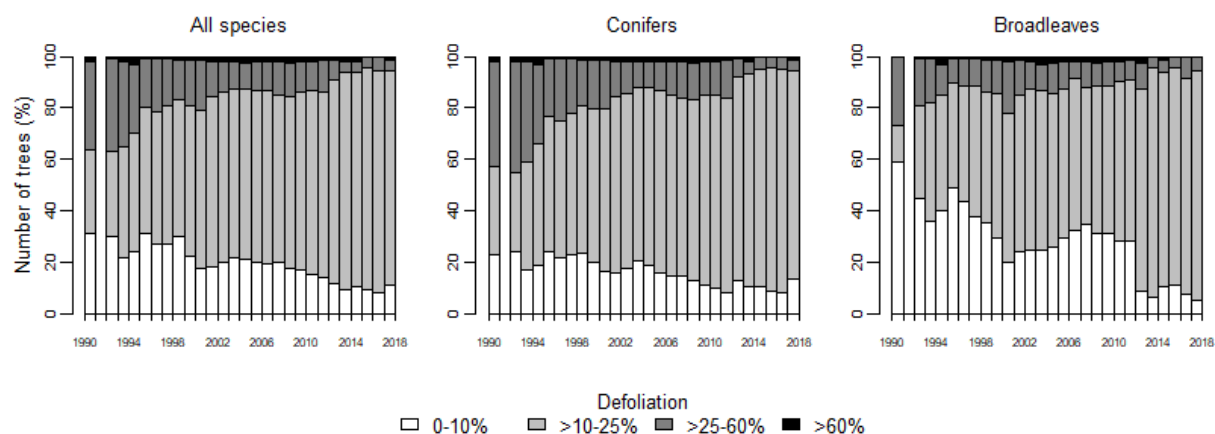
IRELAND



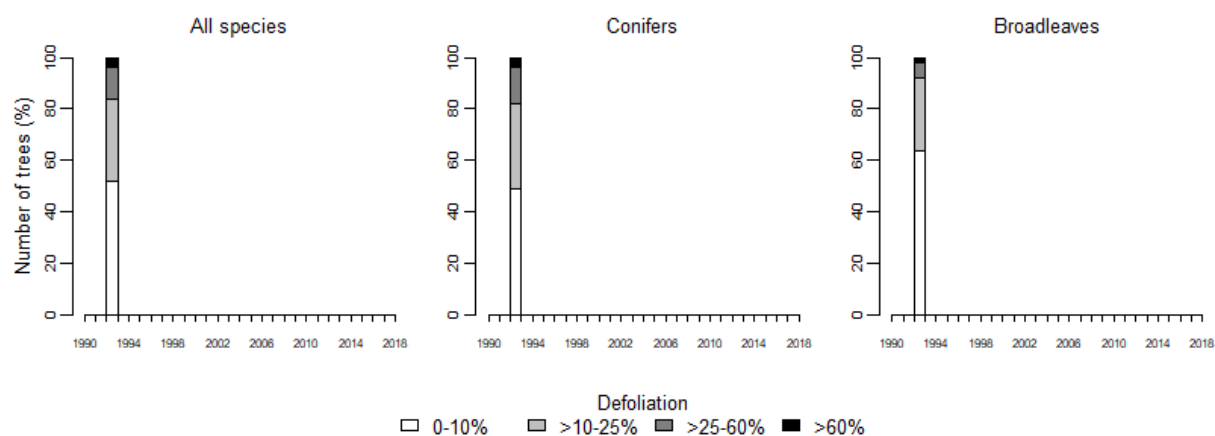
ITALY



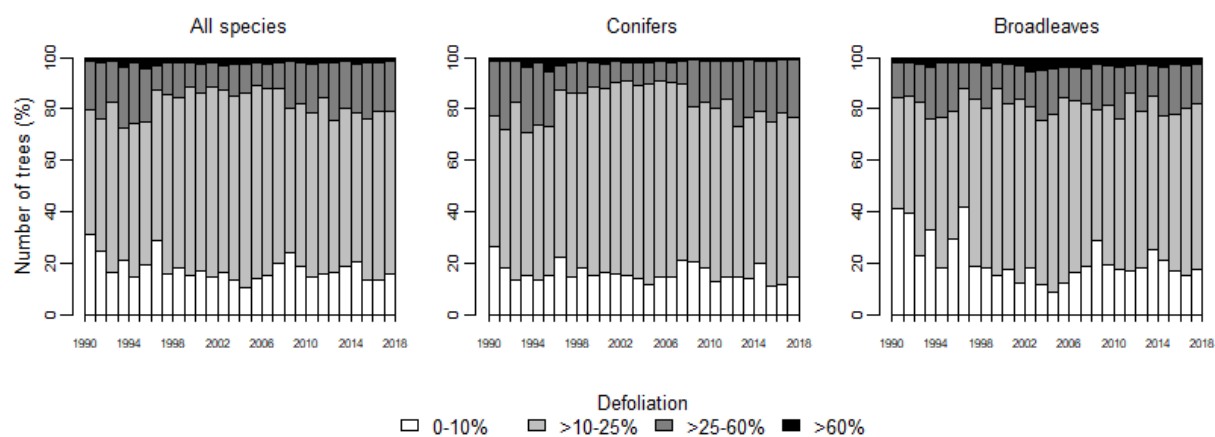
LATVIA



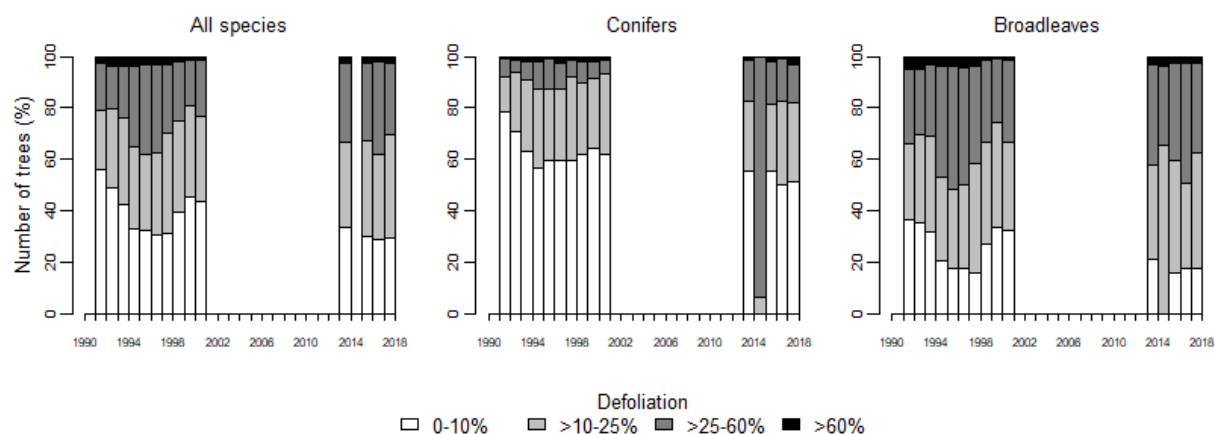
LIECHTENSTEIN



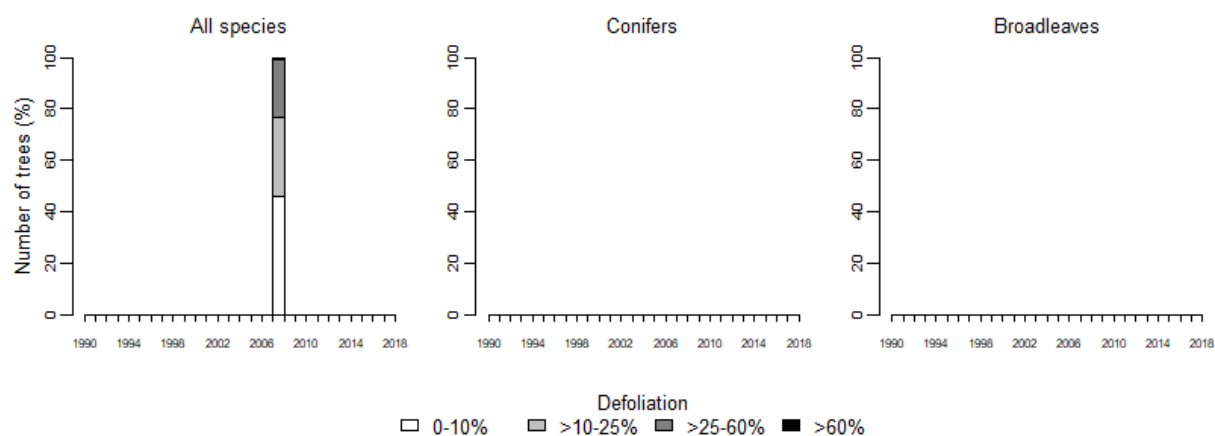
LITHUANIA



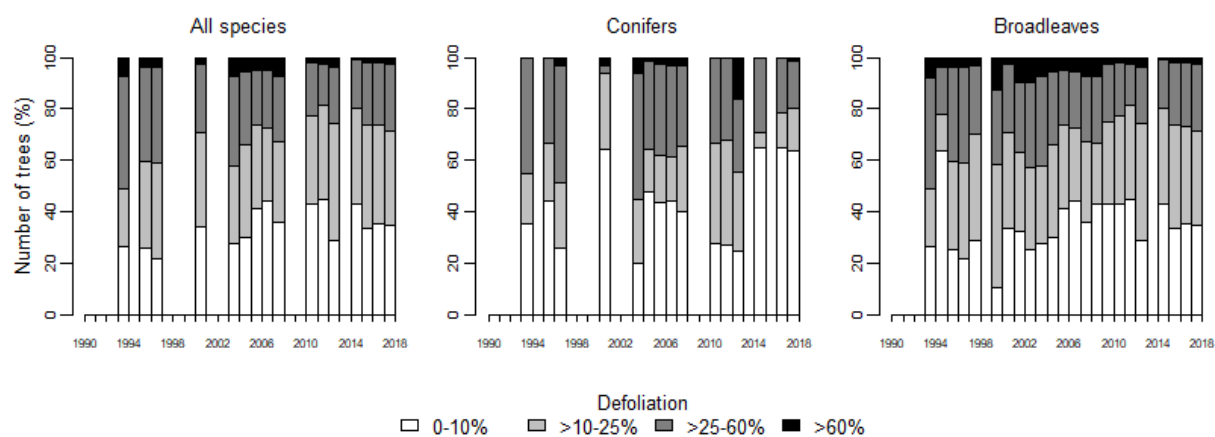
LUXEMBOURG



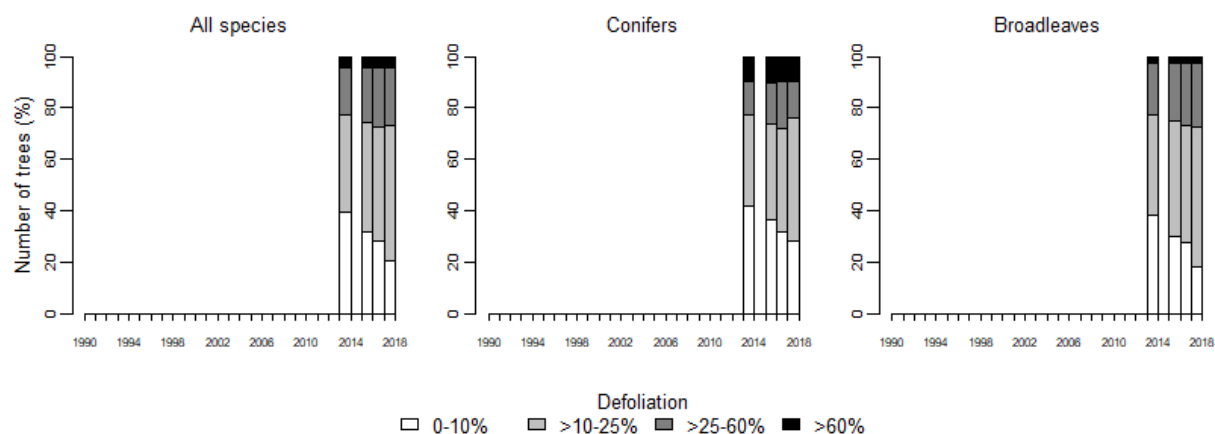
FYR OF MACEDONIA



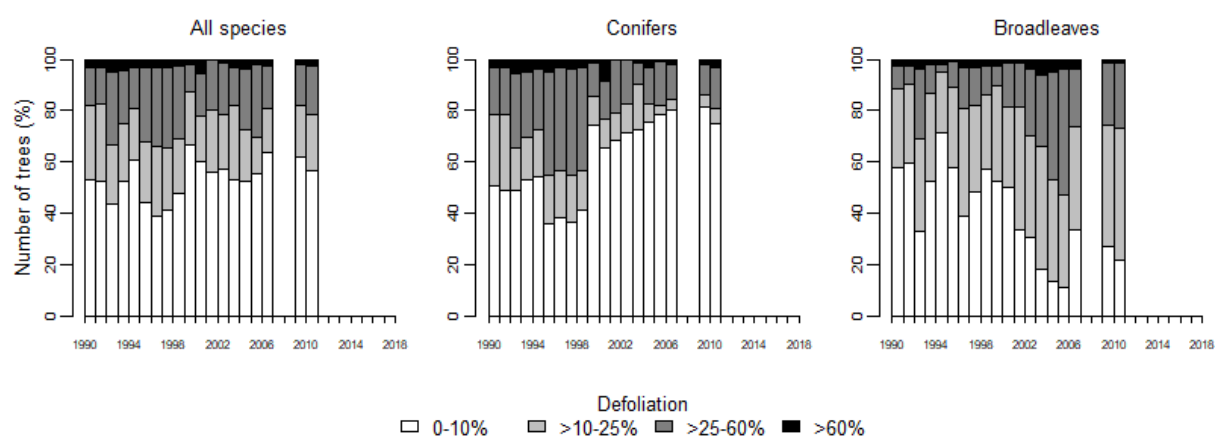
REPUBLIC OF MOLDOVA



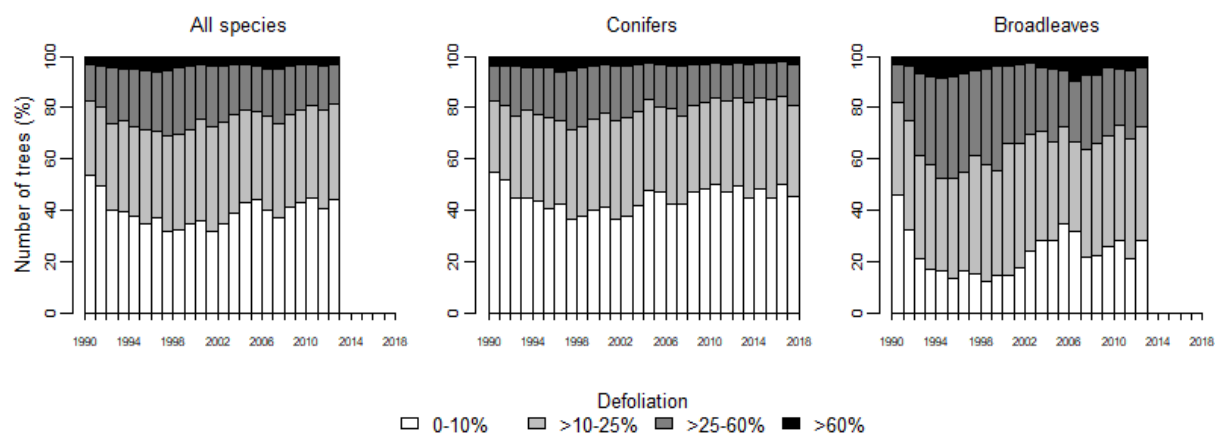
MONTENEGRO



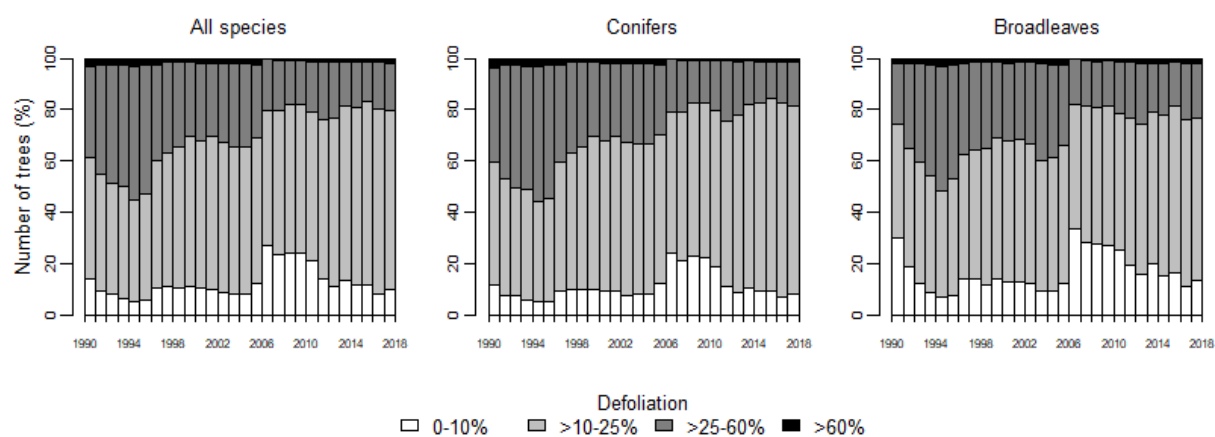
THE NETHERLANDS



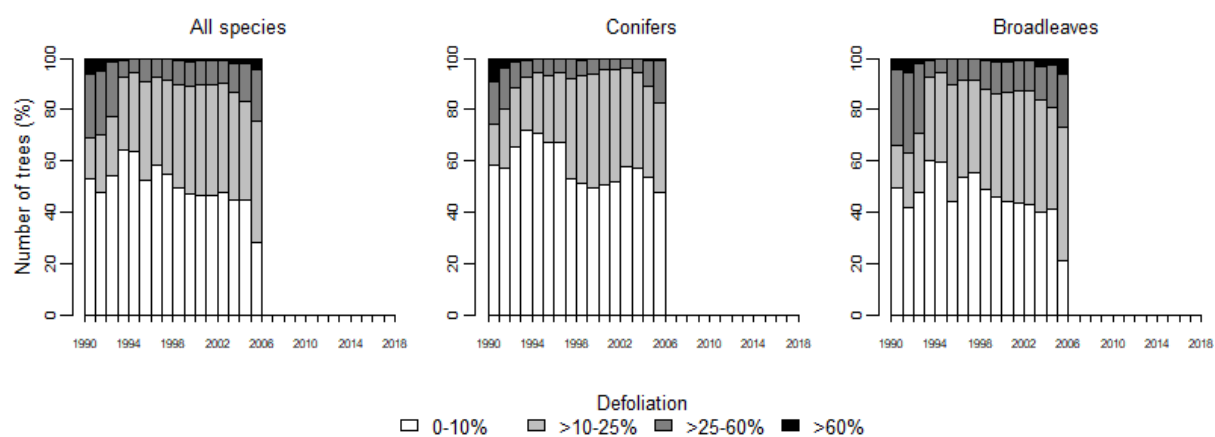
NORWAY



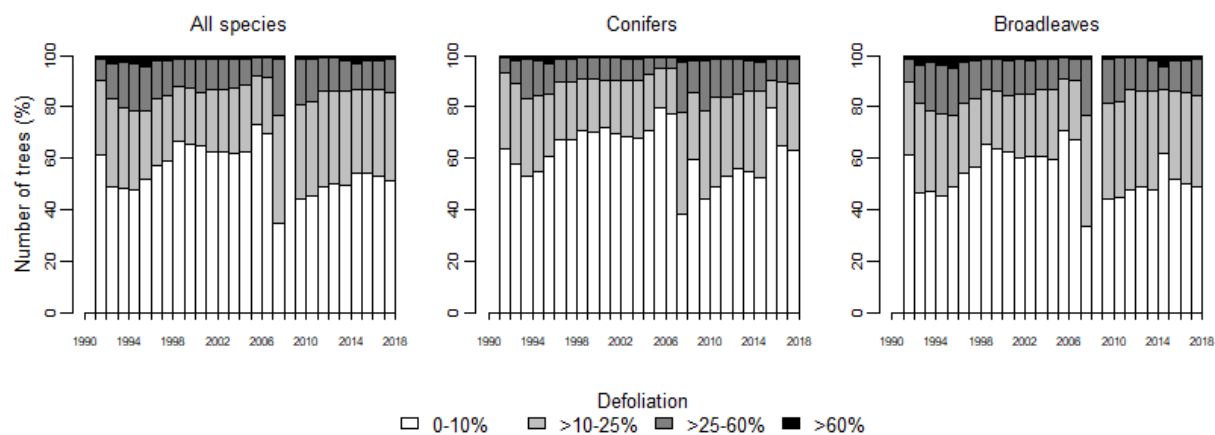
POLAND



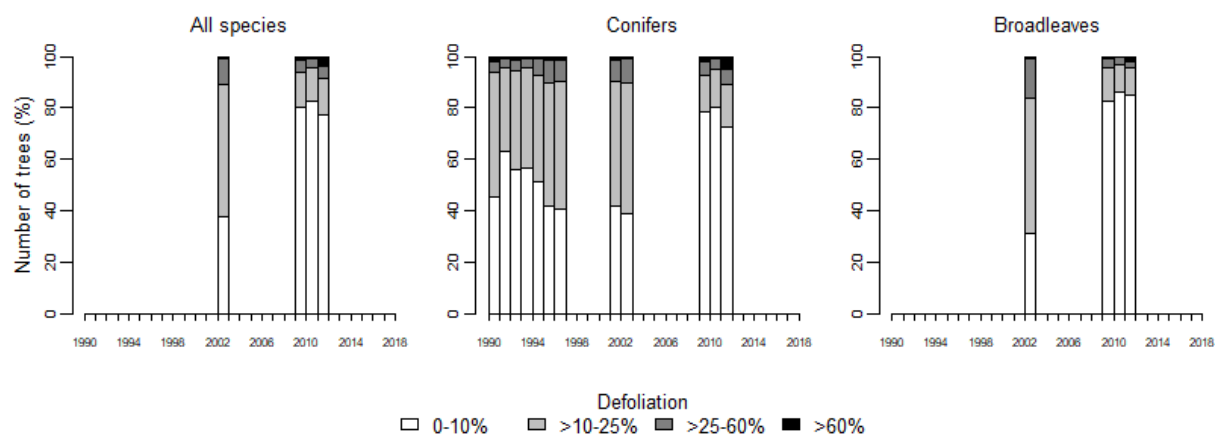
PORTUGAL



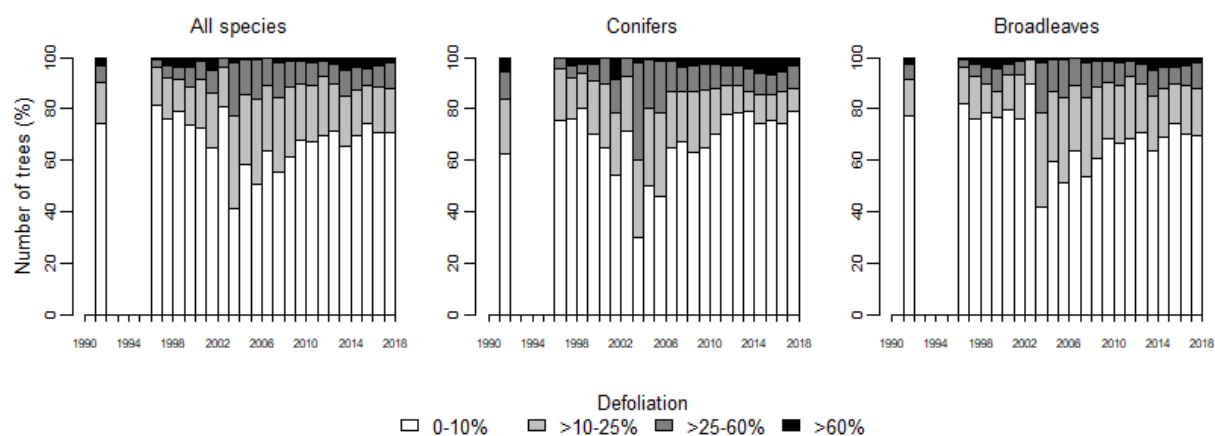
ROMANIA



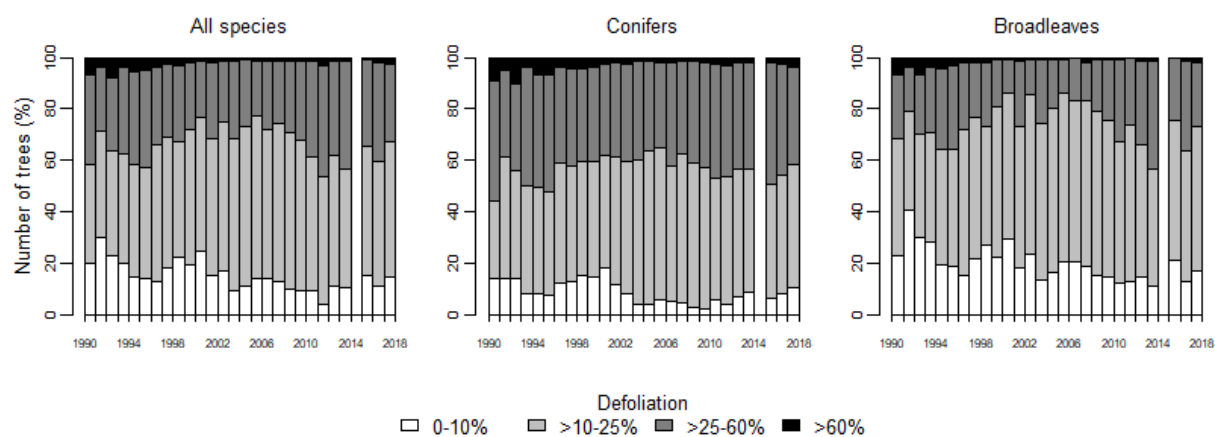
RUSSIAN FEDERATION



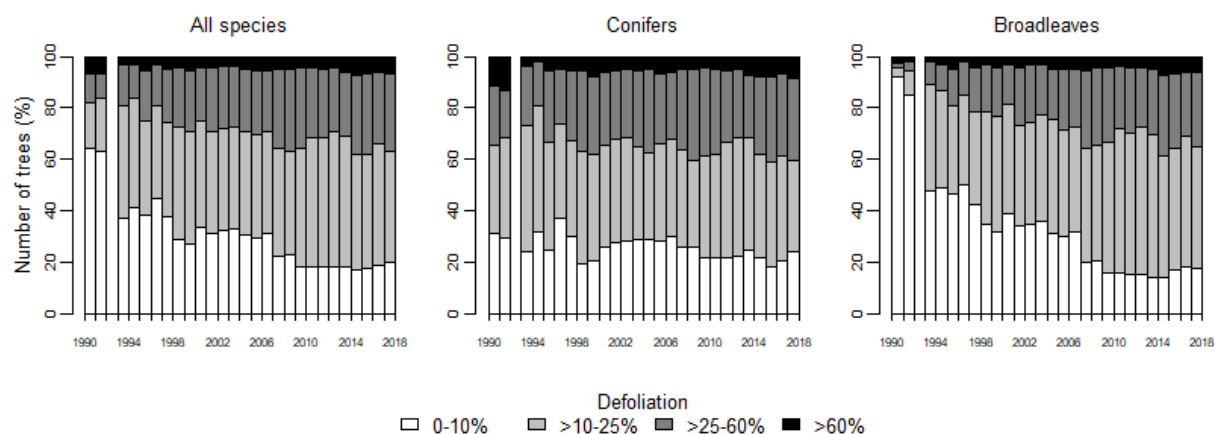
SERBIA



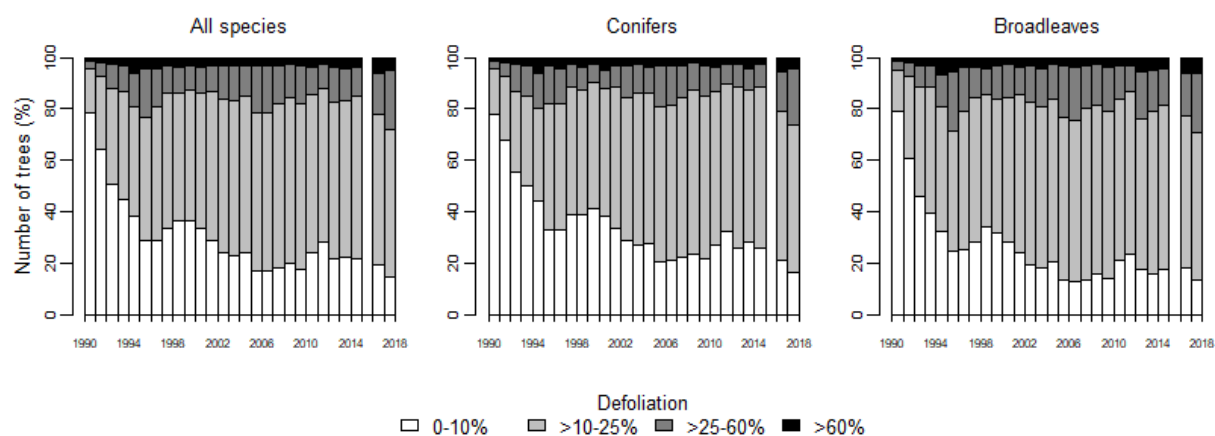
SLOVAKIA



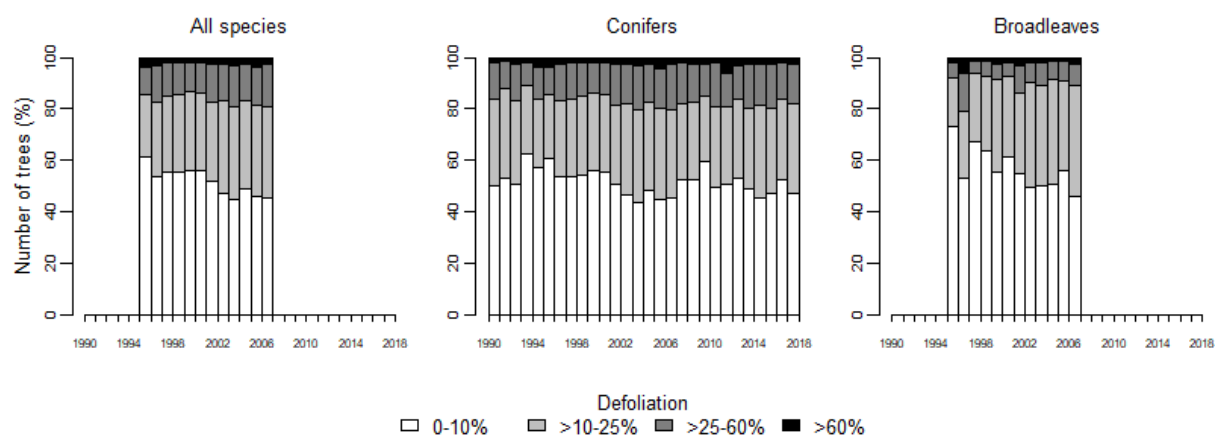
SLOVENIA



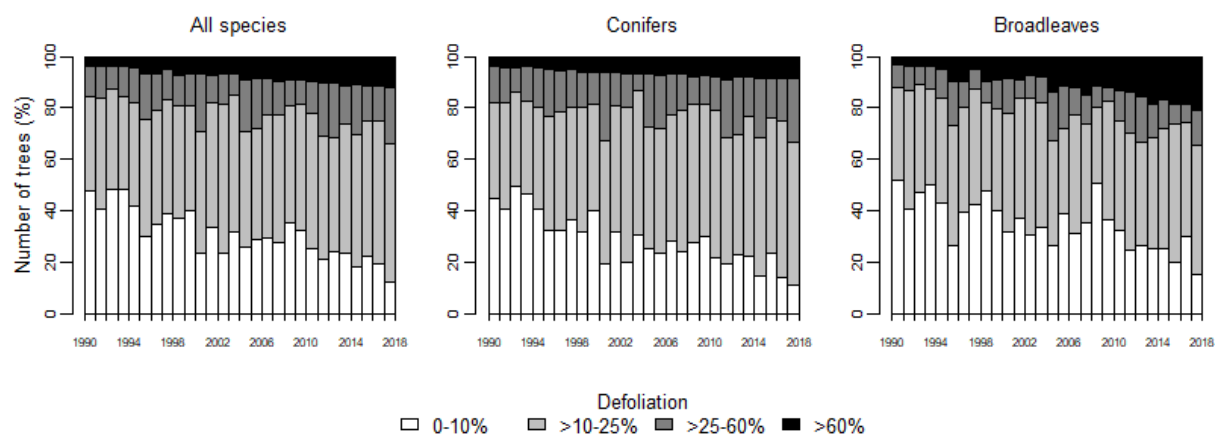
SPAIN



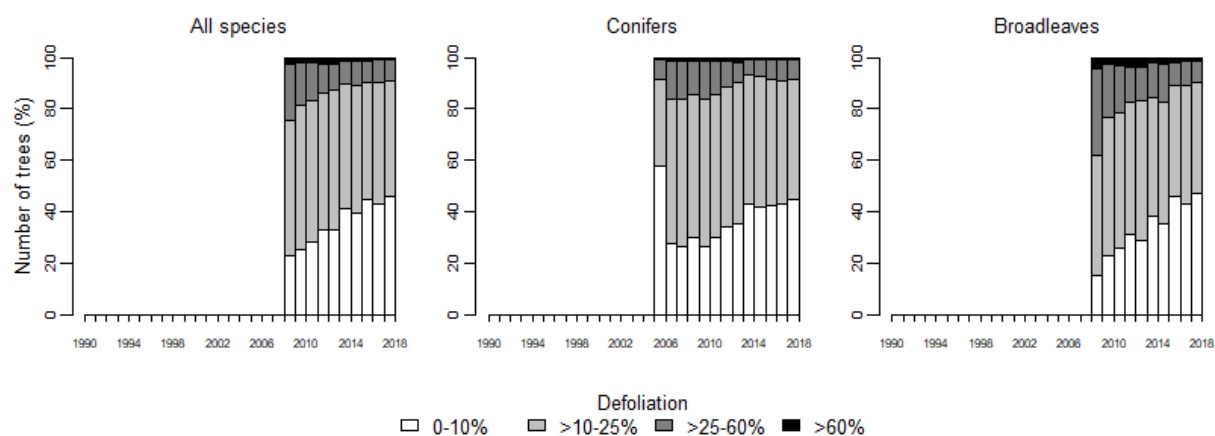
SWEDEN



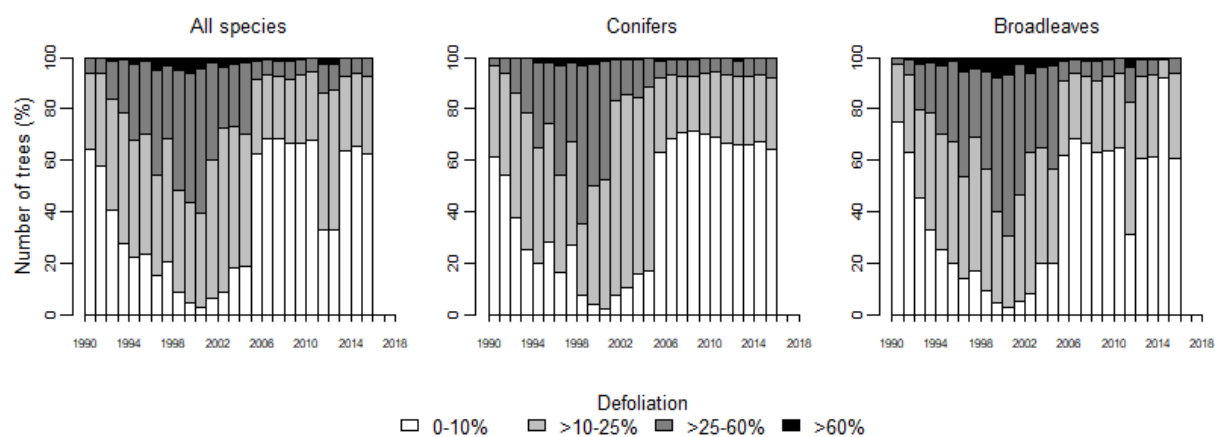
SWITZERLAND



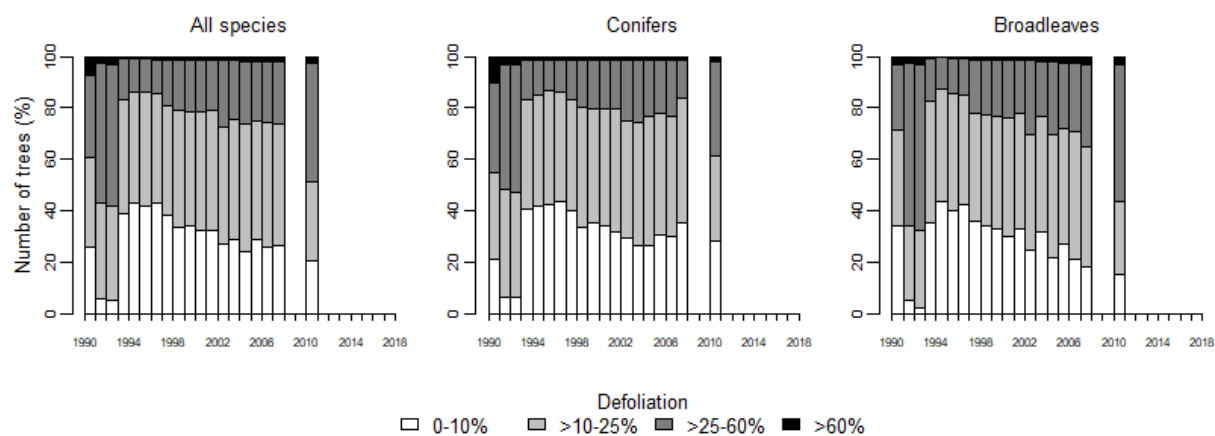
TURKEY



UKRAINE



UNITED KINGDOM



S3 List of ICP Forests related publications May 2017 to May 2018 compiled for the UNECE “Executive Summary”

- Boulanger V, Dupouey J-L, Archaux F, Badeau V, Baltzinger C, Chevalier R, Corcket E, Dumas Y, Forgeard F, Mârell A, Montpied P, Paillet Y, Picard J-F, Saïd S, Ulrich E (2018) Ungulates increase forest plant species richness to the benefit of non-forest specialists. *Glob Change Biol* 24:e485–e495 . doi: 10.1111/gcb.13899
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- Cailleret M, Ferretti M, Gessler A, Rigling A, Schaub M (2018) Ozone effects on European forest growth-Towards an integrative approach. *J Ecol* 106:1377–1389 . doi: 10.1111/1365-2745.12941
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- Han Q, Wang T, Jiang Y, Fischer R, Li C (2018) Phenological variation decreased carbon uptake in European forests during 1999–2013. *For Ecol Manag* 427:45–51 . doi: 10.1016/j.foreco.2018.05.062
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- Van der Linde S, Suz LM, Orme CDL, Cox F, Andreae H, Asi E, Atkinson B, Benham S, Carroll C, Cools N, De Vos B, Dietrich H-P, Eichhorn J, Gehrmann J, Grebenc T, Gweon

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