Forest Condition in Europe

The 2025 Assessment

Online Supplementary Material

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

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Convention on Long-range Transboundary Air Pollution

Working Group on Effects of the Convention on Long-range Transboundary Air Pollution

CONTENTS

S1 TREE CROWN CONDITION AND DAMAGE CAUSES – ADDITIONAL TABLES AND MAPS

S1-1 Mean plot defoliation of main tree species in 2024

Table S1-1: Percentage of plots with mean plot defoliation in defoliation classes 0-3 (class 2 subdivided) for the main species or species groups (n trees pr. plot ⩾ 3) and the number of plots in each group in 2024. Dead trees are not included.

Main species or species groups	Class 0 0-10%	Class 1 >10-25%	Class 2-1 >25-40%	Class 2-2 >40-60%	Class 3 >60%	No. of plots
Scots pine (*Pinus sylvestris*)	15.7	62.4	16.1	5.4	0.4	1222
Norway spruce (*Picea abies*)	22.3	43.5	24.9	8.2	1.0	914
Austrian pine (*Pinus nigra*)	8.7	55.4	24.4	10.5	1.0	287
Mediterranean lowland pines	3.2	60.2	28.1	7.2	1.2	405
Common beech (*Fagus sylvatica*)	20.5	41.9	23.6	11.1	2.9	728
Deciduous temperate oaks	7.1	37.9	33.1	18.2	3.8	665
Dec. (sub-) Mediterranean oaks	11.5	45.1	28.5	12.3	2.4	494
Evergreen oaks	1.2	50.8	34.6	11.4	2.0	246

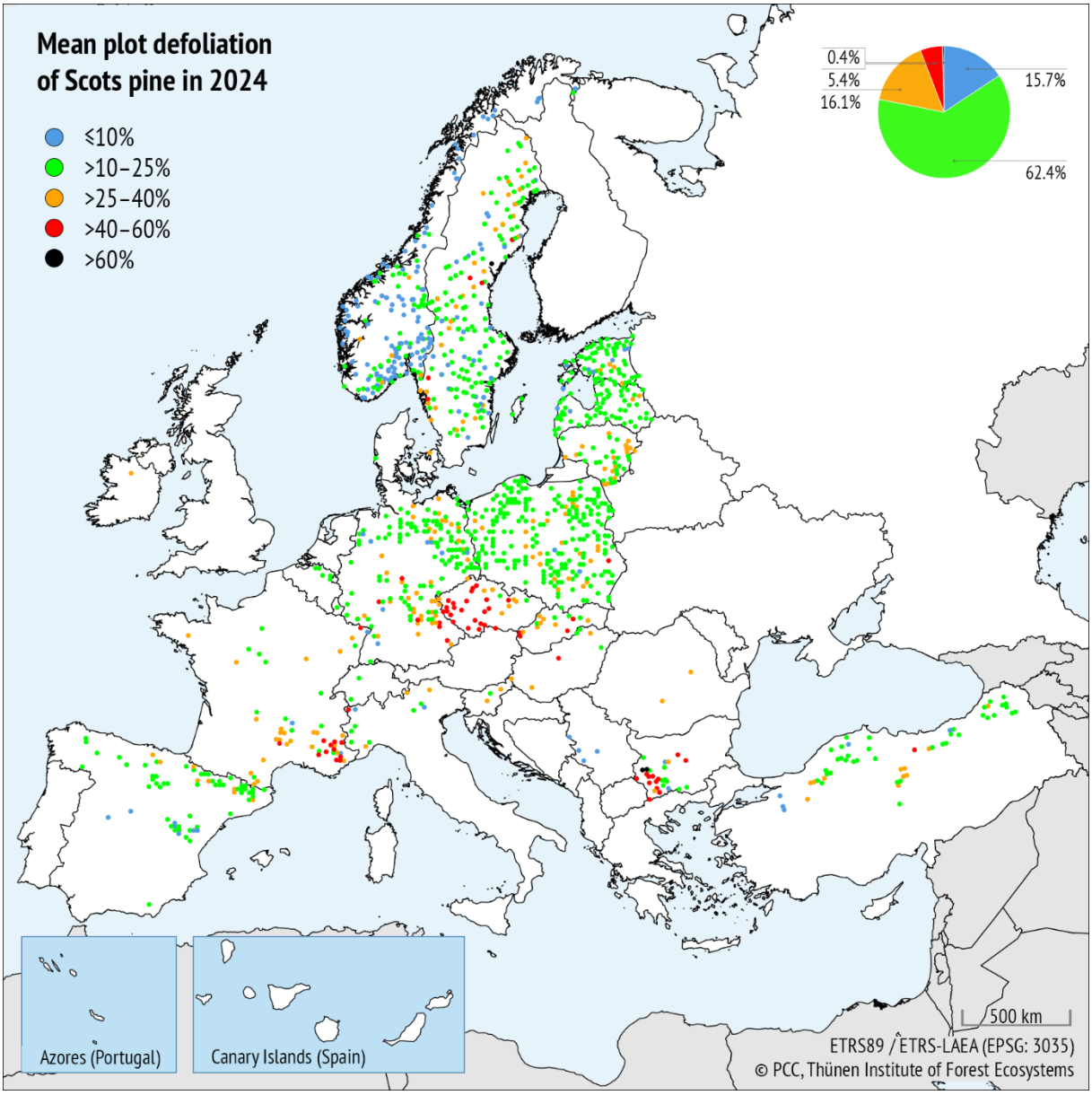


Figure S1-1: Mean plot defoliation of Scots pine (*Pinus sylvestris*) in 2024. Dead trees are not included. The legend (top left) indicates the degree of defoliation (defoliation class) ranging from none (blue), slight (green), moderate (orange and red), to severe (black). The percentages refer to the needle/leaf loss in the crown compared to a reference tree. The pie chart (top right) indicates the percentage of plots per defoliation class.

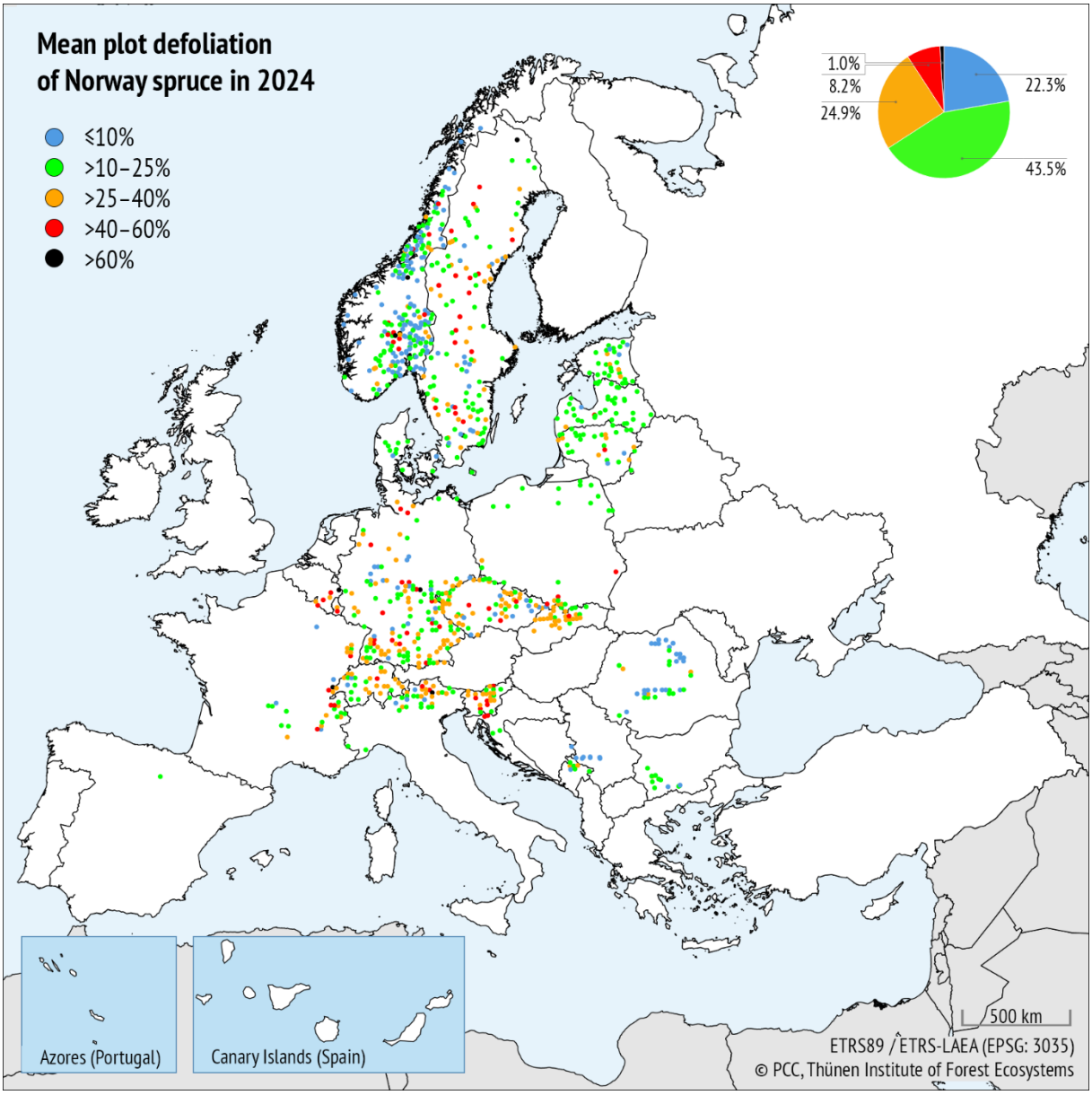


Figure S1-2: Mean plot defoliation of Norway spruce (*Picea abies*) in 2024. Dead trees are not included. The legend (top left) indicates the degree of defoliation (defoliation class) ranging from none (blue), slight (green), moderate (orange and red), to severe (black). The percentages refer to the needle/leaf loss in the crown compared to a reference tree. The pie chart (top right) indicates the percentage of plots per defoliation class.

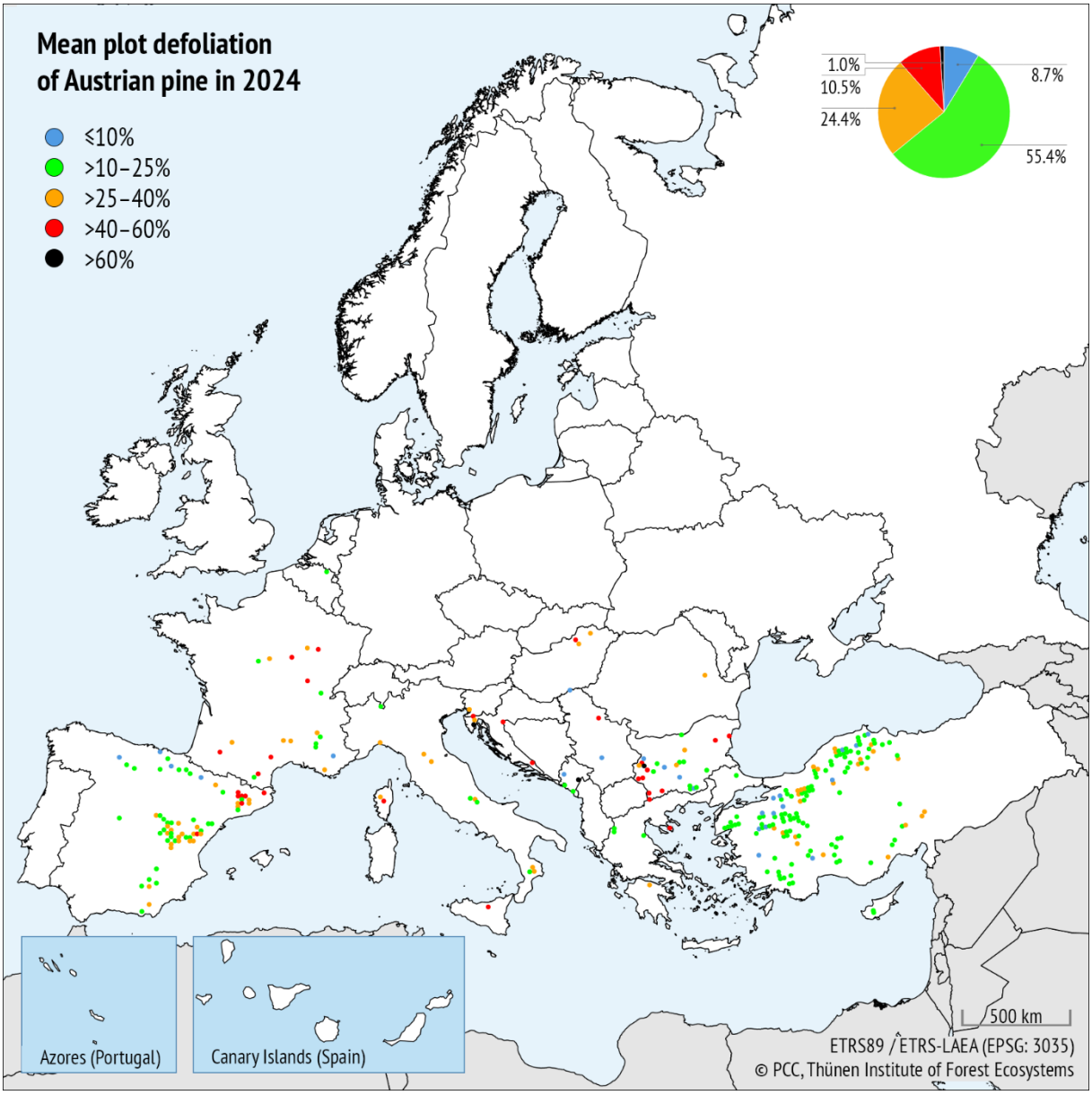


Figure S1-3: Mean plot defoliation of Austrian pine (*Pinus nigra*) in 2024. Dead trees are not included. The legend (top left) indicates the degree of defoliation (defoliation class) ranging from none (blue), slight (green), moderate (orange and red), to severe (black). The percentages refer to the needle/leaf loss in the crown compared to a reference tree. The pie chart (top right) indicates the percentage of plots per defoliation class.

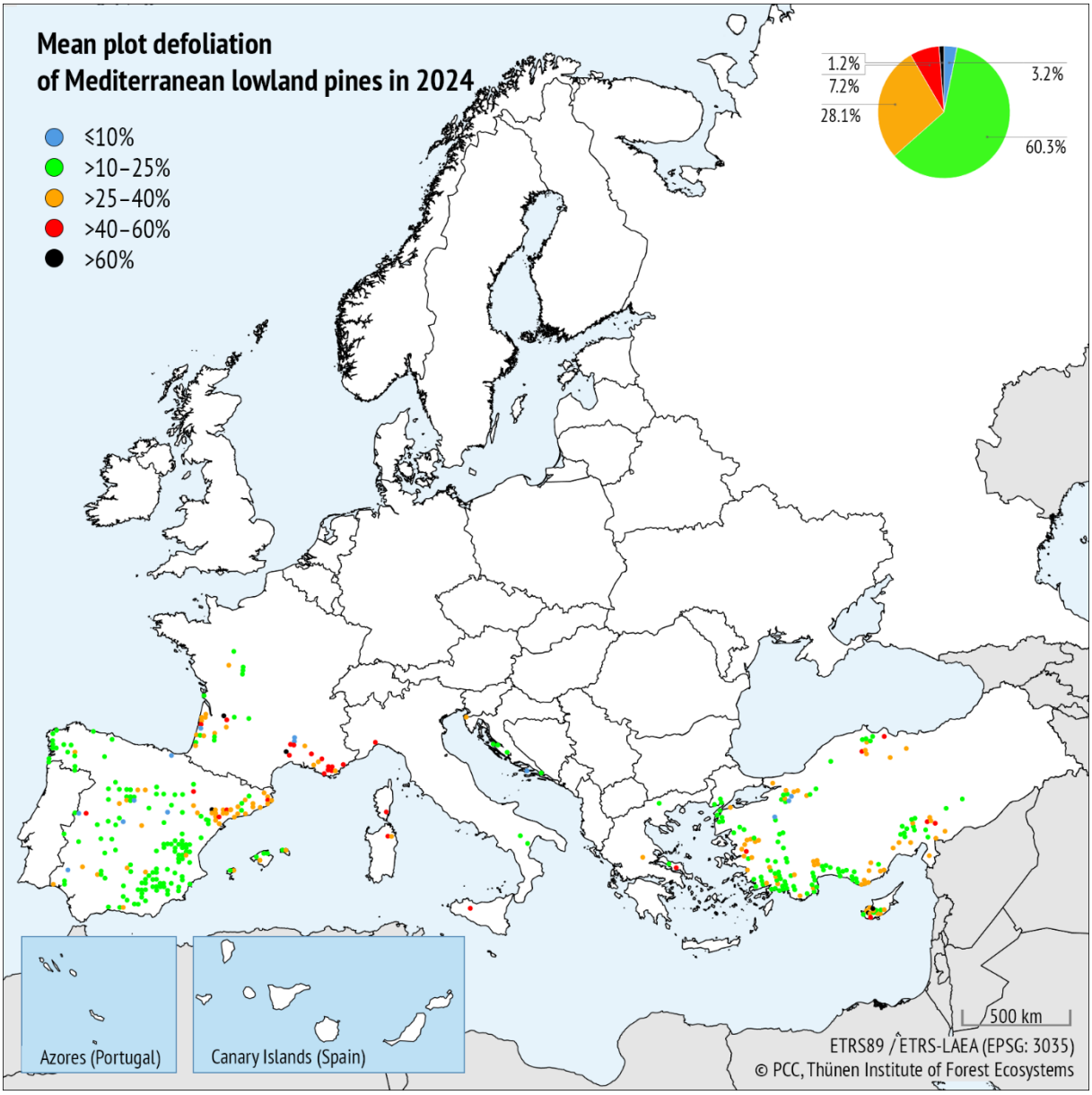


Figure S1-4: Mean plot defoliation of Mediterranean lowland pines (*Pinus halepensis, P. pinaster, P. pinea, P. brutia*) in 2024. Dead trees are not included. The legend (top left) indicates the degree of defoliation (defoliation class) ranging from none (blue), slight (green), moderate (orange and red), to severe (black). The percentages refer to the needle/leaf loss in the crown compared to a reference tree. The pie chart (top right) indicates the percentage of plots per defoliation class.

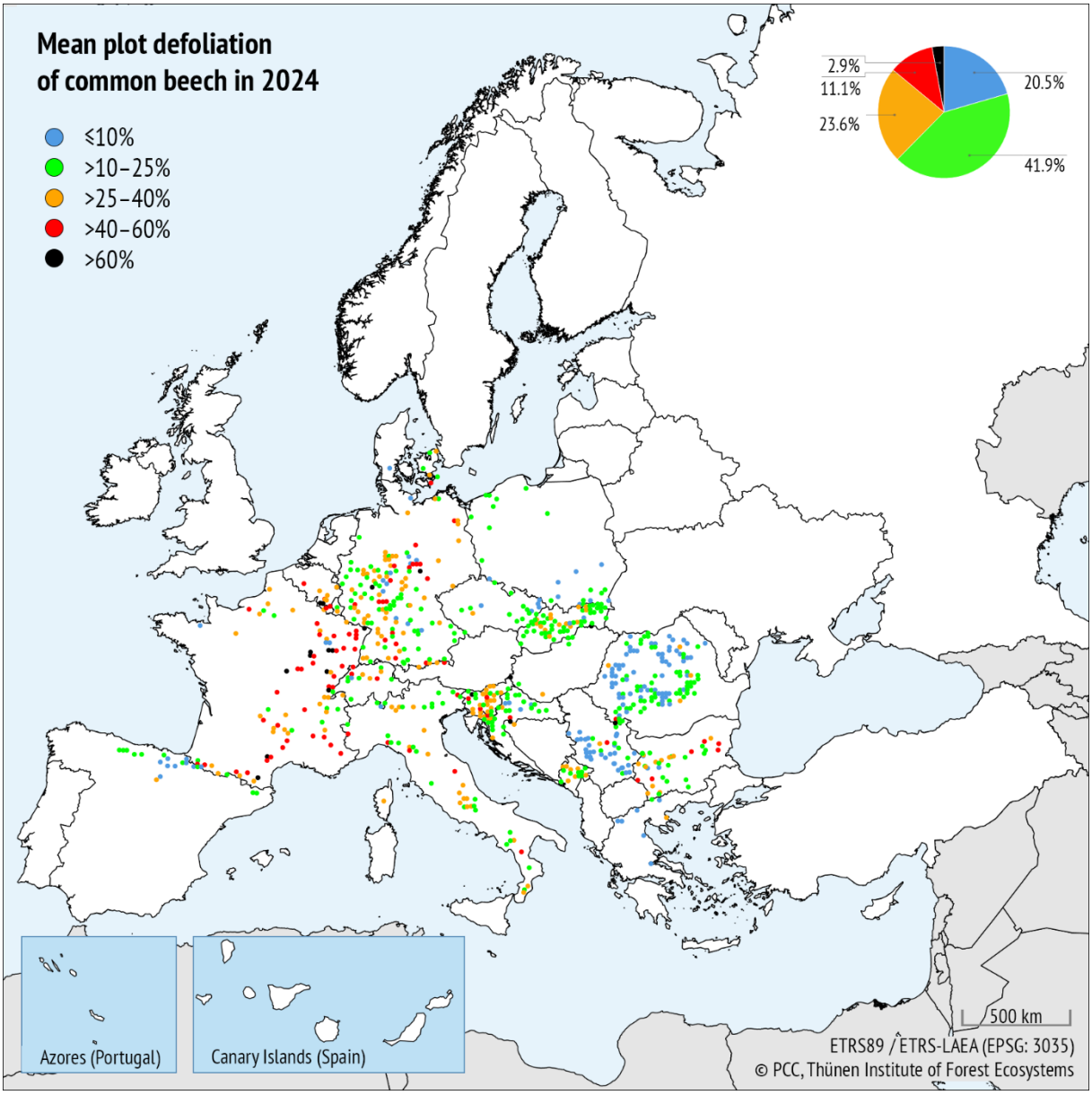


Figure S1-5: Mean plot defoliation of common beech (*Fagus sylvatica*) in 2024. Dead trees are not included. The legend (top left) indicates the degree of defoliation (defoliation class) ranging from none (blue), slight (green), moderate (orange and red), to severe (black). The percentages refer to the needle/leaf loss in the crown compared to a reference tree. The pie chart (top right) indicates the percentage of plots per defoliation class.

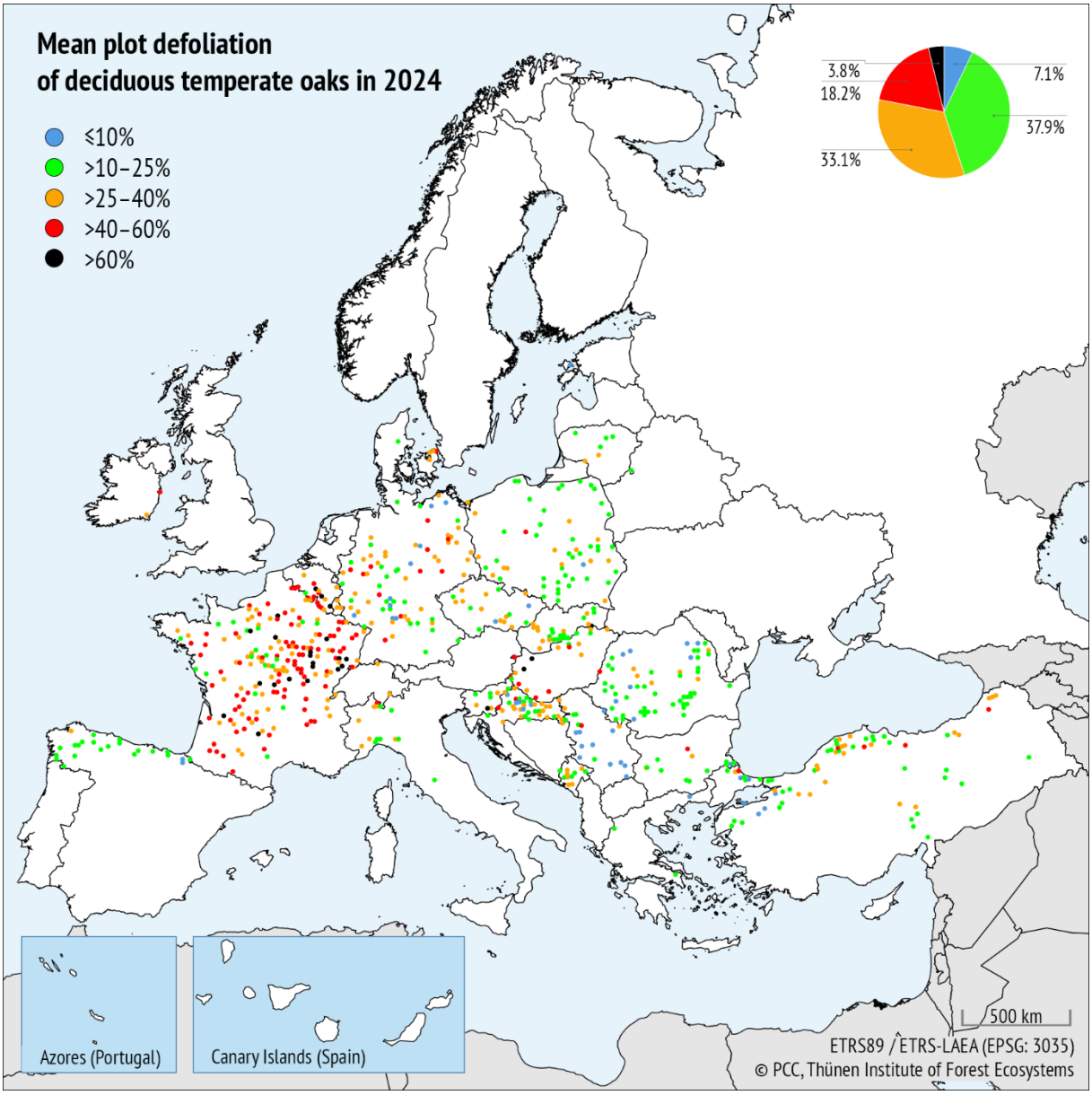


Figure S1-6: Mean plot defoliation of deciduous temperate oaks (*Quercus robur and Q. petraea*) in 2024. Dead trees are not included. The legend (top left) indicates the degree of defoliation (defoliation class) ranging from none (blue), slight (green), moderate (orange and red), to severe (black). The percentages refer to the needle/leaf loss in the crown compared to a reference tree. The pie chart (top right) indicates the percentage of plots per defoliation class.

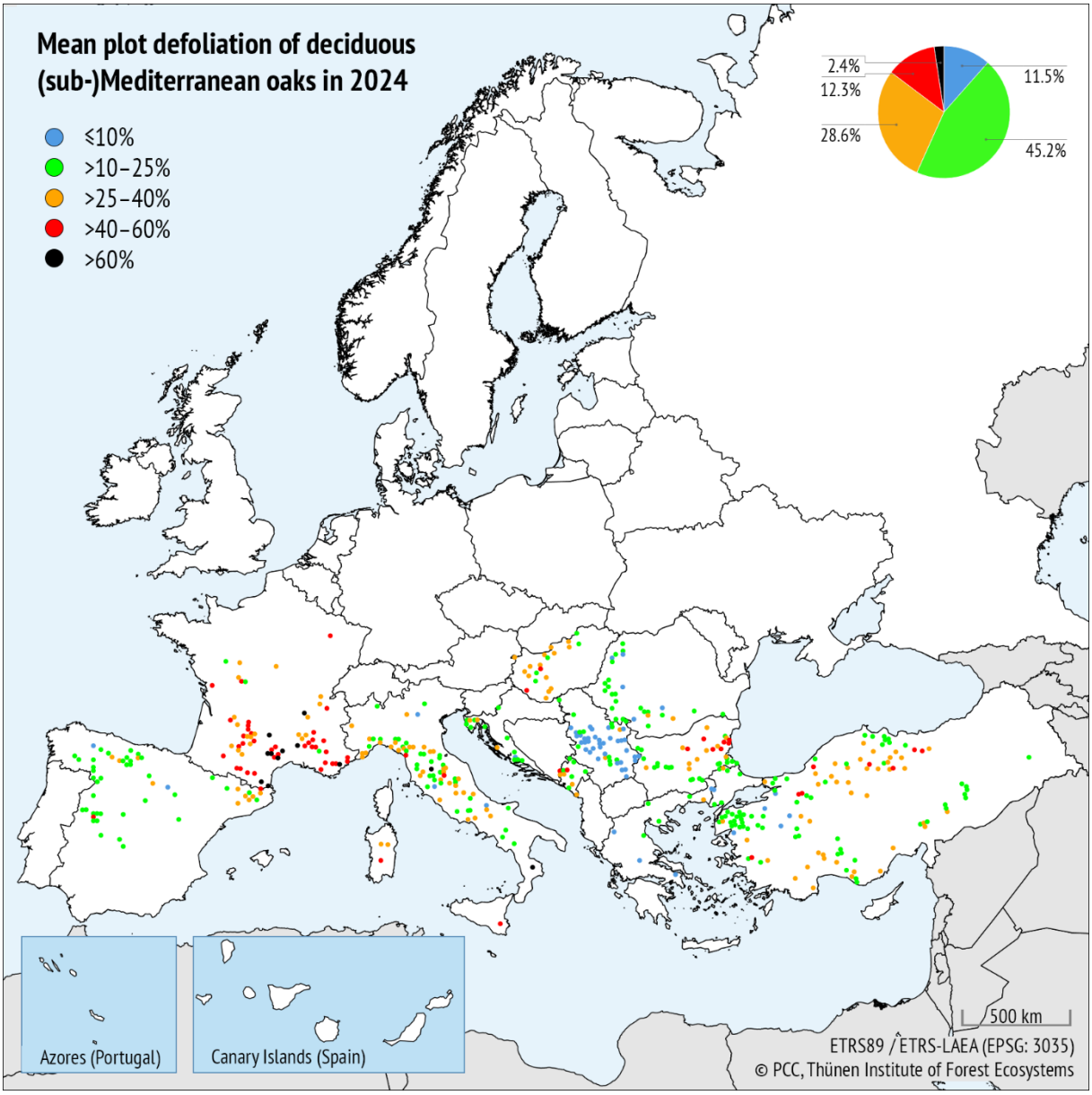


Figure S1-7: Mean plot defoliation of deciduous (sub-) Mediterranean oaks (*Quercus cerris, Q. frainetto, Q. pubescens, Q. pyrenaica*) in 2024. Dead trees are not included. The legend (top left) indicates the degree of defoliation (defoliation class) ranging from none (blue), slight (green), moderate (orange and red), to severe (black). The percentages refer to the needle/leaf loss in the crown compared to a reference tree. The pie chart (top right) indicates the percentage of plots per defoliation class.

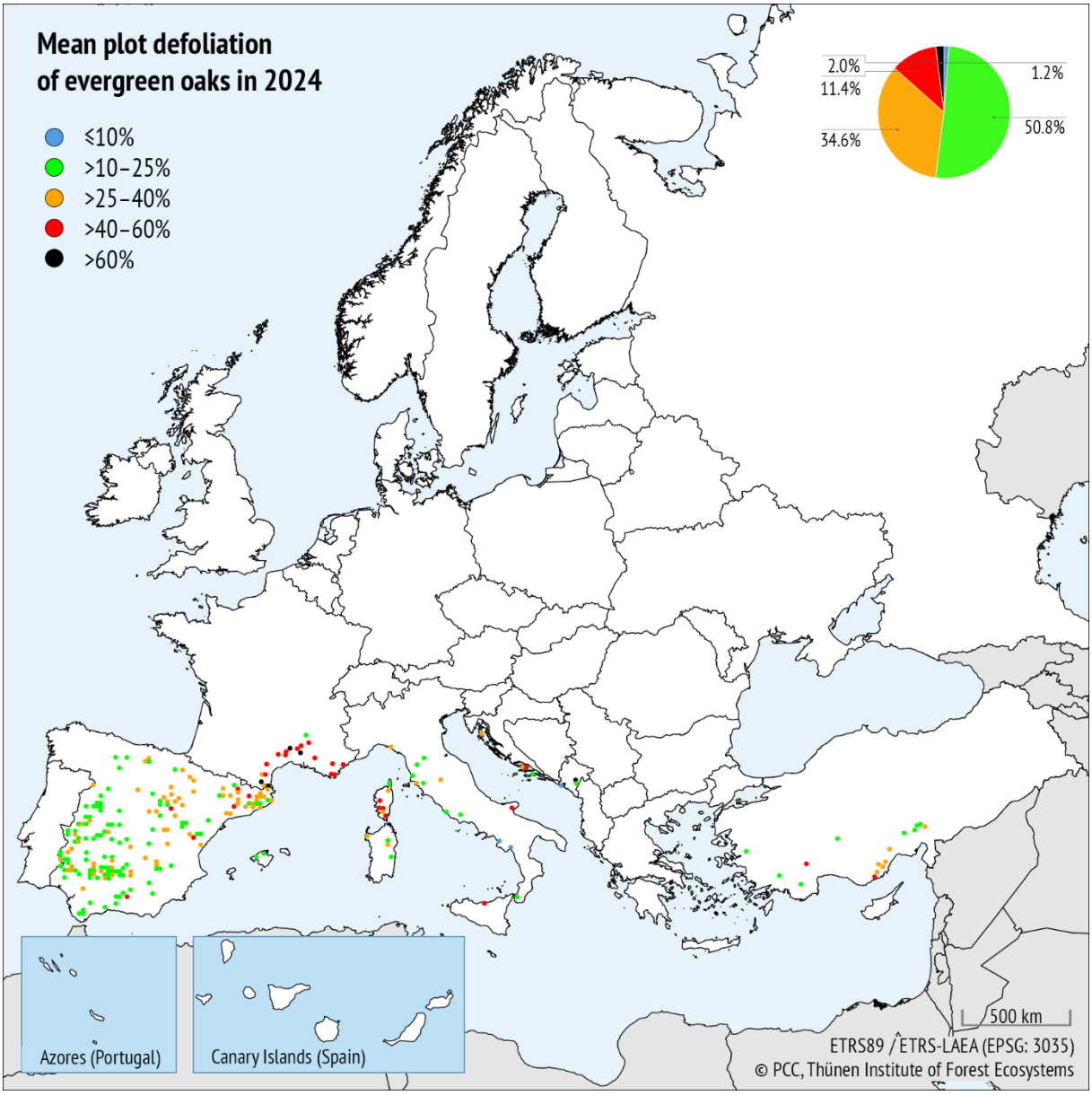


Figure S1-8: Mean plot defoliation of evergreen oaks (*Quercus coccifera, Q. ilex, Q. rotundifolia, Q. suber*) in 2024. Dead trees are not included. The legend (top left) indicates the degree of defoliation (defoliation class) ranging from none (blue), slight (green), moderate (orange and red), to severe (black). The percentages refer to the needle/leaf loss in the crown compared to a reference tree. The pie chart (top right) indicates the percentage of plots per defoliation class.

S1-2 Trends in mean plot defoliation of the main tree species 2015–2024

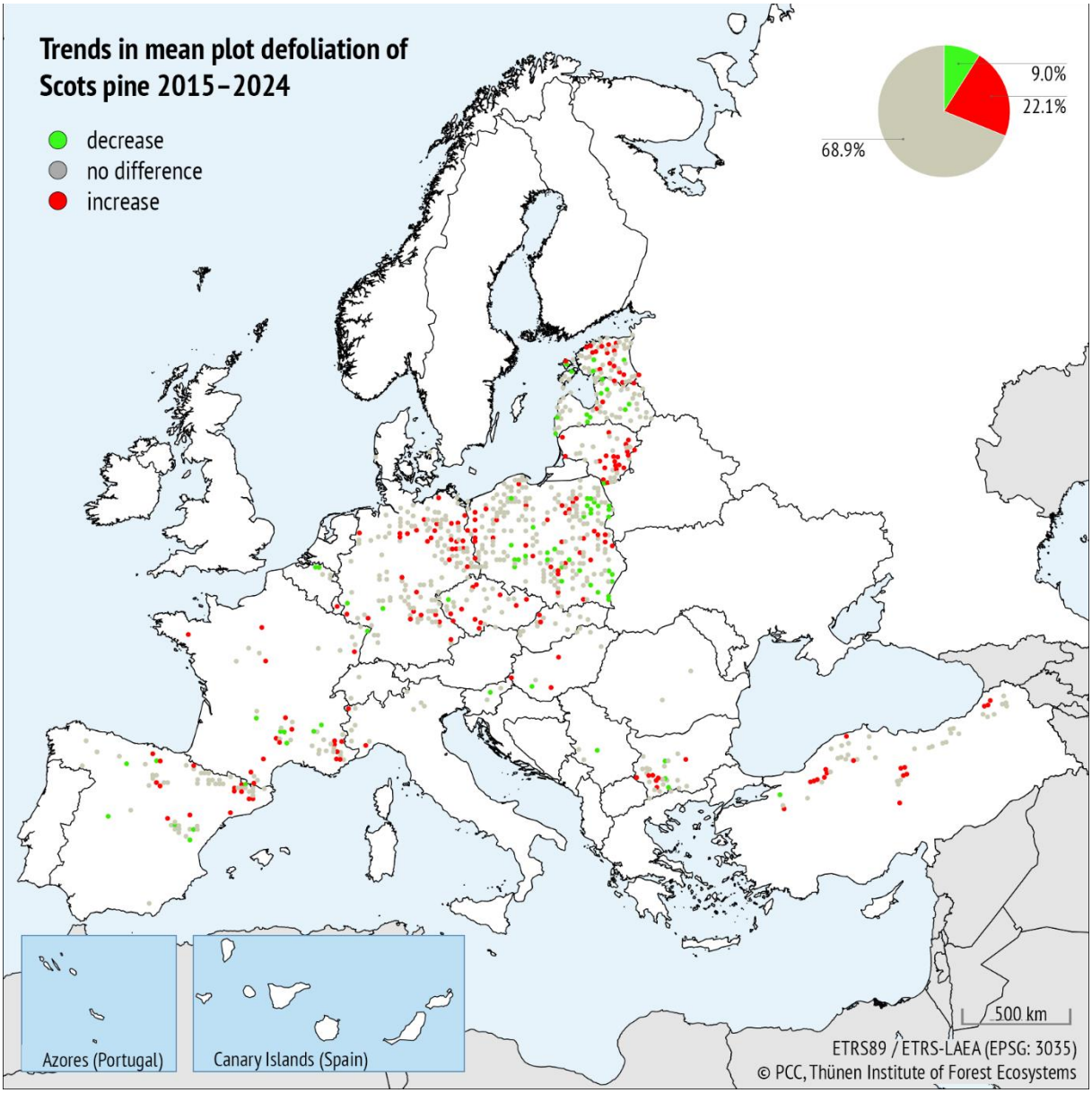


Figure S1-9: Trends in mean plot defoliation of Scots pine (*Pinus sylvestris*) between 2015 and 2024. Plots were included if assessments were available for at least 80% of the period. The legend (top left) indicates whether mean plot defoliation over all decreased, stayed the same or increased within the given period. The pie chart (top right) indicates the respective percentage of plots per trend direction.

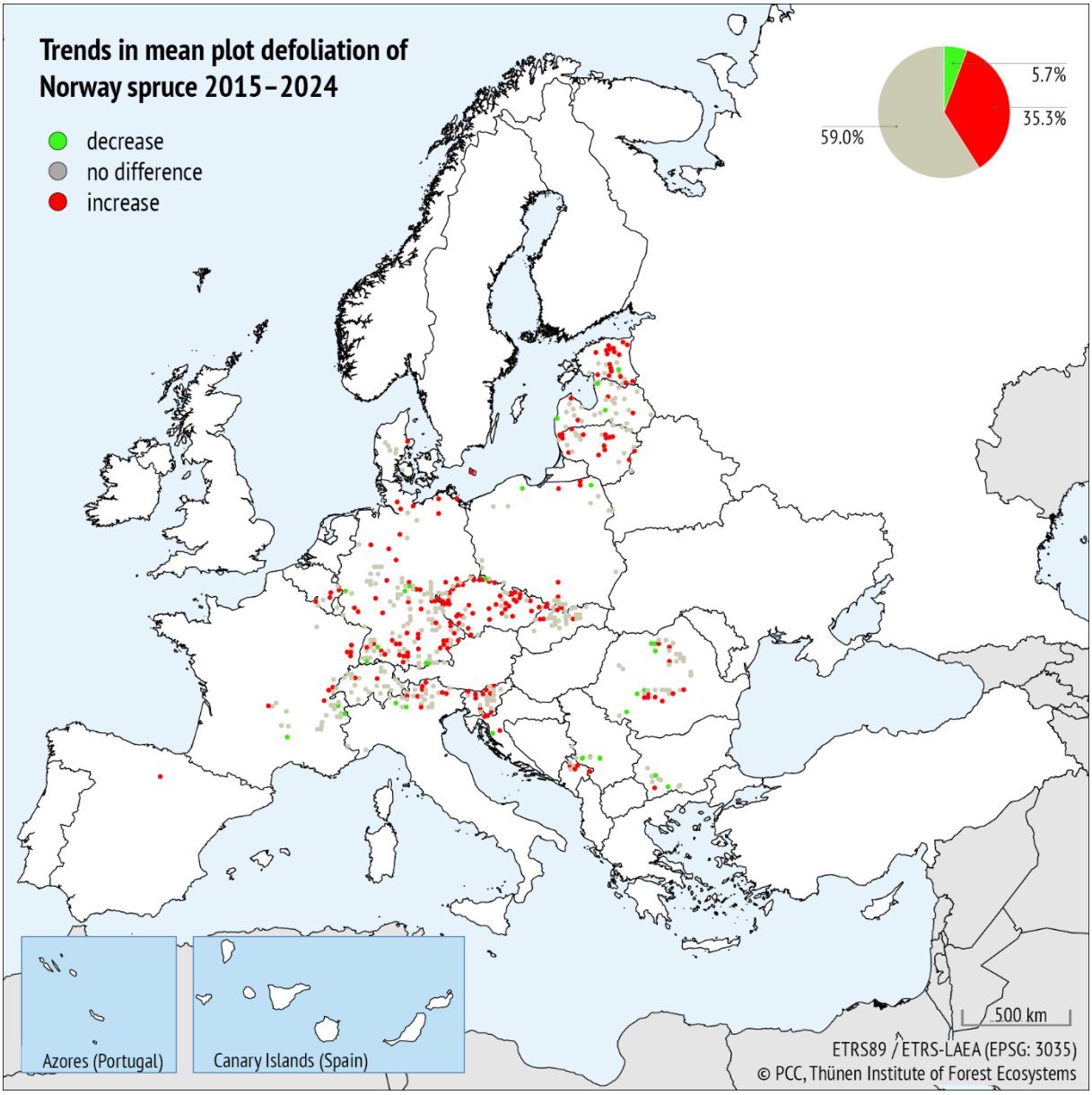


Figure S1-10: Trends in mean plot defoliation of Norway spruce (*Picea abies*) between 2015 and 2024. Plots were included if assessments were available for at least 80% of the period. The legend (top left) indicates whether mean plot defoliation overall decreased, stayed the same or increased within the given period. The pie chart (top right) indicates the respective percentage of plots per trend direction.

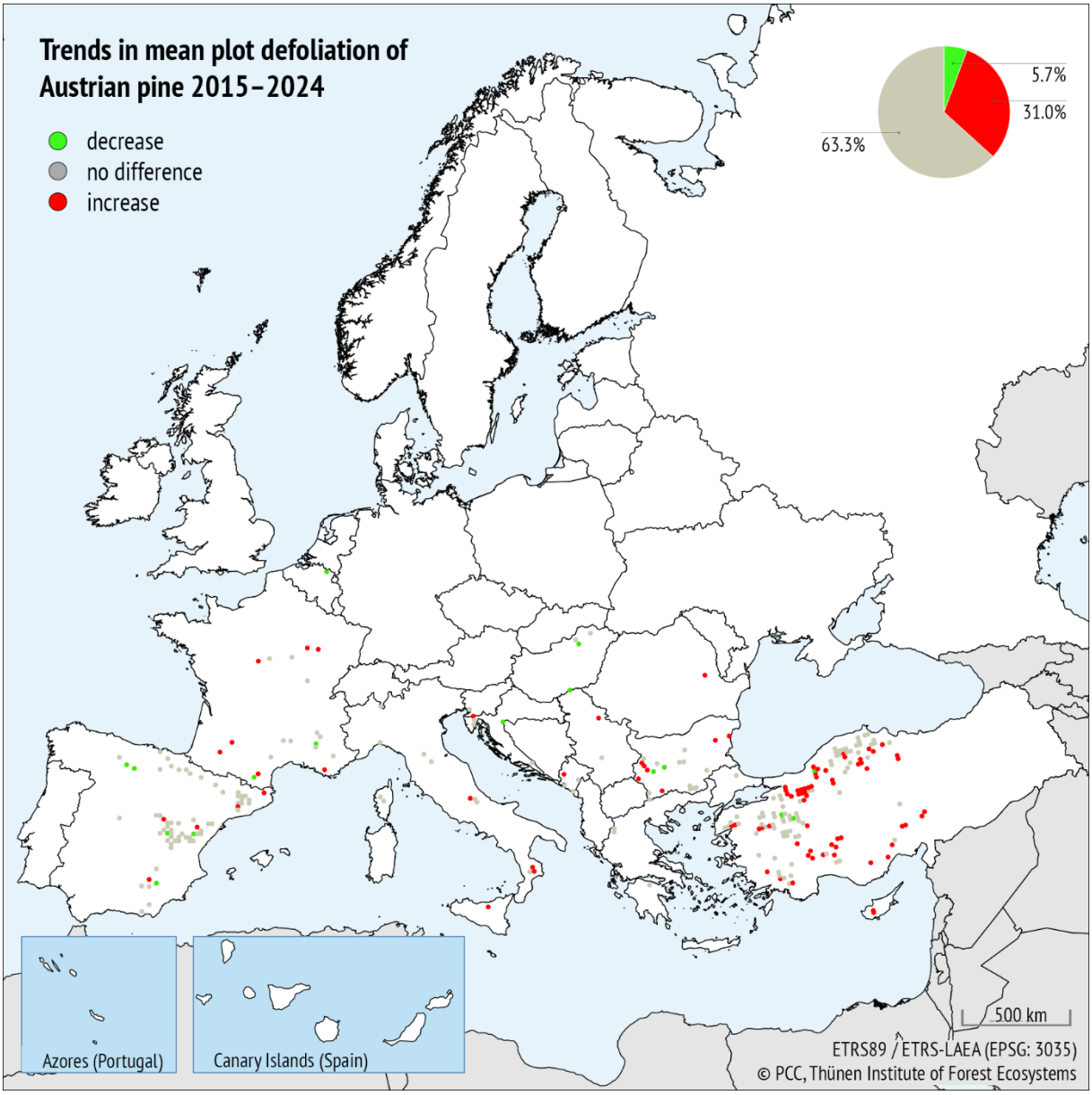


Figure S1-11: Trends in mean plot defoliation of Austrian pine (*Pinus nigra*) between 2015 and 2024. Plots were included if assessments were available for at least 80% of the period. The legend (top left) indicates whether mean plot defoliation overall decreased, stayed the same or increased within the given period. The pie chart (top right) indicates the respective percentage of plots per trend direction.

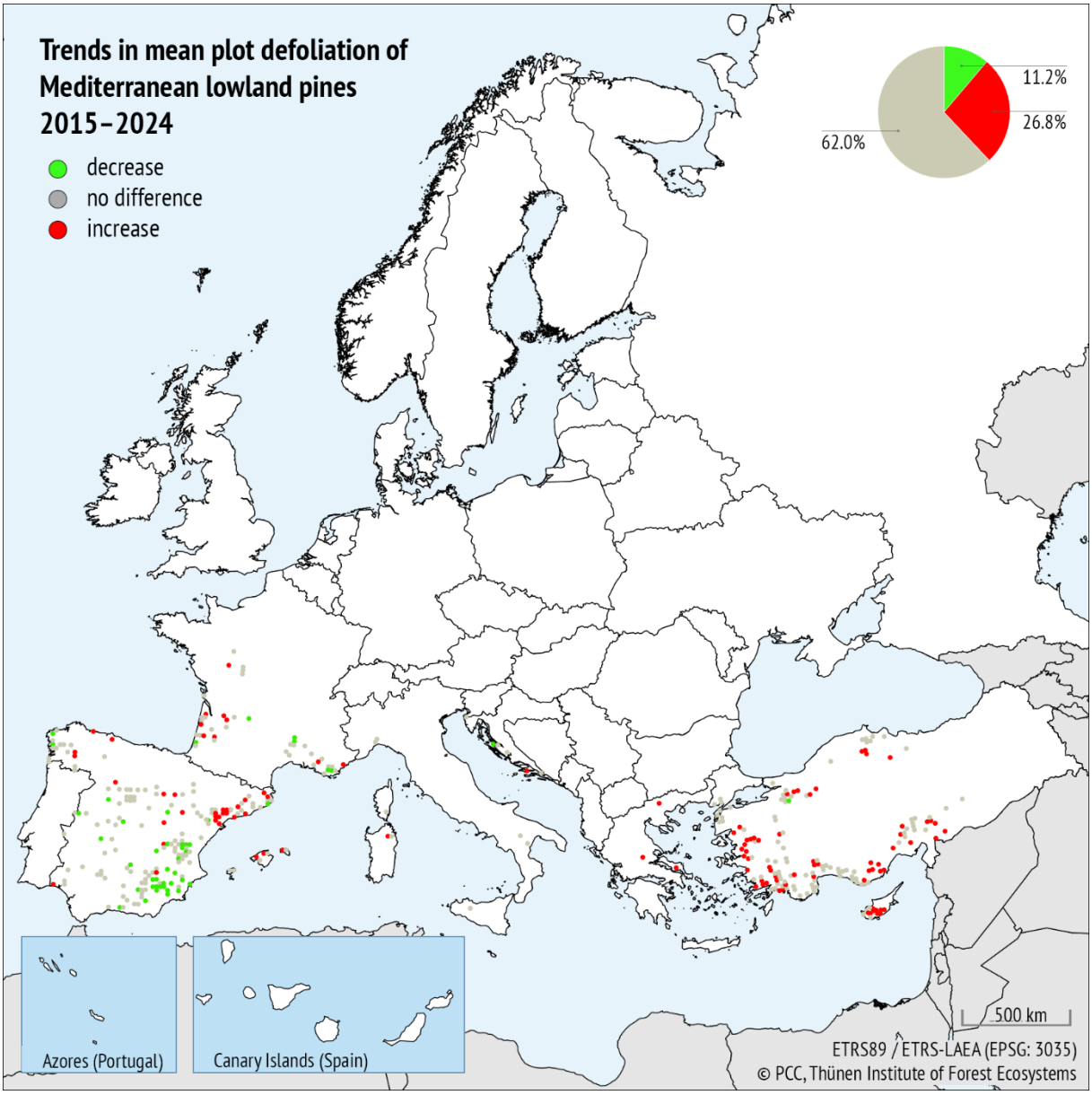


Figure S1-12: Trends in mean plot defoliation of Mediterranean lowland pines (*Pinus brutia*, *P. halepensis*, *P. pinaster*, *P. pinea*) between 2015 and 2024. Plots were included if assessments were available for at least 80% of the period. The legend (top left) indicates whether mean plot defoliation overall decreased, stayed the same or increased within the given period. The pie chart (top right) indicates the respective percentage of plots per trend direction.

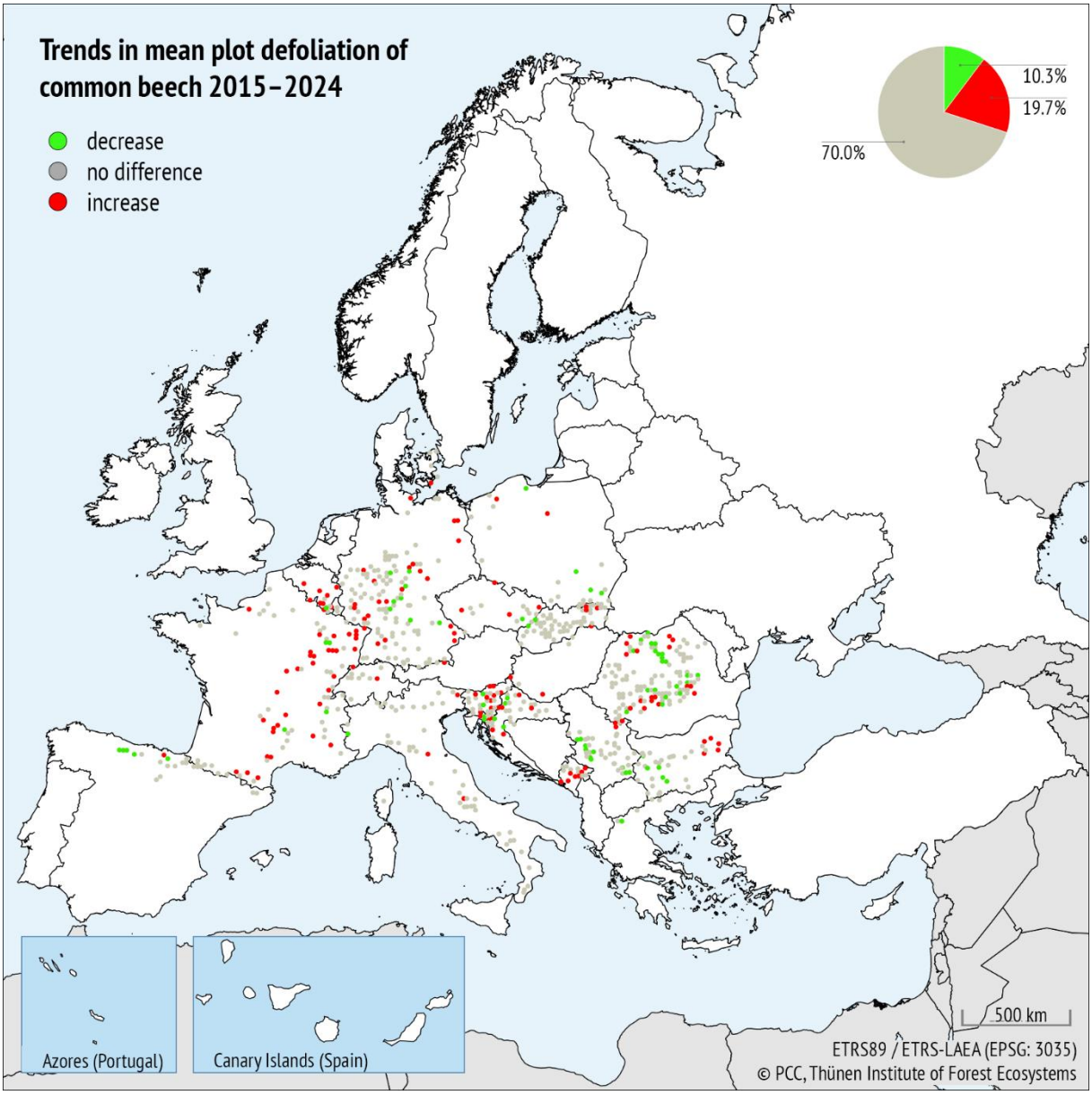


Figure S1-13: Trends in mean plot defoliation of common beech (*Fagus sylvatica*) between 2015 and 2024. Plots were included if assessments were available for at least 80% of the period. The legend (top left) indicates whether mean plot defoliation overall decreased, stayed the same or increased within the given period. The pie chart (top right) indicates the respective percentage of plots per trend direction.

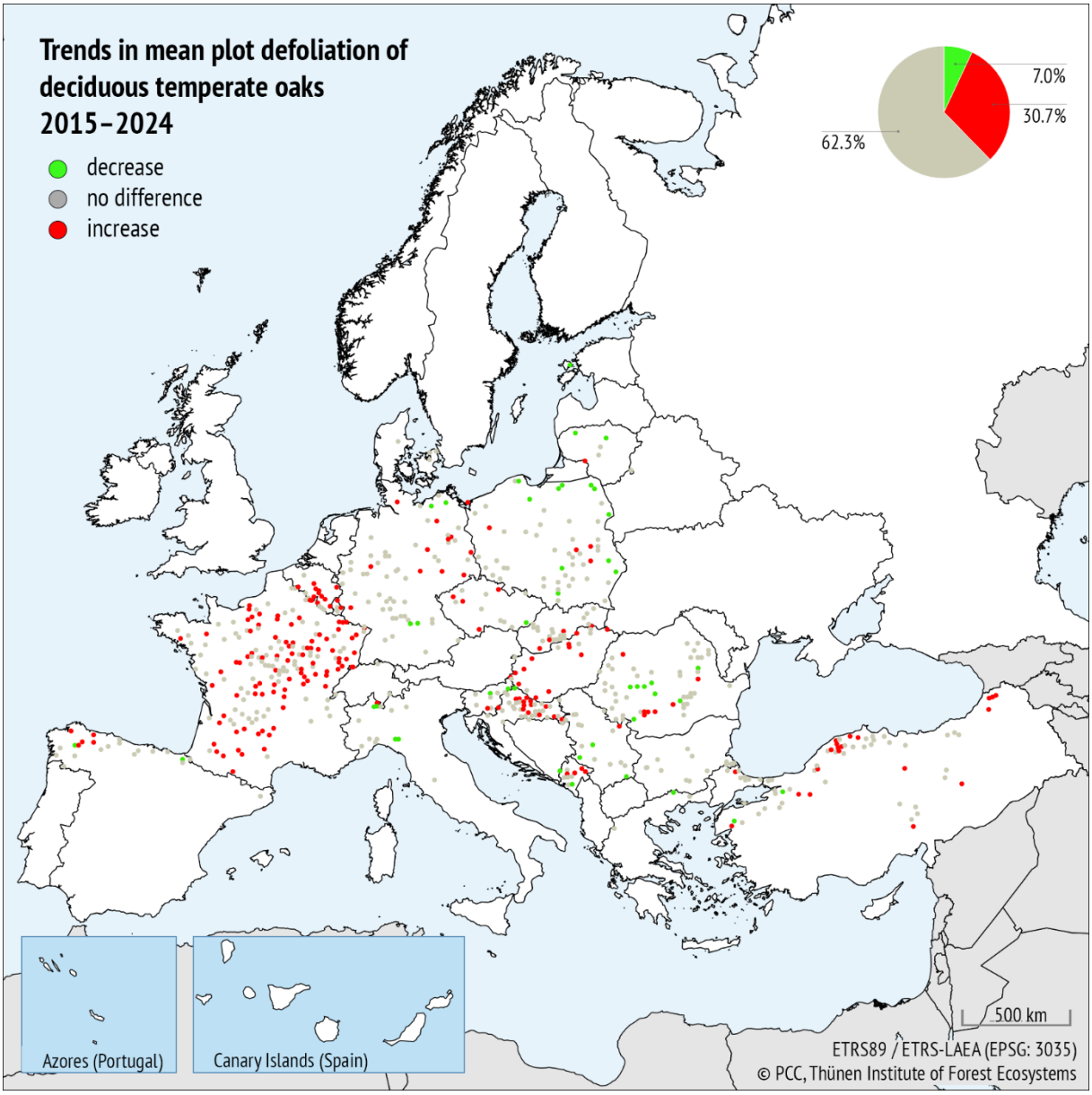


Figure S1-14: Trends in mean plot defoliation of deciduous temperate oaks (*Quercus robur* and *Q. petraea*) between 2015 and 2024. Plots were included if assessments were available for at least 80% of the period. The legend (top left) indicates whether mean plot defoliation overall decreased, stayed the same or increased within the given period. The pie chart (top right) indicates the respective percentage of plots per trend direction.

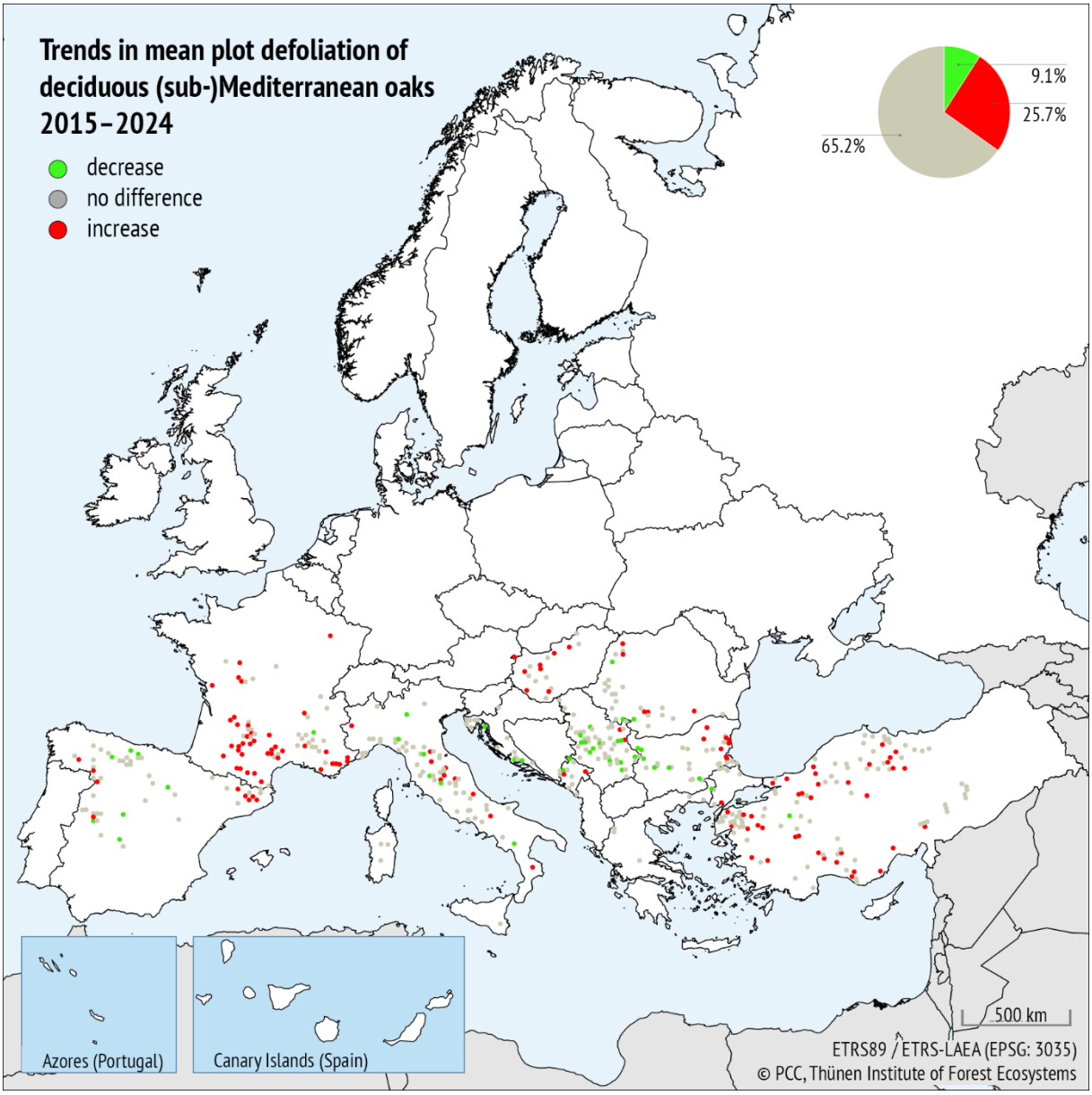


Figure S1-15: Trends in mean plot defoliation of deciduous (sub-) Mediterranean oaks (*Quercus cerris*, *Q. frainetto*, *Q. pubescens*, *Q. pyrenaica*) between 2015 and 2024. Plots were included if assessments were available for at least 80% of the period. The legend (top left) indicates whether mean plot defoliation overall decreased, stayed the same or increased within the given period. The pie chart (top right) indicates the respective percentage of plots per trend direction.

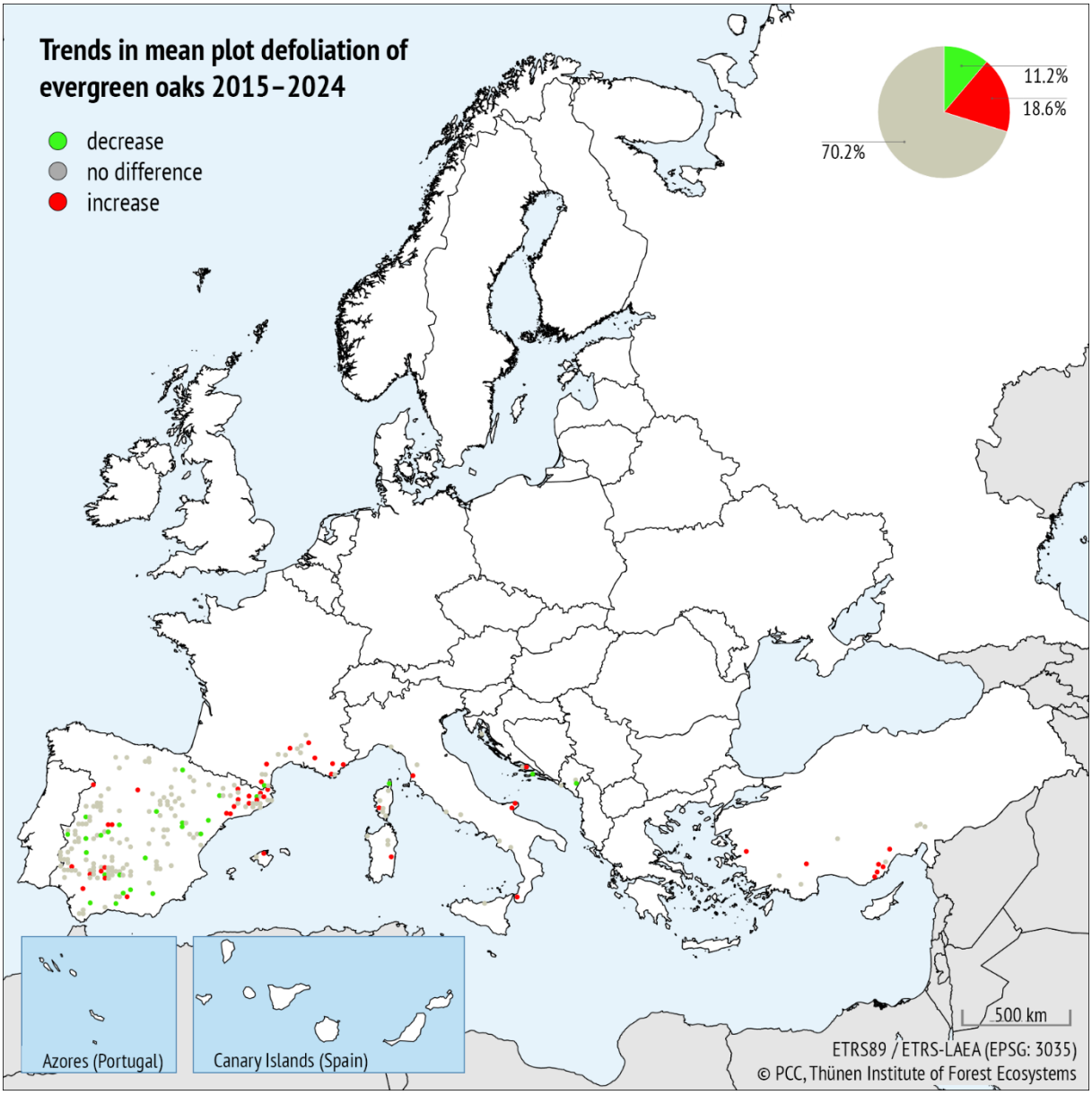


Figure S1-16: Trends in mean plot defoliation of evergreen oaks (*Quercus coccifera, Q ilex, Q. rotundifolia, Q. suber*) between 2015 and 2024. Plots were included if assessments were available for at least 80% of the period. The legend (top left) indicates whether mean plot defoliation overall decreased, stayed the same or increased within the given period. The pie chart (top right) indicates the respective percentage of plots per trend direction.

S1-3 Damage from various damaging agent groups reported in 2024

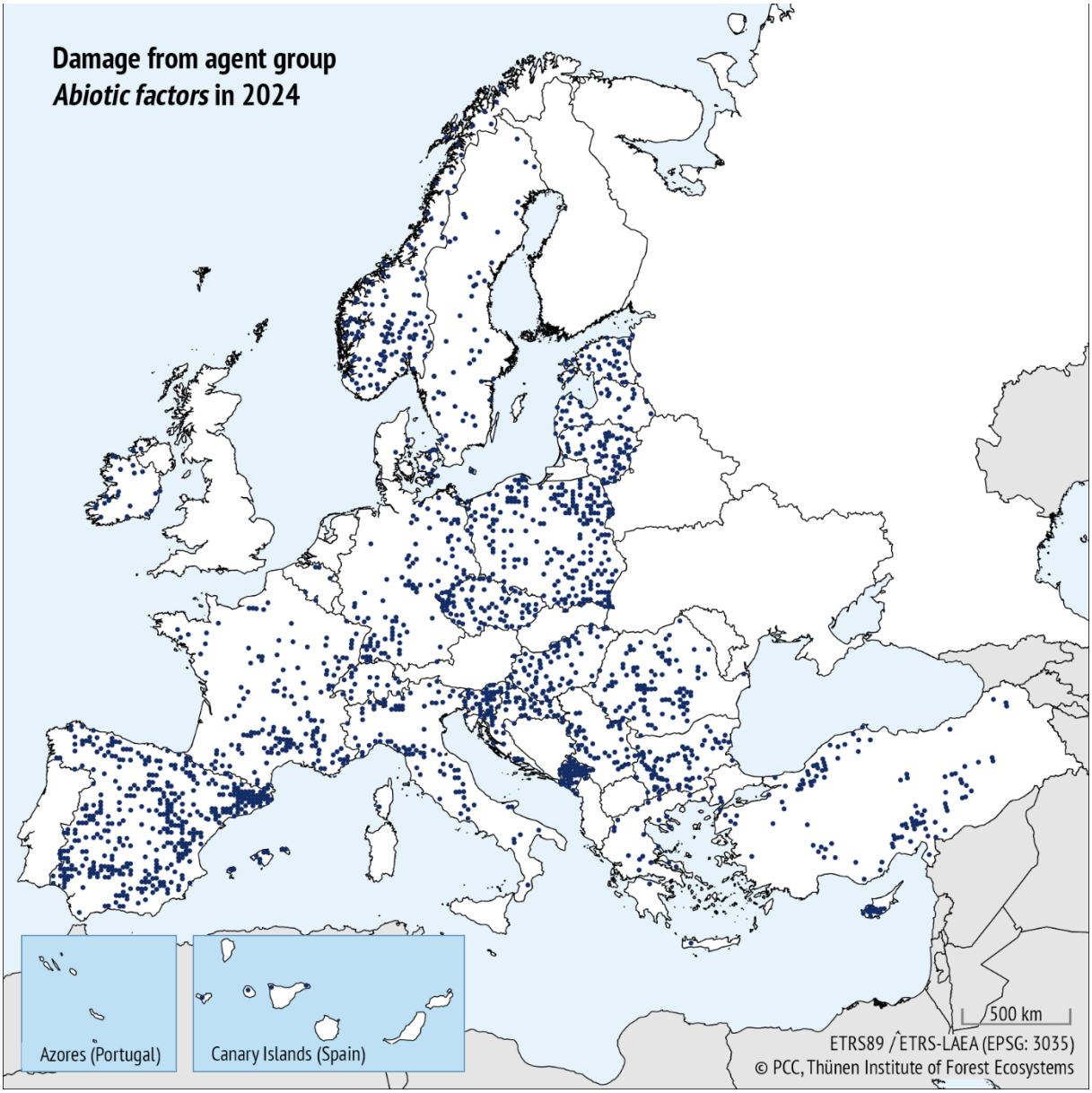


Figure S1-17: Damage from agent group Abiotic factors reported in 2024. Both fresh and old damage is shown.

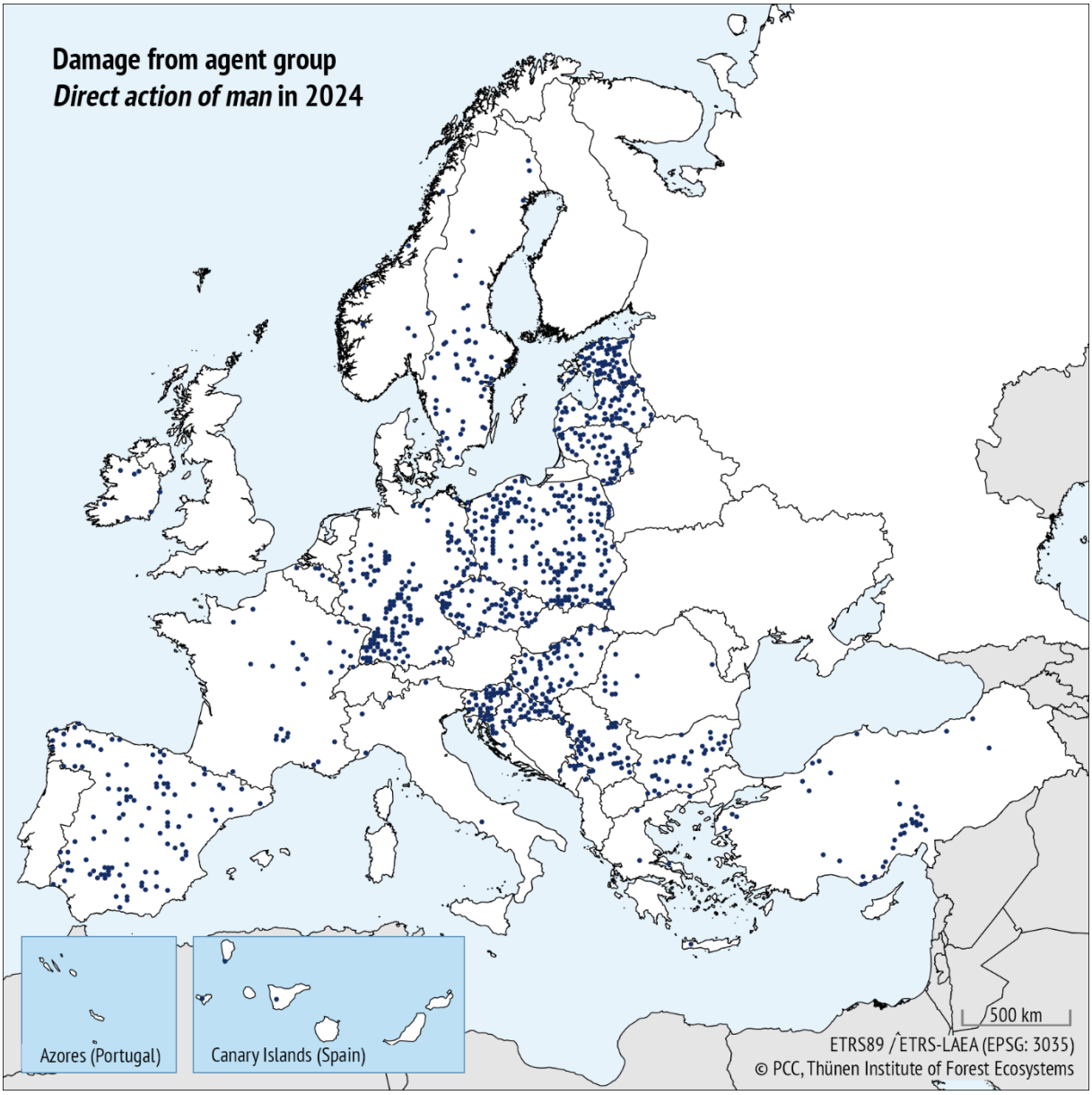


Figure S1-18: Damage from agent group Direct action of man reported in 2024. Both fresh and old damage is shown.

Figure S1-19: Damage from agent group Fire reported in 2024. Both fresh and old damage is shown.

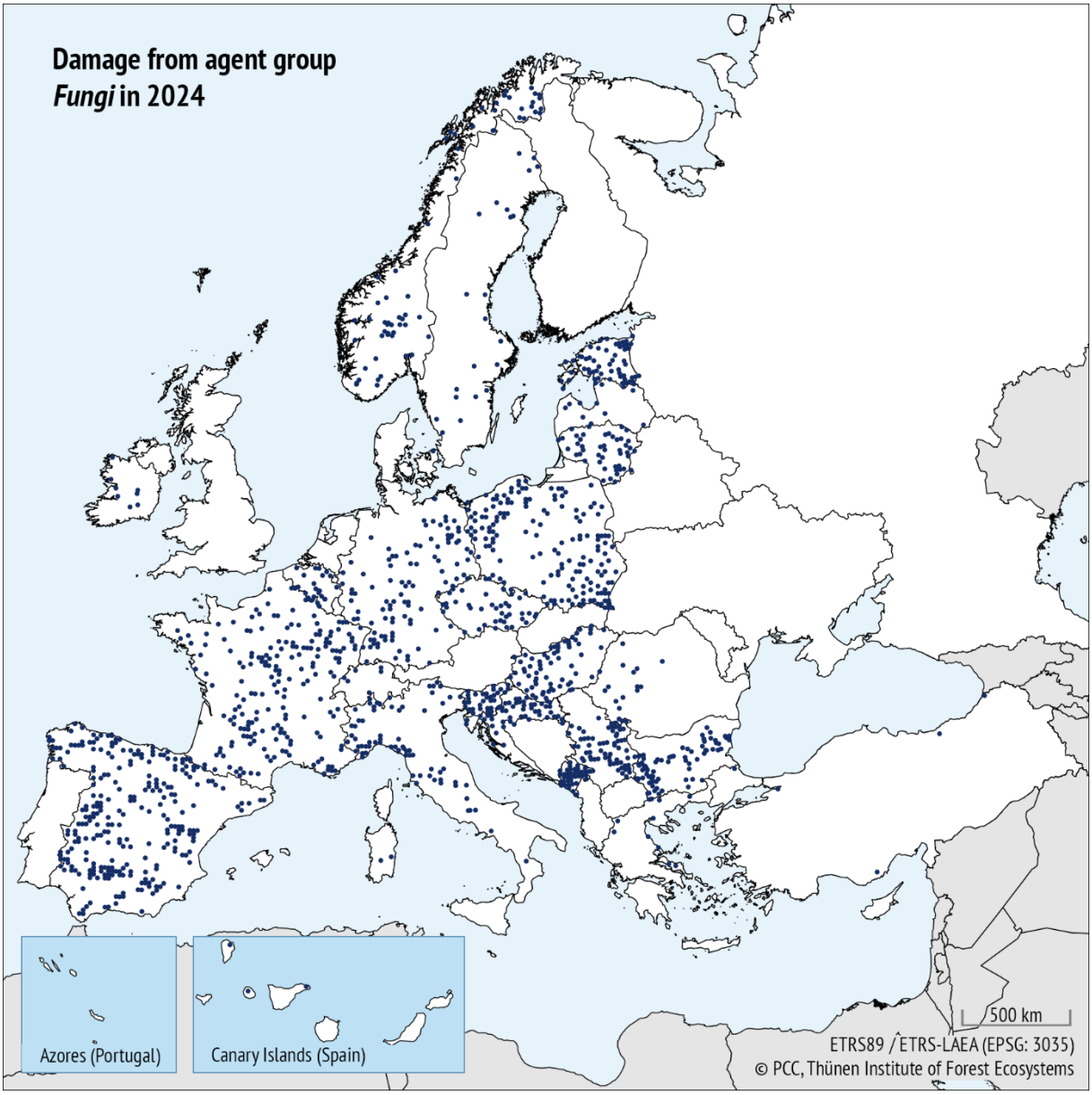


Figure S1-20: Damage from agent group Fungi reported in 2024. Both fresh and old damage is shown.

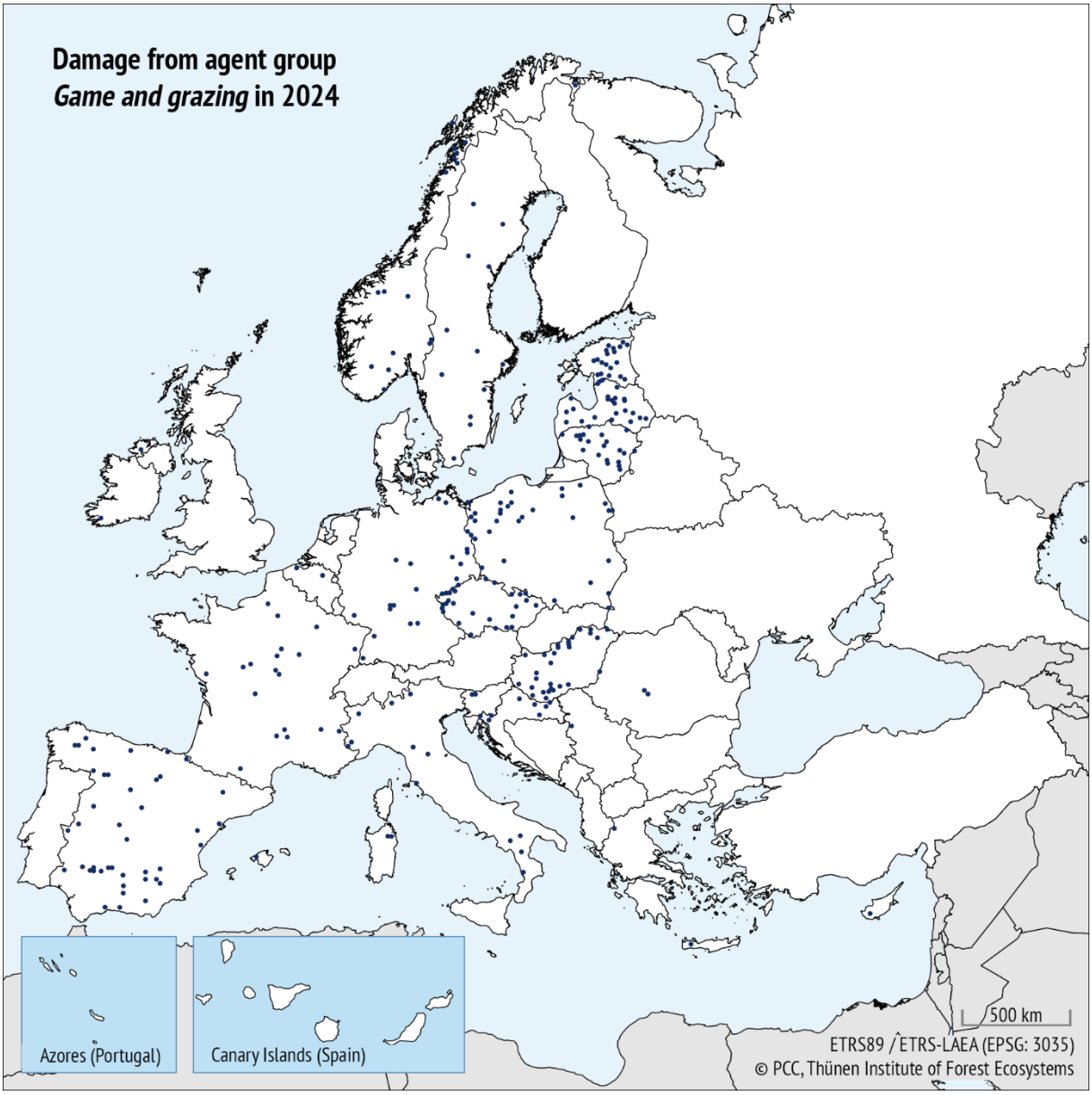


Figure S1-21: Damage from agent group Game and grazing reported in 2024. Both fresh and old damage is shown.

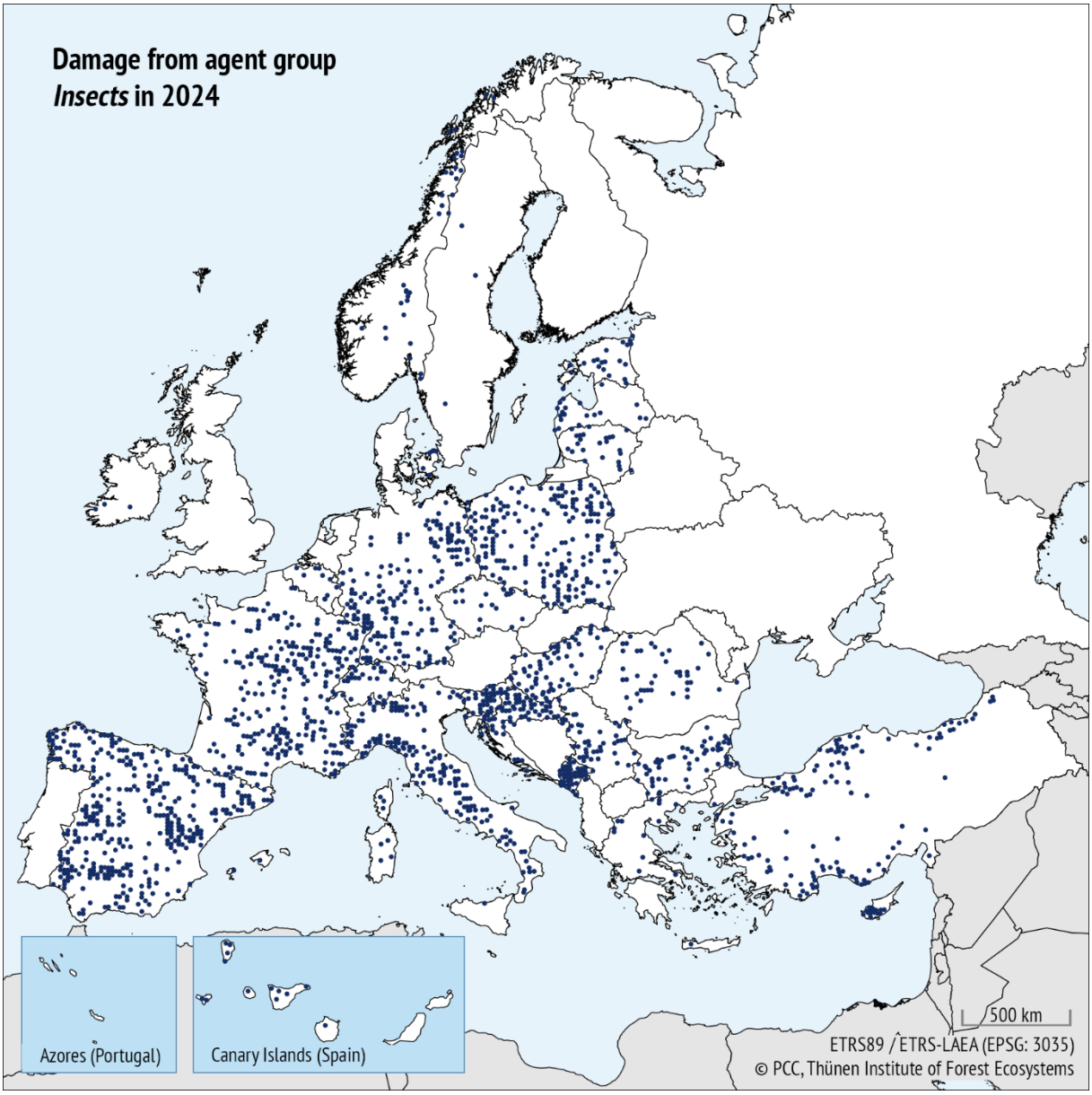


Figure S1-22: Damage from agent group Insects reported in 2024. Both fresh and old damage is shown.

S2 RESULTS OF THE NATIONAL CROWN CONDITION SURVEYS

S2-1 Information on the monitoring design for the national crown condition surveys in the participating countries in 2024

Country	Total area (1000 ha)	Forest area (1000 ha)	Grid size (km x km)	No. of sample plots	No. of sample trees
Andorra	47	18	4x4	12	289
Belgium-Flanders	1351	146	4x4	78	1 476
Belgium-Wallonia	1684	555	varying	45	414
Bulgaria	11100	3936	4x4/16x16	160	5 597
Croatia	5659	2795	16x16	96	2 266
Cyprus	925	334	16x16	15	361
Czechia	7887	2618	16x16	120	4 045
Denmark	4300	652	4x4/16x16	26	718
Estonia	4534	2334	16x16	93	2 148
France	55169	17500	16x16	535	10 790
Germany	35754	11538	16x16	409	9 816
Greece	13205	6513	16x16	34	801
Hungary	9300	1959	16x16	78	1 860
Ireland	6900	808	16x16	35	682
Italy	30128	10967	16x16	251	4 382
Latvia	6459	3223	16x16	115	1 731
Lithuania	6529	2210	4x4/16x16	1 016	6 171
Luxembourg	259	91	4x4	50	1 200
Moldova, Rep. of	3384	401	16x16	8	201
Montenegro	1381	827	4x4	49	1 175
Norway	32381	12210	3x3	1 877	10 671
Poland	31268	9295	8x8	2 058	41 160
Romania	23840	7046	16x16	227	5 453
Serbia	8836	2360	4x4/16x16	130	2 879
Slovakia	4904	2014	16x16	101	3 633
Slovenia	2027	1197	16x16	44	1 025
Spain	49880	18289	16x16	620	14 880
Sweden	41000	27898	varying	4 771	8 742
Switzerland	4129	1279	16x16	49	947
Türkiye	78356	23363	16x16	587	13 217
Total				**13 677**	**158 441**

S2-2 Tree defoliation (%) in different defoliation classes from national crown condition surveys in 2024

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	0.0	60.0	40.0	0.0	0.0	40.0
Conifers	284	22.9	53.2	21.7	1.8	0.4	23.9
All trees	289	22.5	53.3	22.0	1.8	0.4	24.2
Belgium-Flanders							
Broadleaves	848	11.3	59.7	27.6	0.9	0.5	29.0
Conifers	628	8.8	77.7	11.7	0.5	1.3	13.5
All trees	1476	10.2	67.4	20.8	0.7	0.8	22.4
Belgium-Wallonia							
Broadleaves	214	1.9	10.3	64.0	23.8	0.0	87.9
Conifers	200	0.5	11.0	69.5	19.0	0.0	88.5
All trees	414	1.2	10.6	66.7	21.5	0.0	88.2
Bulgaria							
Broadleaves	3169	21.0	33.2	39.4	5.3	1.1	45.8
Conifers	2428	31.4	19.5	37.6	9.8	1.6	49.1
All trees	5597	25.5	27.3	38.6	7.3	1.3	47.2
Croatia							
Broadleaves	1907	28.1	39.4	27.4	4.6	0.6	32.6
Conifers	359	23.7	34.8	33.4	8.1		41.5
All trees	2266	27.4	38.7	28.4	5.1	0.5	34.0
Cyprus							
Broadleaves	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Conifers	361	3.1	45.4	39.9	11.4	0.3	51.5
All trees	361	3.1	45.4	39.9	11.4	0.3	51.5
Czechia							
Broadleaves	1218	22.9	43.0	32.1	1.5	0.5	34.1
Conifers	2827	11.4	23.2	60.8	4.1	0.4	65.4
All trees	4045	14.9	29.2	52.2	3.3	0.4	56.0
Denmark							
Broadleaves	346	21.1	35.8	42.2	0.9	0.0	43.1
Conifers	372	43.0	41.7	14.2	0.8	0.3	15.3
All trees	718	32.5	38.9	27.7	0.9	0.2	28.7
Estonia							
Broadleaves	308	45.0	46.0	7.0	2.0	0.0	9.0
Conifers	1840	39.0	51.0	8.0	1.0	1.0	10.0
All trees	2148	39.9	50.3	7.9	1.1	0.9	9.9

Participating country	No. of sample trees	Defoliation classes 0 none (%)	1 slight (%)	2 moderate (%)	3 severe (%)	4 dead (%)	2-4 mod.-dead (%)
France							
Broadleaves	7004	5.2	19.0	57.3	17.7	0.8	75.8
Conifers	3786	21.3	29.8	41.9	5.8	1.1	48.8
All trees	10790	10.9	22.8	51.9	13.5	0.9	66.3
Germany							
Broadleaves	4363	20.9	38.0	36.0	3.6	1.5	41.1
Conifers	5453	21.3	47.7	27.2	1.6	2.2	31.0
All trees	9816	21.1	43.4	31.1	2.5	1.9	35.5
Greece							
Broadleaves	499	57.9	19.4	20.8	1.0	0.8	22.6
Conifers	302	25.2	30.5	35.8	7.3	1.3	44.4
All trees	801	45.6	23.6	26.5	3.4	1.0	30.8
Hungary							
Broadleaves	1701	17.4	35.5	30.2	13.6	3.4	47.1
Conifers	159	14.3	35.3	27.1	9.5	13.9	50.4
All trees	1860	17.2	35.5	29.9	13.2	4.3	47.4
Ireland							
Broadleaves	177	13.0	36.7	23.2	9.0	18.1	50.3
Conifers	505	60.4	22.2	13.5	2.8	1.2	17.4
All trees	682	48.1	26.0	16.0	4.4	5.6	26.0
Italy							
Broadleaves	3251	14.1	41.9	38.1	4.9	1.0	44.0
Conifers	1131	24.9	38.9	32.1	2.8	1.3	36.2
All trees	4382	16.9	41.1	36.6	4.4	1.1	42.0
Latvia							
Broadleaves	491	10.6	85.3	3.9	0.0	0.2	4.1
Conifers	1240	13.1	82.2	4.0	0.5	0.3	4.8
All trees	1731	12.4	83.1	3.9	0.3	0.3	4.6
Lithuania							
Broadleaves	2484	22.4	61.2	14.1	1.1	1.2	16.4
Conifers	3687	14.0	63.1	21.5	0.5	0.9	22.9
All trees	6171	17.4	62.3	18.5	0.7	1.0	20.3
Luxembourg							
Broadleaves	856	6.9	25.2	55.5	11.7	0.7	67.9
Conifers	344	37.2	29.7	27.8	2.5	2.8	33.1
All trees	1200	15.6	26.5	47.6	9.1	1.3	57.9
Moldova, Rep. of							
Broadleaves	201	10.9	57.2	24.9	1.5	5.5	31.9
Conifers	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All trees	201	10.9	57.2	24.9	1.5	5.5	31.9

Participating country	No. of sample trees	Defoliation classes 0 none (%)	1 slight (%)	2 moderate (%)	3 severe (%)	4 dead (%)	2-4 mod.-dead (%)
Montenegro							
Broadleaves	887	17.5	49.3	30.7	2.6	0.0	33.3
Conifers	288	26.4	42.7	20.5	10.4	0.0	30.9
All trees	1175	19.7	47.7	28.2	4.5	0.0	32.7
Norway							
Broadleaves	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Conifers	10671	49.7	35.3	12.3	2.4	0.3	15.0
All trees	10671	49.7	35.3	12.3	2.4	0.3	15.0
Poland							
Broadleaves	15797	16.5	69.0	13.0	1.0	0.5	14.5
Conifers	25363	9.1	77.3	12.3	0.8	0.5	13.6
All trees	41160	11.9	74.1	12.6	0.9	0.5	13.9
Romania							
Broadleaves	4570	48.8	39.2	9.4	2.1	0.5	12.0
Conifers	883	61.8	28.8	7.6	1.1	0.7	9.4
All trees	5453	50.9	37.5	9.1	2.0	0.5	11.6
Serbia							
Broadleaves	2520	77.9	12.6	6.3	2.9	0.3	9.5
Conifers	359	86.6	5.6	3.9	1.1	2.8	7.8
All trees	2879	79.0	11.7	6.0	2.7	0.6	9.3
Slovakia							
Broadleaves	2384	19.5	56.4	22.5	1.4	0.3	24.1
Conifers	1249	6.0	43.0	45.4	4.1	1.5	51.0
All trees	3633	14.9	51.8	30.4	2.3	0.7	33.4
Slovenia							
Broadleaves	686	9.2	52.0	29.6	7.4	1.8	38.8
Conifers	339	14.8	37.2	38.1	9.4	0.6	48.1
All trees	1025	11.0	47.1	32.4	8.1	1.4	41.9
Spain							
Broadleaves	7534	16.6	59.6	18.4	2.7	2.8	23.8
Conifers	7346	14.7	61.0	17.8	2.3	4.2	24.3
All trees	14880	15.7	60.3	18.1	2.5	3.5	24.0
Sweden							
Broadleaves	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Conifers	8742	51.0	33.0	14.0	2.0	0.0	16.0
All trees	8742	51.0	33.0	14.0	2.0	0.0	16.0
Switzerland							
Broadleaves	260	32.8	37.1	7.8	6.3	16.0	30.1
Conifers	687	25.3	45.1	19.6	0.6	9.4	29.6
All trees	947	27.4	42.9	16.4	2.2	11.2	29.7

Participating country	No. of sample trees	Defoliation classes 0 none (%)	1 slight (%)	2 moderate (%)	3 severe (%)	4 dead (%)	2-4 mod.-dead (%)
Türkiye							
Broadleaves	5261	25.8	50.0	21.8	2.1	0.4	24.3
Conifers	7956	20.3	54.1	24.4	0.8	0.4	25.6
All trees	13217	22.5	52.4	23.3	1.4	0.4	25.1

S2-3 Percentage of moderately to severely defoliated trees (defoliation classes 2–4) between 2015 and 2024 – All species

Participating countries	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Change % points 2023/24
Andorra	4.5	3.4	7.0	5.6		21.6	20.8	42.5	48.0	24.2	**-23.8**
Belgium	26.4	26.1	26.6	27.7	31.7	33.9	30.7	34.8	33.8	35.3	**+1.5**
Bulgaria	26.2	29.9	27.7	31.9	31.2	34.3	33.5	35.1	32.5	47.2	**+14.7**
Croatia	29.7	28.5	25.6	30.8	30.3	29.4	32.7	34.0	33.3	34.0	**+0.7**
Cyprus	12.5	35.0	23.6	33.5	29.6	26.0	29.9	31.9	53.1	51.5	**-1.6**
Czechia	52.0	54.3	53.6	56.4	57.4	56.7	57.2	58.0	57.3	56.0	**-1.3**
Denmark	8.7	14.8	12.9	21.4	32.3	24.0	13.9	16.7	34.7	28.7	**-6.0**
Estonia	6.7	6.4	5.2	8.5	5.7	6.0	8.1	9.1	10.0	9.9	**-0.1**
France	43.4	48.6	48.8	52.2	55.1	57.4	59.5	60.7	75.6	66.3	**-9.3**
Germany	23.8	28.0	22.7	28.7	36.4	37.5	34.8	34.9	35.5	35.5	**0.0**
Greece	20.2		20.2	18.4	20.7	20.0	16.7	19.5	22.9	30.8	**+7.9**
Hungary	24.0	34.6	41.0	47.3	35.1	36.7	47.5	66.4	46.4	47.4	**+1.0**
Ireland						20.8	23.2	24.1	25.3	26.0	**+0.7**
Italy	29.8	34.7	39.0	39.0	36.0	36.2	42.0	44.6	45.2	42.0	**-3.2**
Latvia	4.4	5.7	5.3	5.1	5.5	3.5	4.0	4.7	4.9	4.6	**-0.3**
Lithuania	23.8	21.0	21.1	18.5	19.2	18.9	19.9	23.3	21.4	20.3	**-1.1**
Luxembourg	32.6	38.2	30.3	31.3	50.1	54.0	54.6	61.7	67.3	57.9	**-9.4**
Moldova, Rep. of	26.1	26.5	28.7		28.0	38.9	29.1	30.0	17.9	31.9	**+ 14.0**
Montenegro	25.4	27.3	26.6	33.6		37.6	32.4	32.7	29.7	32.7	**+3.0**
Norway	16.5	15.5	19.0	15.5	16.5	17.2	14.9	16.7	17.9	15.0	**-2.9**
Poland	16.7	19.5	20.2	18.6	21.2	19.4	17.1	15.5	16.5	13.9	**-2.6**
Romania	13.1	13.4	14.5	14.8	11.6	12.9	12.1	13.1	11.8	11.6	**-0.2**
Serbia	10.7	11.3	11.8	11.9	8.9	7.1	6.1	5.9	6.7	9.3	**+2.6**
Slovakia	34.5	40.3	32.6	42.7	38.8	40.4	37.7	46.8	37.1	33.4	**-3.7**
Slovenia	37.8	33.9	37.0	36.0	37.7	38.1	42.2	45.5	40.8	41.9	**+1.1**
Spain		21.9	27.8	22.7	26.9	21.9	21.2	21.9	21.9	24.0	**+2.1**
Sweden	19.8	16.4	18.2	17.6	17.1	17.8	21.1	18.7	15.0	16.0	**+1.0**
Switzerland	24.8	25.2	33.7	23.5	33.5	26.4	26.9	27.0	28.5	29.7	**+1.2**
Türkiye	9.5	9.8	8.8	10.5	12.1	11.9	13.9	19.5	20.9	25.1	**+4.2**
Ukraine	7.1										**N/A**

Please 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 2015 and 2024 – Conifers

Participating countries	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Change % points 2023/24
Andorra	4.5	3.4	7.0	5.6		21.6	20.8	42.5	48.0	23.9	**-24.1**
Belgium	26.4	26.1	26.6	27.7	31.7	33.9	30.7	34.8	33.8	28.8	**-5.0**
Bulgaria	26.2	29.9	27.7	31.9	31.2	34.3	33.5	35.1	32.5	49.1	**+16.6**
Croatia	29.7	28.5	25.6	30.8	30.3	29.4	32.7	34.0	33.3	41.5	**+8.2**
Cyprus	12.5	35.0	23.6	33.5	29.6	26.0	29.9	31.9	53.1	51.5	**-1.6**
Czechia	52.0	54.3	53.6	56.4	57.4	56.7	57.2	58.0	57.3	65.4	**+8.1**
Denmark	8.7	14.8	12.9	21.4	32.3	24.0	13.9	16.7	34.7	15.3	**-19.4**
Estonia	6.7	6.4	5.2	8.5	5.7	6.0	8.1	9.1	10.0	10.0	**0.0**
France	43.4	48.6	48.8	52.2	55.1	57.4	59.5	60.7	75.6	48.8	**-26.8**
Germany	23.8	28.0	22.7	28.7	36.4	37.5	34.8	34.9	35.5	31.0	**-4.5**
Greece	20.2		20.2	18.4	20.7	20.0	16.7	19.5	22.9	44.4	**+21.5**
Hungary	24.0	34.6	41.0	47.3	35.1	36.7	47.5	66.4	46.4	50.4	**+4.0**
Ireland						20.8	23.2	24.1	25.3	17.4	**-7.9**
Italy	29.8	34.7	39.0	39.0	36.0	36.2	42.0	44.6	45.2	36.2	**-9.0**
Latvia	4.4	5.7	5.3	5.1	5.5	3.5	4.0	4.7	4.9	4.8	**-0.1**
Lithuania	23.8	21.0	21.1	18.5	19.2	18.9	19.9	23.3	21.4	22.9	**+1.5**
Luxembourg	32.6	38.2	30.3	31.3	50.1	54.0	54.6	61.7	67.3	33.1	**-34.2**
Moldova, Rep. of	26.1	26.5	28.7		28.0	38.9	29.1	30.0	N/A	N/A	**N/A**
Montenegro	25.4	27.3	26.6	33.6		37.6	32.4	32.7	29.7	30.9	**+1.2**
Norway	16.5	15.5	19.0	15.5	16.5	17.2	14.9	16.7	17.9	15.0	**-2.9**
Poland	16.7	19.5	20.2	18.6	21.2	19.4	17.1	15.5	16.5	13.6	**-2.9**
Romania	13.1	13.4	14.5	14.8	11.6	12.9	12.1	13.1	11.8	9.4	**-2.4**
Serbia	10.7	11.3	11.8	11.9	8.9	7.1	6.1	5.9	6.7	7.8	**+1.1**
Slovakia	34.5	40.3	32.6	42.7	38.8	40.4	37.7	46.8	37.1	51.0	**+13.9**
Slovenia	37.8	33.9	37.0	36.0	37.7	38.1	42.2	45.5	40.8	48.1	**+7.3**
Spain		21.9	27.8	22.7	26.9	21.9	21.2	21.9	21.9	24.3	**+2.4**
Sweden	19.8	16.4	18.2	17.6	17.1	17.8	21.1	18.7	15.0	16.0	**+1.0**
Switzerland	24.8	25.2	33.7	23.5	33.5	26.4	26.9	27.0	28.5	29.6	**+1.1**
Türkiye	9.5	9.8	8.8	10.5	12.1	11.9	13.9	19.5	20.9	25.6	**+4.7**
Ukraine	7.1										**N/A**

Please 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 Percentage of moderately to severely defoliated trees (defoliation classes 2–4) between 2015 and 2024 – Broadleaves

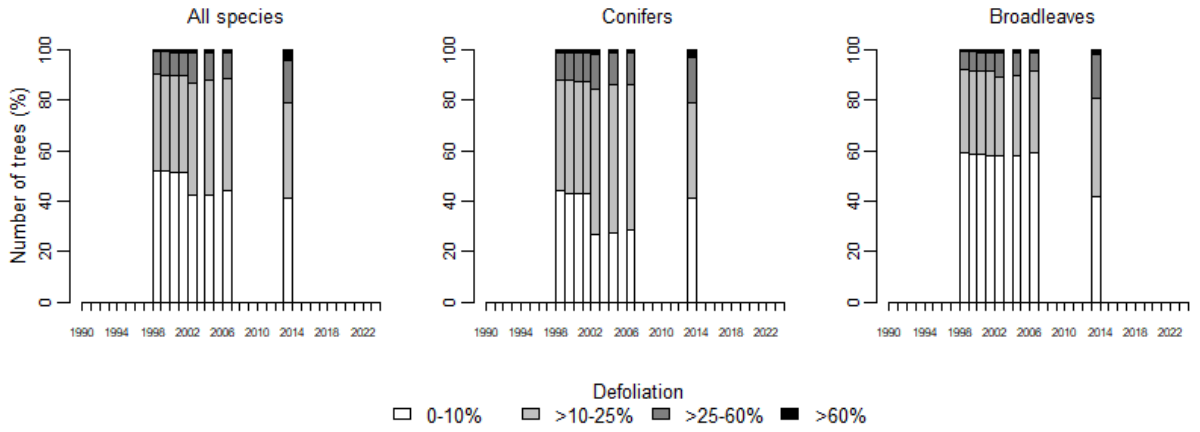
Participating country	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Change % points 2023/24
Andorra	16.7	0.0	0.0	0.0		16.7	20.0	40.0	60.0	40.0	**-20.0**
Belgium	25.1	27.4	26.2	27.7	30.2	33.7	32.0	35.4	36.8	40.1	**+3.3**
Bulgaria	15.6	22.3	20.5	21.8	20.3	23.7	23.2	25.5	21.5	45.8	**+24.3**
Croatia	25.3	24.7	24.0	27.8	26.4	26.0	30.4	31.9	30.4	32.6	**+2.2**
Cyprus		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**N/A**
Czechia	32.7	34.7	31.6	35.6	37.5	36.3	35.6	34.8	37.3	34.1	**-3.2**
Denmark	10.8	19.7	14.4	30.0	46.0	26.1	15.2	23.0	47.2	43.1	**-4.1**
Estonia	8.0	5.2	3.3	4.1	5.1	6.0	9.0	3.0	10.0	9.0	**-1.0**
France	47.0	53.5	54.2	58.8	62.2	65.4	68.2	67.6	83.0	75.8	**-7.2**
Germany	29.0	35.7	27.5	37.1	43.6	43.2	37.0	38.0	40.6	41.1	**+0.5**
Greece	11.3		14.6	14.4	15.5	12.9	13.0	14.2	17.0	22.6	**+5.6**
Hungary	21.4	32.5	40.6	46.8	34.3	35.5	47.5	68.3	46.7	47.1	**+0.4**
Ireland						53.4	52.0	50.3	51.0	50.3	**-0.7**
Italy	32.1	39.5	45.0	43.4	38.1	39.6	41.6	44.6	45.2	44.0	**-1.2**
Latvia	4.2	8.3	5.2	8.8	8.1	3.8	1.1	2.4	2.4	4.1	**+1.7**
Lithuania	21.9	20.0	17.8	14.2	15.2	15.4	15.9	19.2	14.7	16.4	**+1.7**
Luxembourg	40.3	49.0	37.2	39.7	57.4	62.8	62.6	70.7	79.8	67.9	**-11.9**
Moldova, Rep. of	26.1	26.5	28.7	N/A	28.0	39.0	29.1	30.0	17.9	31.9	**+14.0**
Montenegro	25.2	27.1	27.6	34.8		37.4	32.1	33.1	30.6	33.3	**+2.7**
Norway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**N/A**
Poland	18.4	24.0	23.3	21.1	23.9	22.6	17.9	17.6	17.2	14.5	**-2.7**
Romania	13.9	14.2	15.3	15.8	11.2	12.1	11.2	12.4	11.8	12.0	**+0.2**
Serbia	10.1	11.0	11.8	12.1	8.7	6.9	5.8	6.0	6.5	9.5	**+3.0**
Slovakia	24.3	36.5	26.7	38.4	34.8	33.8	28.1	40.2	29.8	24.1	**-5.7**
Slovenia	35.9	31.1	35.1	33.7	35.1	36.6	41.3	44.0	37.7	38.8	**+1.1**
Spain		22.7	29.3	22.4	27.0	23.0	24.0	23.0	23.0	23.8	**+0.8**
Sweden			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**N/A**
Switzerland	26.4	25.9	34.7	26.6	33.2	34.5	24.7	31.3	31.5	30.1	**-1.4**
Türkiye	10.8	11.0	9.8	11.0	13.1	12.2	13.5	20.6	19.2	24.3	**+5.1**
Ukraine	6.3										**N/A**

Please 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.

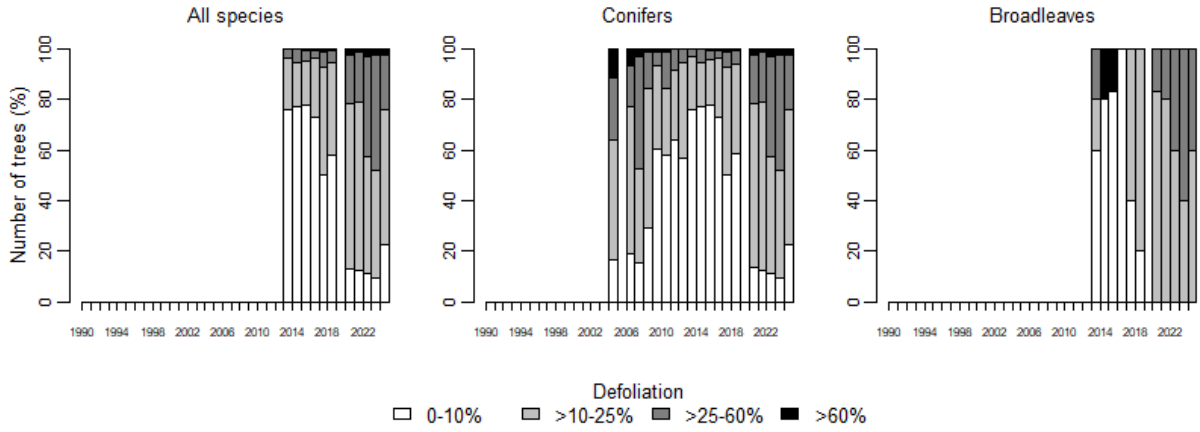
S2-6 Change of tree defoliation over time (1990–2024) per country

Please note that some countries have changed their monitoring design at different points in time which may explain sudden strong increases or decreases in the number of trees per defoliation category in the figures below. For detailed information, please contact the respective NFCs. Their contact information is given in the Annex of the ICP Forests 2025 Technical Report[1].

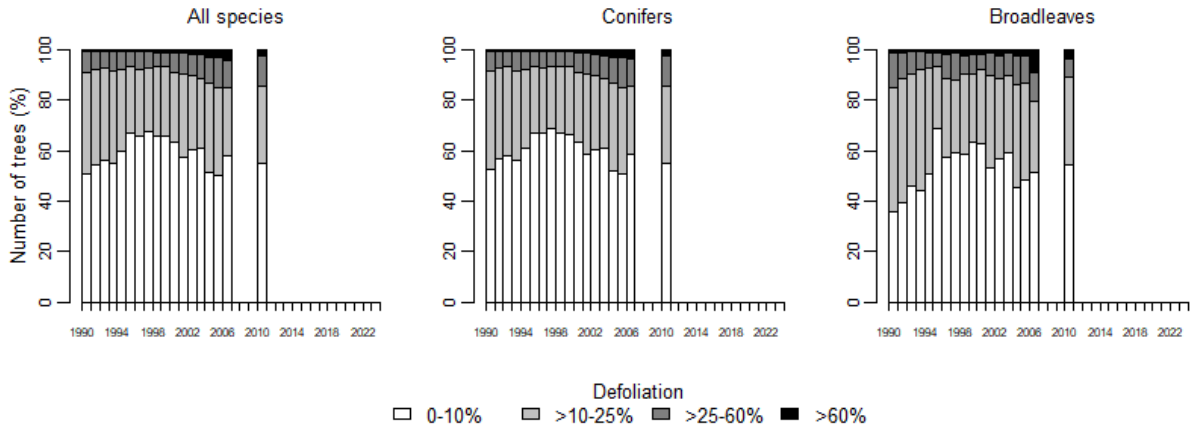
ALBANIA



ANDORRA

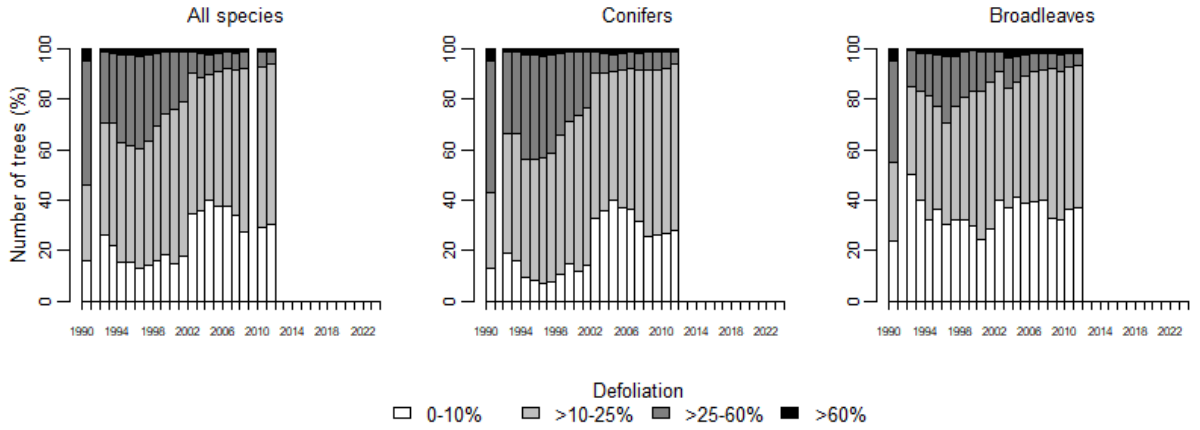


AUSTRIA

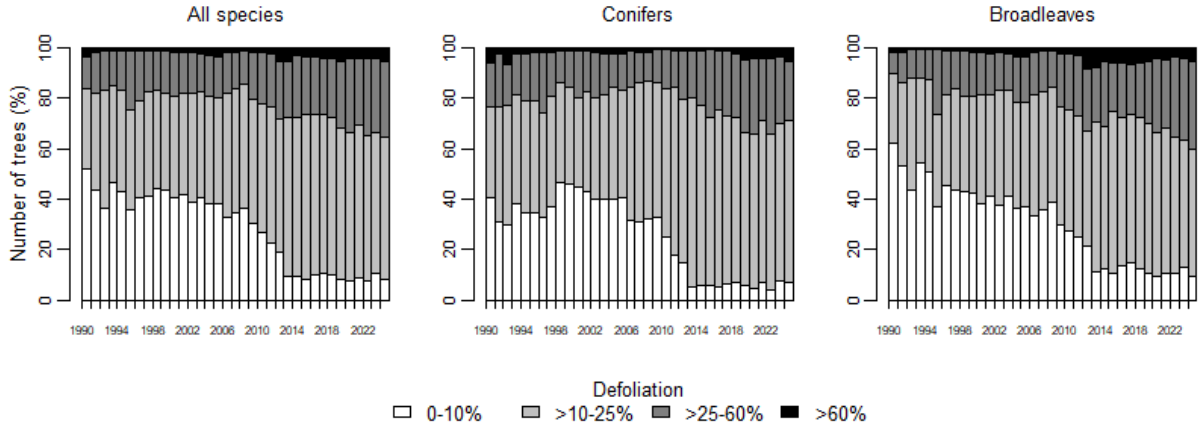


[1] http://icp-forests.net/page/icp-forests-technical-report

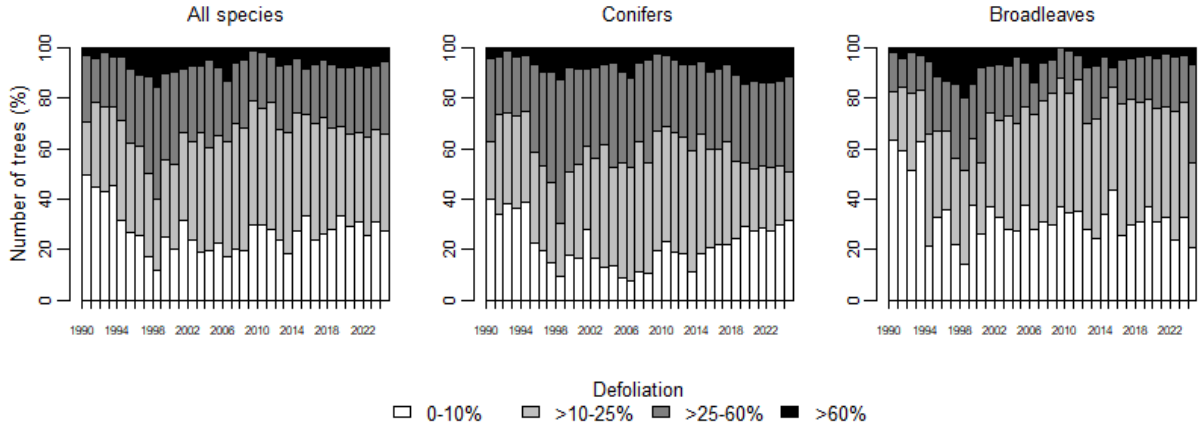
BELARUS



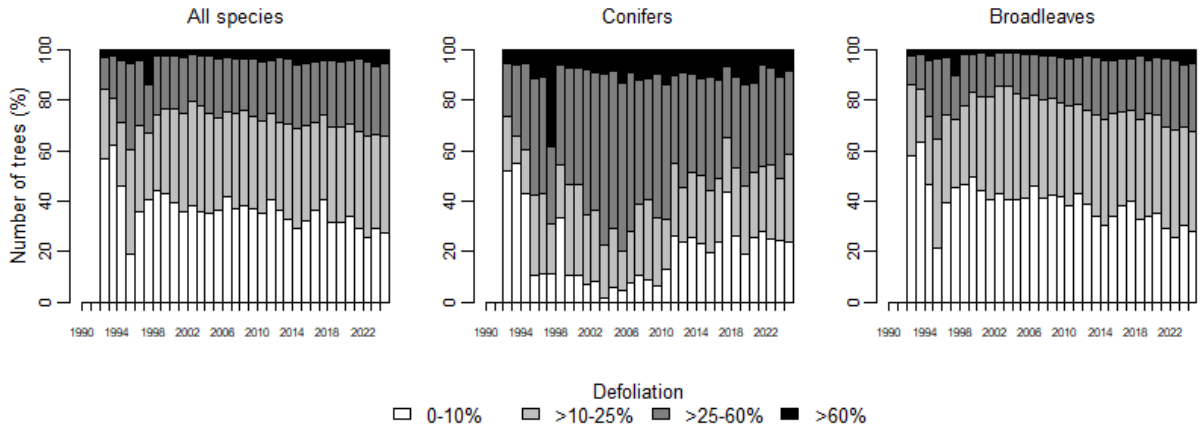
BELGIUM



BULGARIA



CROATIA



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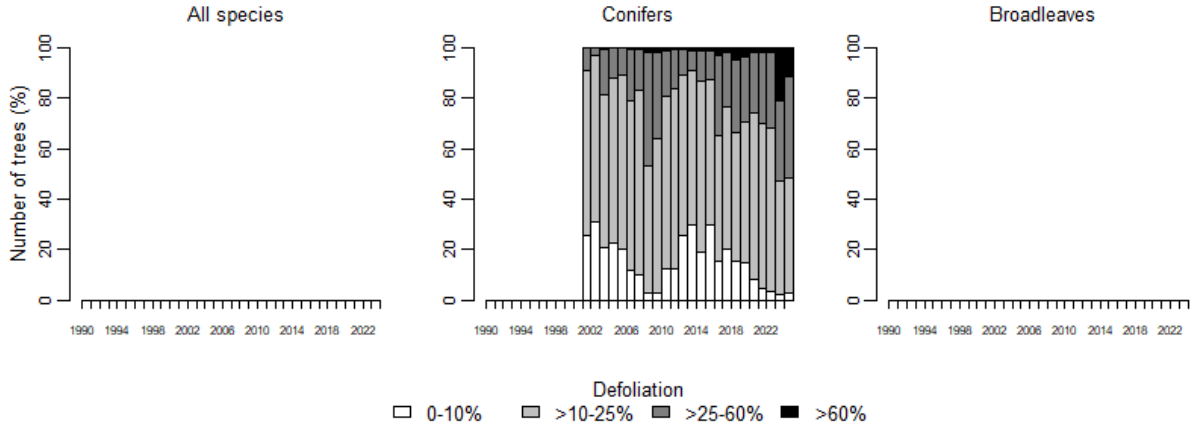
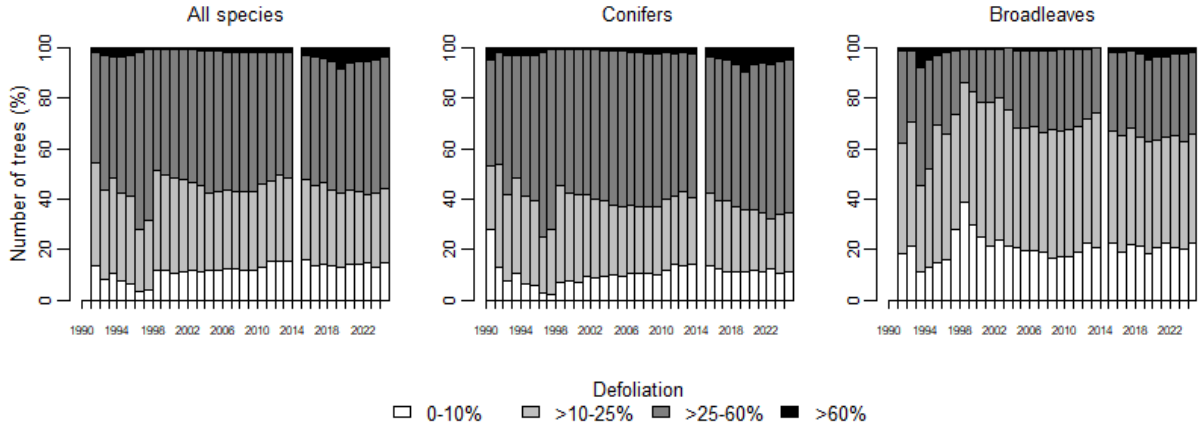


CZECHIA



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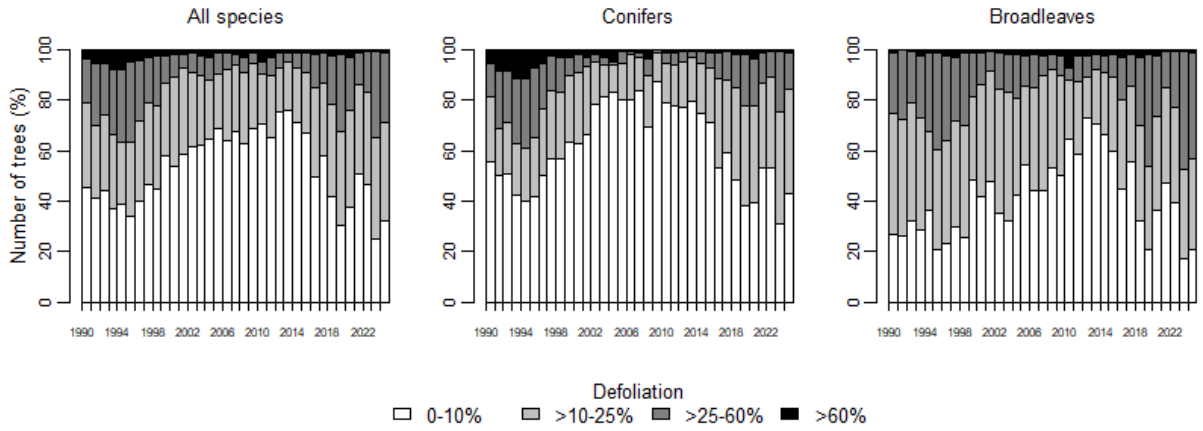

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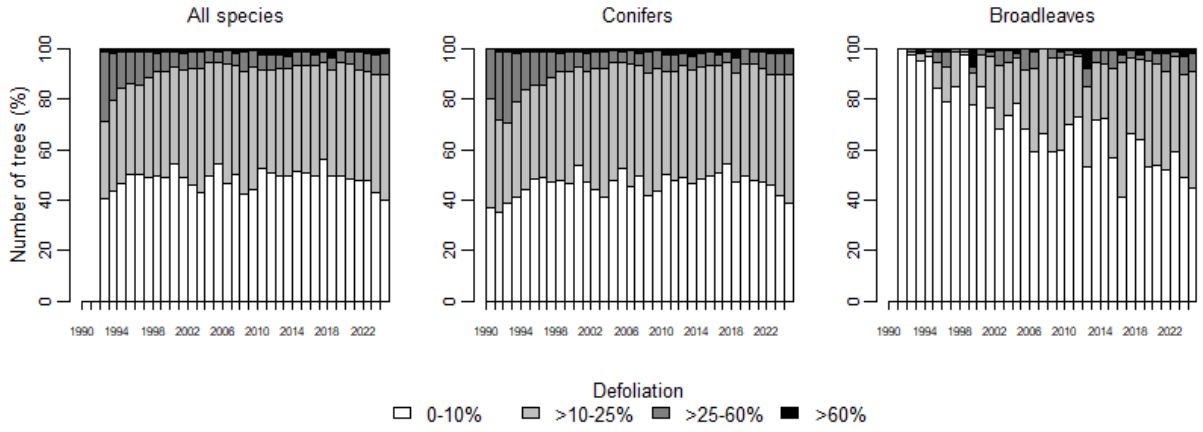

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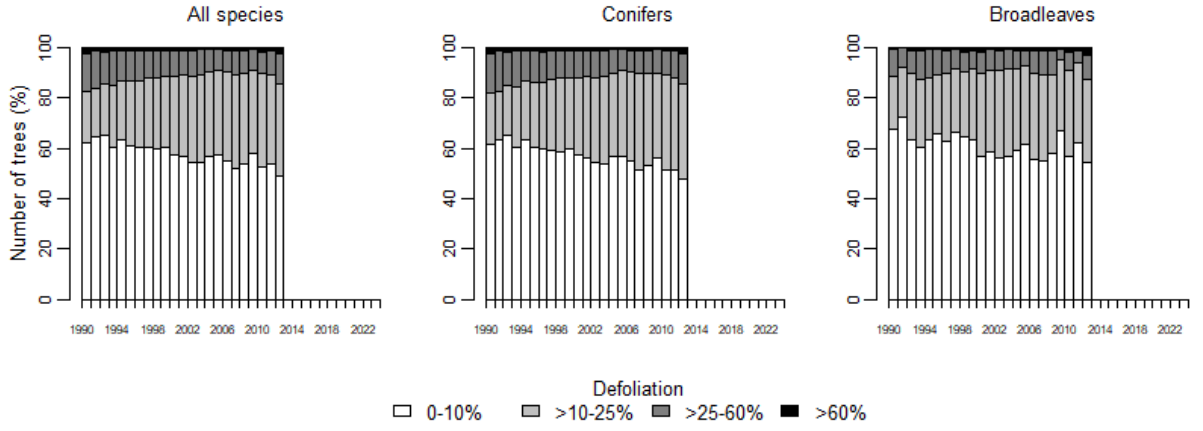

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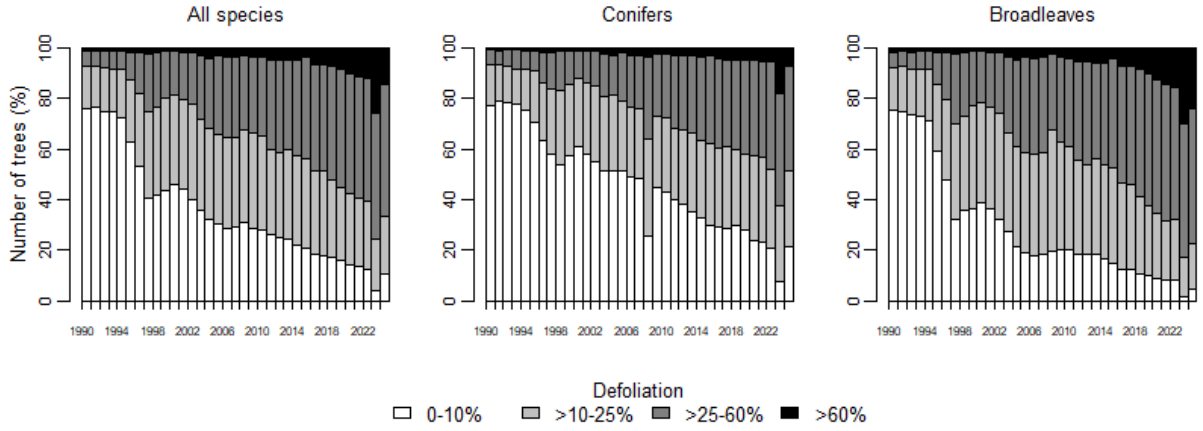
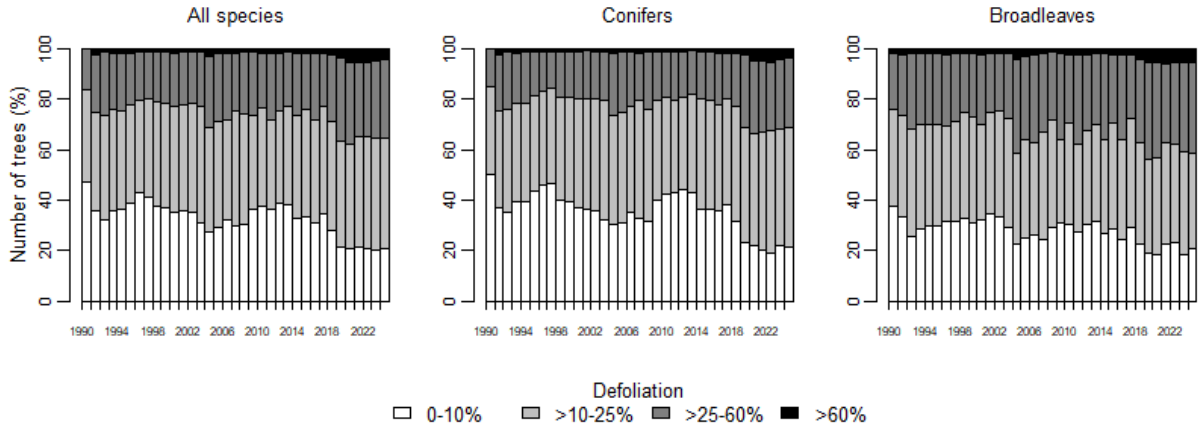
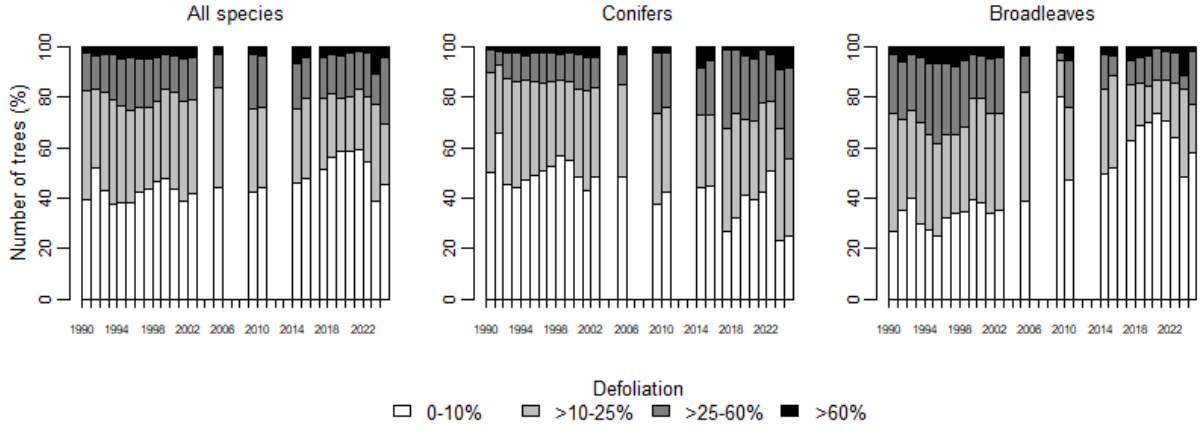


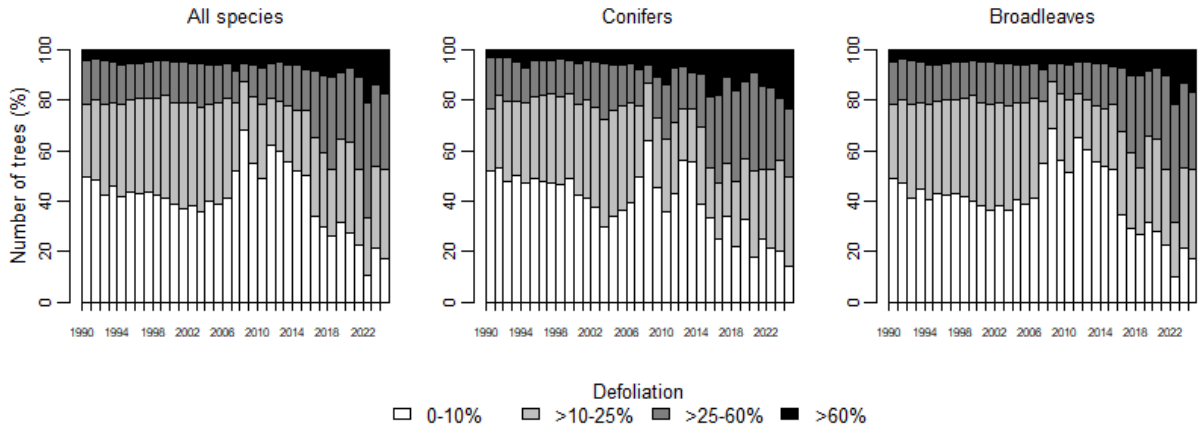
GERMANY



GREECE



HUNGARY



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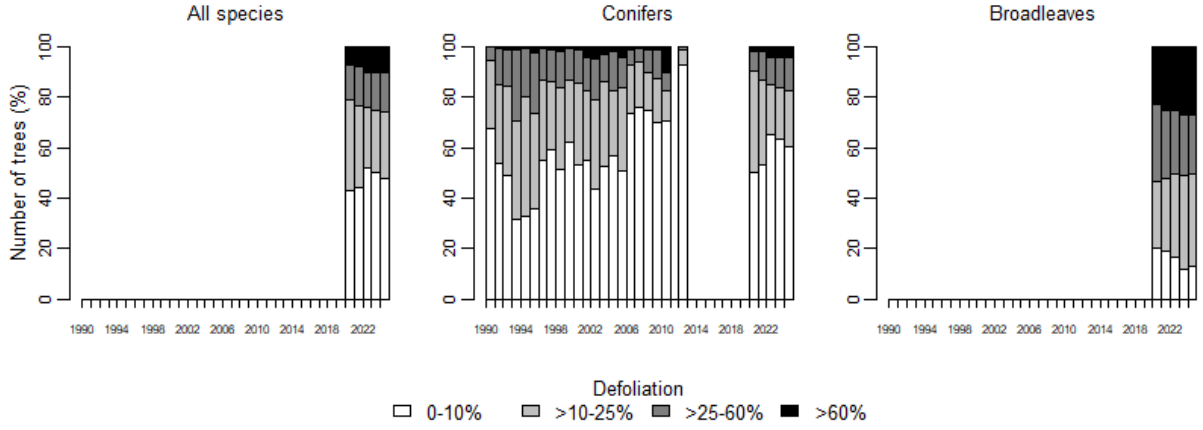

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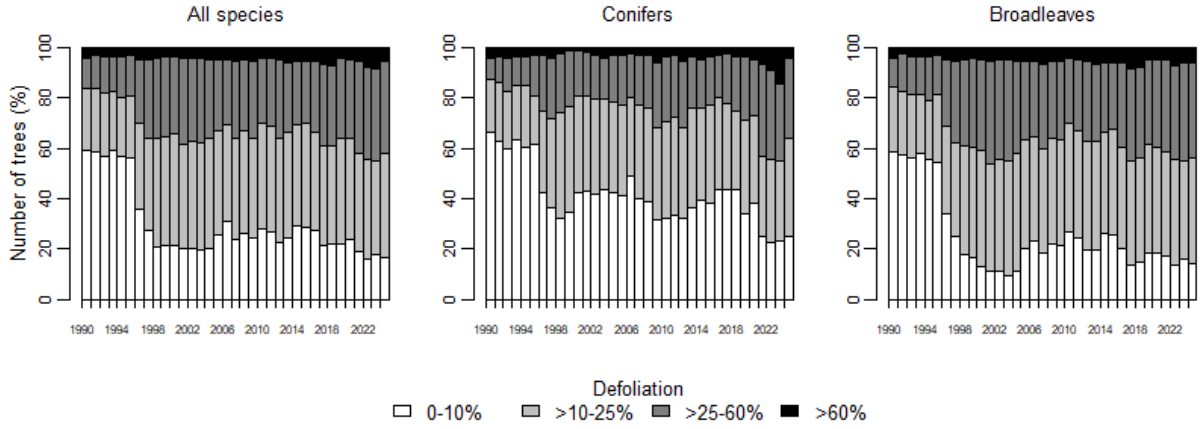

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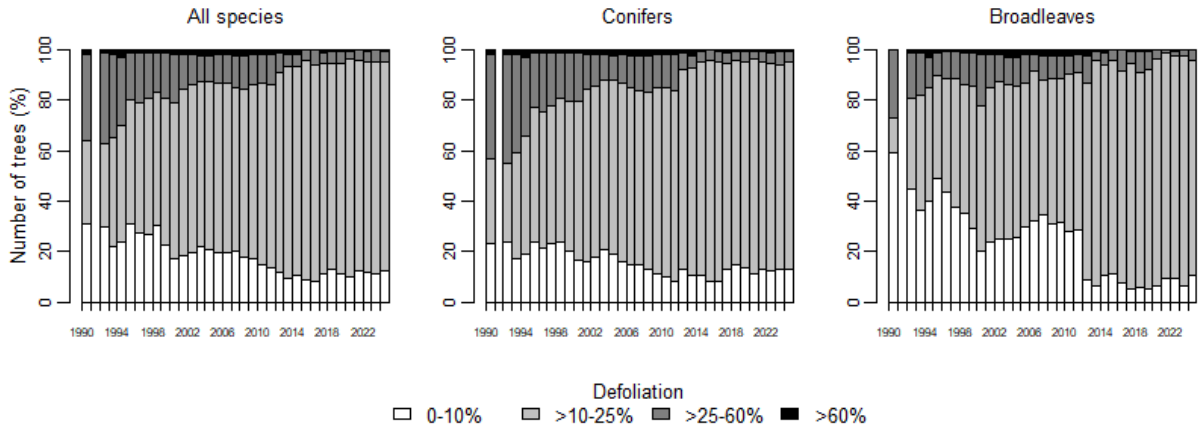

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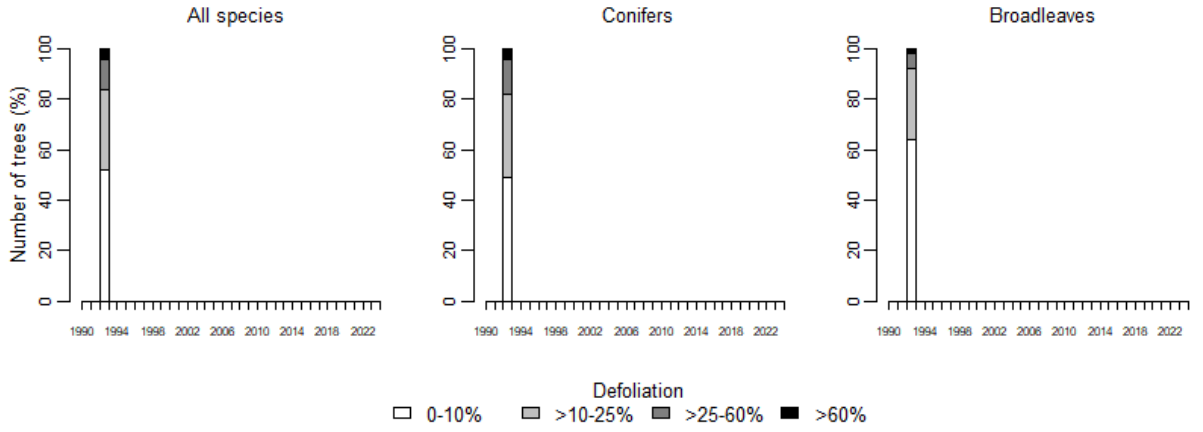

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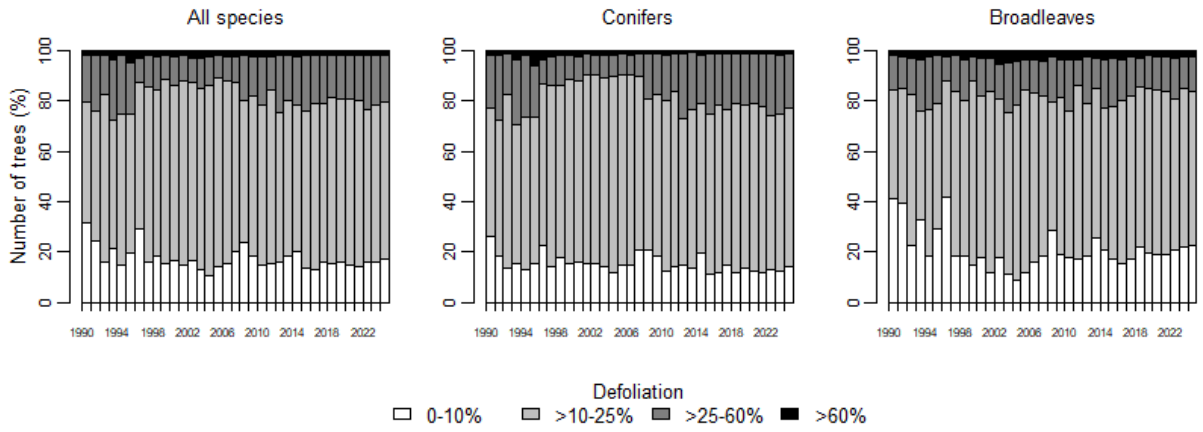

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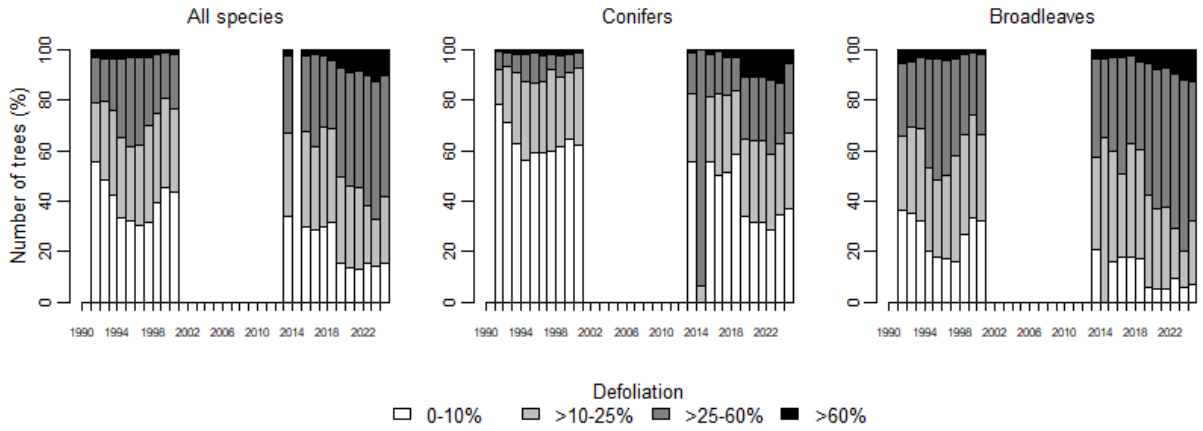
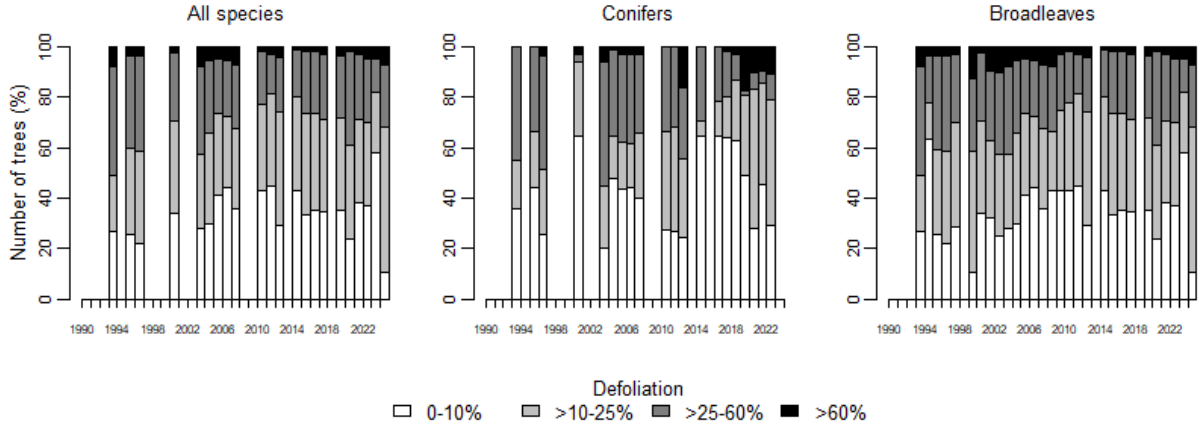


MOLDOVA, REPUBLIC OF



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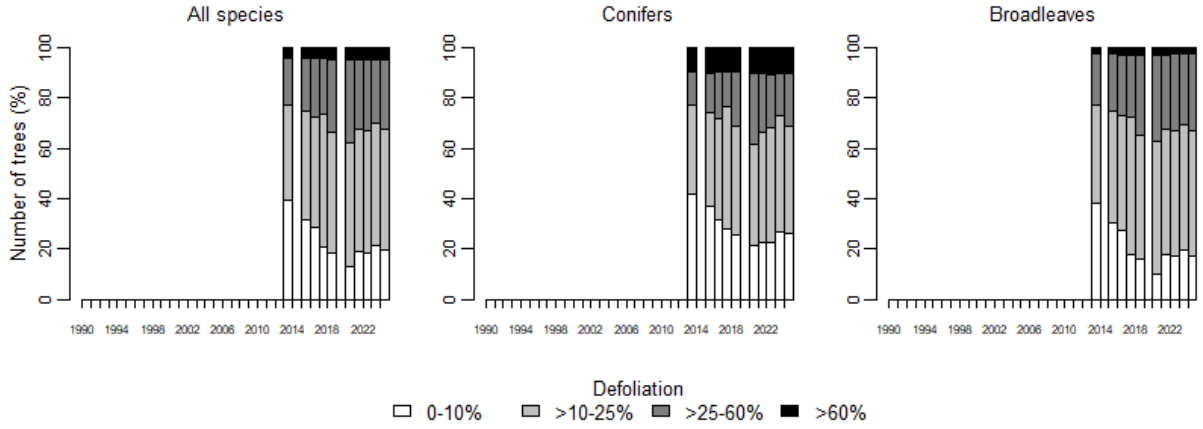

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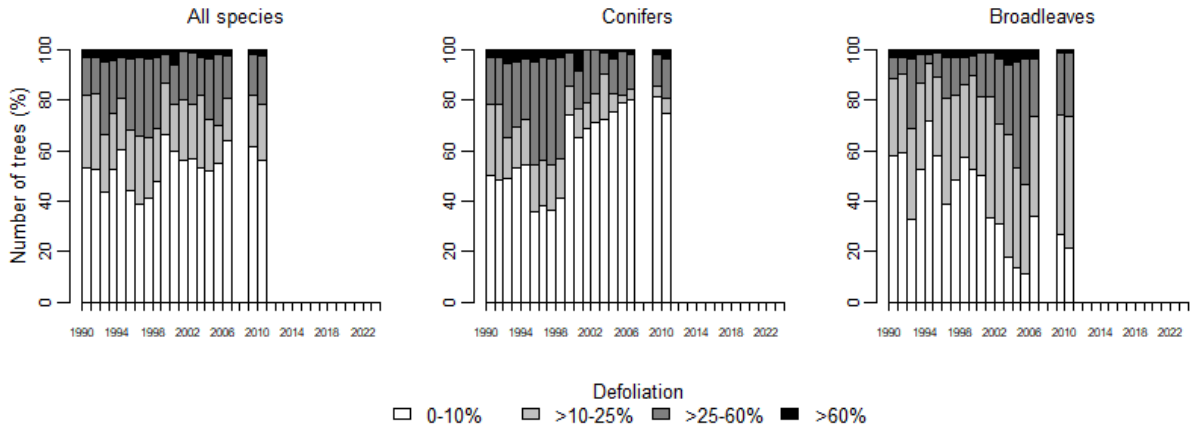

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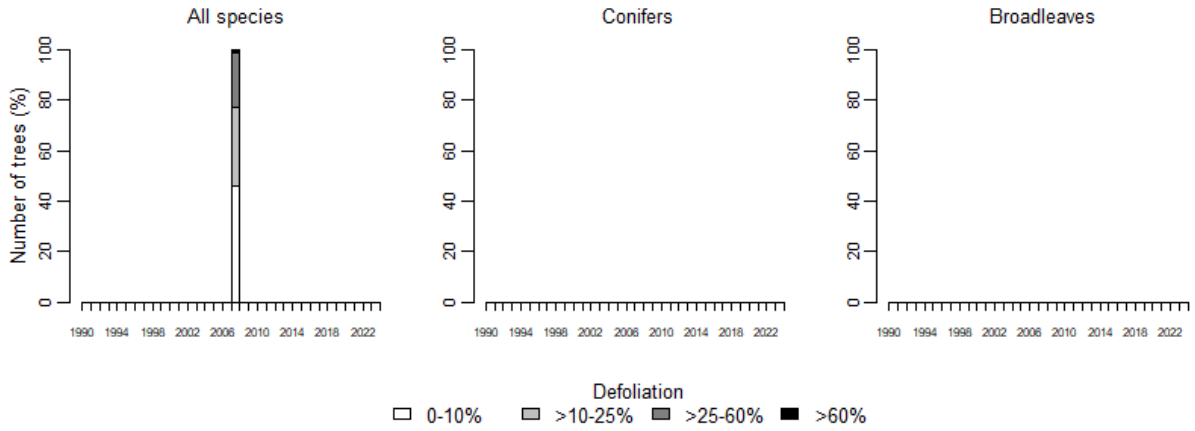

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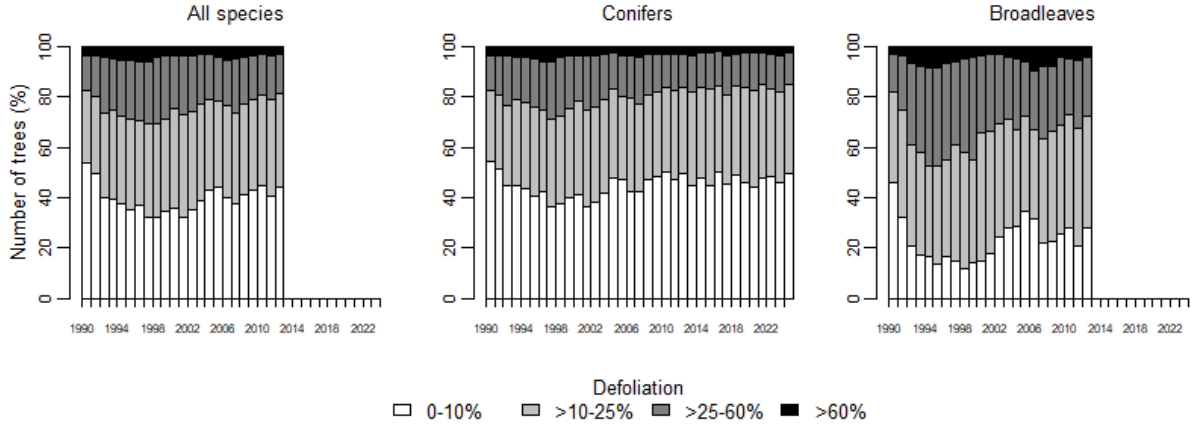

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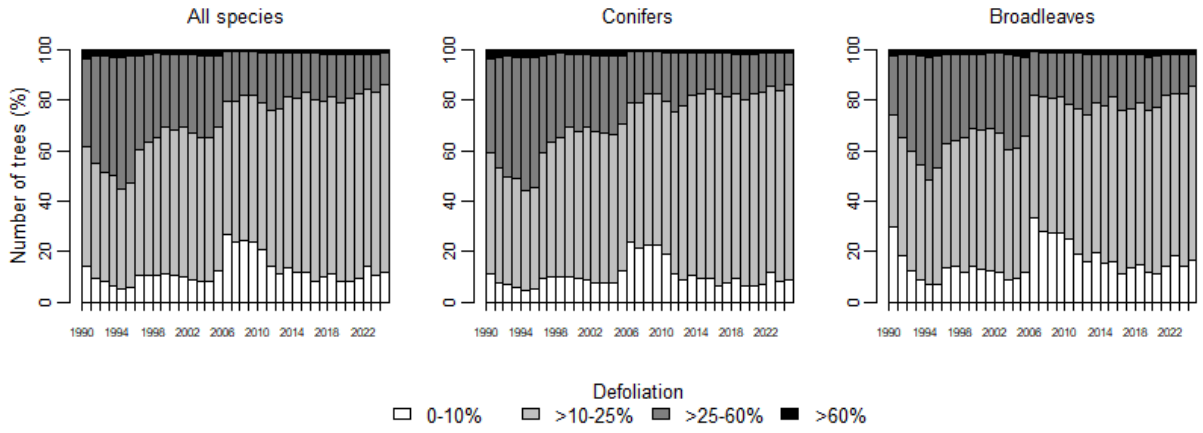

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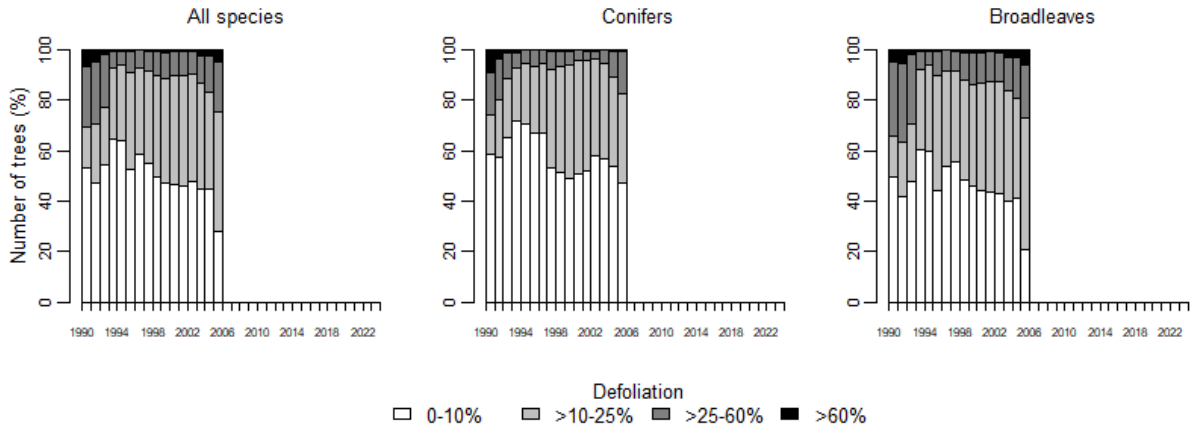

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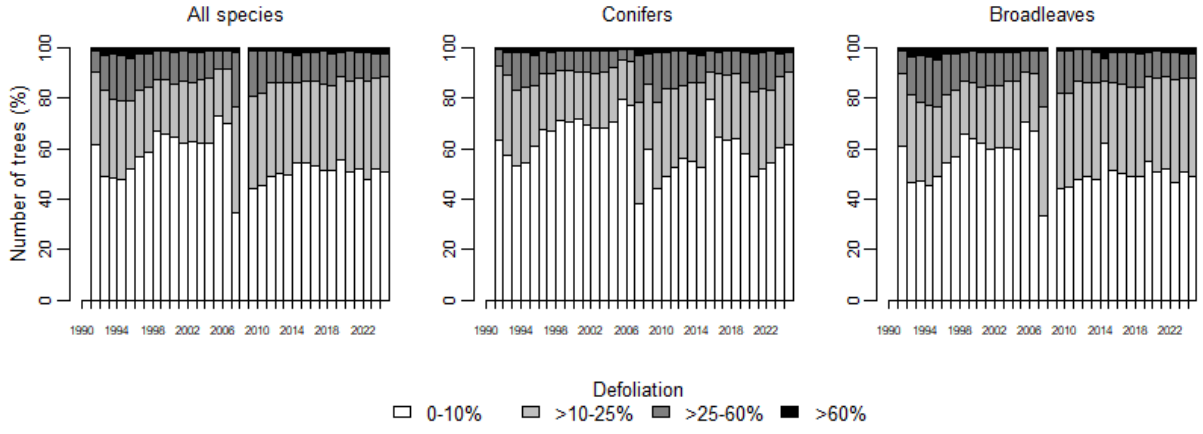
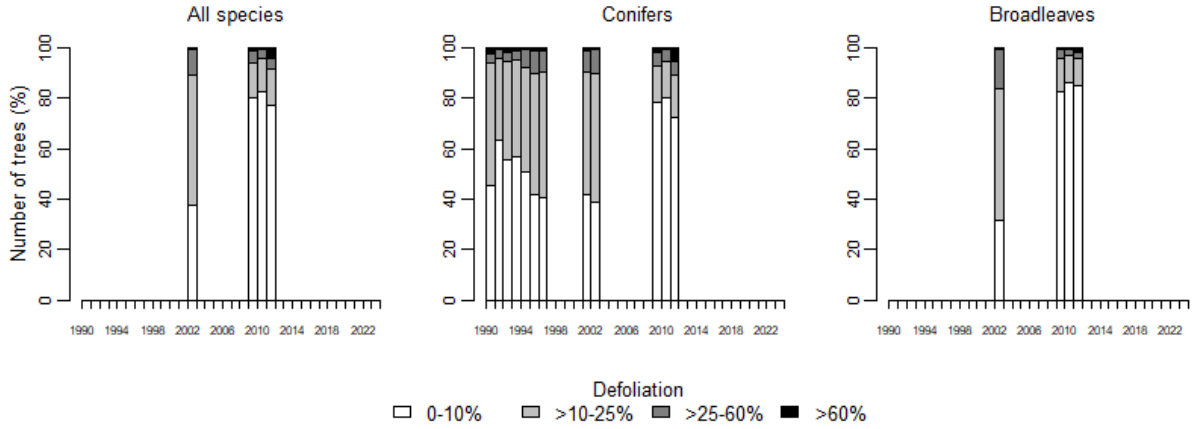


RUSSIAN FEDERATION



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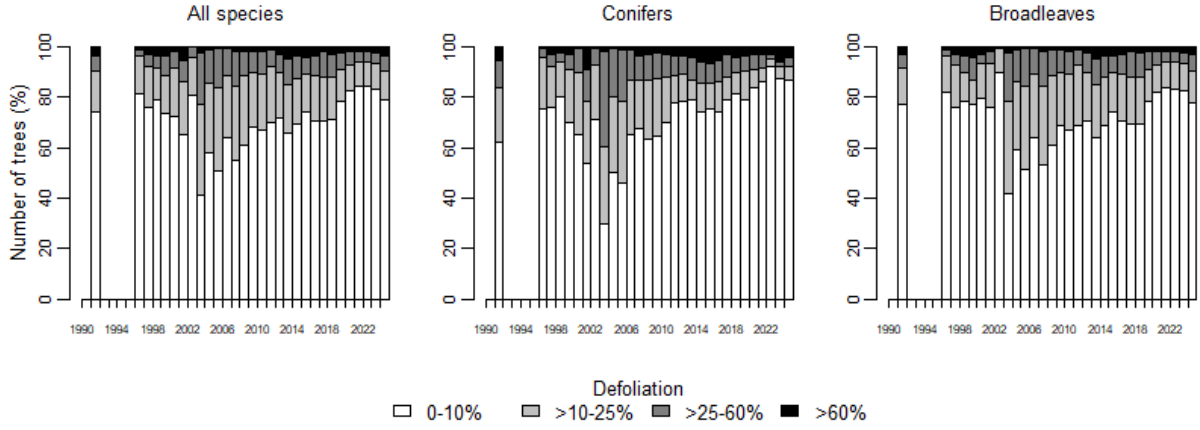

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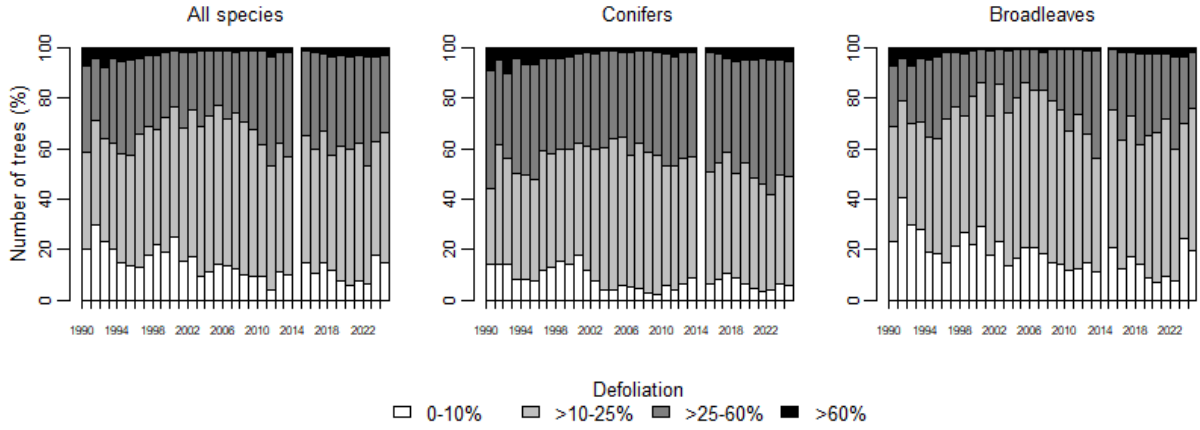

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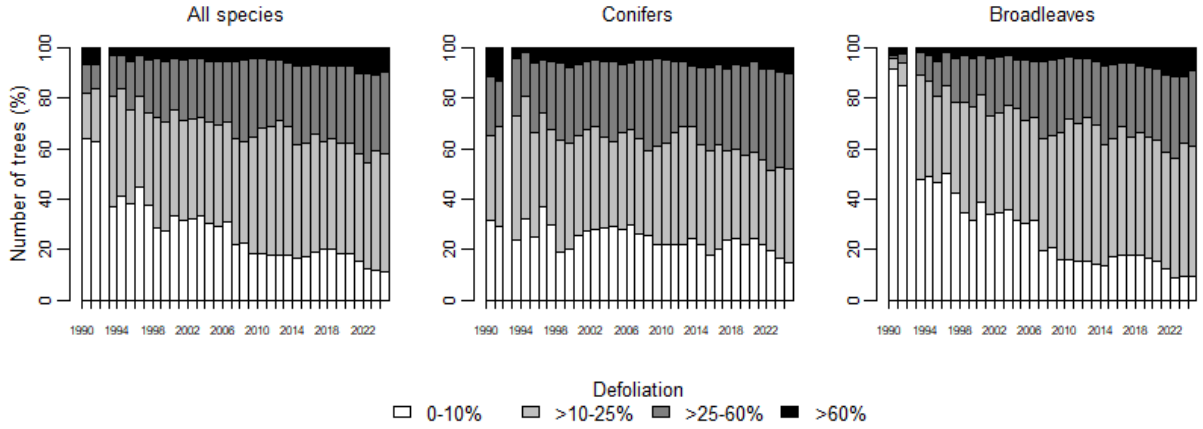

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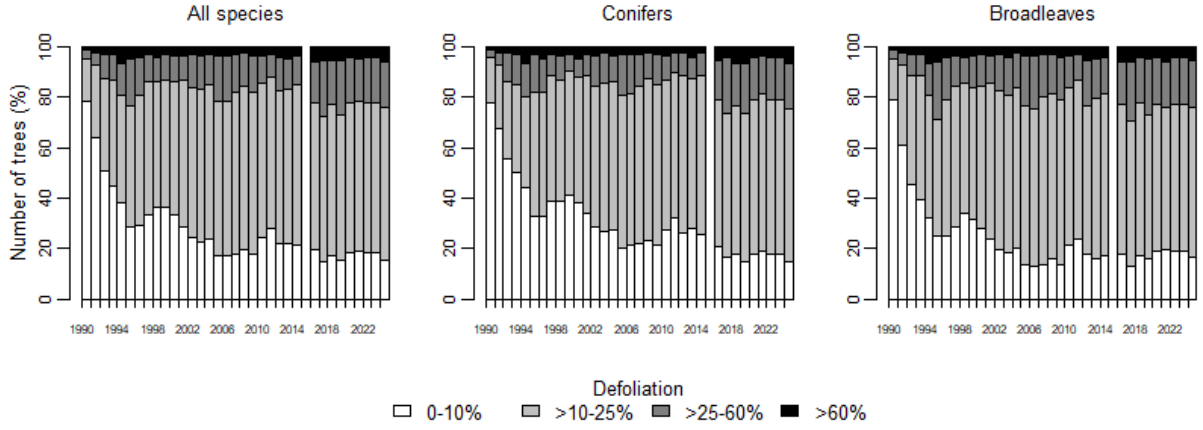

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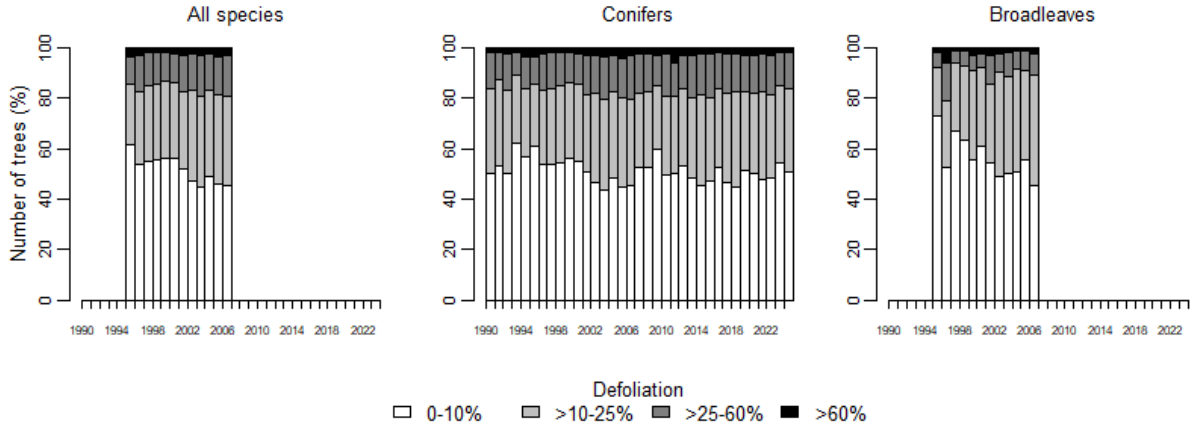
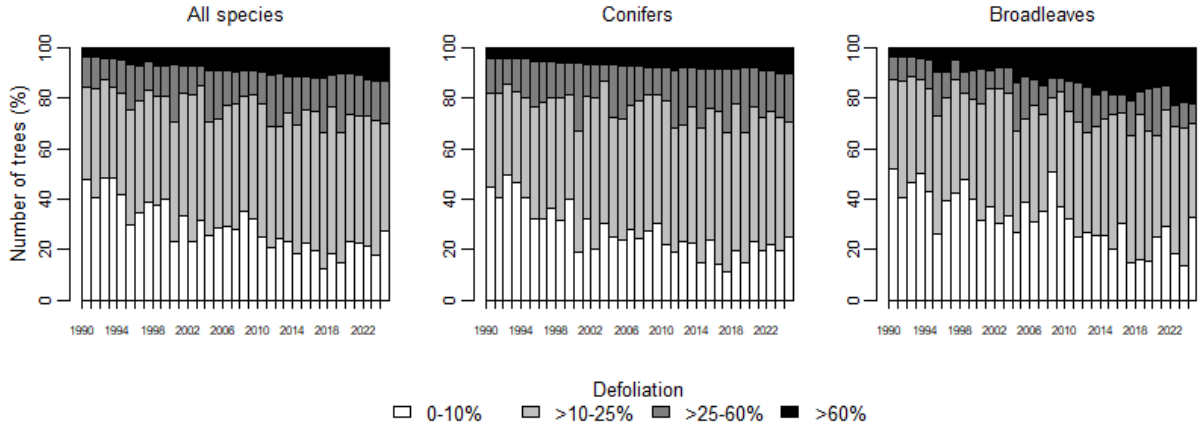


SWITZERLAND



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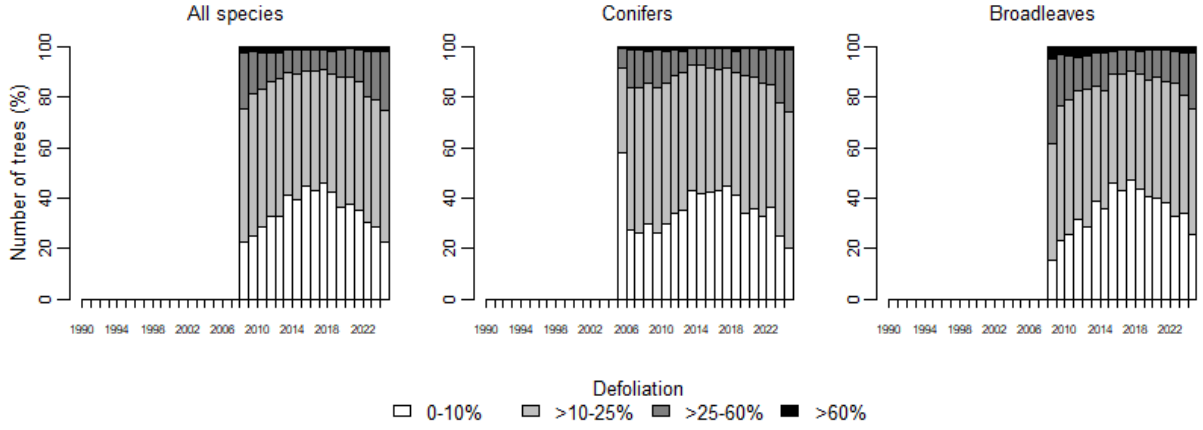
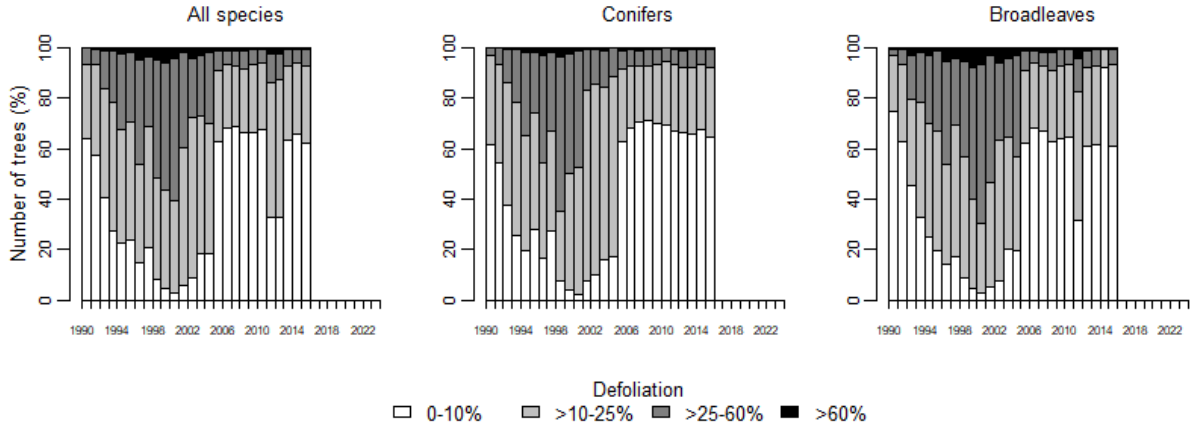


UKRAINE



UNITED KINGDOM