

Table Supplementary Information
 List of variables before and after removing those for which more than 95% of the values were equal to 0, then selection by Spearman correlation; Selected = application of selection of covariates with than 95% of the value equal to 0 in the section ’’%0’’ and selected covariate with spearman correlation in the section ’’ Spearman’’; Conserved = variables conserved after removing covariates with than 95% of the values equal to 0 and remove if the spearman correlation value exceeds 0.75; Total of variables = total number of variables selected

Variable	Code	variable selection														
		France (n = 445)			Atlantic zone (n = 220)			Continental zone (n = 147)			Mediterranean zone (n = 49)			Alpine zone (n = 29)		
		selected		conserved	selected		conserved	selected		conserved	selected		conserved	selected		conserved
		% 0	Spearman		% 0	Spearman		% 0	Spearman		% 0	Spearman		% 0	Spearman	
Moss species	Moss ^a			✓			✓			✓			✓			✓
Tree cover	Tree ^a			✓			✓			✓			✓			✓
Biogeographical zone	Biogeo ^b			✓												
Altitude	Altitude ^c			✓			✓			✓			✓			✓
Forested land uses (1, 5, 10, 15 km radius)	Forest_ ^{ad}		10, 15	1, 5		10, 15	1, 5		10, 15	1, 5		10, 15	1, 5		10, 15	1, 5
Urban land uses (1, 5, 10, 15 km radius)	Urban_ ^{ad}		10, 15	1, 5		10, 15	1, 5		10, 15	1, 5		10, 15	1, 5		10, 15	1, 5
Industrial land uses (1, 5, 10, 15 km radius)	Industrial_ ^{ad}	1	15	5, 10	1	15	5, 10	1	10, 15	5	1	15	1, 5	1	15	5, 10
Pasture land uses (1, 5, 10, 15 km radius)	Pasture_ ^{ad}		10, 15	1, 5		10, 15	1, 5		10, 15	1, 5		10, 15	1, 5		10, 15	1, 5
Agricultural land uses (1, 5, 10, 15 km radius)	Agricultural_ ^{ad}		10, 15	1, 5		1, 10, 15	5		10, 15	1, 5		10, 15	1, 5		10, 15	1, 5
Fruits land uses (1, 5, 10, 15 km radius)	Fruits_ ^{ad}	1	15	5, 10	1	15	5, 10		10, 15	1, 5		10, 15	1, 5	1, 5	15	10
Vegetation land uses (1, 5, 10, 15 km radius)	Vegetation_ ^{ad}		10, 15	1, 5	1	15	5, 10		10, 15	1, 5		10, 15	1, 5		1, 5, 10, 15	
Water land uses (1, 5, 10, 15 km radius)	Water_ ^{ad}	1	15	5, 10	1	15	5, 10	1	15	5, 10	1		5, 10, 15	1	15	5, 10
Sea land uses (1, 5, 10, 15 km radius)	Sea_ ^{ad}	1, 5	15	10	1	15	5, 10	1, 5, 10 , 15			1	10, 15	5	1, 5, 10, 15		
Railway (1, 5, 10, 15 km radius)	Railway_ ^{ad}	1	10, 15	5	1	15	5, 10	1	10, 15	5	1	15	5, 10	1	10, 15	5
Road (1, 5, 10, 15 km radius)	Road_ ^{ad}	1	10, 15	5	1	10, 15	5	1	10, 15	5	1		5, 10, 15	1	15	5, 10
Cd air deposition (1, 3, 6, 9, 12 month)	EMEP_dep ^{+e}		6, 9, 12	1, 3		6, 9, 12	1, 3		3, 6, 9, 12	1		6, 9, 12	1, 3		3, 6, 9, 12	1
Cd air concentration	EMEP_air ^e			✓			✓			✓			✓			✓
Cd soil total	RMQS_tot ^f			✓			✓			✓			✓			✓
Total of variables				27			27			23			29			22

^a Biosurveillance des Retombées Atmosphériques Métalliques par les Mousses, <https://bramm.mnhn.fr/>

^b L'Inventaire National du Patrimoine Naturel, <https://inpn.mnhn.fr>

^c Copernicus, <https://www.copernicus.eu/fr>

^d Corine Land Cover, <https://land.copernicus.eu/pan-european/corine-land-cover>

^e European Monitoring and Evaluation Programme, <https://www.emep.int/>

^f Réseau de Mesures de la Qualité des Sols, <https://www.gissol.fr/le-gis/programmes/rmqs-34>

[▫] Represents the length of radius in km

⁺ Represents the number of months summed