

Table S1 Error matrices for the L1 base and ensemble classifiers.

RF	Forest	Non-forest	Plurality	Forest	Non-forest
Forest	2377	139	Forest	3558	37
Non-forest	213	2100	Non-forest	49	3425
SVM	Forest	Non-forest	LOP-ICSI	Forest	Non-forest
Forest	2380	136	Forest	3552	43
Non-forest	234	2079	Non-forest	59	3415
KNN	Forest	Non-forest	LOP-PA	Forest	Non-forest
Forest	1862	654	Forest	3549	46
Non-forest	73	2240	Non-forest	58	416
CART	Forest	Non-forest	LOP-UA	Forest	Non-forest
Forest	2271	245	Forest	3551	44
Non-forest	311	2002	Non-forest	58	3416
GTB	Forest	Non-forest	Stack-RF	Forest	Non-forest
Forest	2402	114	Forest	4239	288
Non-forest	293	2020	Non-forest	272	4375

Table S2 Error matrices for the L2 base and ensemble classifiers.

RF	Deciduous forest	Evergreen forest	Shrubs
Deciduous forest	540	73	32
Evergreen forest	70	598	103
Shrubs	42	24	515

SVM	Deciduous forest	Evergreen forest	Shrubs
Deciduous forest	530	81	34
Evergreen forest	65	627	79
Shrubs	35	23	523

KNN	Deciduous forest	Evergreen forest	Shrubs
Deciduous forest	603	41	1
Evergreen forest	161	598	12
Shrubs	263	50	268

CART	Deciduous forest	Evergreen forest	Shrubs
Deciduous forest	466	103	76
Evergreen forest	81	557	133

Plurality	Deciduous forest	Evergreen forest	Shrubs
Deciduous forest	763	9	8
Evergreen forest	10	750	23
Shrubs	96	25	661

LOP-ICSI	Deciduous forest	Evergreen forest	Shrubs
Deciduous forest	751	13	16
Evergreen forest	5	756	22
Shrubs	83	26	673

LOP-PA	Deciduous forest	Evergreen forest	Shrubs
Deciduous forest	753	11	16
Evergreen forest	8	744	31
Shrubs	89	23	670

LOP-UA	Deciduous forest	Evergreen forest	Shrubs
Deciduous forest	747	14	19
Evergreen forest	6	752	25

Shrubs	101	53	427
GTB	Deciduous forest	Evergreen forest	Shrubs
Deciduous forest	523	85	37
Evergreen forest	68	595	108
Shrubs	48	28	505

Shrubs	81	26	675
Stack-RF	Deciduous forest	Evergreen forest	Shrubs
Deciduous forest	786	55	67
Evergreen forest	141	638	117
Shrubs	94	42	741

Table S3 Error matrices for the L3 base and ensemble classifiers.

RF	Oak	Mixed	Norway spruce	Scots pine	Beech	Black pine	Calabrian pine	Riverine	Maritime pine
Oak	247	0	0	1	7	24	1	0	1
Mixed	1	33	48	30	18	0	0	0	0
Norway spruce	0	28	231	1	6	0	0	0	0
Scots pine	0	1	4	117	5	13	2	0	0
Beech	13	0	1	1	155	5	0	0	0
Black pine	37	0	0	11	5	198	19	1	2
Calabrian pine	22	1	0	5	3	24	149	0	28
Riverine	4	0	0	0	0	2	12	139	0
Maritime pine	8	0	0	4	0	55	60	0	53

SVM	Oak	Mixed	Norway spruce	Scots pine	Beech	Black pine	Calabrian pine	Riverine	Maritime pine
Oak	253	1	0	0	8	17	0	2	0
Mixed	1	31	48	34	15	0	1	0	0
Norway spruce	0	32	229	2	3	0	0	0	0
Scots pine	0	1	8	124	7	2	0	0	0
Beech	4	0	0	2	160	9	0	0	0
Black pine	32	0	0	2	5	214	18	1	1
Calabrian pine	22	0	0	0	0	40	154	2	14
Riverine	4	0	0	0	2	1	2	148	0
Maritime pine	4	0	0	2	0	62	50	0	62

KNN	Oak	Mixed	Norway spruce	Scots pine	Beech	Black pine	Calabrian pine	Riverine	Maritime pine
Oak	174	0	0	0	101	6	0	0	0
Mixed	0	6	57	4	63	0	0	0	0
Norway spruce	0	3	243	0	20	0	0	0	0
Scots pine	0	0	13	57	72	0	0	0	0
Beech	1	0	3	0	169	2	0	0	0
Black pine	15	0	0	0	77	181	0	0	0
Calabrian pine	9	0	0	0	46	64	113	0	0
Riverine	0	0	0	0	31	2	1	123	0
Maritime pine	22	0	0	2	41	76	36	0	3
CART	Oak	Mixed	Norway spruce	Scots pine	Beech	Black pine	Calabrian pine	Riverine	Maritime pine
Oak	194	4	1	3	34	33	5	3	4
Mixed	5	33	42	31	11	2	5	0	1
Norway spruce	1	29	218	11	5	2	0	0	0
Scots pine	1	18	7	78	11	17	6	0	4
Beech	22	5	3	15	122	5	0	1	2
Black pine	33	3	0	12	21	154	26	4	20
Calabrian pine	15	3	1	4	9	33	131	1	35
Riverine	11	4	1	3	9	9	18	96	6
Maritime pine	11	1	0	9	4	42	59	0	54

GTB	Oak	Mixed	Norway spruce	Scots pine	Beech	Black pine	Calabrian pine	Riverine	Maritime pine
Oak	234	1	0	4	11	27	1	2	1
Mixed	3	39	48	21	17	1	0	0	1
Norway spruce	0	20	231	5	8	1	0	1	0
Scots pine	2	8	4	99	7	14	4	3	1
Beech	12	3	1	4	151	4	0	0	0
Black pine	38	0	0	10	8	182	30	0	5
Calabrian pine	24	0	0	2	5	33	125	4	39
Riverine	16	1	1	1	2	0	2	133	1
Maritime pine	12	0	0	4	2	36	66	2	58

Plurality	Oak	Mixed	Norway spruce	Scots pine	Beech	Black pine	Calabrian pine	Riverine	Maritime pine
Oak	350	0	0	2	10	1	0	0	0
Mixed	1	48	26	35	9	2	1	0	0
Norway spruce	0	2	357	2	0	0	0	0	0
Scots pine	0	3	19	323	6	10	2	0	0
Beech	33	6	0	3	321	0	0	0	0
Black pine	4	0	6	23	4	308	18	0	0
Calabrian pine	1	0	1	3	3	31	308	2	12
Riverine	0	0	0	0	2	3	1	142	0
Maritime pine	1	0	1	2	0	26	65	0	55

LOP-ICSI	Oak	Mixed	Norway spruce	Scots pine	Beech	Black pine	Calabrian pine	Riverine	Maritime pine
Oak	359	0	0	1	2	1	0	0	0
Mixed	1	0	65	38	15	1	0	2	0
Norway spruce	0	0	361	0	0	0	0	0	0
Scots pine	0	0	23	324	7	7	2	0	0
Beech	42	0	5	1	314	1	0	0	0
Black pine	5	0	9	22	3	308	15	1	0
Calabrian pine	2	0	3	3	0	17	320	16	0
Riverine	0	0	0	0	0	0	0	148	0
Maritime pine	1	0	42	2	0	22	66	17	0

LOP-PA	Oak	Mixed	Norway spruce	Scots pine	Beech	Black pine	Calabrian pine	Riverine	Maritime pine
Oak	351	0	0	2	6	4	0	0	0
Mixed	1	2	55	42	19	2	1	0	0
Norway spruce	0	0	360	1	0	0	0	0	0
Scots pine	0	0	18	327	8	8	2	0	0
Beech	34	0	2	0	326	1	0	0	0
Black pine	3	0	6	18	4	315	17	0	0
Calabrian pine	1	0	0	4	0	20	329	3	4
Riverine	0	0	0	0	1	0	1	146	0
Maritime pine	1	0	2	2	0	25	79	0	41

LOP-UA	Oak	Mixed	Norway spruce	Scots pine	Beech	Black pine	Calabrian pine	Riverine	Maritime pine
Oak	355	0	0	2	3	3	0	0	0
Mixed	0	35	37	39	6	2	2	1	0
Norway spruce	0	1	359	1	0	0	0	0	0
Scots pine	0	1	18	331	4	7	2	0	0
Beech	42	5	3	2	309	1	0	1	0
Black pine	4	0	6	20	2	300	27	0	4
Calabrian pine	1	0	0	4	0	13	308	4	31
Riverine	0	0	0	0	0	0	1	147	0
Maritime pine	1	0	1	2	0	11	55	1	79

Stack-RF	Oak	Mixed	Norway spruce	Scots pine	Beech	Black pine	Calabrian pine	Riverine	Maritime pine
Oak	316	0	0	8	20	41	6	0	5
Mixed	3	14	41	37	27	5	1	0	0
Norway spruce	0	3	432	14	5	0	0	0	0
Scots pine	15	0	18	415	110	13	4	1	0
Beech	47	2	1	76	418	37	3	2	1
Black pine	20	1	15	53	26	287	26	0	0
Calabrian pine	16	0	1	7	0	93	472	3	36
Riverine	6	0	2	3	1	4	12	117	2
Maritime pine	6	0	0	1	1	39	67	0	40