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SCIENTIFIC SUPPORT PLAN FOR A SUSTAINABLE DEVELOPMENT POLICY (SPSD II)

Part 2:
Global change, Ecosystems and Biodiversity

XYLOBIOS: A RESEARCH PROJECT TO STUDY PATTERNS, ROLES AND DETERMINANTS OF WOOD-DEPENDENT SPECIES DIVERSITY IN BELGIAN DECIDUOUS FORESTS

Final Report 2001-2005

(Research contract n° EV/H1/15A)

Appendices (1-36)

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Appendix 1. Study site characterictics, including site identification code, dominant tree species (beech/oak), dead wood category (+/-), and location (forest sector, IGN map no., Lambert coordinates).

Site name	Code	Dominant tree species	Dead wood	Pair	Forest sector	IGN map	X	Y
Mohimont	MH	Oak	+	A	Wellin	59-6	205265	80025
Bois de la Nawée	BN	Oak	+	B	Paliseul	64-2	202565	70050
Petit Bongard	PB	Oak	+	C	Verviers	50-3	274920	137875
Mülenbush	MU	Oak	+	D	Eupen 1	43-3	275660	153290
Rurbusch	RU	Beech	+	E	Elsenborn	50-3	277280	134150
Vallée de la Soristène	VS	Beech	+	F	Verviers	43-6	272440	142970
Brandehaag	BR	Beech	+	G	Verviers	43-7	274780	140085
Lagland	HL	Beech	+	H	Arlon	68-7	246230	38585
Lagland	CL	Oak	+	I	Arlon	68-7	246955	39095
Fraiche Bois	FB	Oak	+	J	Arlon	68-7	245160	46700
RN de Groenendaal	FS	Beech	+	K	Groenendaal	31-7	153735	160060
Virée du Rot	VR	Oak	-	A	Wellin	59-6 (64-2)	204920	78230
Le Bosquet	LB	Oak	-	B	Paliseul	64-2 (64-6)	205185	68175
Roubrouck1	R1	Oak	-	C	Verviers	43-6	270230	140440
Bois de Lange	BL	Oak	-	D	Eupen 1	43-6	269990	147320
Croix du Moiné	MO	Beech	-	E	Elsenborn	50-4	285590	133000
Roubrouck2	R2	Beech	-	F	Verviers	43-6	269600	141970
Porfays	PO	Beech	-	G	Verviers	43-6	273800	141700
Trimetrichet	TR	Beech	-	H	Arlon	71-3	244480	34285
Bois de Prire	PR	Oak	-	I	Arlon	71-3	247000	33290
Ob Steinebrück	ST	Oak	-	J	Arlon	68-7	246285	45620
Ravenstein	RA	Beech	-	K	Groenendaal	31-8	158200	165840

Appendix 2. Total number of collected individual insects (beetles + hoverflies) (22 sites, 4 regions, 2002-2003).

	Site																						
Family	**BL**	**BN**	**BR**	**CL**	**FB**	**FS**	**HL**	**LB**	**MH**	**MO**	**MU**	**PB**	**PO**	**PR**	**R1**	**R2**	**RA**	**RU**	**ST**	**TR**	**VR**	**VS**	**Total**
01. Aderidae	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	**2**
02. Agathidae	37	55	48	69	31	136	52	49	50	11	154	29	48	52	25	21	41	50	43	39	25	46	**1111**
03. Alleculidae	0	0	0	0	0	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**34**
04. Anobiidae	96	4	104	1	0	406	2	0	25	7	10	10	41	6	42	319	61	9	0	1	17	108	**1269**
05. Anthicidae	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	**2**
06. Anthribidae	1	1	0	0	2	0	2	1	1	1	1	1	9	0	3	1	0	1	1	1	6	3	**36**
07. Apionidae	1	7	6	5	4	0	12	8	3	2	10	1	5	3	2	3	4	1	5	19	1	7	**109**
08. Aradidae	0	2	8	2	9	0	3	1	20	1	7	12	3	7	2	3	0	0	0	1	5	7	**93**
09. Aspidiphoridae	6	24	13	9	18	24	7	30	27	6	19	2	8	52	10	5	74	10	5	14	7	8	**378**
10. Attelabidae	1	4	0	23	0	1	0	3	5	0	9	8	0	0	0	0	0	0	0	3	13	0	**70**
11. Bostrychidae	1	1	1	0	0	0	2	2	2	1	1	0	0	0	0	3	0	2	0	0	1	2	**19**
12. Bothrideridae	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**
13. Bruchidae	0	2	0	1	1	1	0	3	2	0	0	0	0	0	0	1	0	0	0	5	1	0	**17**
14. Buprestidae	3	0	0	0	0	12	0	1	0	0	1	0	0	0	0	0	0	13	1	2	0	0	**33**
15. Byrrhidae	0	0	0	0	0	0	0	0	0	0	1	1	0	0	3	0	1	0	1	0	0	3	**10**
16. Byturidae	1	245	3	3	3	4	2	193	55	2	38	11	0	16	0	0	102	18	6	77	40	8	**827**
17. Cantharidae	31	44	90	102	64	8	33	37	42	78	29	127	93	40	67	48	13	111	25	42	26	101	**1251**
18. Carabidae	53	98	43	44	109	46	53	117	26	6	172	36	22	21	19	41	69	65	17	39	21	99	**1216**
19. Catopidae	2	7	2	10	6	9	18	11	10	15	31	7	13	8	6	1	3	6	13	6	7	6	**197**
20. Cerambycidae	21	73	64	31	21	213	48	87	394	9	166	70	61	14	46	47	238	50	14	40	31	129	**1867**
21. Cerylonidae	22	29	113	48	74	55	61	59	61	9	118	32	18	15	20	23	18	82	54	17	20	39	**987**
22. Chrysomelidae	53	33	16	28	21	42	19	12	33	4	36	116	11	26	14	13	15	13	13	34	8	46	**606**
23. Cisidae	6	12	57	14	7	81	20	14	18	0	20	21	15	0	8	7	10	15	6	8	12	66	**417**
24. Cleridae	0	0	2	0	0	27	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	**32**
25. Coccinellidae	34	14	15	14	7	25	22	3	31	10	50	46	14	6	30	7	120	11	23	23	8	13	**526**
26. Colydiidae	0	0	2	0	0	0	3	0	2	0	7	0	0	0	0	0	0	0	0	5	0	0	**19**
27. Cryptophagidae	50	127	194	98	67	190	407	115	63	85	125	137	83	100	59	75	179	205	50	132	48	219	**2808**
28. Cucujidae	1	2	0	1	0	1	0	1	1	0	1	0	0	2	1	0	1	0	3	0	2	1	**18**
29. Curculionidae	132	636	304	496	147	215	742	369	160	1590	194	432	104	484	185	245	146	257	171	714	172	293	**8188**
30. Dascillidae	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	**3**
31. Dasytidae	2	4	3	15	2	15	22	0	9	0	75	3	1	9	2	0	3	9	1	11	2	2	**190**
32. Drilidae	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	**3**
33. Dytiscidae	11	13	8	6	15	18	7	10	5	8	82	12	7	2	2	9	5	14	6	13	0	12	**265**
34. Elateridae	774	1216	1072	356	219	1030	449	367	709	931	1074	1852	763	267	1634	683	940	675	166	200	365	975	**16717**
35. Endomychidae	0	0	4	0	0	0	1	0	0	0	0	1	8	4	0	1	0	0	0	2	0	0	**21**
36. Erotylidae	3	0	71	1	1	81	1	2	4	0	10	5	1	1	2	5	6	0	1	2	1	6	**204**
37. Eucnemidae	6	37	31	16	37	90	45	5	35	2	46	46	22	38	16	17	14	60	16	21	10	33	**643**
38. Geotrupidae	0	8	0	89	2	6	154	25	29	1	227	8	2	2	0	0	0	2	10	22	27	0	**614**
39. Helodidae	6	3	62	348	146	61	224	1	9	3	29	246	35	43	9	56	11	24	91	52	2	218	**1679**
40. Helophoridae	4	12	11	36	11	10	43	12	11	3	101	20	16	15	8	14	15	32	21	43	3	9	**450**
41. Histeridae	4	13	8	1	3	325	27	1	2	0	21	0	0	5	0	1	4	1	4	4	0	3	**427**

42. Hydraenidae	2	10	3	3	9	1	3	0	2	4	676	3	7	4	0	2	2	21	9	1	0	9	**771**
43. Hydrophilidae	52	34	10	7	27	20	12	20	5	10	143	22	11	5	6	8	4	21	10	12	2	19	**460**
44. Lagriidae	0	0	0	0	2	5	0	1	2	11	92	0	0	0	0	0	26	2	0	11	1	0	**153**
45. Lampyridae	1	0	0	1	4	1	1	1	0	0	23	0	0	0	0	0	1	0	0	2	0	0	**35**
46. Latridiidae	56	126	299	122	157	179	233	120	108	62	258	124	164	296	89	102	68	197	212	202	45	251	**3470**
47. Leptinidae	0	0	1	5	0	0	0	0	1	0	0	0	1	27	0	0	0	0	9	0	0	1	**45**
48. Liodidae	1	24	13	34	27	76	38	13	10	1	62	10	2	20	1	1	7	128	5	12	1	22	**508**
49. Lucanidae	0	2	20	1	0	10	5	1	9	1	1	11	5	1	25	7	1	4	0	0	1	20	**125**
50. Lycidae	1	3	0	14	2	16	23	11	11	3	5	0	0	130	0	0	20	0	2	14	3	1	**259**
51. Lymexylonidae	5	4	94	8	1	60	103	2	9	18	53	38	42	2	27	26	70	116	1	6	8	159	**852**
52. Malachiidae	1	0	0	2	3	0	1	0	2	0	6	0	0	0	0	0	0	1	0	3	4	0	**23**
53. Melandryidae	5	20	21	19	38	19	36	5	42	3	46	20	14	20	5	6	3	1	24	19	13	10	**389**
54. Monotomidae	123	292	204	513	236	510	577	165	385	165	452	93	22	43	86	59	40	1036	117	118	210	400	**5846**
55. Mordellidae	1	0	3	0	5	15	2	2	4	1	13	1	3	5	0	1	21	1	0	9	4	1	**92**
56. Mycetophagidae	0	7	6	1	1	18	23	1	2	0	11	3	2	1	0	2	0	1	2	4	1	1	**87**
57. Nitidulidae	16	3335	74	540	466	154	529	1625	227	67	339	96	54	2520	41	81	98	128	1038	1756	1062	153	**14399**
58. Oedemeridae	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	**4**
59. Pselaphidae	0	0	8	2	2	1	2	2	2	0	1	3	3	2	1	5	0	2	3	2	2	10	**53**
60. Ptiliidae	1	9	10	11	8	3	7	3	7	12	5	5	8	29	2	6	1	18	1	249	3	14	**412**
61. Ptinidae	1	0	0	47	2	1	2	0	1	0	0	0	2	3	0	0	0	0	2	2	2	0	**65**
62. Pyrochroidae	0	10	12	22	45	13	13	21	26	0	11	4	1	11	7	2	9	0	15	13	12	0	**247**
63. Pythidae	81	11	34	28	74	62	33	14	22	17	58	19	9	38	7	14	6	6	31	39	22	32	**657**
64. Scaphidiidae	0	9	3	3	6	5	11	15	8	2	10	3	3	3	2	2	1	8	2	4	3	2	**105**
65. Scarabaeidae	164	495	124	240	167	91	262	817	88	181	778	158	92	171	86	71	84	132	142	276	260	80	**4959**
66. Scolytidae	82	453	893	1071	269	586	1447	198	881	643	354	364	165	138	200	185	1148	1088	145	187	234	691	**11422**
67. Scraptiidae	24	37	49	38	49	23	43	50	83	43	117	272	61	32	54	32	26	10	23	42	42	62	**1212**
68. Scydmaenidae	5	15	22	5	32	1	15	2	6	3	9	28	5	6	7	6	1	22	5	4	1	16	**216**
69. Silphidae	55	13	0	5	8	35	32	29	30	2	166	36	3	6	6	1	32	12	12	9	4	7	**503**
70. Silvanidae	0	2	0	2	1	2	5	2	3	0	3	0	0	2	1	0	1	0	1	6	1	1	**33**
71. Staphylinidae	726	1065	1029	954	726	484	975	631	646	431	1560	2327	398	475	654	601	300	1075	649	538	436	976	**17656**
72. Syrphidae	20	45	133	111	141	119	60	136	229	50	309	239	197	57	72	58	277	291	97	52	49	358	**3100**
73. Tenebrionidae	0	0	0	1	0	72	11	0	0	0	8	0	0	0	0	0	0	0	0	3	0	0	**95**
74. Tetratomidae	0	0	0	9	25	0	1	0	0	0	0	0	0	27	0	0	0	0	24	0	0	0	**86**
75. Throscidae	44	69	49	107	119	13	48	58	320	15	1324	69	28	347	393	145	14	4	171	150	63	182	**3732**
76. Trogidae	0	0	0	1	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	**4**
77. Trogositidae	2	4	0	1	0	0	1	0	0	0	0	0	2	1	9	8	0	0	0	1	0	5	**34**
Total	**2831**	**8820**	**5470**	**5795**	**3679**	**5763**	**7036**	**5485**	**5015**	**4533**	**9750**	**7240**	**2666**	**5662**	**3996**	**3081**	**4357**	**6062**	**3520**	**5340**	**3370**	**5947**	**115468**

Appendix 3. Total number of insect species collected among selected families (22 sites, 4 regions, 2002-2003).

	Site																						
Family	**BL**	**BN**	**BR**	**CL**	**FB**	**FS**	**HL**	**LB**	**MH**	**MO**	**MU**	**PB**	**PO**	**PR**	**R1**	**R2**	**RA**	**RU**	**ST**	**TR**	**VR**	**VS**	**Total**
01. Aderidae	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1
02. Alleculidae	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
03. Anthribidae	1	1	0	0	1	0	2	1	1	1	1	1	1	0	1	1	0	1	1	1	1	2	2
04. Aradidae	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	2	2
05. Bothrideridae	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
06. Buprestidae	2	0	0	0	0	2	0	1	0	0	1	0	0	0	0	0	0	3	1	2	0	0	5
07. Cerambycidae	9	10	10	8	11	10	10	10	19	4	15	13	11	5	15	8	8	12	5	12	12	12	31
08. Cleridae	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	2
09. Colydiidae	0	0	1	0	0	0	1	0	1	0	2	0	0	0	0	0	0	0	0	1	0	0	2
10. Cucujidae	1	1	0	1	0	1	0	1	1	0	1	0	0	1	1	0	1	0	1	0	1	1	2
11. Curculionidae	8	22	11	21	21	17	16	19	19	10	22	15	7	15	10	6	10	8	20	15	15	8	82
12. Dascillidae	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1
13. Drilidae	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
14. Elateridae	13	17	14	15	17	17	17	14	17	11	19	21	13	14	19	11	18	13	12	16	14	20	40
15. Endomychidae	0	0	1	0	0	0	1	0	0	0	0	1	1	1	0	1	0	0	0	1	0	0	1
16. Erotylidae	2	0	3	1	1	3	1	1	1	0	4	1	1	1	1	2	2	0	1	2	1	2	4
17. Eucnemidae	3	5	4	5	8	6	6	3	7	1	4	5	4	6	4	4	4	4	8	4	4	5	10
18. Histeridae	2	7	4	1	3	8	9	1	2	0	8	0	0	3	0	1	3	1	4	3	0	3	22
19. Lagriidae	0	0	0	0	1	1	0	1	1	1	1	0	0	0	0	0	1	1	0	1	1	0	1
20. Lampyridae	1	0	0	1	1	1	1	1	0	0	1	0	0	0	0	0	1	0	0	1	0	0	1
21. Leptinidae	0	0	1	1	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1	0	0	1	1
22. Lucanidae	0	1	1	1	0	2	2	1	2	1	1	2	1	1	2	2	1	1	0	0	1	2	2
23. Lycidae	1	1	0	1	1	2	3	1	2	1	2	0	0	3	0	0	2	0	1	4	1	1	4
24. Lymexylonidae	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
25. Malachiidae	1	0	0	1	1	0	1	0	1	0	1	0	0	0	0	0	0	1	0	1	1	0	1
26. Melandryidae	2	6	4	4	4	3	5	1	6	2	4	5	5	4	3	3	3	1	3	6	6	4	10
27. Monotomidae	6	8	6	6	5	6	6	5	8	5	8	6	4	4	6	6	5	5	4	3	4	7	9
28. Mycetophagidae	0	1	2	1	1	4	8	1	2	0	4	2	1	1	0	2	0	1	1	2	1	1	9
29. Pselaphidae	0	0	3	2	1	1	1	1	1	0	1	2	1	2	1	3	0	1	2	2	2	3	5
30. Pythidae	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
31. Scolytidae	9	8	8	11	9	10	11	6	9	3	12	7	6	10	8	6	9	5	8	13	8	10	17
32. Silvanidae	0	2	0	2	1	2	3	2	3	0	2	0	0	1	1	0	1	0	1	3	1	1	3
33. Syrphidae	13	20	42	33	35	29	27	33	47	21	43	36	30	19	23	21	35	57	28	21	29	34	107
34. Tenebrionidae	0	0	0	1	0	2	1	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	3
35. Tetratomidae	0	0	0	1	1	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1
36. Throscidae	2	2	2	2	2	3	2	3	3	3	3	3	3	3	3	2	3	2	3	3	3	3	4
37. Trogidae	0	0	0	1	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
38. Trogositidae	1	1	0	1	0	0	1	0	0	0	0	0	1	1	1	1	0	0	0	1	0	1	1
Total	**79**	**116**	**122**	**125**	**128**	**136**	**140**	**110**	**157**	**69**	**166**	**123**	**94**	**102**	**102**	**84**	**112**	**120**	**108**	**123**	**109**	**125**	**393**

Appendix 4. Number of saproxylic insects (beetles + hoverflies) collected (2002-2003).

	Site																						
Family	**BL**	**BN**	**BR**	**CL**	**FB**	**FS**	**HL**	**LB**	**MH**	**MO**	**MU**	**PB**	**PO**	**PR**	**R1**	**R2**	**RA**	**RU**	**ST**	**TR**	**VR**	**VS**	**Total**
01. Aderidae	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	**2**	
02. Alleculidae	0	0	0	0	0	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**34**	
03. Anthribidae	1	1	0	0	2	0	2	1	1	1	1	1	9	0	3	1	0	1	1	1	6	3	**36**
04. Aradidae	0	2	8	2	9	0	3	1	20	1	7	12	3	7	2	3	0	0	0	1	5	7	**93**
05. Bothrideridae	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**
06. Buprestidae	3	0	0	0	0	12	0	1	0	0	1	0	0	0	0	0	0	13	1	2	0	0	**33**
07. Cerambycidae	21	73	64	31	21	213	48	87	394	9	166	70	61	14	46	47	238	50	14	40	31	129	**1867**
08. Cisidae	6	12	57	14	7	81	20	14	18	0	20	21	15	0	8	7	10	15	6	8	12	66	**417**
09. Cleridae	0	0	2	0	0	27	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	**32**
10. Colydiidae	0	0	2	0	0	0	3	0	2	0	7	0	0	0	0	0	0	0	0	5	0	0	**19**
11. Cucujidae	1	2	0	1	0	1	0	1	1	0	1	0	0	2	1	0	1	0	3	0	2	1	**18**
12. Curculionidae	2	1	3	17	2	8	15	0	5	1	8	16	0	2	6	1	0	1	0	0	5	1	**94**
13. Dascillidae	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	**3**
14. Elateridae	41	127	195	55	38	318	61	44	157	79	185	319	90	19	148	63	90	195	18	26	46	169	**2483**
15. Endomychidae	0	0	4	0	0	0	1	0	0	0	0	1	8	4	0	1	0	0	0	2	0	0	**21**
16. Erotylidae	3	0	71	1	1	81	1	2	4	0	10	5	1	1	2	5	6	0	1	2	1	6	**204**
17. Eucnemidae	6	37	31	16	37	90	45	5	35	2	46	46	22	38	16	17	14	60	16	21	10	33	**643**
18. Histeridae	1	3	8	0	1	318	16	0	1	0	14	0	0	2	0	0	3	0	1	2	0	1	**371**
19. Lucanidae	0	2	20	1	0	10	5	1	9	1	1	11	5	1	25	7	1	4	0	0	1	20	**125**
20. Lycidae	1	3	0	14	2	16	23	11	11	3	5	0	0	130	0	0	20	0	2	14	3	1	**259**
21. Lymexylonidae	5	4	94	8	1	60	103	2	9	18	53	38	42	2	27	26	70	116	1	6	8	159	**852**
22. Malachiidae	1	0	0	2	3	0	1	0	2	0	6	0	0	0	0	0	0	1	0	3	4	0	**23**
23. Melandryidae	5	20	21	19	38	19	36	5	42	3	46	20	14	20	5	6	3	1	24	19	13	10	**389**
24. Monotomidae	123	292	204	513	236	510	577	165	385	165	452	93	22	43	86	59	40	1036	117	118	210	400	**5846**
25. Mycetophagidae	0	7	6	1	1	18	23	1	2	0	11	3	2	1	0	2	0	1	2	4	1	1	**87**
26. Pythidae	81	11	34	28	74	62	33	14	22	17	58	19	9	38	7	14	6	6	31	39	22	32	**657**
27. Scolytidae	45	418	850	1060	263	581	1432	177	863	517	339	330	124	136	99	126	1144	1002	143	179	226	650	**10704**
28. Silvanidae	0	2	0	2	1	2	5	2	3	0	3	0	0	2	1	0	1	0	1	6	1	1	**33**
29. Syrphidae	1	2	27	30	83	38	16	22	49	5	48	80	54	19	9	9	157	19	56	16	13	12	**765**
30. Tenebrionidae	0	0	0	1	0	72	11	0	0	0	8	0	0	0	0	0	0	0	0	3	0	0	**95**
31. Tetratomidae	0	0	0	9	25	0	1	0	0	0	0	0	0	27	0	0	0	0	24	0	0	0	**86**
32. Throscidae	44	69	49	107	119	13	48	58	320	15	1324	69	28	347	393	145	14	4	171	150	63	182	**3732**
33. Trogositidae	2	4	0	1	0	0	1	0	0	0	0	0	2	1	9	8	0	0	0	1	0	5	**34**
Total	**393**	**1092**	**1750**	**1933**	**964**	**2584**	**2530**	**614**	**2355**	**840**	**2821**	**1154**	**511**	**856**	**893**	**548**	**1820**	**2526**	**633**	**669**	**683**	**1889**	**30058**

Appendix 5. Number of saproxylic insect species among selected families (22 sites, 4 regions, 2002-2003).

	Site																						
Family	**BL**	**BN**	**BR**	**CL**	**FB**	**FS**	**HL**	**LB**	**MH**	**MO**	**MU**	**PB**	**PO**	**PR**	**R1**	**R2**	**RA**	**RU**	**ST**	**TR**	**VR**	**VS**	**Total**
01. Aderidae	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	**1**
02. Alleculidae	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**
03. Anthribidae	1	1	0	0	1	0	2	1	1	1	1	1	1	0	1	1	0	1	1	1	1	2	**2**
04. Aradidae	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	2	**2**
05. Bothrideridae	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**
06. Buprestidae	2	0	0	0	0	2	0	1	0	0	1	0	0	0	0	0	0	3	1	2	0	0	**5**
07. Cerambycidae	9	10	10	8	11	10	10	10	19	4	15	13	11	5	15	8	8	12	5	12	12	12	**31**
08. Cleridae	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	**2**
09. Colydiidae	0	0	1	0	0	0	1	0	1	0	2	0	0	0	0	0	0	0	0	1	0	0	**2**
10. Cucujidae	1	1	0	1	0	1	0	1	1	0	1	0	0	1	1	0	1	0	1	0	1	1	**2**
11. Curculionidae	1	1	1	2	1	2	2	0	2	1	3	2	0	2	1	1	0	1	0	0	3	1	**8**
12. Dascillidae	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	**1**
13. Elateridae	5	9	7	6	6	7	11	7	7	5	9	8	4	6	9	4	10	5	4	8	6	6	**17**
14. Endomychidae	0	0	1	0	0	0	1	0	0	0	0	1	1	1	0	1	0	0	0	1	0	0	**1**
15. Erotylidae	2	0	3	1	1	3	1	1	1	0	4	1	1	1	1	2	2	0	1	2	1	2	**4**
16. Eucnemidae	3	5	4	5	8	6	6	3	7	1	4	5	4	6	4	4	4	4	8	4	4	5	**10**
17. Histeridae	1	2	4	0	1	5	5	0	1	0	4	0	0	1	0	0	2	0	1	2	0	1	**6**
18. Lucanidae	0	1	1	1	0	2	2	1	2	1	1	2	1	1	2	2	1	1	0	0	1	2	**2**
19. Lycidae	1	1	0	1	1	2	3	1	2	1	2	0	0	3	0	0	2	0	1	4	1	1	**4**
20. Lymexylonidae	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**1**
21. Malachiidae	1	0	0	1	1	0	1	0	1	0	1	0	0	0	0	0	0	1	0	1	1	0	**1**
22. Melandryidae	2	6	4	4	4	3	5	1	6	2	4	5	5	4	3	3	3	1	3	6	6	4	**10**
23. Monotomidae	6	8	6	6	5	6	6	5	8	5	8	6	4	4	6	6	5	5	4	3	4	7	**9**
24. Mycetophagidae	0	1	2	1	1	4	8	1	2	0	4	2	1	1	0	2	0	1	1	2	1	1	**9**
25. Pythidae	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**1**
26. Scolytidae	9	8	8	11	9	10	11	6	9	3	12	7	6	10	8	6	9	5	8	13	8	10	**17**
27. Silvanidae	0	2	0	2	1	2	3	2	3	0	2	0	0	1	1	0	1	0	1	3	1	1	**3**
28. Syrphidae	1	1	7	11	15	9	9	7	12	4	11	6	6	9	4	4	10	10	9	7	8	6	**28**
29. Tenebrionidae	0	0	0	1	0	2	1	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	**3**
30. Tetratomidae	0	0	0	1	1	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	**1**
31. Throscidae	2	2	2	2	2	3	2	3	3	3	3	3	3	3	3	2	3	2	3	3	3	3	**4**
32. Trogositidae	1	1	0	1	0	0	1	0	0	0	0	0	1	1	1	1	0	0	0	1	0	1	**1**
Total	**50**	**63**	**65**	**69**	**72**	**84**	**95**	**54**	**91**	**36**	**98**	**65**	**52**	**64**	**63**	**51**	**65**	**55**	**55**	**81**	**65**	**70**	**191**

Appendix 6. Abundance of insect species among selected families (22 sites, 4 regions, 2002-2003). Saproxylic species are in bold-face print while threatened species (from German Red-Lists) and those whose occurrence indicates forest sites of major importance for saproxylic insect conservation in Europe (from Good and Speight 1996) are followed by an asterisk * and an exclamation point (!), respectively.

		Site																					
Family	**Species**	**BL**	**BN**	**BR**	**CL**	**FB**	**FS**	**HL**	**LB**	**MH**	**MO**	**MU**	**PB**	**PO**	**PR**	**R1**	**R2**	**RA**	**RU**	**ST**	**TR**	**VR**	**VS**	**Total**
Aderidae	***Euglenes pygmaeus****										1										1			**2**
Alleculidae	***Mycetochara linearis***						30																	**30**
	Prionychus ater*						4																	**4**
Anthribidae	***Brachytarsus variegatus***		1					1	1	1	1		1	9		3	1		1		1	6	1	**28**
	Tropideres niveirostris	1				2		1				1								1			2	**8**
Aradidae	***Aradus betulinus***																						1	**1**
	Aradus depressus		2	8	2	9		3	1	20	1	7	12	3	7	2	3				1	5	6	**92**
Bothrideridae	***Oxylaemus variolosus****											1												**1**
Buprestidae	***Agrilus biguttatus***	2					1					1							3					**7**
	Agrilus laticornis																				1			**1**
	Agrilus sinuatus	1																	1					**2**
	Agrilus sulcicollis																				1			**1**
	Agrilus viridis						11		1										9	1				**22**
Cerambycidae	***Alosterna tabacicolor***		1		3	2		1	1	17					4							6		**35**
	Anaglyptus mysticus						1																	**1**
	Anoplodera sexguttata* **(!)**				1					9														**10**
	Brachyleptura maculicornis		9						16	2				1					4					**32**
	Clytus arietis	1	1	2				3		7		2	2	1					3	2	1	1	2	**28**
	Cortodera humeralis*																				2			**2**
	Corymbia rubra	2	7			1	1		2	3	1	1	2			1	1	11	1			1	2	**37**
	Eupogonocherus hispidulus	1				3	1	1		1						3					1	2		**13**
	Gramnoptera ruficornis				1	1				1		3		1						1	1	1	1	**11**
	Leiopus nebulosus	2		1	4	2				1		1	1			1	1		1		1	1	1	**18**
	Leptura aethiops									21		2									1			**24**
	Leptura aurulenta*							1							1									**2**
	Leptura maculata		2		1	1	17	4	1	101		33		6	5	8	3	37			5	1	31	**256**
	Leptura quadrifasciata			2						1		7	12	3		1							1	**27**
	Obrium brunneum													1										**1**
	Obrium cantharinum*																		1					**1**
	Oxymirus cursor			2						1	3		7	1		3	7		3				1	**28**
	Pachytodes cerambyformis		1	1	2	2	5	1	1	2	1	3	5	2	1	2	1	2	7	1			12	**52**
	Phymatodes testaceus																	1						**1**
	Plagionotus arcuatus												1			1								**2**
	Prionus coriarius						6			1								4			1	1		**13**
	Pyrrhidium sanguineum	7		1		1			2			3	3			1					1			**19**
	Rhagium bifasciatum	1	3	14	8	2	9	12	1	19		8	5	23		8	26		1			4	22	**166**
	Rhagium mordax	3	6	38	11	5	25	19	6	44		35	17	20	3	8	7	38	22	9	21	9	53	**399**
	Rhagium sycophanta*									2														**2**
	Saperda scalaris											1	1			1							1	**4**
	Stenostola ferrea*	1	2	1		1			1	5		2	1			1	1		1		1	1		**19**
	Stenurella melanura	3	41	2			121	5	56	156	4	64	13	2		5		144	5	1	4	3	2	**631**

	Stictoleptura scutellata						27											1							**28**
	Tetropium castaneum							1								2			1						**4**
	Tetrops praeusta											1													**1**
Cleridae	***Opilo mollis***																	1							**1**
	Tillus elongatus*			2			27										1	1							**31**
Colydiidae	***Ditoma crenata***							3				2													**5**
	Synchita humeralis			2						2		5									5				**14**
Cucujidae	***Ahasverus advena***											1													**1**
	Leptophoeus alternans	1	2		1		1		1	1					2	1		1		3		2	1		**17**
Curculionidae	***Acalles echinatus***														1										**1**
	Acalles lemur*				7	2		14							1										**24**
	Acalles ptinoides			3			6	1				1	3						1						**15**
	Acalles roboris																					1			**1**
	Anthonomus rubi									1															**1**
	Apion alcyoneum																		1						**1**
	Apion craccae				1																				**1**
	Apion fulvipes					2						4			1			1			1	6			**15**
	Apion laevigatum								1																**1**
	Attelabus nitens												1												**1**
	Balanobius pyrrhoceras	1	15		1		1	7	9	6		5	6								9		12		**72**
	Balanobius salicivorus		18	1	6	1		5	14	4		6	3		3	1					9	10	14		**95**
	Barypeithes araneiformis			1	1																				**2**
	Bradybatus fallax					2							1												**3**
	Bytiscus betulae						1																		**1**
	Bytiscus populi																	1							**1**
	*Caenopsis fissirostris**		1																						**1**
	Ceutorhynchus cochleariae					9						1													**10**
	Ceutorhynchus contractus						1																		**1**
	Ceutorhynchus obstrictus							1																	**1**
	Cionus tuberculosus																				1				**1**
	Coeliodes dryados						2	1	17	6		3	1		2	1					4	1	16		**54**
	Coeliodes ruber	6	14		4	2		1	15	5						2		1				2	10		**62**
	Coenorhinus aeneovirens				1																				**1**
	Coenorhinus germanicus						5											2				1			**8**
	Coenorhinus interpunctatus		2		2					4		1													**9**
	Cossonus linearis						2					3					1								**6**
	Curculio glandium							11	3	2		2			1						1	2			**22**
	Curculio nucum											1			1	3					1	6	1		**13**
	Curculio venosus	7				1																			**8**
	Deporaus betulae		1		16	2	1	2	1	2		10	7		4						2	3	5		**56**
	Dieletus argentatus	7	75	11	111	5	15	73	3	16	431	5	170	4	8	56	36	7	13	1	22	9	66		**1144**
	Dorymerus singularis				6			11			3		4												**24**
	Eustolus prasinus																				1				**1**
	Euthron fagi	27	20	43	1	4	3	74	3	7	112		3	29	127	6	17		27	4	136	1	16		**660**
	Homorythmus hirticornis				2																				**2**
	Hylobius abietes																					3			**3**
	Hypera meles													1											**1**
	Hypera nigrirostris		1			1			4	1		1													**8**

	*Hypera ononidis**								1			1													**2**
	Hypera punctata													1						3					**4**
	Hypera rumicis																			1					**1**
	Lasiorynchites olivaceus						2	1										1							**4**
	*Lixus bardanae**					1																			**1**
	Magdalis armigera									1															**1**
	Mecinus pyraster					1																			**1**
	Metallites atomarius																						1		**1**
	Metallites marginatus																					1			**1**
	Nemoicus oblongus		2																						**2**
	Otiorchynchus politus																			2					**2**
	Otiorhynchus porcatus		1																						**1**
	Otiorhynchus uncinatus				1																				**1**
	Perapion violaceum					1																			**1**
	Phyllobius calcaratus		2			1					4		1						5				2		**15**
	Phyllobius pyri															1									**1**
	*Phytobius obssoni**											1													**1**
	Polydrusus mollis					1																			**1**
	Polydrusus pterygomalis																			7					**7**
	Polydrusus undatus		11	10	9	1	38		6	5	14	11	27	2	4		1	17	32	1					**189**
	Protapion flavipes		1	1																					**2**
	Pseudomycellocerus sinuatus		1			1																			**2**
	Rhinusa linariae									1															**1**
	Rhynchaenus avellanae								1													1			**2**
	*Rhynchaenus erythropus**						1																		**1**
	Rhynchaenus piloselus		4						3			1			1					2	3				**14**
	Rhynchaenus quercus		4												3					1	5				**13**
	Rhynchaenus rusci			1																					**1**
	Rutidosoma fallax						6																		**6**
	Sitona flavescens	2			1	5			4	1		8			1		1	1	3	2			1		**30**
	Sitona hispidulus								1											1					**2**
	Sitona lineatus						1	2	1					1									1		**6**
	Sitona puncticollis		1																						**1**
	Sitona regensteinensis										1														**1**
	Strophosoma capitatum		58		34		1	97	42	1	24		8			1		6			37				**309**
	Strophosoma melanogrammum	14	29	14	19		60	34	9	4	43	7	26	2		2	32	6	7		6	1	42		**357**
	Thomsoneonymus sericeus		1		3										2					7					**13**
	Trachodes hispidus	2	1		10					4	1	4	13			6						1	1		**43**
	Trichapion simile				3					1	2	5									1				**12**
	Tychius picirostris			1								1													**2**
	Tylodrusus flavipes					1																			**1**
	Tylodrusus pterygomalis					1																			**1**
	Zacladus affinis			1																					**1**
Dascillidae	***Dascillus cervinus***										2								1						**3**
Drilidae	*Drilus flavescens*			1											1			1							**3**
Elateridae	*Agriotes acuminatus*	17	10	3		16	19			1	3	77	2	2	5	1		30		31					**217**

	Agriotes aterrimus				54		3	86				84		1		1	10				30		34	**303**
	Agriotes gallicus				2																			**2**
	Agriotes obscurus		1		2																			**3**
	Agriotes pallidulus	3	463	2	34	1	66		84	33	48	64	30	9	26	4	3	62	4	15	19	48	2	**1020**
	Agriotes pilosellus	15	4	3	9	1	12	9	3	96		51	59	20	4	69	20	8		1	3	17	46	**450**
	Agriotes ustulatus	1																						**1**
	Ampedus balteatus		3						2		2	1	2			4	1	4					1	**20**
	Ampedus cardinalis*							1																**1**
	Ampedus elongatulus*		2					1		2						1		1						**7**
	Ampedus nigrinus			4				1		4		6	7	1		4							1	**28**
	Ampedus pomorum	7	19	28	3	7	14	12	4	50	12	81	96	25	3	28	10	20	31	1	3	2	41	**497**
	Ampedus sanguineus							1										1			1			**3**
	Anostirus castaneus		3	2			3	2	2			1	4			1		3	2			1		**24**
	Anostirus purpureus						5		1			2			1			7		1		1		**18**
	Athous bicolor								1													1		**2**
	Athous haemorrhoidalis	138	23		1	63	130	1	12	4	2	195	3		12	305	52	289		27	2	18	3	**1280**
	Athous subfuscus	283	340	844	121	59	251	237	131	311	780	228	1244	597	53	846	432	404	442	23	79	124	581	**8410**
	Athous vittatus	211	159	2	16	5	209		11	34		137	62	13	121	3	2	29	8	25	1	44	8	**1100**
	Cidnopus parvulus									1														**1**
	Ctenicera heyeri*			1												1			2					**4**
	Ctenicera pectinicornis						6						1						7				6	**20**
	Ctenicera sjaelendicus					1						2	1										2	**6**
	Dalopius marginatus	65	89	22	62	30	8	54	81	67	18	44	110	29	15	252	101	24	10	17	38	66	93	**1295**
	Denticollis linearis	3	21	19	43	20	54	14	21	24	10	18	44	7	11	12	10	4	10	15	10	23	39	**432**
	Denticollis rubens* **(!)**		1	3																1	1			**6**
	Haplotarsus angustulus					1							4			2							4	**11**
	Haplotarsus incanus										1		2			3			7			1	20	**34**
	Hypnoides riparius																		1				2	**3**
	Hypoganus cinctus*	1			1	4	5	9		3			1		1	9					1	1	1	**37**
	Limonius aeneoniger												3											**3**
	Melanotus castanipes	29	76	138	3	4		10	12	72	52	73	152	57		88	42	26	150		3	18	86	**1091**
	Melanotus rufipes		1		4		234	8	2		3	1	13		1			22			4			**293**
	Prosternon tessallatum					1																		**1**
	Pseudathous hirtus			1		2	8			3		7	12	1	12			4	1	9	2		4	**66**
	Selatosomus aeneus																						1	**1**
	Selatosomus bipustulatus		1		1	2		2		2					2						3			**13**
	Selatosomus nigricornis					2																		**2**
	Sericus brunneus							1		2				1										**4**
	Stenagostus villosus*	1					3					2						2						**8**
Endomychidae	***Endomychus coccineus***			4				1					1	8	4		1				2			**21**
Erotylidae	***Dacne bipustulata***											3												**3**
	Triplax rufipes*			10	1		74	1				5						5			1			**97**
	Triplax russica	1		59			5					1	5			2	4	1					5	**83**
	Tritoma bipustulata	2		2		1	2		2	4		1		1	1		1			1	1	1	1	**21**
Eucnemidae	***Dirhagus lepidus****	1			5	14	2	8		3			1	1	13	1	3	2		6	2	2	1	**65**
	Dirhagus pygmaeus*					2	1			1					2					1				**7**

	Dromaeolus barnabita*					3																			**3**
	Epiphanus cornutus		2					2		3						2						1				**10**
	Eucnemis capucina*				1	2	1					1										2				**7**
	Hypocoelus cariniceps*	4	5	1		2	5	1	2	9	2	6	32	15	1	3	4				1	7		2	**102**
	Hypocoelus foveicollis		7	8	1	11		2		1			2		8	8	7	8	11	2	5	4	12		**97**
	Hypocoelus olexai*	1	22	15	6	2	80	26	2	8		32	10	5	12	4	3	3	46	2	7	3	13		**302**
	Hypocoelus procerulus*																		1	1					**2**
	Melasis buprestoides		1	7	3	1	1	6	1	10		7	1	1				1	2			1	5		**48**
Histeridae	***Abraeus granulum****			1				1				1													**3**
	Abraeus perpusillus			1			20	1																	**22**
	Atholus duodecimstriatus																	1							**1**
	Carcinops pumilio											1													**1**
	Dendrophilus punctatus						4																		**4**
	Dendrophilus pygmaeus																						1		**1**
	Gnathoncus buyssoni					1	1	8												1					**11**
	*Gnathoncus communis**											1													**1**
	Gnathoncus nannetensis							1																	**1**
	Hister bissexstriatus																				2				**2**
	Hister merdarius							1									1								**2**
	Hister striola		1												1								1		**3**
	Hister unicolor					1				1									1						**3**
	Histeridae spp		1		1		4																		**6**
	Onthophilus striatus		1									1			2										**4**
	Paralister carbonarius						2																		**2**
	Paralister ventralis	3	5									4													**12**
	Paromalus flavicornis	1	2	5		1	213	6		1		10			2			2							**243**
	Paromalus parallelepipedus		1				44	1				2								1	1		1		**51**
	Plegaderus dissectus*			1			37	7				1						1			1				**48**
	Saprinus obscurus		2					1	1											1					**5**
	Saprinus semistriatus																			1					**1**
Lagriidae	*Lagria hirta*					2	5		1	2	11	92						26	2		11	1			**153**
Lampyridae	*Lamprohiza splendidula*	1			1	4	1	1	1			23						1			2				**35**
Leptinidae	*Leptinus testaceus*			1	5					1				1	27					9			1		**45**
Lucanidae	***Platycerus caraboides***		2		1		9	3	1	6			9			23	3	1				1	6		**65**
	Sinodendron cylindricum			20			1	2		3	1	1	2	5	1	2	4		4				14		**60**
Lycidae	***Dictyoptera aurora***											1									1				**2**
	Homalisus fontisbellaquei	1	3		14	2	7	21	11	6	3	4			118			17		2	10	3	1		**223**
	Platycis minutus						9	1		5					11			3			1				**30**
	Pyropterus affinis							1							1						2				**4**
Lymexylonidae	***Hylecoetus dermestoides***	5	4	94	8	1	60	103	2	9	18	53	38	42	2	27	26	70	116	1	6	8	159		**852**
Malachiidae	***Malachius bipustulatus***	1			2	3		1		2		6							1		3	4			**23**
Melandryidae	***Conopalpus testaceus***					5	1	1		5			8		2	1	1		1				1		**26**
	Hallomenus binotatus		1		1			5		1		1	1		1						1				**12**
	Melandrya caraboides*	1	3	8	5	15	15	13		15		28		7	8			1		14	9	5	1		**148**
	Orchesia fasciata*													1											**1**
	Orchesia micans					1					1		3								1				**6**

	Orchesia minor												1		1		1				1		**4**
	Orchesia undulata	4	5	8	12	17	3	14	5	12	2	16	4	2	9		3	1		9	6	2	3	**137**
	Osphya aenipennis		1	1						1										1	1	1		**6**
	Osphya bipunctata*		1																			1		**2**
	Phloiotrya rufipes*		9	4	1			3		8		1	4	3		3	2				1	3	5	**47**
Monotomidae	***Rhizophagus bipustulatus***	108	140	29	192	119	82	300	70	246	12	336	29	9	38	41	20	25	28	101	92	160	69	**2246**
	Rhizophagus cribratus		1		5			12		10		4											1	**33**
	Rhizophagus depressus		10	2			1		4	1	132	2	5			9	22	1	5	1			6	**201**
	Rhizophagus dispar	3	121	126	207	89	327	162	84	78	9	45	51	8	3	22	9	12	707	12	22	43	131	**2271**
	Rhizophagus ferrugineus	2	6	2	11	1	8	1		1	2	2	3	1			2						6	**48**
	Rhizophagus grandis*		1																					**1**
	Rhizophagus nitidulus	5	7	26	43	12	41	84	6	26	10	20	4	4	1	11	4		276	3	4	6	66	**659**
	Rhizophagus parvulus	2							1	2		16				1		1						**23**
	Rhizophagus perforatus	3	6	19	55	15	51	18		21		27	1		1	2	2	1	20			1	121	**364**
Mycetophagidae	***Litargus connexus***		7	3			9	8	1			5	1		1		1				2		1	**39**
	Mycetophagus atomarius						2	2											1		2			**7**
	Mycetophagus decempunctatus*							1																**1**
	Mycetophagus multipunctatus*				1			2				4					1							**8**
	Mycetophagus piceus*			3		1		2				1	2	2										**11**
	Mycetophagus populi*							1																**1**
	Mycetophagus quadriguttatus						1	5		1		1												**8**
	Mycetophagus quadripustulatus						6	2		1												1		**10**
	Triphyllus bicolor*																			2				**2**
Pselaphidae	*Bibloplectus tenebrosus*			3																	1	1	1	**6**
	Brachygluta fossulata			2					2					3	1		3			2	1		3	**17**
	Bythinus burrelli			3	1	2	1	2		2		1	2		1	1	1		2				6	**25**
	Reichenbachia juncorum												1							1				**2**
	Tychus niger				1												1					1		**3**
Pythidae	***Rhinosimus ruficollis***	81	11	34	28	74	62	33	14	22	17	58	19	9	38	7	14	6	6	31	39	22	32	**657**
Scolytidae	***Dryocoetinus alni***					1																	1	**2**
	Dryocoetinus villosus	2			232	20	13	18		8		13	5			1		2			1		2	**317**
	Ernopocerus fagi	4	1	58			10	33		1		1		17	8	8	29	14		9	17	1	10	**221**
	Leperesinus fraxini	2				10						1	1		6	1	1	1		2	5	1		**31**
	Phloeophtorus rhododactylus						1																1	**2**
	Scolytus intricatus	4	7	1	6			2	3	16		4	4	1	2	4			2		34	2	1	**93**
	Scolytus mali			1																				**1**
	Scolytus rugulosus																				1			**1**
	Taphrorychus bicolor	3	6	189	4		126	155	12	3		4	2	29	3	6	16	50	166		34	8	122	**938**
	Trypodendron domesticum	12	352	561	548	81	99	843	141	750	497	24	294	65	70	51	65	54	783	46	37	172	434	**5979**
	Trypodendron signatum	11	19	27	208	27	33	243	5	39	15	84	21	6	18	9	7	11	43	8	17	14	53	**918**
	Xyleborus dispar	4	28	12	37	16	3	30	7	29	5	15	3	6	16	19	8	1	8	7	14	27	17	**312**
	Xyleborus dryographus				3			2		4											1			**10**
	Xyleborus monographus				2	1	1	11				2												**17**
	Xyleborus peregrinus				17	102		89				1			1					45	9			**264**
	Xyleborus saxeseni	3	3	1	1		10	6	9	13		48			1			5		1	3	1	9	**114**
	Xylosandrus germanus		2		2	5	285					142			11			1006		25	6			**1484**

Silvanidae	***Silvanus bidentatus***				1			2	1	1												1		1	**7**
	Silvanus unidentatus		1				1	1		1		1				2	1		1			3			**12**
	Uleiota planata		1		1	1	1	2	1	1		2									1	2	1		**14**
Syrphidae	*Baccha elongata*									1	1	5		2	2	1			3		2		4		**21**
	Blera fallax					1			2											3		1			**7**
	***Brachyopa vittata*(!)**																1							1	**2**
	Brachypalpoides lentus												1										1		**2**
	Brachypalpus laphriformis				4	2		3	2	1	1	1	1			2				1	2		3		**23**
	***Brachypalpus valgus*(!)**									2															**2**
	Caliprobola speciosa* (!)			3	1	21	6	2		11				4	2		1	8	1	12	1	3			**76**
	Chalcosyrphus nemorum				3		1					1						10	1			1	1		**18**
	Chalcosyrphus piger												1												**1**
	Cheilosia lenis						1																		**1**
	Cheilosia pagana		1						2			1							1						**5**
	Cheilosia scutellata					1														1					**2**
	Cheilosia variabilis																			1					**1**
	*Chrysogaster coemiteriorum**						2						1						1					1	**5**
	Chrysogaster rondanii												4						3						**7**
	Chrysotoxum arcuatum	1	3	3	8				11	7		1	2	3		1			12			1	2		**55**
	Chrysotoxum bicinctum				7		10		11	23		4		4				10	2	7	1	1	1		**81**
	Criorhina asilica			2				1																	**3**
	Criorhina berberina				3	6	4	2							1			8	1	4	3	1			**33**
	Criorhina floccosa*						5			2		1			4			6		4	7				**29**
	Criorhina pachymera*							1																	**1**
	Dasysyrphus albostriatus	1								1															**2**
	Dasysyrphus hilaris				1	3						2							1	1					**8**
	Dasysyrphus lunulatus			1					1							2			1			1			**6**
	Dasysyrphus nigricornis										7		2	4		1	8	1	5					5	**33**
	Dasysyrphus venustus	1	1	1	9	7	4	4	8	6	1	96	3	2	1	1	2	7	11		9	2	2		**178**
	Didea fasciata															1									**1**
	Didea intermedia				1																				**1**
	Epistrophe diaphana									1					1										**2**
	Epistrophe eligans	1			3		2					1						1			2	1			**11**
	Epistrophe euchroma																				2	1			**3**
	Epistrophe grossulariae			2						1															**3**
	Epistrophe nitidicollis		1		3			1		2		1	1												**9**
	Episyrphus auricollis			2		2							1												**5**
	Episyrphus balteatus	2	3	13	6	2	9	6	22	20	5	36	50	51	28	26	5	29	11	7	12	4	36		**383**
	Episyrphus cinctellus		3	6	1	1	1	1	4	18	2	8	17	13	1		1	1	32			3	1		**114**
	Eristalis lineata		1			1	1					1		3			1	4	1				12		**25**
	Eristalis nemorum											3							1						**4**
	Eristalis pertinax	5	8	9	2	13	10	3	1	10		21	8	11	1		13	9	16	2	1	2	77		**222**
	Eristalis piceus		4										1	2			1		2				6		**16**
	Eristalis rupium																		1						**1**
	Eristalis tenax		4	8			2		3	2		5	7	7		4	2	2	6		1	1	95		**149**
	Eupeodes corollae			7	1		1	2	2	3	1	6	2	1	1	4			11	1		1	8		**52**

Eupeodes lapponicus			2		1		2	2			1	1			2			1	1					**13**
Eupeodes latifasciatus			1					1	4		1	1												**8**
Eupeodes luniger						1			1				1				2							**5**
Ferdinandea cuprea				3	6				1		10			1					1		2			**24**
***Ferdinandea ruficornis*(!)**				1	1																			**2**
Helophilus pendulus	1	2		3	7	5	1	5	6	1	4	1	1			1	9	7	5			1		**60**
Helophilus trivittatus		1	1								1		1		1		1	1				7		**14**
Leucozona lucorum			1																					**1**
Melangyna cincta			4	5	5		6	2	2	4		2	3	1	2	4	1	6	2	2		3		**54**
Melangyna lasiophthalma	1		1		1		1	1			4	1	1		2	3	2				1	4		**23**
Melanostoma mellinum	2		5	3				3	4	2	4	4	3		1	2	1	17			2	10		**63**
Melanostoma scalare	2	3	12	4	5	9	10	11	22	6	18	13	13	1	8	1	5	40	3	1	5	15		**207**
*Merodon equestris**											1													**1**
Myathropa florea		2	1	11	3	6	2	7	4	2	3		4	5	1		8	3	5	2	1			**70**
***Myolepta vara* (!)**							1																	**1**
Neoascia podagrica																		1						**1**
*Orthonevra geniculata**												1										1		**2**
Orthonevra intermedia																		2						**2**
Paragus haemorrhous									2															**2**
Parasyrphus lineolus			1					1										5						**7**
Parasyrphus macularis			1															1						**2**
Parasyrphus malinellus			2	1	1			2	1	6								1						**14**
Parasyrphus punctulatus		1	1		2			1	2	4		1					2			1		2		**17**
Pipiza bimaculata						1																		**1**
Pipiza fenestrata			2															1						**3**
Pipiza lugubris																		1						**1**
Pipiza luteitarsis																	1							**1**
Pipiza quadrimaculata			1						1	1	1							1						**5**
Pipizella viduata									2															**2**
Pipizella virens																		2						**2**
Platycheirus albimanus		2	4	2	2	4		12	9	1	11	1	6			2	8	13	1		1	3		**82**
Platycheirus angustatus													3					5						**8**
Platycheirus clypeatus			2			1			2									4			1	3		**13**
Platycheirus parmatus																				1				**1**
Platycheirus peltatus			1						1							1								**3**
Platycheirus scutatus	1										1													**2**
*Platycheirus tarsalis**			1															1						**2**
Pyrophaena rosarum																			1					**1**
Rhingia campestris		2			1			2	1			2					1	4			1			**14**
Scaeva pyrastri		1																				1		**2**
Scaeva selenitica																1	1		1					**3**
Sericomyia lappona			2	4		1	1					1			2			12				7		**30**
Sericomyia silentis	1	1	1	12		15	1	3	6		10	13	5		2	1	14	10		1	1	19		**116**
Sphaerophoria fatarum																		1						**1**
Sphaerophoria scripta			2				1	1	7		1	1	1		1			6		1		8		**30**
Sphegina clavata																		3						**3**

	Sphegina clunipes										1			17										2	**20**
	Sphegina elegans													14			2								**16**
	Syrphus ribesii			2	3	1	1			3	1	7	8		1	1			2	1				2	**33**
	Syrphus vitripennis			2	1	1				1	1	3	6	2				4	1						**22**
	Temnostoma apiforme* **(!)**											2			2										**4**
	Temnostoma bombylans			1	1	1		2	3	4		5			1					5					**23**
	Temnostoma vespiforme				1	1	5			1		1						5			1				**15**
	Trichopsomyia flavitarsis																		1						**1**
	Volucella bombylans							1	1	4	1										1	1			**9**
	Volucella inflata*					1																			**1**
	Volucella pellucens		1	1				1	1	1		1	3					1	6	1		1	14		**32**
	Xanthandrus comtus			1				1											1	1					**4**
	Xanthogramma laetum				1	1		1		3		1								2					**9**
	Xylota abiens*					1	1		1	1		3						2							**9**
	Xylota jakutorum					2							6						2		1		1		**12**
	Xylota meigeniana* **(!)**			2	1	1				2			1					1							**8**
	Xylota segnis	1		2	1	12	2	2	3	13		14	70	6	2	4	5	89	1	2			5		**234**
	Xylota sylvarum			16		24	8		4	7	1	7		9	1	2		20	3	21		1	2		**126**
Tenebrionidae	***Bolitophagus reticulatus****						14																		**14**
	Corticeus unicolor						58	11				2									3				**74**
	Diaperis boleti				1							6													**7**
Tetratomidae	***Tetratoma ancora****				9	25		1							27					24					**86**
Throscidae	***Throscus brevicollis***						10																		**10**
	Throscus carinifrons	29	60	12	9	91	2	18	55	69	9	35	47	13	313	373	144	5	1	165	106	58	86		**1700**
	Throscus dermestoides	15	9	37	98	28	1	30	2	233	3	1285	13	9	19	19	1	8	3	4	5	4	92		**1918**
	Throscus leseigneuri								1	18	3	4	9	6	15	1		1		2	39	1	4		**104**
Trogidae	*Trox scaber*				1		1	1							1										**4**
Trogositidae	***Nemosoma elongatum***	2	4		1			1						2	1	9	8				1		5		**34**
Total		**1207**	**2484**	**2770**	**2533**	**1249**	**3449**	**3277**	**1180**	**3142**	**2382**	**4148**	**3086**	**1356**	**1334**	**2508**	**1303**	**2852**	**3356**	**891**	**1129**	**1101**	**3117**	**49854**

Appendix 7. Results of plant species inventories, with + = < 1 %, 1 = 1-5 %, 2 = 5-25 %, 3 = 25-50%, 4 = 50-75 %, 5 = >75 % coverage.

	Site																				
Species	**BL**	**BN**	**BR**	**CL**	**FB**	**FS**	**HL**	**LB**	**MH**	**MO**	**MU**	**PB**	**PO**	**PR**	**R1**	**R2**	**RA**	**RU**	**ST**	**TR**	**VR**	**VS**
Tree layer (> 12m high)																						
Acer pseudoplatanus L.																			+			
Carpinus betulus L.				4							1			4					5			
Fagus sylvatica L.	3	5	5			3			1	*5*			4			5	3	3		5	2	5
Fraxinus excelsior L.					1																	
Populus tremula L.					1																	
Quercus petraea (Mattus.)												5			5							
Quercus robur L.	3	1		5	4		4	5	5		4			4					2	2	4	
Quercus rubra L.								2														
Scrub layer (< 12m high)																						
Acer pseudoplatanus L.														2						2		
Betula pubescens Ehrh.											+											
Carpinus betulus L.				2	4						1			+					1	1	1	
Corylus avellana L.					2									+					+	+	2	
Crataegus laevigata (Poir.) DC.					2														+			
Crataegus monogyna Jacq.											1											
Fagus sylvatica L.	2	2				2	2	+	3		+					1		4	+		3	1
Frangula alnus Mill.								1			+							+		+		
Ilex aquifolium L.	2																					
Picea abies (L.) Karst.																					+	
Prunus avium L.																				+		
Prunus spinosa L.								+														
Quercus robur L.								1														
Sambucus nigra L.																				+		
Sorbus aucuparia L.								2			3										+	
Herb layer																						
Acer campestre L.					+														+			
Acer pseudoplatanus L.				2			+						+	1					+	1		
Agrostis capillaris L.					3									+					+	+		
Ajuga reptans L.					1						+			+								
Alliaria petiolata (Bieb.) Cavara																						
Anemone nemorosa L.				4	4	+					2			5					5	2		
Angelica sylvestris L.											+											
Anthoxanthum odoratum L.											1											
Arctium nemorosum Lej.														+								
Arum maculatum L.					+														+			

Brachypodium sylvaticum												2													
Brunella vulgaris L.					+																				
Carex flacca Schreb.					+																				
Carex pilulifera L.		+			+			+				+		1	1			+			+				+
Carex sylvatica Huds.																					1				
Cardamine pratensis L.					+																				
Carpinus betulus L.				3	+							1			3						+	1	+		
Circaea lutetiana L.															2										
Convallaria maialis L.					+		+														1	1			
Corylus avellana L.									+			+			+						+	+			
Crataegus laevigata (Poir.) DC.					+										+						+				
Crataegus monogyna Jacq.					+																				
Cytisus scoparius (L.) Wimm.		+						+																	
Daphne mezereum L.					+																				
Deschampsia cespitosa (L.)							+					2				1									
Deschampsia flexuosa (L.) Trin.	+	+	1		1		+	3				1	3	1		1			3		+				1
Digitalis purpurea L.		+							+													1			
Dryopteris carthusiana (Villar)								+	+														+		
Dryopteris dilatata (Hoffm.) Gr.										+		4							+						
Dryopteris filix-mas (L.) Schott.		+		+		2	1								+			1			+	+	+		
Epilobium angustifolium L.																		+				+			
Epilobium montanum L.					1										+										
Fagus sylvatica L.	+		+		+	+	2	+		+				3		1		+			+	+			1
Festuca altissima All.														1											
Filipendula ulmaria (L.) Maxim.					2																				
Fragaria vesca L.					+																				
Frangula alnus Mill.				+				+																	
Fraxinus excelsior L.					+										+						+				
Galeopsis tetrahit L.								+							2							2			
Galium aparine L.															+										
Galium odoratum (L.) Scop.															1										
Galium saxatile L.		+			+			1					+						1						
Geranium robertianum L.					+										+										
Geum urbanum L.					+										+						1				
Hedera helix L.															+						+	+			
Holcus lanatus L.																					+	+			
Holcus mollis L.	1	+			3	3		3	1			2	2	2				2	1			+	1		
Hypericum pulchrum L.		+						+																	
Ilex aquifolium L.	2								+			1													

Impatiens noli-tangere L.														1								
Juncus effusus L.													+				+					
Lamium galeobdolon (L.)						3								+					+			
Lonicera periclymenum L.					+						3						4			1	1	
Lotus corniculatus L.											+											
Luzula luzuloides (Lam.) Dandy			1	+			+	+	+	1	1	2	2			1		+	+	1		+
Luzula pilosa (L.) Willd.																	+					
Lysimachia nemorum L.					+						+											
Maianthemum bifolium (L.) F.W.											2									2		
Melampyrum pratense L.																					+	
Melica uniflora Retz.						2								+			2					
Milium effusum L.						1	+							+			2			1		
Moehringia trinerva (L.)Clairv.														+						+		
Molinia caerulea (L.) Moench			2									2			5							
Oxalis acetosella L.				4		+				+	1			1			3					
Paris quadrifolia L.					+																	
Phyteuma nigrum F.W. Schm.											+								+			
Phyteuma spicatum L.					+																	
Picea abies (L.) Karst.			+				+	+				+	+					+				+
Poa annua L.														+								
Poa trivialis L.						+								+								
Polygonatum odoratum (Mill.)							+													+		
Polygonatum verticillatum (L.)			+						1	+	3	1							+			
Potentilla reptans sp.					+																	
Potentilla sterilis (L.) Garcke					+														+			
Primula veris L.					+														+			
Prunus avium L.																				+		
Pteridium aquilinum (L.)Khun		2		+		4	2	4			4	1	1		3		5			+		
Quercus petraea (Mattus.)												+			1							
Quercus robur L.			+	+	+		+	1	+		+			+					+	+	+	
Quercus rubra L.								2														
Ranunculus ficaria L.					1									3					1			
Ranunculus repens L.					1									+					+			
Rubus idaeus L.											+											
Sambucus nigra L.														+			+			+		
Scrophularia nodosa L.											+											
Sisymbrium officinale (L.) Scop.														+					+			
Sorbus aucuparia L.	+	+	+	+				+	+		3	+			+			+		+		+
Stachys sylvatica L.					+						+			+					+			

Stellaria holostea L.										1													
Stellaria media (L.) Vill.			+										+										
Teucrium scorodonia L.										1													
Trientalis europaea L.											3												
Urtica dioica L.					+								+							+			
Vaccinium myrtillus L.								3		2	3	+			+		4						+
Valeriana dioica L.				1																			
Veronica anagallis-aquatica L.				+																			
Veronica chamaedrys L.				+	2								1							+			
Viburnum opulus L.				2						+			+					+					
Viola reichenbachiana Jord.													+										
Carex sp.			+	+								1	+										+
Cirsium sp.													+										
Juncus sp.			+	+									+							+			
Lathyrus sp.				+																			
Prunus sp.													+										
Rosa sp.				1														+					
Rubus sp.	1		+	1	+	+	3	2		4			+			2		+		4	1		
Rumex sp.													+										
Taraxacum sp.				+																			
Vicia sp.				+														+					
Viola sp.				+									+					+					

Appendix 8. Details of habitat measurements in the 22 study sites (see main text for further explanations).

	Site																					
Variable	**BL**	**BN**	**BR**	**CL**	**FB**	**FS**	**HL**	**LB**	**MH**	**MO**	**MU**	**PB**	**PO**	**PR**	**R1**	**R2**	**RA**	**RU**	**ST**	**TR**	**VR**	**VS**
Alt	350	420	560	360	410	115	370	380	360	590	320	565	490	300	460	430	115	600	360	300	340	410
Dec2000	203.60	255.20	203	313	424.50	1042.60	304.30	158.50	847.20	59.30	192.20	140.80	198.90	458.60	102.10	153.80	792.10	108.30	358.90	252.70	614.70	166.50
Con2000	306.80	461.90	870.30	270.60	375.80	19.80	256.60	404.60	234.10	962.80	189.40	629.30	895.10	247.80	1025.20	875.70	49.30	752	87.40	340.40	243.60	917
Mix2000	66.90	16.30	18.50	299.30	15.80	16.90	313.30	11.70	1.10	57.50	199.50	17.50	116.70	0.60	89.10	193.70	47.50	75.20	2.90	52.80	21.30	150.70
Ope2000	392.40	504.40	158	366.50	422.10	170.56	375.40	643.50	132.70	169.90	498.80	461.90	37.20	480.30	33.40	24.70	356.70	313.30	758	496.40	360.80	16.20
Cov_grd	4	4	4	5	3	2	5	1	4	4	0.50	3	3	0.50	1	5	0.50	1	1	0.50	5	5
Cov_her	1	2	1	2	3	4	3	4	2	1	5	4	3	5	4	1	5	4	5	5	1	1
Cov_flr	0	0.03	0	0.63	1.06	0	0	0.55	0.15	0	1.18	0	0	1.26	0	0	0.15	0	0.91	0.78	0.03	0
Cov_2	2	0.50	0	0.50	2	0.50	2	1	0	0	3	0	0	1	0	0	0.50	2	1	1	1	0
Cov_2_8	1	1	0	1	0.50	0.50	0.50	1	1	0	0.50	0	0	1	0	1	0.50	3	0.50	0.50	3	0.50
Cov_8_15	2	2	0	3	4	2	0.50	1	2	1	1	0	0	2	0	1	1	3	0.50	0.50	2	0
Cov_15	4	4	5	5	0.50	3	5	5	5	5	4	5	4	5	5	5	3	3	1	5	3	5
Sp_herb	2	10	4	9	42	12	9	11	8	4	30	9	9	37	2	4	12	6	26	21	6	5
Sp_tree	4	8	4	6	6	2	4	7	4	3	7	3	3	7	3	1	2	3	8	9	6	3
Bracan	550	364	0	388	762	12	500	542	224	136	184	74	0	180	654	14	0	0	174	62	774	84
Cwd_sna	5.16	15.70	47.52	37.45	34.11	42.10	40.58	8.49	39.05	1.53	6.54	20.28	5.81	0.38	1.73	4.34	0	20.12	1.40	0	0	8.91
Cwd_log	0	5.94	3.80	0	0	33.36	5.07	1.02	0.24	0	2.28	32.98	4.56	0.04	0	0	0.41	21.42	2.55	2.18	0	22.18
Cwd_lbr	1.44	2.78	11.69	2.71	1.80	73.40	2.32	1.17	2.14	16.50	6.55	2.63	13.55	1.38	0.73	2.83	4.97	4.66	1.48	0.72	0.97	3.72
Cwd_sbr	0.38	2.59	3.36	3.58	0.92	1.36	2.05	0.81	1.76	1.85	2.96	6.67	2.38	3.59	1.41	0.69	2.85	2.53	1.51	2.26	1.54	3.10
Cwd_grd	1.82	11.31	18.85	6.29	2.72	108.12	9.44	3	4.14	18.35	11.79	42.28	20.49	5.01	2.14	3.52	8.23	28.61	5.54	5.16	2.51	29
Cwd_stu	1.94	4.51	0.29	1.83	2.50	0.66	3.42	1.37	1.43	1.28	3.98	2.64	2.65	2.15	2.25	2.67	1.52	1.28	2.98	2.67	1.46	0.95
Cwd_tot	8.92	31.52	66.66	45.57	39.33	150.88	53.44	12.86	44.62	21.16	22.31	65.20	28.95	7.54	6.12	10.53	9.75	50.01	9.92	7.83	3.97	38.86
Cwd1_sna	0	1.39	18.10	17.45	3.05	9.60	7.79	2.28	0	1.47	1.12	2.32	0.11	0.32	0	0	0	0	0	0	0	1.80
Cwd1_log	0	0	3.80	0	0	7.83	0	0	0	0	0	0	0	0.04	0	0	0	0	0	0	0	20.45
Cwd1_lbr	0	0	1.78	0	0	5.98	0	0.11	0	0.20	3.91	0	1.62	0.17	0	0	0.05	0.26	0.04	0	0.06	2.35
Cwd1_sbr	0.01	0.03	0.03	0.10	0.01	0.75	0	0.10	0.02	0.16	0.01	0	0	0.19	0	0	0.24	0	0.16	0.01	0	0.55
Cwd1_stu	0	0	0.02	0	0.07	0	0.28	0.04	0.03	0.55	0.43	0	0.98	0	0	0.01	0.47	0	0.23	0.15	0	0.16
Cwd1_tot	0.01	1.42	23.73	17.55	3.13	24.16	8.07	2.53	0.05	2.38	5.47	2.32	2.71	0.72	0	0.01	0.76	0.26	0.43	0.16	0.06	25.31
Cwd2_sna	5.16	0.19	24.84	11.52	24.19	31.83	23.87	4.32	36.32	0	1.13	3.70	0	0	1.73	1.91	0	10.13	1.28	0	0	4.66
Cwd2_log	0	1.10	0	0	0	19.83	5.07	0	0.24	0	2.28	6.03	4.56	0	0	0	0.41	0	2.55	1.55	0	1.73
Cwd2_lbr	0.59	0.41	3.79	0.18	0.15	24.57	0.98	0.05	0	14.99	0.64	0.32	8.28	0.22	0.19	0.13	2.61	0.80	0.68	0.05	0.33	0.62
Cwd2_sbr	0.04	0.03	1.85	0.25	0.12	0.13	0.39	0.11	0.37	1.03	1.70	0.12	0.62	2.12	0.28	0.31	2.20	0.27	0.44	0.31	0.21	1.49
Cwd2_stu	0.12	0.41	0.13	0.02	0	0	0.23	0.01	0.04	0.39	0.84	0.07	0.68	0.45	0	0.16	0.58	0	0.05	0.14	0.11	0.31
Cwd2_tot	5.91	2.14	30.61	11.97	24.46	76.36	30.54	4.49	36.97	16.41	6.59	10.24	14.14	2.79	2.20	2.51	5.80	11.20	5	2.05	0.65	8.81
Cwd3_sna	0	11.97	4.57	8.08	3.45	0	1.92	1.47	2.73	0.05	0.16	12.11	5.70	0.07	0	0	0	7.90	0.12	0	0	0
Cwd3_log	0	4.84	0	0	0	5.71	0	1.02	0	0	0	24.89	0	0	0	0	0	21.40	0	0	0	0
Cwd3_lbr	0.12	2.15	2.53	2.41	1.48	19.96	1.15	0.93	2.05	0.94	0.24	1.51	2.78	0.16	0.38	0.14	2.14	1.66	0.77	0.30	0.59	0.50
Cwd3_sbr	0.12	2.10	0.79	2.54	0.59	0.33	1.14	0.43	0.93	0.21	0.30	5.30	1.23	0.36	0.69	0.30	0.23	0.22	0.83	0.34	1.10	0.70
Cwd3_stu	0.55	3.94	0.29	1.71	2.21	0.17	2.28	1.22	0.72	0.01	1.14	1.69	0.35	0.46	0.93	1.76	0.35	0.23	2.20	1.38	0.81	0.04
Cwd3_tot	0.79	25	8.18	14.74	7.73	26.17	6.49	5.07	6.43	1.21	1.84	45.50	10.06	1.05	2	2.20	2.72	31.41	3.92	2.02	2.50	1.24
Cwd4_sna	0	2.22	0	0.40	3.41	0.69	6.99	0.42	0	0	4.15	1.85	0	0	0	2.43	0	2.09	0	0	0	2.46
Cwd4_log	0	0	0	0	0	0	0	0	0	0	0	2.06	0	0	0	0	0	0	0	0.64	0	0
Cwd4_lbr	0.72	0.22	3.68	0.12	0.17	22.92	0.18	0.08	0.09	0.61	1.77	0.81	0.87	0.83	0.15	2.56	0.15	1.95	0	0.36	0	0.24
Cwd4_sbr	0.21	0.42	0.69	0.71	0.18	0.18	0.52	0.16	0.42	0.62	0.57	1.24	0.55	0.91	0.45	0.08	0.19	2.08	0.09	1.59	0.24	0.36
Cwd4_stu	1.26	0.10	0.07	0.09	0.23	0.48	0.63	0.11	0.64	0.33	1.55	0.88	0.63	1.25	1.32	0.73	0.23	1.05	0.51	1.01	0.55	0.24

Cwd4_tot	2.19	2.96	4.44	1.32	3.99	24.27	8.32	0.77	1.15	1.56	8.04	6.84	2.05	2.99	1.92	5.80	0.57	7.17	0.60	3.60	0.79	3.30
High_a40	25.05	23.38	28.36	27.34	18.50	33.39	27.45	23.40	20.50	28.66	23.11	21	28.01	30.11	22.67	30.25	36.32	25.66	24.71	27.66	22.32	30.82
Girt_a40	138.50	155.54	196.49	191.34	145.58	267	178.58	149.38	149.36	176.39	150.91	150.25	194.85	202.92	148.22	136	215.34	202.56	230.71	174.73	139.95	180.72
Tree_a40	76	26	80	58	52	32	114	32	28	86	44	8	40	48	54	4	64	46	28	68	86	60
High_b40	18.25	14.19	19.14	13.48	12.63	14.71	14.61	12.49	13.46	23.76	17.42	18.72	16.87	12.25	19.38	16.33	22.72	7.29	13.74	13.01	18.40	15.85
Girt_b40	71.31	55.91	81.14	35.37	43.66	46.25	56.29	55.74	56.71	93.40	76.49	81.40	66.43	35.91	93.01	57.96	72.33	24.64	41.26	36.69	76.33	64.54
Tree_b40	400	672	56	768	1004	240	180	392	468	120	220	448	188	492	288	92	36	476	796	336	268	140
Tree40	0.16	0.04	0.59	0.07	0.05	0.12	0.39	0.08	0.06	0.42	0.17	0.02	0.18	0.09	0.16	0.04	0.64	0.09	0.03	0.17	0.24	0.30
SG40	10526	4044	15256	11098	7570	8544	20358	4780	4182	15170	6640	1202	7794	9740	8004	13798	13782	9318	6460	12104	12036	10843
SG60	0	780	10430	6518	840	8288	6590	412	516	4824	476	0	4800	7128	1270	5176	10494	6962	5488	6104	0	5556
SG80	0	0	2736	1626	0	6034	508	0	516	2266	0	0	1658	1608	0	606	3796	1582	2930	1094	0	1108
G	30.08	26.13	28.52	26.71	26.32	23.98	35.64	19.85	21.51	31.42	19.62	26.66	22.92	22.65	31	22.84	26.22	18.26	27.50	22.45	28	22.12
G40	11.67	5.13	25.43	17.47	8.96	19.06	29.76	5.81	5.19	22.70	8.17	1.46	12.92	16.23	9.76	19.72	24.50	15.42	11.45	17.96	13.49	16.62
Gr_Fag	29.70	37.30	93.60	30.40	0.20	96.70	39.60	2.70	17.10	82.40	6.20	0	99.10	36.90	19.20	100	100	98.70	3.50	45.80	13.90	94.20
Gr_Que	70.30	43.50	0	67	83.70	3.30	58.10	94.25	75.40	0	59.10	89.30	0	58.20	80.30	0	0	0	50.30	47.50	85.50	0
Woodpcav	1.67		6.67	7.33	2		7.50			0.83	3	1.83	1.67	2.67	0.67	2.33		10.70	3	5.67		4.33
Fungicav	0		5	3	3		4.17			4.50	1	2.50	2	2.33	0.67	3		2.67	3	1		6.67

Alt: altitude (m), Dec2000: amount of deciduous forests in 2000m-radius (ha), Con2000: amount of coniferous forests in 2000m-radius (ha), Mix2000: amount of mixed forests in 2000m-radius (ha), Ope2000: amount of open land in 2000m-radius (ha), Cov_grd: bare soil cover (class[a]), Cov_her: herbaceous plant cover (class[a]), Cov_flr: sum of flowering plant covers (%), Cov_2: < 2m tree cover (class[a]), Cov_2_8: 2-8m tree cover (class[a]), Cov_8_15: 8-15m tree cover (class[a]), Cov_15: > 15m tree cover (class[a]), Sp_herb: no. of herbaceous plant species, Sp_tree: no. of tree species, Bracan: amount of dead branches in canopy[b] (no. ha^{-1}), Cwd_sna: snag volume (m^3 ha^{-1}), Cwd_log: log volume (m^3 ha^{-1}), Cwd_lbr: volume of fallen large[c] dead branches (m^3 ha^{-1}), Cwd_sbr: volume of fallen small[d] dead branches (m^3 ha^{-1}), Cwd_grd: fallen dead wood volume[e] (m^3 ha^{-1}), Cwd_stu: stump volume (m^3 ha^{-1}), Cwd_tot: total dead wood volume[f] (m^3 ha^{-1}), Cwd1_sna-Cwd1_tot: different dead wood volumes in decay class 1 (m^3 ha^{-1}), Cwd2_sna-Cwd2_tot: different dead wood volumes in decay class 2 (m^3 ha^{-1}), Cwd3_sna-Cwd3_tot: different dead wood volumes in decay class 3 (m^3 ha^{-1}), Cwd4_sna-Cwd4_tot: different dead wood volumes in decay class 4 (m^3 ha^{-1}), High_a40: mean height of living trees with dbh $\geq$ 40cm[i] (m), Girt_a40: mean girth of living trees with dbh $\geq$ 40cm[i] (cm), Tree_a40: amount of living trees with dbh[g] $\geq$ 40cm (no. ha^{-1}), High_b40: mean height of living trees with dbh < 40cm[i] (m), Girt_b40: mean girth of living trees with dbh < 40cm[i] (cm), Tree_b40: amount of living trees with dbh[g] < 40cm (no. ha^{-1}), Tree40: availability of living trees with dbh $\geq$ 40cm[h], SG40: summed girth of standing trees with dbh $\geq$ 40cm[i] (cm ha^{-1}), SG60: summed girth of standing trees with dbh $\geq$ 60cm[i] (cm ha^{-1}), SG80: summed girth of standing trees with dbh $\geq$ 80cm[i] (cm ha^{-1}), G: basal area of living trees (m^2 ha^{-1}), G40: basal area of living trees with dbh $\geq$ 40cm (m^2 ha^{-1}), Gr_Fag: beech relative basal area (%), Gr_Que: oak relative basal area (%), Woodpcav: availability of woodpecker-made cavities (no. ha^{-1}), Fungicav: availability of tree cavities created by stem decay (no. ha^{-1}).

[a] 0 = 0%, 1 = 1-5%, 2 = 5-25%, 3 = 25-50%, 4 = 50-75%, 5 = > 75%
[b] with a base diameter > 5 cm
[c] with a diameter $\geq$ 10 cm
[d] with 5 cm $\leq$ diameter < 10 cm
[e] Cwd_log + Cwd_lbr + Cwd_sbr
[f] Cwd_sna + Cwd_log + Cwd_lbr + Cwd_sbr + Cwd_stu
[g] diameter at breast height = 1.3m above ground level
[h] Tree_a40/(Tree_a40 + Tree_b40)
[i] measured at breast height

Appendix 9. Species list of wood-living fungi inventoried in beech forests (10 sites, 3 regions, autumn-winter 2002-2004), including polypores and the species with high indicator value for BENELUX, Denmark and Europe (from Walleyn et al. 2004, Walleyn & Veerkamp 2005).

	Polypore	Indicator species			Site									
Species		**BENELUX**	**Denmark**	**Europe**	**BR**	**FS**	**HL**	**MO**	**PO**	**R2**	**RA**	**RU**	**TR**	**VS**
Systematically searched														
Abortiporus biennis	x										1			
Antrodiellaonychoides	x					1								
Antrodiella semisupina (Berk. & M.A.Curtis) Ryvarden	x											1		
Armillaria lutea Gillet					1	1	1				1	1		
Armillaria mellea						1								
Armillaria ostoyae (Romagn.) Herink							1							1
Ascocoryne cylichnium (Tul.) Korf					1	1			1			1		1
Ascocoryne sarcoides (Jacq.: Fr.) J.W.Groves & Wilson						1	1					1	1	
Bjerkandera adusta (Willd.: Fr.) P.Karst.	x				1	1	1	1		1	1	1	1	1
Bolbitius reticulatus						1								
Bulgaria inquinans (Pers.: Fr.) Fr.					1		1					1		1
Calocera cornea (Batsch: Fr.) Fr.					1	1	1	1				1		1
Camarops tubulina		x	x	x	1				1			1		
Ceriporia excelsa	x								1			1		
Ceriporia viridans	x				1									
Ceriporiopsis gilvescens	x	x	x	x		1								
Ceriporiopsis pannocincta	x	x	x	x		1								
Chondrostereum purpureum (Pers.: Fr.) Pouzar					1	1								1
Clitopilus hobsonii (Berk.) P.D.Orton					1	1						1		1
Conocybe subpubescens						1								
Coprinus laanii						1					1			
Coprinus lagopides						1								
Coprinus micaceus (Bull.: Fr.) Fr.					1	1		1	1		1	1		1
Coprinus spelaiophilus						1								
Crepidotus applanatus					1					1		1		1
Crepidotus lundellii Pilát							1							
Crepidotus mollis						1	1				1			
Crepidotus variabilis Quél.							1						1	
Crepidotus versutus						1								
Daedaleopsis confragosa (Bolton: Fr.) J.Schröt.	x				1			1						
Datronia mollis	x					1	1							1
Eutypa spinosa (Pers.: Fr.) Tul. & C.Tul.		x	x		1	1	1	1	1	1	1	1		1

Exidia nucleata						1									
Flammulaster limulatus		x	x	x		1						1			
Fomes fomentarius (L.: Fr.) Kickx	x				1	1	1		1	1					1
Fomitopsis pinicola (Swartz: Fr.) P.Karst.	x				1		1	1	1	1		1			1
Galerina ampullaceocystis						1									
Galerina marginata						1	1		1						
Galerina nana						1									
Ganoderma lipsiense (Batsch) Atk.	x				1	1	1	1	1	1		1			1
Ganoderma lucidum	x				1							1			
Ganoderma resinaceum Boud.	x											1			
Gymnopilus penetrans (Fr.) Murrill					1										
Henningsomyces candidus			x		1	1			1						
Hypholoma fasciculare (Huds.: Fr.) P.Kumm.					1	1	1	1	1	1	1	1			1
Hypholoma sublateritium (Fr.) Quél.					1		1					1			1
Hypocrea citrina												1			
Hypocrea gelatinosa						1									
Hypocrea rufa (Pers.: Fr.) Fr.												1			
Hypoxylon cohaerens (Pers.: Fr.) Fr.			x		1	1	1		1	1	1	1			1
Hypoxylon fragiforme (Scop.: Fr.) Kickx					1	1	1	1	1	1		1	1		1
Hypoxylon multiforme					1		1								
Hypoxylon rubiginosum (Pers.: Fr.) Fr.						1			1		1	1			
Inonotus nodulosus (Fr.) P.Karst.	x	x	x		1	1						1			
Kretzschmaria deusta (Hoffm. Fr.) P.M.D. Martin						1	1	1	1	1	1	1	1		1
Laxitectum bicolor						1									
Lycoperdon perlatum Pers.: Pers.					1				1			1			1
Lycoperdon pyriforme						1									
Marasmius alliaceus (Jacq.: Fr.) Fr.							1						1		1
Megacollybia platyphylla						1	1		1						
Melanotus horizontalis						1						1			
Meripilus giganteus	x					1									
Merismodes anomalus (Pers.: Fr.) Singer					1										
Mycena abramsii						1									
Mycena acicula						1									
Mycena adscendens						1									
Mycena arcangeliana						1									
Mycena crocata						1					1				
Mycena galericulata (Scop.: Fr.) Gray					1	1	1	1	1	1	1	1			1
Mycena haematopus (Pers.: Fr.) P.Kumm.					1	1		1	1			1			1

Mycena picta						1									
Mycena speirea (Fr.: Fr.) Gillet						1						1			1
Mycena vitilis							1				1				
Mycoacia aurea						1						1			
Mycoacia fuscoatra						1									
Mycoacia uda						1					1				
Nemania atropurpurea				x	1							1			
Nemania chestersii				x	1	1									
Nemania serpens (Pers.: Fr.) Kickx						1	1	1	1	1		1			
Oligoporus stipticus (Pers.: Fr.) Gilb. & Ryvarden	x				1	1		1	1			1	1		
Oligoporus subcaesius (David) Ryvarden & Gilb.	x														1
Oligoporus tephroleucus (Fr.: Fr.) Gilb. & Ryvarden	x				1		1		1			1			1
Ombrophila pura (Pers.: Fr.) Baral & Krieglst.					1	1	1	1	1		1	1	1		1
Oudemansiella mucida (Schrad.: Fr.) Höhn.					1		1	1		1	1				1
Oxyporus populinus	x											1			1
Panellus serotinus (Pers.: Fr.) Kühner					1	1	1					1			1
Panellus stipticus (Bull.: Fr.) P.Karst.					1		1					1			
Peziza micropus						1									
Phellinus ferreus (Pers.) Bourdot & Galzin	x						1								
Phellinus ferruginosus	x				1	1									
Phlebia lilascens					1										
Phlebia livida						1									
Phlebia radiata Fr.					1	1	1				1	1			
Phlebia rufa (Fr.) M.P.Christ.						1	1								1
Phlebia tremellosa (Schrad.: Fr.) Nakasone & Burds.					1	1	1		1			1			1
Phleogena faginea		x		x		1									
Pholiota aurivella (Batsch: Fr.) P.Kumm.		x		x	1	1				1		1			1
Pholiota gummosa (Lasch) Singer					1	1									
Pholiota mutabilis (Scop.: Fr.) P.Kumm.					1	1		1				1			1
Pholiota squarrosa (Weigel: Fr.) P.Kumm.					1							1			1
Physisporinus vitreus (Pers.: Fr.) P.Karst.	x				1	1	1		1	1	1	1			1
Pleurotus ostreatus (Jacq.: Fr.) P.Kumm.					1	1	1				1				1
Plicaturopsis crispa (Pers.: Fr.) Reid					1	1	1					1	1		1
Pluteus cervinus (Schaeff.) P.Kumm.					1	1	1	1	1	1	1	1			1
Pluteus hispidulus						1									
Pluteus insidiosus						1									
Pluteus leoninus						1									
Pluteus nanus						1									
Pluteus phlebophorus				x		1					1				

Pluteus plautus				1						1			
Pluteus podospileus				1									
Pluteus salicinus (Pers.: Fr.) P.Kumm.		1											
Polyporus badius	x			1									
Polyporus brumalis (Pers.: Fr.) Fr.	x	1											1
Polyporus varius (Pers.: Fr.) Fr.	x	1								1	1		1
Psathyrella cotonea				1									
Psathyrella piluliformis (Bull.: Fr.) P.D.Orton		1		1		1				1	1		1
Pseudoclitocybe cyathiformis				1									
Pycnoporellus fulgens (Fr.) Donk	x			1									
Pycnoporus cinnabarinus (Jacq.: Fr.) P.Karst.	x	1				1					1		1
Schizophyllum commune Fr.: Fr.		1	1	1		1					1	1	1
Schizopora flavipora	x			1						1			
Schizopora paradoxa (Schrad.: Fr.) Donk	x	1		1		1							
Schizopora radula	x			1						1	1		
Scutellinia scutellata (L.: Fr.) Lambotte				1							1		
Simocybe centunculus		1		1	1								
Simocybe rubi				1									
Simocybe sumptuosa		1		1	1		1						1
Skeletocutis nivea	x			1									
Sphaerobolus stellatus				1									
Steccherinum ochraceum		1		1	1								
Stereum gausapatum (Fr.) Fr.					1								
Stereum hirsutum (Willd.: Fr.) Pers.		1			1	1	1	1	1	1	1	1	1
Stereum ochraceoflavum				1									
Stereum rugosum (Pers.: Fr.) Fr.		1		1	1	1	1	1			1		1
Stereum subtomentosum Pouzar		1		1	1				1		1		1
Stropharia hornemannii (Fr.: Fr.) S.Lundell & Nannf.											1		
Trametes gibbosa (Pers.) Fr.	x			1	1		1		1				
Trametes hirsuta (Wulfen: Fr.) Pilát	x	1		1	1		1	1			1	1	1
Trametes ochracea	x			1	1								
Trametes versicolor (L.: Fr.) Pilát	x	1		1	1	1	1	1	1	1	1	1	1
Trechispora mollusca (Pers.: Fr.) Liberta	x	1									1		
Tremella foliacea Pers.: Pers.				1	1						1		
Trichaptum abietinum (Pers.: Fr.) Ryvarden	x										1		
Tubaria conspersa										1			
Xylaria hypoxylon (L.: Fr.) Grev.		1		1	1	1					1		1
Xylaria polymorpha (Pers.) Grev.				1	1						1		

Non systematically searched																
Arachnopeziza aurata							1									
Botryobasidium aureum													1		1	
Cerocorticium hiemale (Laurika) Jülich & Stalpers							1									
Cylindrobasidium laeve (Pers.: Fr.) Chamaris							1								1	
Cystoderma longisporum (Kühner) Heinem. & Thoen													1			
Dacrymyces stillatus Nees: Fr.					1			1					1			
Diatrype stigma (Hoffm.: Fr.) Fr.						1			1					1		
Galerina hypnorum (Schrank: Fr.) Kühner													1			
Hygrophoropsis aurantiaca (Wulfen) Maire					1								1			
Hyphoderma puberum													1			
Hyphoderma praetermissum					1	1										
Hyphodontia barba-jovis (Bull.: Fr.) J.Erikss.					1											
Hyphodontia breviseta (P. Karst.) J. Erikss.							1						1			
Laccaria amethystina (Huds.->) Cooke					1											
Lasiosphaeria spermoides (Hoffm.: Fr.) Ces. & De Not.													1			
Mycena leptocephala							1									
Mycena sanguinolenta (Alb. & Schwein.: Fr.) P.Kumm.													1			
Nectria cinnabarina (Tode: Fr.) Fr.					1											
Orbilia delicatula (P. Karst.) P. Karst.						1			1							
Peniophora cinerea (Pers.: Fr.) Cooke					1											
Phanerochaete filamentosa (Berk. & M.A.Curtis) Burdsall													1			
Phanerochaete laevis					1											
Phanerochaete sordida (P.Karst.) J.Erikss. & Ryvarden					1											
Phanerochaete velutina (DC.: Fr.) P.Karst.							1						1			
Rickenella fibula (Bull.: Fr.) Raitelh.							1						1			
Scopuloides rimosa (Cooke) Jülich							1									
Tomentella sublilacina (Ellis & Holway) Wakef.													1			
Species richness (systematic inventory)					**66**	**102**	**57**	**22**	**36**	**20**	**32**	**66**	**13**	**51**		
Species richness (+ non systematic inventory)					**75**	**105**	**65**	**23**	**38**	**20**	**32**	**79**	**14**	**53**		
# polypores	**39**				**19**	**20**	**14**	**6**	**12**	**7**	**8**	**19**	**4**	**14**		
# indicator species BENELUX		**8**			**4**	**7**	**1**	**1**	**2**	**2**	**1**	**5**	**0**	**2**		
# indicator species Denmark			**13**		**8**	**11**	**2**	**1**	**4**	**3**	**3**	**7**	**0**	**3**		
# indicator species Europe				**4**	**1**	**3**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**0**		

Appendix 10. Density (pairs/ha) and number of bird species in 16 out of the 22 study sites (2 regions, 2003). Total species richness includes the number of species counted inside and outside the limits of the 50 m-radius sample plots.

		Site																
Nesting habit	**Species**	**BL**	**BR**	**CL**	**FB**	**HL**	**MO**	**MU**	**PB**	**PO**	**PR**	**R1**	**R2**	**RU**	**ST**	**TR**	**VS**	**Total**
Primary cavity nester	*Dendrocopos major*	0.018	0.031	0.040	0.044	0.044	0.022	0.026	0.026	0.031	0.031	0.013	0.022	0.026	0.040	0.022	0.031	**0.467**
	Dendrocopos medius			0.026	0.018	0.026		0.009			0.026				0.026	0.009		**0.140**
	Dendrocopos minor		0.009		0.009	0.009		0.009	0.009						0.009			**0.054**
	Dryocopus martius		0.009	0.009		0.009	0.009			0.009	0.009	0.009	0.009	0.009		0.009	0.009	**0.099**
	Picus canus		0.009	0.009				0.009										**0.027**
	Picus viridis	0.009		0.009		0.009		0.009			0.009				0.009	0.009		**0.063**
Sum 1		**0.027**	**0.058**	**0.093**	**0.071**	**0.097**	**0.031**	**0.062**	**0.035**	**0.040**	**0.075**	**0.022**	**0.031**	**0.035**	**0.084**	**0.049**	**0.040**	**0.850**
Secondary cavity nester	*Certhia brachydactyla*		0.424	1.695	0.424			0.847	0.424		0.847			0.424	0.847	0.847	0.847	**7.626**
	Certhia familiaris	0.424		0.424	0.424	0.424	0.424	0.847	0.424		0.424		0.424	0.212	0.847	0.424	0.847	**6.569**
	Columba oenas		0.424											0.424			0.424	**1.272**
	Ficedula hypoleuca			1.271		0.847												**2.118**
	Musciapa striata		0.424		0.424													**0.848**
	Parus ater	0.847	0.424	0.847	0.424	0.847	0.847	0.847	0.424			0.424	1.271	1.695			1.271	**10.168**
	Parus caeruleus	1.271	1.271	1.271	1.271	1.695	0.847	1.271	0.847		0.847	0.847	0.847	0.847	2.542	1.271	0.847	**17.792**
	Parus cristatus								0.424									**0.424**
	Parus major	1.271	1.695	2.542	2.542	2.119	0.847	1.271	2.542	1.271	1.695	0.424	1.695	1.695	1.695	1.271	2.119	**26.694**
	Parus montanus							0.212										**0.212**
	Parus palustris	0.847	0.424	1.271	0.847	1.271		0.424	0.424		1.695			1.271	0.847	0.847	0.847	**11.015**
	Phoenicurus phoe.		0.424						0.424					0.424				**1.272**
	Sitta europaea	1.271	1.271	1.271	1.695	2.542	0.424	1.059	0.424	0.847	1.271	0.847	1.271	1.271	1.695	1.271	1.271	**19.701**
	Sturnus vulgaris				0.847						1.271				1.695	1.271		**5.084**
Sum 2		**5.931**	**6.781**	**10.592**	**8.898**	**9.745**	**3.389**	**6.778**	**6.357**	**2.118**	**8.050**	**2.542**	**5.508**	**8.263**	**10.168**	**7.202**	**8.473**	**110.795**
Non-cavity nester	*Aegitalos caudatus*							0.424	0.424		0.424							**1.272**
	Coccothraustes cocc.				0.636										0.424	0.212		**1.272**
	Columba palumbus				0.847										0.424	0.424	0.424	**2.119**
	Corvus corone	0.424			0.212													**0.636**
	Erithacus rubecula	1.695	1.271	1.695	1.695	0.847	1.695	1.695	1.271	1.271	1.271	1.695	1.695	1.271	0.847	1.271	1.271	**22.456**
	Fringilla coelebs	0.847	2.119	2.542	1.271	2.119	2.542	2.119	2.119	2.119	0.424	1.271	2.966	2.119	2.119	0.424	2.966	**30.086**
	Garrulus glandarius										0.212				0.212	0.424	0.424	**1.272**
	Motacilla cinerea								0.424									**0.424**
	Phylloscopus collybita	1.271		0.847			0.212	0.847	0.424		0.424			1.271	0.847	1.695	0.424	**8.262**
	Phylloscopus sibilatrix	0.424	0.847	1.271		1.271		0.847	0.847	0.847		0.847	0.424	0.424				**8.049**
	Phylloscopus trochilus			0.424					0.424		0.424							**1.272**
	Prunela modularis	0.424											0.424			0.424		**1.272**
	Pyrrhula pyrrhula				0.212	0.424												**0.636**
	Regulus ignicapilus	0.424	0.847			0.847		0.424	0.847	0.424	0.847	0.424	0.424	0.847			0.847	**7.202**
	Regulus regulus						0.424					0.424	0.424					**1.272**
	Sylvia atricapilla	0.847	0.424	0.424	0.424	0.424	0.424	0.424	0.424	0.847	1.271	0.424	0.424	1.271	0.847	1.271	0.847	**11.017**
	Troglodytes trog.	0.847	0.847	1.271	1.271	1.271	0.847	1.695	0.847		1.271	0.424	0.847	1.695	1.271	1.483	1.695	**17.582**
	Turdus merula	1.271	0.424	0.847	0.424	1.695	0.424	1.271	0.847	0.212	0.636			0.212	1.271	1.271	0.424	**11.229**
	Turdus philomelos	0.847		0.847	1.271	0.847		0.424			0.847	0.424	0.847					**6.354**
	Turdus viscivorus			0.212	0.636									0.424				**1.272**
Sum 3		**9.321**	**6.779**	**10.380**	**8.899**	**9.745**	**6.568**	**10.170**	**8.898**	**5.720**	**8.051**	**5.933**	**8.475**	**9.534**	**8.262**	**8.899**	**9.322**	**134.956**
Total density (1 + 2 + 3)		**15.279**	**13.618**	**21.065**	**17.868**	**19.587**	**9.988**	**17.010**	**15.290**	**7.878**	**16.176**	**8.497**	**14.014**	**17.832**	**18.514**	**16.150**	**17.835**	**246.601**
Total species richness		**24**	**29**	**28**	**24**	**27**	**21**	**30**	**28**	**20**	**26**	**23**	**24**	**27**	**22**	**31**	**25**	**46**

Appendix 11. List of inventoried bat species (12 sites, 3 regions, 2005), including the species that typically use overmature tree microhabitats "x" or occasionally "(x)" as roosting sites.

	Roost site		Site											
Species	**Tree cavity**	**Under tree bark**	**BL**	**BR**	**CL**	**HL**	**MH**	**MO**	**MU**	**PO**	**PR**	**RU**	**TR**	**VR**
Local sampling (at point count stations)														
Eptesicus serotinus			1							1		1		1
Eptesicus serotinus / Myotis myotis	/ (x)												1	
Eptesicus serotinus / Nyctalus sp.						1								
Eptesicus serotinus / Nyctalus sp. */ Myotis myotis*						1								
Myotis nattereri	x	(x)		1	1	1		1		1		1	1	
Myotis sp.			1	1	1	1		1	1	1	1		1	1
Nyctalus leisleri	x												1	1
Nyctalus noctula	x								1					1
Nyctalus sp.			1	1	1	1	1							
Pipistrellus pipistrellus			1	1	1	1	1	1	1	1	1	1	1	1
Plecotus auritus / austriacus	x /				1	1							1	1
Regional sampling (outside point count stations)														
Eptesicus serotinus			1										1	1
Eptesicus serotinus / Nyctalus sp.					1	1	1						1	1
Eptesicus serotinus / Nyctalus sp. */ Myotis myotis*					1	1								
Myotis bechsteinii	x	(x)			1	1								
Myotis daubentonii	x		1		1	1	1				1	1		1
Myotis myotis	(x)				1	1		1						
Myotis mystacinus / brandtii		/ x	1		1	1							1	1
Myotis nattereri	x	(x)			1	1		1						1
Myotis sp.			1		1	1	1				1	1	1	1
Nyctalus leisleri	x				1	1					1		1	
Nyctalus noctula	x		1											1
Nyctalus sp.			1		1	1	1				1		1	
Pipistrellus nathusii	x	x					1							
Pipistrellus pipistrellus			1	1	1	1	1	1	1	1	1	1	1	1
Pipistrellus sp.											1			1
Plecotus auritus / austriacus	x /		1		1	1			1		1		1	1
Plecotus auritus	x				1	1								
Plecotus austriacus					1	1								
Minimum local species richness			**4**	**3**	**4**	**5**	**2**	**2**	**3**	**3**	**2**	**3**	**5**	**6**
Maximum local species richness			**4**	**4**	**6**	**9**	**2**	**3**	**3**	**4**	**2**	**3**	**8**	**7**
Minimum regional species richness			**6**	**4**	**10**	**10**	**4**	**3**	**4**	**4**	**4**	**4**	**5**	**8**
Maximum regional species richness			**10**	**4**	**12**	**12**	**7**	**4**	**5**	**4**	**9**	**5**	**12**	**12**

Appendix 12. GLM repeated measures ANOVA table for the effects of year (2002, 2003) and dead wood supply (high: > 50 m^3ha^{-1} vs. moderate: 20-50 m^3ha^{-1}) on species richness (S) and abundance (A) among selected (most species-rich) insect families. See Table 4 for explanation of acronyms.

Variable	*n*	High cwd (5 stands) Mean ± SE	Moderate cwd (6 stands) Mean ± SE	Source of variance	df	*F*	*p*
Number of species							
S_Cer	28	11.00 ± 0.63	12.33 ± 1.71	Year	1	0.119	0.739
				Year x Deadwood	1	0.021	0.888
				Deadwood	1	0.451	0.519
S_Ela_s	17	7.60 ± 0.98	7.17 ± 0.60	Year	1	9.378	**0.014**
				Year x Deadwood	1	3.007	0.117
				Deadwood	1	0.200	0.665
S_Ela_ns	21	8.80 ± 1.24	10.17 ± 0.88	Year	1	3.613	0.090
				Year x Deadwood	1	0.030	0.867
				Deadwood	1	1.556	0.244
S_Euc	10	4.60 ± 0.40	5.67 ± 0.62	Year	1	0.759	0.406
				Year x Deadwood	1	1.383	0.270
				Deadwood	1	6.232	**0.034**
S_Mel	8	3.60 ± 0.75	4.33 ± 0.56	Year	1	1.574	0.241
				Year x Deadwood	1	0.042	0.843
				Deadwood	1	0.380	0.553
S_Mon	9	5.80 ± 0.20	7.00 ± 0.52	Year	1	1.636	0.233
				Year x Deadwood	1	0.051	0.827
				Deadwood	1	3.796	0.083
S_Sco[a]	16	8.20 ± 1.07	9.83 ± 0.60	Year	1	0.573	0.468
				Year x Deadwood	1	0.007	0.935
				Deadwood	1	0.894	0.369
S_Syr_s[b]	26	8.00 ± 0.71	9.00 ± 2.00	Year	1	0.295	0.600
				Year x Deadwood	1	3.707	0.086
				Deadwood	1	0.087	0.775
S_Syr_ns	70	28.20 ± 5.63	24.83 ± 3.20	Year	1	5.542	**0.043**
				Year x Deadwood	1	0.622	0.451
				Deadwood	1	0.066	0.804
Number of individuals							
A_Cer	1202	84.80 ± 32.13	129.67 ± 55.95	Year	1	1.954	0.196
				Year x Deadwood	1	0.045	0.837
				Deadwood	1	0.058	0.815
A_Ela_s	1721	209.60 ± 46.72	112.17 ± 24.29	Year	1	6.619	**0.030**
				Year x Deadwood	1	0.084	0.778
				Deadwood	1	3.798	0.083
A_Ela_ns	7063	742.00 ± 201.02	558.83 ± 126.71	Year	1	0.186	0.676
				Year x Deadwood	1	0.022	0.887
				Deadwood	1	0.638	0.445
A_Euc	433	49.40 ± 11.08	31.00 ± 4.25	Year	1	13.043	**0.006**
				Year x Deadwood	1	1.449	0.259
				Deadwood	1	0.942	0.357
A_Mel	234	16.20 ± 4.66	25.50 ± 5.87	Year	1	1.926	0.199
				Year x Deadwood	1	0.000	0.984
				Deadwood	1	1.446	0.260
A_Mon	4667	482.20 ± 164.03	376.00 ± 41.55	Year	1	25.365	**0.001**
				Year x Deadwood	1	0.037	0.853
				Deadwood	1	0.000	0.985
A_Sco[a]	7778	839.00 ± 187.61	597.17 ± 128.27	Year	1	0.387	0.550
				Year x Deadwood	1	6.270	**0.034**
				Deadwood	1	1.581	0.240
A_Syr_s[b]	393	35.60 ± 11.67	35.83 ± 12.03	Year	1	0.765	0.405
				Year x Deadwood	1	3.802	0.083
				Deadwood	1	0.711	0.421
A_Syr_ns	1498	116.60 ± 37.58	152.50 ± 51.25	Year	1	9.324	**0.014**
				Year x Deadwood	1	0.126	0.731
				Deadwood	1	0.073	0.793

[a] only species living on broad-leaved trees, [b] includes species with larvae living in trunk cavities, rot-holes, insect workings, sap runs, under loose bark and on snags, logs, stumps and rotting tree roots.

Variables were log-transformed +1 for normality, if necessary. Sample sizes (*n*) and mean values (± SE) are added, with significant effects ($p < 0.05$) in bold-face print. Insects were yearly collected with 3 stump-emergence, 1 Malaise, 8 flight- and 8 trunk-window traps.

Appendix 13. GLM repeated measures ANOVA table for the effects of year (2002, 2003) and dead wood supply (high: > 50 m^3ha^{-1} vs. moderate: 20-50 m^3ha^{-1}) on species richness (S) and abundance (A) of beetles[a]. Saproxylic species are categorised either according to their micro-habitats or diet preferences following Köhler (2000). See Table 5 for explanation of acronyms.

Variable	*n*	High cwd (5 stands) Mean ± SE	Moderate cwd (6 stands) Mean ± SE	Source of variance	df	*F*	*p*
Number of species							
S_be_s[b]	144	62.20 ± 6.65	64.67 ± 4.55	Year	1	0.184	0.678
				Year x Deadwood	1	1.166	0.308
				Deadwood	1	0.063	0.808
S_be_ns	42	13.60 ± 1.08	15.17 ± 0.87	Year	1	0.002	0.967
				Year x Deadwood	1	0.005	0.944
				Deadwood	1	0.118	0.118
S_Poly[b]	19	7.00 ± 1.92	5.50 ± 0.99	Year	1	0.896	0.369
				Year x Deadwood	1	0.048	0.832
				Deadwood	1	1.814	0.211
S_Lign	54	25.00 ± 1.70	28.00 ± 1.84	Year	1	0.605	0.457
				Year x Deadwood	1	1.073	0.327
				Deadwood	1	1.384	0.270
S_Cort	43	19.60 ± 1.69	22.50 ± 2.14	Year	1	0.606	0.456
				Year x Deadwood	1	0.000	0.991
				Deadwood	1	0.799	0.395
S_Xdet	24	9.40 ± 1.57	7.17 ± 1.17	Year	1	8.667	**0.016**
				Year x Deadwood	1	5.730	**0.040**
				Deadwood	1	1.645	0.232
S_Mage[b]	53	24.60 ± 3.38	26.17 ± 0.95	Year	1	0.015	0.907
				Year x Deadwood	1	0.015	0.907
				Deadwood	1	0.067	0.802
S_Xage	81	37.60 ± 1.91	39.33 ± 2.85	Year	1	0.076	0.789
				Year x Deadwood	1	0.682	0.430
				Deadwood	1	0.133	0.723
S_Zage	40	17.00 ± 3.05	17.67 ± 2.01	Year	1	6.825	**0.028**
				Year x Deadwood	1	1.207	0.301
				Deadwood	1	0.016	0.902
Number of individuals							
A_be_s[c]	20305	2025.40 ± 299.01	1696.33 ± 277.13	Year	1	2.430	0.153
				Year x Deadwood	1	10.188	**0.011**
				Deadwood	1	0.536	0.483
A_be_ns	7252	751.40 ± 199.55	582.50 ± 134.58	Year	1	0.101	0.758
				Year x Deadwood	1	0.037	0.852
				Deadwood	1	0.523	0.488
A_Poly[c]	655	85.40 ± 34.54	38.00 ± 8.66	Year	1	2.133	0.178
				Year x Deadwood	1	0.346	0.571
				Deadwood	1	1.555	0.244
A_Lign	8938	916.40 ± 158.79	726.00 ± 134.56	Year	1	1.826	0.210
				Year x Deadwood	1	7.665	**0.022**
				Deadwood	1	0.819	0.389
A_Cort	8893	797.20 ± 183.96	817.83 ± 206.76	Year	1	0.869	0.376
				Year x Deadwood	1	0.890	0.370
				Deadwood	1	0.009	0.927
A_Xdet	1789	223.40 ± 54.50	112.00 ± 24.94	Year	1	5.305	**0.047**
				Year x Deadwood	1	0.002	0.962
				Deadwood	1	3.902	0.080
A_Mage[c]	10769	975.80 ± 159.70	981.67 ± 191.09	Year	1	0.000	0.999
				Year x Deadwood	1	11.451	**0.008**
				Deadwood	1	0.129	0.728
A_Xage	7871	675.00 ± 69.68	749.33 ± 221.93	Year	1	2.772	0.130
				Year x Deadwood	1	1.468	0.257
				Deadwood	1	0.105	0.754
A_Zage	6522	747.00 ± 195.42	464.50 ± 47.77	Year	1	28.070	**< 0.001**
				Year x Deadwood	1	0.854	0.379
				Deadwood	1	1.802	0.212

[a] without Curculionidae, identified at species-level only in 2002, [b] without Cisidae, not identified at species-level, [c] with Cisidae.

Variables were log-transformed +1 for normality, if necessary. Sample sizes (*n*) and mean values (± SE) are added, with significant effects ($p < 0.05$) in bold-face print. Insects were yearly collected with 3 stump-emergence, 1 Malaise, 8 flight- and 8 trunk-window traps.

Appendix 14. GLM repeated measures ANOVA table for the effects of year (2002, 2003) and dead wood supply (high: > 50 m^3ha^{-1} vs. moderate: 20-50 m^3ha^{-1}) on species richness (S) and abundance (A) of threatened insects (beetles[a] + hoverflies from German Red-Lists). See Table XX for explanation of acronyms.

Variable	*n*	High cwd (5 stands) Mean ± SE	Moderate cwd (6 stands) Mean ± SE	Source of variance	df	*F*	*p*
Number of species							
S_rl	45	13.40 ± 2.38	12.00 ± 1.44	Year	1	8.061	**0.019**
				Year * Deadwood	1	0.251	0.628
				Deadwood	1	0.202	0.664
S_rl_s	41	12.40 ± 2.62	11.50 ± 1.63	Year	1	11.815	**0.007**
				Year * Deadwood	1	1.604	0.237
				Deadwood	1	0.072	0.794
Number of individuals							
A_rl	841	99.60 ± 45.17	57.17 ± 11.99	Year	1	0.924	0.362
				Year * Deadwood	1	1.141	0.313
				Deadwood	1	0.851	0.380
A_rl_s	832	98.40 ± 45.00	56.67 ± 12.12	Year	1	1.047	0.333
				Year * Deadwood	1	1.442	0.261
				Deadwood	1	0.757	0.407

[a] without Curculionidae, identified at species-level only in 2002.

Variables were log-transformed +1 for normality, if necessary. Sample sizes (*n*) and mean values (± SE) are added, with significant effects ($p < 0.05$) in bold-face print. Insects were yearly collected with 3 stump-emergence, 1 Malaise, 8 flight- and 8 trunk-window traps.

Appendix 15. Total number over 2 years (2002+2003) of insect species (S) and individuals (A) among selected (most species-rich) families between paired-stands with high (11) and low (11) amount of coarse woody debris (cwd). See Table 4 for explanation of acronyms.

Variable	*n*	High cwd Mean ± SE	Low cwd Mean ± SE	t	*p*
Number of species					
S_Cer	30	10.64 ± 0.75	9.00 ± 1.04	1.502	0.164
S_Cur_s[a]	6	0.27 ± 0.14	0.82 ± 0.30	-2.206	**0.052**
S_Cur_ns[b]	63	12.09 ± 1.20	11.45 ± 1.48	0.454	0.660
S_Ela_s	16	6.18 ± 0.40	6.18 ± 0.63	0.269	0.794
S_Ela_ns	21	9.00 ± 0.65	7.91 ± 0.31	1.370	0.201
S_Euc	10	4.18 ± 0.46	4.09 ± 0.53	0.299	0.771
S_Mel	10	3.18 ± 0.52	3.45 ± 0.49	-0.476	0.645
S_Mon	9	5.18 ± 0.48	4.73 ± 0.30	0.889	0.395
S_Sco[c]	16	7.64 ± 0.47	7.82 ± 0.78	-0.392	0.703
S_Syr_s[d]	27	8.64 ± 1.13	6.27 ± 0.83	1.845	0.095
S_Syr_ns	79	27.36 ± 2.79	18.55 ± 1.58	2.780	**0.019**
Number of individuals					
A_Cer	1637	93.55 ± 28.55	55.27 ± 19.57	1.981	0.076
A_Cur_s[a]	21	0.36 ± 0.20	1.55 ± 0.64	-2.448	**0.034**
A_Cur_ns[b]	7081	235.27 ± 44.87	390.45 ± 132.25	-0.860	0.410
A_Ela_s	1505	76.45 ± 13.24	60.36 ± 11.80	2.496	**0.032**
A_Ela_ns	12566	558.18 ± 94.03	584.18 ± 120.49	-0.341	0.740
A_Euc	341	15.82 ± 2.88	15.18 ± 3.01	0.172	0.867
A_Mel	269	13.82 ± 3.03	10.64 ± 2.31	0.760	0.465
A_Mon	2538	126.36 ± 28.14	104.36 ± 18.16	0.925	0.377
A_Sco[c]	7043	375.18 ± 58.58	265.09 ± 95.32	2.522	**0.030**
A_Syr_s[d]	747	35.09 ± 7.67	32.82 ± 13.59	0.847	0.417
A_Syr_ns	2273	142.64 ± 30.67	64.00 ± 12.53	2.102	0.062

[a] saproxylic and [b] non-saproxylic Curculionidae, [c] only species living on broad-leaved trees, [d] includes species with larvae living in trunk cavities, rot-holes, insect workings, sap runs, under loose bark and on snags, logs, stumps and rotting tree roots.

Variables were log-transformed +1 for normality, if necessary. Sample sizes (*n*) and mean values (± SE) are added, with significant effects ($p < 0.05$) from paired-sample t-tests in bold-face print. Insects were collected with 3 stump-emergence, 2 Malaise, 1 intercept panel trap and 8 flight-window traps.

Appendix 16. Total number over 2 years (2002+2003) of beetle species (S) and individuals (A) between paired-stands with high (11) and low (11) amount of coarse woody debris (cwd). Saproxylic beetles are categorised either according to their micro-habitats or diet preferences following Köhler (2000). See Table 5 for explanation of acronyms.

Variable	*n*	High cwd Mean ± SE	Low cwd Mean ± SE	t	*p*
Number of species					
S_be_s[a]	152	52.45 ± 2.61	51.64 ± 3.19	0.252	0.806
S_be_ns	107	24.82 ± 1.52	22.91 ± 1.88	1.097	0.298
S_Poly[a]	16	4.00 ± 0.71	3.55 ± 0.59	0.294	0.775
S_Lign	63	23.36 ± 1.49	22.00 ± 1.19	1.136	0.283
S_Cort	49	17.45 ± 1.14	18.00 ± 1.54	-0.140	0.891
S_Xdet	21	6.36 ± 0.56	6.64 ± 0.91	-0.369	0.720
S_Mage[a]	53	21.09 ± 1.36	21.18 ± 1.53	-0.057	0.955
S_Xage	96	34.09 ± 1.85	34.55 ± 2.12	-0.151	0.883
S_Zage	37	13.00 ± 1.12	12.82 ± 1.20	0.240	0.815
Number of individuals					
A_be_s[b]	18725	966.00 ± 153.68	736.27 ± 104.16	1.191	0.261
A_be_ns	15569	673.09 ± 103.85	742.27± 132.47	-0.467	0.650
A_Poly[b]	496	25.64 ± 4.89	19.45 ± 3.39	1.324	0.215
A_Lign	8640	458.45 ± 75.23	327.00 ± 110.23	2.376	**0.039**
A_Cort	7819	399.45 ± 119.40	311.36 ± 38.01	0.308	0.764
A_Xdet	1519	76.82 ± 13.55	61.27 ± 10.90	2.145	0.058
A_Mage[b]	11594	598.36 ± 110.18	455.64 ± 85.62	1.034	0.325
A_Xage	9247	484.36 ± 111.84	356.27 ± 48.55	0.807	0.439
A_Zage	3850	189.55 ± 27.13	160.45 ± 17.99	1.114	0.291

[a] without Cisidae, not identified at species-level, [b] with Cisidae.

Variables were log-transformed +1 for normality, if necessary. Sample sizes (*n*) and mean values (± SE) are added, with significant effects ($p < 0.05$) from paired-sample t-tests in bold-face print. Insects were collected with 3 stump-emergence, 2 Malaise, 1 intercept panel trap and 8 flight-window traps.

Appendix 17. Total number over 2 years (2002+2003) of threatened insect species (S) and individuals (A) (beetles + hoverflies from German Red-Lists), including saproxylic ones, between paired-stands with high (11) and low (11) amount of coarse woody debris (cwd). See Table 6 for explanation of acronyms.

Variable	*n*	High cwd Mean ± SE	Low cwd Mean ± SE	t	*p*
Number of species					
S_rl	49	10.45 ± 0.96	8.73 ± 1.06	1.575	0.146
S_rl_s	41	9.27 ± 0.97	8.64 ± 1.10	0.892	0.393
Number of individuals					
A_rl	701	33.27 ± 6.22	30.45 ± 7.25	1.121	0.288
A_rl_s	686	32.00 ± 6.31	30.36 ± 7.27	0.955	0.362

Variables were log-transformed +1 for normality, if necessary. Sample sizes (*n*) and mean values (± SE) are added, with significant effects ($p < 0.05$) from paired-sample t-tests in bold-face print. Insects were collected with 3 stump-emergence, 2 Malaise, 1 intercept panel trap and 8 flight-window traps.

Appendix 18. One-way ANOVA on the total number (2002+2003) of insect species (S) and individuals (A) among selected (most species-rich) families between stands with high (> 50 m^3ha^{-1}) vs. moderate (20-50 m^3ha^{-1}) amount of coarse woody debris (cwd). See Table 4 for explanation of acronyms.

Variable	*n*	High cwd (5 stands) Mean ± SE	Moderate cwd (6 stands) Mean ± SE	*F*	*p*
Number of species					
S_Cer	28	11.00 ± 0.63	12.50 ± 1.67	0.646	0.442
S_Cur_s[a]	5	1.60 ± 0.25	1.67 ± 0.33	0.024	0.880
S_Cur_ns[b]	60	11.80 ± 1.46	17.17 ± 2.10	2.532	0.146
S_Ela_s	17	7.60 ± 0.99	7.17 ± 0.61	0.095	0.765
S_Ela_ns	21	8.80 ± 1.24	10.33 ± 0.84	1.450	0.259
S_Euc	10	5.00 ± 0.45	5.67 ± 0.61	0.651	0.440
S_Mel	8	3.60 ± 0.75	4.67 ± 0.42	1.689	0.226
S_Mon	9	5.80 ± 0.20	7.00 ± 0.52	3.583	0.091
S_Sco[c]	16	8.20 ± 1.07	9.83 ± 0.61	1.947	0.196
S_Syr_s[d]	27	8.20 ± 0.73	9.33 ± 2.04	0.232	0.642
S_Syr_ns	72	30.00 ± 5.28	26.00 ± 2.72	0.304	0.595
Number of individuals					
A_Cer	1259	89.00 ± 31.28	135.67 ± 56.49	0.072	0.795
A_Cur_s[a]	77	8.60 ± 3.04	5.67 ± 2.52	0.577	0.467
A_Cur_ns[b]	3799	381.40 ± 93.07	315.33 ± 81.85	0.534	0.484
A_Ela_s	1819	217.60 ± 47.91	121.83 ± 25.15	3.470	0.095
A_Ela_ns	7808	798.00 ± 202.86	636.33 ± 144.27	0.443	0.522
A_Euc	476	54.40 ± 10.01	34.00 ± 4.03	3.955	0.078
A_Mel	272	19.40 ± 5.55	29.17 ± 6.00	1.379	0.270
A_Mon	4698	484.00 ± 165.12	379.67 ± 41.54	0.447	0.520
A_Sco[c]	7788	839.00 ± 187.61	598.83 ± 128.85	1.178	0.306
A_Syr_s[d]	404	36.00 ± 11.64	37.33 ± 11.94	0.136	0.721
A_Syr_ns	1631	132.40 ± 39.59	161.50 ± 50.17	0.045	0.836

[a] saproxylic and [b] non-saproxylic Curculionidae, [c] only species living on broad-leaved trees, [d] includes species with larvae living in trunk cavities, rot-holes, insect workings, sap runs, under loose bark and on snags, logs, stumps and rotting tree roots.

Variables were log-transformed +1 for normality, if necessary. Sample sizes (*n*) and mean values (± SE) are added. Insects were collected at the 11 stands classified as rich in dead wood with 3 stump-emergence, 2 Malaise, 1 intercept panel, 8 trunk- and 8 flight-window traps.

Appendix 19. One-way ANOVA on the total number (2002+2003) of beetle species (S) and individuals (A) between stands with high (> 50 m^3ha^{-1}) vs. moderate (20-50 m^3ha^{-1}) amount of coarse woody debris (cwd). Saproxylic beetles are categorised either according to their micro-habitats or diet preferences following Köhler (2000). See Table 5 for explanation of acronyms.

Variable	*n*	High cwd (5 stands) Mean ± SE	Moderate cwd (6 stands) Mean ± SE	*F*	*p*
Number of species					
S_be_s[a]	149	64.60 ± 7.16	67.83 ± 5.02	0.224	0.647
S_be_ns	104	25.40 ± 2.44	33.00 ± 1.41	7.912	**0.020**
S_Poly[a]	19	7.00 ± 1.92	5.67 ± 1.14	0.385	0.550
S_Lign	59	27.20 ± 2.13	30.17 ± 1.87	1.104	0.321
S_Cort	43	19.60 ± 1.69	23.17 ± 1.99	1.832	0.209
S_Xdet	24	9.60 ± 1.72	7.17 ± 1.17	1.453	0.259
S_Mage[a]	53	25.20 ± 3.56	27.00 ± 1.29	0.263	0.621
S_Xage	86	39.80 ± 2.35	41.83 ± 2.96	0.272	0.615
S_Zage	40	17.20 ± 3.18	18.00 ± 1.95	0.174	0.687
Number of individuals					
A_be_s[b]	21194	2072.80 ± 293.86	1805.00 ± 292.56	0.410	0.538
A_be_ns	9713	985.20 ± 213.01	797.83 ± 167.40	0.493	0.500
A_Poly[b]	727	90.60 ± 33.86	45.67 ± 8.39	0.876	0.374
A_Lign	9140	936.80 ± 158.86	742.67 ± 136.60	0.869	0.376
A_Cort	9370	806.80 ± 183.83	889.33 ± 223.33	0.077	0.788
A_Xdet	1891	232.20 ± 55.90	121.67 ± 25.97	2.357	0.159
A_Mage[b]	11340	995.60 ± 159.75	1060.33 ± 206.88	0.006	0.941
A_Xage	8657	713.80 ± 66.48	848.00 ± 241.64	0.000	0.994
A_Zage	6635	755.00 ± 196.98	476.67 ± 48.30	1.347	0.276

[a] without Cisidae, not identified at species-level, [b] with Cisidae.

Variables were log-transformed +1 for normality, if necessary. Sample sizes (*n*) and mean values (± SE) are added, with significant effects ($p < 0.05$) in bold-face print. Insects were collected at the 11 stands classified as rich in dead wood with 3 stump-emergence, 2 Malaise, 1 intercept panel, 8 trunk- and 8 flight-window traps.

Appendix 20. One-way ANOVA on the total number (2002+2003) of threatened insect species (S) and individuals (A) (beetles + hoverflies from German Red-Lists), including saproxylic ones, between stands with high (> 50 m^3ha^{-1}) vs. moderate (20-50 m^3ha^{-1}) amount of coarse woody debris (cwd). See Table 6 for explanation of acronyms.

Variable	*n*	High cwd (5 stands) Mean ± SE	Moderate cwd (6 stands) Mean ± SE	*F*	*p*
Number of species					
S_rl	53	14.40 ± 2.42	13.83 ± 1.81	0.013	0.912
S_rl_s	43	13.00 ± 2.72	12.50 ± 1.69	0.026	0.875
Number of individuals					
A_rl	930	108.80 ± 44.32	64.33 ± 12.64	1.076	0.327
A_rl_s	914	107.20 ± 44.04	63.00 ± 12.49	1.060	0.330

Variables were log-transformed +1 for normality, if necessary. Sample sizes (*n*) and mean values (± SE) are added. Insects were collected at the 11 stands classified as rich in dead wood with 3 stump-emergence, 2 Malaise, 1 intercept panel, 8 trunk- and 8 flight-window traps.

Appendix 21. Annual number of insect species (S) and individuals (A) among selected (most species-rich) families between paired-stands with high (11) and low (11) amount of coarse woody debris (cwd). See Table 4 for explanation of acronyms.

Variable	2002			2003			t	*p*
	n	High cwd Mean ± SE	Low cwd Mean ± SE	*n*	High cwd Mean ± SE	Low cwd Mean ± SE		
Number of species								
S_Cer	27	7.82 ± 0.85	5.55 ± 0.65	25	7.55 ± 0.89	6.00 ± 1.02	2.780	**0.011**
S_Ela_s	16	5.18 ± 0.52	5.09 ± 0.72	13	4.55 ± 0.43	4.09 ± 0.46	0.867	0.396
S_Ela_ns	20	8.09 ± 0.62	7.27 ± 0.38	15	6.82 ± 0.54	6.82 ± 0.38	0.874	0.392
S_Euc	8	2.00 ± 0.40	1.55 ± 0.43	9	2.91 ± 0.34	3.45 ± 0.39	-0.125	0.902
S_Mel	9	2.09 ± 0.51	1.73 ± 0.33	7	2.09 ± 0.37	2.18 ± 0.44	0.083	0.935
S_Mon	8	4.27 ± 0.38	4.45 ± 0.37	9	4.09 ± 0.48	3.00 ± 0.30	1.292	0.210
S_Sco[a]	12	5.91 ± 0.53	6.45 ± 0.49	15	6.27 ± 0.49	6.36 ± 0.82	-0.941	0.357
S_Syr_s[b]	23	5.82 ± 1.11	5.27 ± 0.85	24	4.82 ± 0.64	2.91 ± 0.71	1.636	0.117
S_Syr_ns	65	19.18 ± 2.21	13.73 ± 1.60	57	15.27 ± 2.39	7.45 ± 1.10	3.737	**0.001**
Number of individuals								
A_Cer	785	44.91 ± 15.16	26.45 ± 9.22	760	43.45 ± 13.76	25.64 ± 10.64	2.605	**0.017**
A_Ela_s	729	35.82 ± 7.62	30.45 ± 8.59	597	31.73 ± 5.84	22.55 ± 3.63	3.063	**0.006**
A_Ela_ns	5658	237.36 ± 46.16	277.00 ± 61.85	5509	253.09 ± 46.81	247.73 ± 56.98	0.029	0.977
A_Euc	63	3.18 ± 0.75	2.55 ± 0.80	199	8.73 ± 2.19	9.36 ± 2.17	0.394	0.697
A_Mel	89	4.55 ± 1.47	3.55 ± 1.27	112	5.82 ± 1.12	4.36 ± 1.08	1.403	0.175
A_Mon	1984	90.18 ± 24.08	90.18 ± 16.34	512	33.36 ± 6.33	13.18 ± 2.91	1.766	0.092
A_Sco[a]	2822	172.00 ± 39.37	84.55 ± 34.74	4200	202.27 ± 63.85	179.55 ± 82.36	2.174	**0.041**
A_Syr_s[b]	434	21.36 ± 6.66	18.09 ± 5.10	295	12.73 ± 4.99	14.09 ± 8.99	0.900	0.378
A_Syr_ns	1330	77.91 ± 19.16	43.00 ± 8.02	766	52.64 ± 13.58	17.00 ± 4.76	3.005	**0.007**

[a] only species living on broad-leaved trees, [b] includes species with larvae living in trunk cavities, rot-holes, insect workings, sap runs, under loose bark and on snags, logs, stumps and rotting tree roots.

Variables were log-transformed +1 for normality, if necessary. Sample sizes (*n*) and mean values (± SE) are added, with significant effects ($p < 0.05$) from paired-sample t-tests (44 stands, with year as a replicate) in bold-face print. Insects were yearly collected with 3 stump-emergence, 1 Malaise and 8 flight-window traps.

Appendix 22. Annual number of beetle[a] species (S) and individuals (A) between paired-stands with high (11) and low (11) amount of coarse woody debris (cwd). Saproxylic species are categorised either according to their micro-habitats or diet preferences following Köhler (2000). See Table 5 for explanation of acronyms.

Variable	2002			2003			t	*p*
	n	High cwd Mean ± SE	Low cwd Mean ± SE	*n*	High cwd Mean ± SE	Low cwd Mean ± SE		
Number of species								
S_be_s[b]	122	36.91 ± 3.04	33.27 ± 1.71	121	37.45 ± 1.71	34.09 ± 2.79	1.771	0.091
S_be_ns	32	9.82 ± 0.89	8.73 ± 0.43	31	9.27 ± 0.60	9.09 ± 0.61	0.960	0.348
S_Poly[b]	13	2.27 ± 0.66	1.36 ± 0.28	11	2.09 ± 0.48	1.73 ± 0.45	0.951	0.352
S_Lign	48	16.18 ± 1.60	12.55 ± 0.92	50	17.18 ± 1.12	15.73 ± 1.26	2.285	**0.033**
S_Cort	37	12.45 ± 1.16	13.27 ± 1.15	40	13.00 ± 0.98	11.55 ± 1.08	0.345	0.733
S_Xdet	21	5.36 ± 0.62	5.09 ± 0.72	17	4.45 ± 0.43	4.45 ± 0.61	0.505	0.619
S_Mage[b]	45	13.55 ± 1.47	11.36 ± 0.64	43	15.82 ± 1.02	15.82 ± 1.46	1.103	0.282
S_Xage	76	23.18 ± 1.92	20.73 ± 1.27	75	25.36 ± 1.61	23.27 ± 1.97	1.652	0.113
S_Zage	32	10.27 ± 0.94	10.18 ± 0.78	33	8.55 ± 0.81	7.36 ± 0.77	1.031	0.314
Number of individuals								
A_be_s[c]	7676	406.82 ± 57.14	291.00 ± 41.51	9096	485.00 ± 102.13	341.91 ± 94.67	2.052	0.053
A_be_ns	5734	242.27 ± 47.10	279.00 ± 61.55	5690	260.64 ± 47.31	256.64 ± 56.54	-0.048	0.962
A_Poly[c]	151	7.64 ± 2.06	6.09 ± 1.04	218	11.45 ± 2.53	8.36 ± 2.46	1.740	0.096
A_Lign	3471	206.55 ± 33.20	109.00 ± 37.64	4922	240.18 ± 73.82	207.27 ± 92.09	2.999	**0.007**
A_Cort	3231	155.45 ± 37.79	138.27 ± 15.28	3296	200.64 ± 72.95	99.00 ± 25.12	1.169	0.255
A_Xdet	723	35.91 ± 7.71	29.82 ± 7.99	612	31.64 ± 6.03	24.00 ± 3.58	2.067	0.051
A_Mage[c]	3473	203.91 ± 39.02	111.82 ± 35.19	6639	342.55 ± 94.49	261.00 ± 82.22	1.805	0.085
A_Xage	2992	156.45 ± 30.51	115.55 ± 20.87	4516	263.09 ± 72.57	147.45 ± 28.29	1.986	0.060
A_Zage	2608	119.18 ± 23.56	117.91 ± 16.27	1044	60.09 ± 6.34	34.82 ± 3.51	2.018	0.056

[a] without Curculionidae, identified at species-level only in 2002, [b] without Cisidae, not identified at species-level, [c] with Cisidae.

Variables were log-transformed +1 for normality, if necessary. Sample sizes (*n*) and mean values (± SE) are added, with significant effects ($p < 0.05$) from paired-sample t-tests (44 stands, with year as a replicate) in bold-face print. Insects were yearly collected with 3 stump-emergence, 1 Malaise and 8 flight-window traps.

Appendix 23. Annual number of threatened insect species (S) and individuals (A) (beetles[a] + hoverflies from German Red-Lists), including saproxylic ones, between paired-stands with high (11) and low (11) amount of coarse woody debris (cwd). See Table 6 for explanation of acronyms.

Variable	2002			2003			t	*p*
	n	High cwd Mean ± SE	Low cwd Mean ± SE	*n*	High cwd Mean ± SE	Low cwd Mean ± SE		
Number of species								
S_rl	35	6.27 ± 0.90	4.91 ± 0.78	30	5.45 ± 0.67	5.09 ± 0.64	1.413	0.172
S_rl_s	32	5.82 ± 0.88	4.91 ± 0.78	28	5.09 ± 0.71	5.09 ± 0.64	0.842	0.409
Number of individuals								
A_rl	278	13.91 ± 3.47	11.36 ± 2.63	299	13.55 ± 2.99	13.64 ± 3.69	0.883	0.387
A_rl_s	273	13.45 ± 3.50	11.36 ± 2.63	295	13.18 ± 2.98	13.64 ± 3.69	0.642	0.528

[a] without Curculionidae, identified at species-level only in 2002.

Variables were log-transformed +1 for normality, if necessary. Sample sizes (*n*) and mean values (± SE) are added, with results from paired-sample t-tests (44 stands, with year as a replicate). Insects were collected with 3 stump-emergence, 1 Malaise and 8 flight-window traps.

Appendix 24. One-way ANOVA on the number of insect species (S) and individuals (A) among selected (most species-rich) families between stands with high (> 50 m^3ha^{-1}) vs. moderate (20-50 m^3ha^{-1}) amount of coarse woody debris (cwd), with year as a replicate (2002 and 2003, 22 stands). The beetles are categorised either according to their micro-habitats or diet preferences following Köhler (2000). See Table 4 for explanation of acronyms.

Variable	2002			2003			*F*	*p*
	n	High cwd (5 stands) Mean ± SE	Moderate cwd (6 stands) Mean ± SE	*n*	High cwd (5 stands) Mean ± SE	Moderate cwd (6 stands) Mean ± SE		
Number of species								
S_Cer	25	8.00 ± 0.55	9.67 ± 1.67	24	8.20 ± 1.46	9.17 ± 1.33	0.741	0.400
S_Ela_s	16	6.60 ± 0.75	7.00 ± 0.68	15	6.00 ± 0.71	4.83 ± 0.61	0.263	0.614
S_Ela_ns	19	7.80 ± 1.07	9.17 ± 0.75	16	6.80 ± 1.16	8.33 ± 0.61	2.785	0.111
S_Euc	8	2.80 ± 0.66	4.33 ± 0.42	10	3.40 ± 0.24	4.17 ± 0.40	6.799	**0.017**
S_Mel	8	2.80 ± 0.58	3.33 ± 0.76	5	2.20 ± 0.58	2.50 ± 0.50	0.457	0.507
S_Mon	8	5.40 ± 0.24	6.67 ± 0.49	9	5.00 ± 0.45	6.00 ± 0.68	4.494	**0.047**
S_Sco[a]	15	7.20 ± 1.28	8.33 ± 0.56	15	6.80 ± 1.16	7.83 ± 0.65	1.544	0.228
S_Syr_s[b]	19	4.60 ± 0.68	7.00 ± 1.93	23	6.00 ± 0.71	4.50 ± 1.06	0.117	0.736
S_Syr_ns	58	19.20 ± 3.09	19.83 ± 3.41	54	18.20 ± 4.90	13.67 ± 1.08	0.115	0.738
Number of individuals								
A_Cer	613	42.60 ± 12.93	66.67 ± 29.37	589	42.20 ± 19.42	63.00 ± 27.01	0.121	0.732
A_Ela_s	974	116.40 ± 27.78	65.33 ± 16.47	747	93.20 ± 19.87	46.83 ± 8.99	7.137	**0.015**
A_Ela_ns	3584	377.60 ± 98.12	282.67 ± 69.67	3479	364.40 ± 104.74	276.17 ± 61.35	1.363	0.257
A_Euc	144	14.60 ± 6.87	11.83 ± 3.52	289	34.80 ± 5.93	19.17 ± 2.91	0.860	0.365
A_Mel	136	9.80 ± 3.57	14.50 ± 4.48	98	6.40 ± 1.63	11.00 ± 2.07	2.138	0.159
A_Mon	3123	317.40 ± 104.21	256.00 ± 39.59	1544	164.80 ± 61.71	120.00 ± 21.38	0.001	0.981
A_Sco[a]	4603	615.20 ± 124.46	254.50 ± 109.30	3175	223.80 ± 67.48	342.67 ± 97.81	1.348	0.259
A_Syr_s[b]	239	12.40 ± 2.99	29.50 ± 11.62	154	23.20 ± 11.28	6.33 ± 1.65	0.923	0.348
A_Syr_ns	893	63.00 ± 16.74	96.33 ± 34.15	605	53.60 ± 20.90	56.17 ± 20.03	0.140	0.712

[a] only species living on broad-leaved trees, [b] includes species with larvae living in trunk cavities, rot-holes, insect workings, sap runs, under loose bark and on snags, logs, stumps and rotting tree roots.

Variables were log-transformed +1 for normality, if necessary. Sample sizes (*n*) and mean values (± SE) are added. Insects were annually collected at the 11 stands classified as rich in dead wood with 3 stump-emergence, 1 Malaise, 8 trunk- and 8 flight-window traps.

Appendix 25. One-way ANOVA on the number of beetle[a] species (S) and individuals (A) between stands with high (> 50 m^3ha^{-1}) vs. moderate (20-50 m^3ha^{-1}) amount of coarse woody debris (cwd), with year as a replicate (2002 and 2003, 22 stands). Saproxylic beetles are categorised either according to their micro-habitats or diet preferences following Köhler (2000). See Table 5 for explanation of acronyms.

Variable	2002			2003			*F*	*p*
	n	High cwd (5 stands) Mean ± SE	Moderate cwd (6 stands) Mean ± SE	*n*	High cwd (5 stands) Mean ± SE	Moderate cwd (6 stands) Mean ± SE		
Number of species								
S_be_s[b]	125	48.00 ± 6.88	51.17 ± 5.03	127	48.00 ± 4.00	47.00 ± 3.18	0.122	0.731
S_be_ns	31	10.20 ± 1.46	11.83 ± 0.98	32	9.80 ± 0.73	11.83 ± 0.91	3.893	0.062
S_Poly[b]	17	5.40 ± 1.33	3.33 ± 1.17	15	4.60 ± 1.29	2.83 ± 0.65	1.604	0.220
S_Lign	50	19.20 ± 2.13	23.17 ± 2.09	47	19.20 ± 1.20	20.67 ± 1.84	2.173	0.156
S_Cort	35	15.20 ± 2.06	17.17 ± 1.94	41	15.80 ± 1.39	18.00 ± 1.84	1.319	0.264
S_Xdet	21	7.60 ± 1.12	6.83 ± 1.11	20	7.40 ± 1.21	4.67 ± 0.67	2.897	0.104
S_Mage[b]	47	18.80 ± 3.32	19.67 ± 1.71	46	18.80 ± 2.15	19.33 ± 1.33	0.118	0.735
S_Xage	70	28.00 ± 2.95	30.67 ± 2.89	72	30.00 ± 1.67	29.67 ± 2.46	0.220	0.644
S_Zage	34	14.20 ± 2.35	15.17 ± 1.56	37	13.20 ± 2.58	12.17 ± 1.72	0.030	0.864
Number of individuals								
A_be_s[c]	11169	1285.00 ± 201.89	790.67 ± 160.30	9136	740.40 ± 105.04	905.67 ± 163.89	0.870	0.362
A_be_ns	3663	381.40 ± 97.80	292.67 ± 73.71	3589	370.00 ± 103.40	289.83 ± 64.90	1.120	0.303
A_Poly[c]	267	35.80 ± 13.52	14.67 ± 4.21	388	49.60 ± 21.16	23.33 ± 6.30	2.613	0.122
A_Lign	5241	670.00 ± 132.57	315.17 ± 80.53	3697	246.40 ± 40.70	410.83 ± 121.11	0.720	0.406
A_Cort	4648	456.40 ± 115.46	394.33 ± 89.56	4245	340.80 ± 73.13	423.50 ± 135.26	0.018	0.896
A_Xdet	997	120.80 ± 30.48	65.50 ± 16.82	792	102.60 ± 25.14	46.50 ± 9.16	7.667	**0.012**
A_Mage[c]	5491	683.000 ± 134.53	346.000 ± 107.72	5278	292.80 ± 46.25	635.67 ± 142.37	0.000	0.983
A_Xage	3498	335.80 ± 55.79	303.17 ± 76.48	4373	339.20 ± 19.72	446.17 ± 148.29	0.199	0.660
A_Zage	4095	454.20 ± 115.66	304.00 ± 39.89	2427	292.80 ± 81.39	160.50 ± 24.44	2.576	0.124

[a] without Curculionidae, identified at species-level only in 2002, [b] without Cisidae, not identified at species-level, [c] with Cisidae.

Variables were log-transformed +1 for normality, if necessary. Sample sizes (*n*) and mean values (± SE) are added, with significant effects ($p < 0.05$) in bold-face print. Insects were annually collected at the 11 stands classified as rich in dead wood with 3 stump-emergence, 1 Malaise, 8 trunk- and 8 flight-window traps.

Appendix 26. One-way ANOVA on the number of threatened insect species (S) and individuals (A) (beetles[a] + hoverflies from German Red-Lists), including saproxylic ones, between stands with high (> 50 m^3ha^{-1}) vs. moderate (20-50 m^3ha^{-1}) amount of coarse woody debris (cwd), with year as a replicate (2002 and 2003, 22 stands). See Table 6 for explanation of acronyms.

Variable	2002			2003			*F*	*p*
	n	High cwd (5 stands) Mean ± SE	Moderate cwd (6 stands) Mean ± SE	*n*	High cwd (5 stands) Mean ± SE	Moderate cwd (6 stands) Mean ± SE		
Number of species								
S_rl	35	9.80 ± 1.98	9.17 ± 1.22	35	8.40 ± 1.78	7.17 ± 1.19	0.142	0.710
S_rl_s	32	9.00 ± 2.07	9.00 ± 1.15	33	8.00 ± 1.73	6.83 ± 1.35	0.144	0.708
Number of individuals								
A_rl	394	40.00 ± 19.15	32.33 ± 9.08	447	59.60 ± 26.61	24.83 ± 4.66	1.378	0.254
A_rl_s	389	39.20 ± 13.24	32.17 ± 8.97	443	59.20 ± 26.45	24.50 ± 4.77	1.239	0.279

[a] without Curculionidae, identified at species-level only in 2002.

Variables were log-transformed +1 for normality, if necessary. Sample sizes (*n*) and mean values (± SE) are added. Insects were annually collected at the 11 stands classified as rich in dead wood with 3 stump-emergence, 1 Malaise, 8 trunk- and 8 flight-window traps.

Appendix 27. Results of stepwise multiple regression analyses showing the sets of environmental variables that explain significant variation in saproxylic insect species number among most-species rich families. See Table 2 for explanation of acronyms.

All the 22 study sites[a]							Only the 11 sites rich in dead wood[b]						
Step	Variables entered	Partial R^{2c}	Model R^{2d}	*F*	*p*	Effect	Step	Variables entered	Partial R^{2c}	Model R^{2d}	*F*	*p*	Effect
Cerambycidae													
1	Girt_a40	0.205	0.205	5.15	0.034	-	1	Cwd1_tot	0.343	0.343	4.70	0.058	-
2	Cwd_log	0.123	0.328	3.48	0.078	+	2	Cwd3_tot	0.257	0.600	5.13	0.053	-
							3	Tree_a40	0.195	0.795	6.66	0.036	-
							4	Cwd_tot	0.143	0.938	13.83	0.010	+
Elateridae													
1	Cov_her	0.152	0.152	3.59	0.073	+	1	Cwd_stu	0.362	0.362	5.10	0.050	+
2	Tree40	0.162	0.314	4.49	0.047	+	2	Tree_b40	0.380	0.742	11.80	0.009	-
3	Girt_a40	0.226	0.541	8.87	0.008	-	3	Dec2000	0.148	0.890	9.46	0.018	+
							4	Cwd3_tot	0.080	0.970	16.18	0.007	+
Eucnemidae													
1	Dec2000	0.300	0.300	8.58	0.008	+	1	Dec2000	0.531	0.531	10.17	0.011	+
							2	Cwd_lbr	0.230	0.761	7.69	0.024	-
							3	Cwd4_tot	0.089	0.848	4.06	0.084	+
Melandryidae													
No variable met the 0.1000 significance level for entry into the model							1	Bracan	0.468	0.468	7.90	0.020	+
Monotomidae													
1	Sp_herb	0.254	0.254	6.79	0.017	-	No variable met the 0.1000 significance level for entry into the model						
Scolytidae													
1	Dec2000	0.292	0.292	8.25	0.009	+	1	Cwd3_tot	0.410	0.410	6.26	0.034	-
2	Cwd_lbr	0.166	0.458	5.81	0.026	-	2	Con2000	0.308	0.719	8.77	0.018	-
3	Mix2000	0.122	0.580	5.25	0.034	+	3	Bracan	0.106	0.825	4.25	0.078	+
4	Cov_grd	0.118	0.698	6.67	0.019	-	4	Cwd1_tot	0.099	0.923	7.60	0.033	+
5	Cwd4_tot	0.065	0.763	4.37	0.053	+							
6	Sp_tree	0.061	0.824	5.21	0.037	+							
Syrphidae													
1	Sp_herb	0.408	0.408	13.81	0.001	+	1	Cov_flr	0.385	0.385	5.63	0.042	+
2	Cwd_stu	0.133	0.541	5.50	0.030	-	2	Cwd2_tot	0.376	0.760	12.55	0.008	+
							3	Dec2000	0.083	0.844	3.74	0.094	-
							4	Cwd1_tot	0.072	0.916	5.17	0.063	-

[a] total number over 2 years (2002+2003) , with insects collected with 3 stump-emergence, 2 Malaise, 1 intercept trap and 8 flight-window traps, [b] total number over 2 years (2002+2003) , with insects collected with 3 stump-emergence, 2 Malaise, 1 intercept panel, 8 trunk- and 8 flight-window traps, [c] proportion (%) of variance explained by the variables entered in the model, [d] total proportion (%) of variance explained by the model.
Variables were transformed for normality (log + 1 for counts, arcsin-squareroot for percentages and proportions).

Appendix 28. Results of stepwise multiple regression analyses showing the sets of environmental variables that explain significant variation in saproxylic insect abundance among selected (most-species rich) families. See Table 2 for explanation of acronyms.

All the 22 study sites[a]							Only the 11 sites rich in dead wood[b]						
Step	Variables entered	Partial R^{2c}	Model R^{2d}	F	p	Effect	Step	Variables entered	Partial R^{2c}	Model R^{2d}	F	p	Effect
Cerambycidae													
1	Alt	0.185	0.185	4.55	0.046	-	1	Cwd_stu	0.362	0.362	5.10	0.050	+
2	G	0.150	0.335	4.29	0.052	-	2	Tree_b40	0.380	0.742	11.80	0.009	-
3	Cov_flr	0.169	0.505	6.16	0.023	-	3	Dec2000	0.148	0.890	9.46	0.018	+
4	G40	0.085	0.590	3.54	0.077	-	4	Cwd3_tot	0.080	0.970	16.18	0.007	+
5	Tree40	0.131	0.721	7.48	0.015	+							
6	Cwd_sna	0.066	0.786	4.60	0.049	+							
7	Ope2000	0.067	0.853	6.35	0.024	-							
Elateridae													
1	Cov_flr	0.250	0.250	6.65	0.018	-	1	Cwd_grd	0.733	0.733	24.75	< 0.001	+
2	SG40	0.274	0.523	10.91	0.004	-	2	SG40	0.147	0.880	9.78	0.014	-
3	Tree_b40	0.191	0.715	12.08	0.003	-	3	Tree_b40	0.042	0.921	3.68	0.097	-
							4	Cwd_lbr	0.039	0.960	5.78	0.053	+
Eucnemidae													
1	Dec2000	0.300	0.300	8.58	0.008	+	1	Cwd4_tot	0.743	0.743	26.03	< 0.001	+
2	Tree40	0.095	0.400	2.99	0.100	-	2	Cwd1_tot	0.157	0.900	12.50	0.008	-
							3	Ope2000	0.074	0.973	19.38	0.003	-
							4	Dec2000	0.018	0.991	12.50	0.012	+
Melandryidae													
1	Gr_Fag	0.204	0.204	5.12	0.035	-	1	Gr_Fag	0.466	0.466	7.85	0.021	-
2	SG80	0.196	0.400	6.20	0.022	+	2	Cwd3_tot	0.196	0.662	4.64	0.063	-
3	Ope2000	0.100	0.500	3.61	0.074	-	3	Dec2000	0.158	0.820	6.17	0.042	+
4	Dec2000	0.119	0.619	5.31	0.034	+	4	Ope2000	0.101	0.921	7.68	0.032	+
5	Con2000	0.109	0.728	6.40	0.022	+							
Monotomidae													
1	Sp_tree	0.277	0.277	7.67	0.012	+	1	SG60	0.533	0.533	10.29	0.011	+
2	Girt_a40	0.120	0.397	3.78	0.067	-	2	Cov_her	0.213	0.746	6.73	0.032	+
3	Cwd_lbr	0.095	0.492	3.36	0.083	+							
Scolytidae													
1	SG80	0.200	0.200	5.00	0.037	+	1	SG80	0.514	0.514	9.52	0.013	+
2	Cwd_sbr	0.124	0.324	3.49	0.077	+	2	Cwd_stu	0.299	0.813	12.78	0.007	+

							3	Alt	0.115	0.928	11.18	0.012	+
							4	Cwd2_tot	0.059	0.987	27.42	0.002	+
Syrphidae													
1	Sp_herb	0.317	0.317	9.26	0.006	+	1	Gr_Fag	0.479	0.479	8.27	0.018	-
2	Sp_tree	0.185	0.501	7.03	0.016	-	2	Cwd_stu	0.299	0.778	10.80	0.011	-
							3	Cov_her	0.155	0.934	16.33	0.005	+

[a] total number over 2 years (2002+2003) , with insects collected with 3 stump-emergence, 2 Malaise, 1 intercept panel and 8 flight-window traps, [b] total number over 2 years (2002+2003) , with insects collected with 3 stump-emergence, 2 Malaise, 1 intercept panel, 8 trunk- and 8 flight-window traps, [c] proportion (%) of variance explained by the variables entered in the model, [d] total proportion (%) of variance explained by the model.
Variables were transformed for normality (log + 1 for counts, arcsin-squareroot for percentages and proportions).

Appendix 29. Results of stepwise multiple regression analyses showing the sets of environmental variables that explain significant variation in beetle species number. Saproxylic beetles are categorised either according to their micro-habitats or diet preferences following Köhler (2000). See Table 2 for explanation of acronyms.

All the 22 study sites[a]							Only the 11 sites rich in dead wood[b]						
Step	Variables entered	Partial R^{2c}	Model R^{2d}	*F*	*p*	Effect	Step	Variables entered	Partial R^{2c}	Model R^{2d}	*F*	*p*	Effect
Saproxylic beetles[e]													
1	Dec2000	0.136	0.136	3.15	0.091	+	1	Con2000	0.306	0.306	3.96	0.078	-
2	Cwd_lbr	0.148	0.284	3.92	0.062	-	2	Cwd3_tot	0.328	0.633	7.14	0.028	-
Non-saproxylic beetles													
1	Cov_flr	0.715	0.715	50.24	< 0.001	+	1	Bracan	0.633	0.633	15.51	0.003	+
2	Cwd_log	0.078	0.793	7.15	0.015	+	2	Cwd_lbr	0.178	0.811	7.53	0.025	+
3	Gr_Fag	0.069	0.863	9.11	0.007	-	3	Cov_flr	0.119	0.930	11.90	0.011	+
Beetles living on polypores[e]													
1	Sp_herb	0.173	0.173	4.17	0.054	+	1	Cwd1_tot	0.311	0.311	4.06	0.075	+
							2	Gr_Que	0.286	0.597	5.68	0.044	+
							3	Tree_b40	0.273	0.870	14.65	0.006	-
							4	Con2000	0.102	0.972	21.97	0.003	-
Wood-living beetles													
1	Dec2000	0.266	0.266	7.25	0.014	+	1	Dec2000	0.556	0.556	11.28	0.008	+
2	Cwd_lbr	0.167	0.433	5.59	0.029	-	2	Bracan	0.166	0.722	4.80	0.060	+
3	Ope2000	0.143	0.576	6.08	0.024	-							
4	Cwd2_tot	0.088	0.664	4.44	0.050	+							
Bark-living beetles													
1	Cwd2_tot	0.146	0.146	3.41	0.080	-	1	Cwd3_tot	0.448	0.448	7.29	0.024	-
							2	Con2000	0.248	0.696	6.54	0.034	-
							3	G40	0.127	0.823	5.02	0.060	-
Xylodetriticolous beetles													
1	Cov_her	0.279	0.279	7.73	0.012	+	1	Cwd4_tot	0.285	0.285	3.58	0.091	+
2	Tree40	0.224	0.502	8.55	0.009	+							
Mycetophageous beetles[e]													
1	Sp_herb	0.347	0.347	10.64	0.004	+	1	Bracan	0.416	0.416	6.41	0.032	+
2	Ope2000	0.117	0.464	4.15	0.056	-	2	Tree_b40	0.373	0.789	14.13	0.006	-
3	Gr_Que	0.089	0.553	3.57	0.075	+	3	Con2000	0.136	0.925	12.79	0.009	-
4	Tree_b40	0.107	0.660	5.37	0.033	-	4	Gr_Que	0.055	0.980	16.42	0.007	+
5	SG80	0.063	0.723	3.66	0.073	+							
6	SG60	0.062	0.786	4.41	0.053	-							

7	Sp_tree	0.074	0.860	7.41	0.016	+							
Xylophageous beetles													
1	Cwd_lbr	0.162	0.162	3.86	0.063	-	1	Tree_b40	0.272	0.272	3.36	0.100	-
2	Ope2000	0.121	0.283	3.20	0.090	-	2	G	0.321	0.593	6.32	0.036	-
							3	Gr_Que	0.257	0.850	11.98	0.010	+
							4	Con2000	0.115	0.965	19.59	0.004	-
Zoophageous beetles													
1	Alt	0.310	0.310	9.01	0.007	-	1	Con2000	0.385	0.385	5.64	0.042	-
2	Sp_tree	0.186	0.497	7.04	0.016	+	2	Cwd3_tot	0.186	0.571	3.47	0.100	-
3	Girt_a40	0.092	0.589	4.02	0.060	-							

[a] total number over 2 years (2002+2003) , with insects collected with 3 stump-emergence, 2 Malaise, 1 intercept panel and 8 flight-window traps, [b] total number over 2 years (2002+2003) , with insects collected with 3 stump-emergence, 2 Malaise, 1 intercept panel, 8 trunk- and 8 flight-window traps, [c] proportion (%) of variance explained by the variables entered in the model, [d] total proportion (%) of variance explained by the model, [e] without Cisidae, not identified at species-level.
Variables were transformed for normality (log + 1 for counts, arcsin-squareroot for percentages and proportions).

Appendix 30. Results of stepwise multiple regression analyses showing the sets of environmental variables that explain significant variation in beetle abundance. Saproxylic species are categorised either according to their micro-habitats or diet preferences following Köhler (2000). See Table 2 for explanation of acronyms.

All the 22 study sites[a]							Only the 11 sites rich in dead wood[b]						
Step	Variables entered	Partial R^{2c}	Model R^{2d}	*F*	*p*	Effect	Step	Variables entered	Partial R^{2c}	Model R^{2d}	*F*	*p*	Effect
Saproxylic beetles[e]													
1	Cwd_sbr	0.170	0.170	4.09	0.057	+	1	SG80	0.294	0.294	3.75	0.085	+
							2	Cov_grd	0.341	0.635	7.48	0.026	-
							3	Cwd_stu	0.194	0.830	7.99	0.026	+
							4	Cwd3_tot	0.085	0.914	5.94	0.051	-
Non-saproxylic beetles													
1	Cov_flr	0.349	0.349	10.70	0.004	-	1	Cwd_sbr	0.505	0.505	9.19	0.014	+
2	Dec2000	0.123	0.471	4.42	0.049	-							
3	Alt	0.113	0.584	4.90	0.040	-							
4	Cwd_sbr	0.097	0.682	5.21	0.036	+							
5	Girt_a40	0.114	0.796	8.96	0.009	-							
Beetles living on polypores[e]													
1	Dec2000	0.219	0.219	5.62	0.028	+	1	Cwd1_tot	0.515	0.515	9.57	0.013	+
							2	Mix2000	0.265	0.780	9.63	0.015	-
							3	Tree_b40	0.091	0.871	4.98	0.061	-
							4	Cov_her	0.084	0.956	11.52	0.015	+
Wood-living beetles													
1	Cwd_sbr	0.203	0.203	5.11	0.035	+	1	SG80	0.604	0.604	13.71	0.005	+
2	Cwd2_tot	0.121	0.324	3.40	0.081	+	2	Cwd_stu	0.215	0.819	9.49	0.015	+
Bark-living beetles													
1	Sp_tree	0.254	0.254	6.80	0.017	+	1	SG60	0.406	0.406	6.15	0.035	+
2	Cwd3_tot	0.204	0.458	7.17	0.015	-	2	Cov_grd	0.316	0.722	9.12	0.016	-
3	Cwd4_tot	0.096	0.554	3.89	0.064	-							
Xylodetriticolous beetles													
1	Cov_flr	0.304	0.304	8.72	0.008	-	1	Cwd_grd	0.681	0.681	19.17	0.002	+
2	SG40	0.156	0.460	5.51	0.030	-	2	Mix2000	0.107	0.788	4.06	0.079	-
3	Tree_b40	0.260	0.720	16.67	< 0.001	-	3	Cwd_tot	0.081	0.869	4.34	0.076	-
Mycetophageous beetles[e]													
1	Cwd_sbr	0.190	0.190	4.68	0.043	+	1	Cwd3_tot	0.353	0.353	4.91	0.054	-
2	Cwd_log	0.137	0.327	3.86	0.064	-							
Xylophageous beetles													

1	Cov_grd	0.189	0.189	4.65	0.043	-	1	Tree_b40	0.272	0.272	3.36	0.100	-
2	Ope2000	0.193	0.381	5.92	0.025	-	2	G	0.321	0.593	6.32	0.036	-
							3	Gr_Que	0.257	0.850	11.98	0.010	+
							4	Con2000	0.115	0.965	19.59	0.004	-
Zoophageous beetles													
1	Bracan	0.188	0.188	4.63	0.044	+	1	Girt_a40	0.574	0.574	12.10	0.007	+
							2	Cwd1_tot	0.151	0.725	4.40	0.069	-
							3	Mix2000	0.130	0.855	6.26	0.041	+
							4	Cwd3_tot	0.083	0.938	8.01	0.030	-

[a] total number over 2 years (2002+2003) , with insects collected with 3 stump-emergence, 2 Malaise, 1 intercept panel and 8 flight-window traps, [b] total number over 2 years (2002+2003) , with insects collected with 3 stump-emergence, 2 Malaise, 1 intercept panel, 8 trunk- and 8 flight-window traps, [c] proportion (%) of variance explained by the variables entered in the model, [d] total proportion (%) of variance explained by the model, [e] with Cisidae.
Variables were transformed for normality (log + 1 for counts, arcsin-squareroot for percentages and proportions).

Appendix 31. Results of stepwise multiple regression analyses showing the sets of environmental variables that explain significant variation in threatened insect species and individuals (beetles + hoverflies from German Red-Lists), including saproxylic ones. See Table 2 for explanation of acronyms.

All the 22 study sites[a]							Only the 11 sites rich in dead wood[b]						
Step	Variables entered	Partial R^{2c}	Model R^{2d}	*F*	*p*	Effect	Step	Variables entered	Partial R^{2c}	Model R^{2d}	*F*	*p*	Effect
Species richness													
All species													
1	Sp_herb	0.381	0.381	12.31	0.002	+	1	Con2000	0.362	0.362	5.10	0.050	-
2	Dec2000	0.143	0.524	5.71	0.027	+							
Saproxylic species													
1	Dec2000	0.484	0.484	18.73	< 0.001	+	1	Dec2000	0.413	0.413	6.33	0.033	+
Abundance													
All species													
1	Dec2000	0.342	0.342	10.37	0.004	+	1	Con2000	0.742	0.742	25.86	< 0.001	-
2	Sp_herb	0.122	0.464	4.33	0.051	+							
Saproxylic species													
1	Dec2000	0.351	0.351	10.80	0.004	+	1	Con2000	0.741	0.741	25.80	< 0.001	
2	Sp_herb	0.106	0.456	3.69	0.070	+							

[a] total number over 2 years (2002+2003) , with insects collected with 3 stump-emergence, 2 Malaise, 1 intercept panel and 8 flight-window traps, [b] total number over 2 years (2002+2003) , with insects collected with 3 stump-emergence, 2 Malaise, 1 intercept panel, 8 trunk- and 8 flight-window traps, [c] proportion (%) of variance explained by the variables entered in the model, [d] total proportion (%) of variance explained by the model.
Variables were transformed for normality (log + 1 for counts, arcsin-squareroot for percentages and proportions).

Appendix 32. Table presenting the explanatory variables identified by pRDA (forward selection subroutine) that explained significant variation (α = 0.05) in the saproxylic insect data (number of species and individuals), after controlling spatial structuring of the data (Region). See Table 2 for explanation of acronyms. Variables are shown in their order of selection.

All the 22 study sites (- trunk-window traps)					Only the 11 sites rich in dead wood (+ trunk-window traps)				
Explanatory variables	Variance partitioning (%)				Explanatory variables	Variance partitioning (%)			
	Environment	Region	Interaction[a]	Unexplained		Environment	Region	Interaction[a]	Unexplained
Saproxylic insects (selected most-species rich families)									
Bracan, Dec2000, Alt **(Fig.5a)**	24.40	11.20	0.10	64.30	Con2000, Bracan **(Fig. 5b)**	32.50	15.60	6.20	58.10
Saproxylic beetles (all)									
Dec2000, Cov_grd, Cov_flr **(Fig. 7a)**	29.90	12.90	7.00	64.20	Con2000, Cwd3_tot, SG40, G, Cwd_lbr, Tree_b40 **(Fig. 7b)**	87.40	4.50	2.50	5.60
Red-listed									
Dec2000, Cov_her, Con2000 **(Fig. 8a)**	41.30	1.20	20.80	36.70	Con2000 **(Fig. 8b)**	20.00	2.10	34.60	43.30

[a] proportion of variance explained by the interaction between the biological data, the environment and spatial structuring.

Appendix 33. Results of stepwise multiple regression analyses showing the sets of environmental variables that explain significant variation in forest bird species richness and density. The hole-nesting species are classified into different guilds according to their mode of cavity acquisition, whether they excavate their own nest (pcn) or not (scn). See Table 2 and text for explanation of acronyms.

Step	Variables entered	Partial R^{2a}	Model R^{2b}	*F*	*p*	Effect
Species richness						
Primary[c] cavity-nesters (pcn)						
1	Sp_treen	0.550	0.550	17.09	0.001	+
2	G40	0.168	0.718	7.74	0.016	+
3	Cwd_sna	0.086	0.803	5.22	0.041	+
4	A_col	0.051	0.854	3.87	0.075	+
5	Cwd_stu	0.061	0.916	7.25	0.023	+
Secondary[d] cavity-nesters (scn)						
1	Cwd4_tot	0.374	0.374	8.38	0.012	+
2	Cwd_stu	0.228	0.603	7.47	0.017	-
3	Gr_Fag	0.173	0.775	9.21	0.010	-
4	Woodpcav	0.074	0.849	5.35	0.041	+
5	Cwd_sbr	0.054	0.903	5.62	0.039	-
Non-cavity nesters						
1	S_col	0.399	0.399	9.30	0.009	+
2	Cwd_sbr	0.135	0.534	3.76	0.074	+
3	Fungicav	0.124	0.658	4.34	0.059	-
Total bird community						
1	Famcol	0.499	0.499	13.93	0.002	+
2	Cwd4_tot	0.142	0.640	5.12	0.041	+
Density (pairs/ha)						
Primary[c] cavity-nesters (pcn)						
1	Dec2000	0.606	0.606	21.55	< 0.001	+
2	Fungicav	0.105	0.711	4.73	0.049	+
3	Con2000	0.133	0.845	10.30	0.007	-
Secondary[d] cavity-nesters (scn)						
1	Woodpcav	0.487	0.487	13.27	0.003	+
2	Bracan	0.279	0.766	15.52	0.002	+
3	Sp_treec	0.101	0.867	9.13	0.011	-
Non-cavity nesters						
1	Woodpcav	0.321	0.321	6.62	0.022	+
2	Bracan	0.309	0.631	10.89	0.006	+
3	G	0.131	0.762	6.59	0.025	-
4	Girt_a40	0.076	0.838	5.16	0.044	-
5	S_col	0.057	0.895	5.47	0.041	-
Total bird community						
1	Woodpcav	0.474	0.474	12.64	0.003	+
2	Bracan	0.326	0.801	21.29	< 0.001	+
3	Sp_treec	0.104	0.905	13.20	0.003	-

[a] proportion (%) of variance explained by the variables entered in the model, [b] total proportion (%) of variance explained by the model, [c] cavity excavators (woodpeckers), [d] non-excavating hole-nesting species.
Variables were transformed for normality (log + 1 for counts, arcsin-squareroot for percentages and proportions).

Appendix 34. Results of stepwise multiple regression analyses showing the sets of environmental variables that explain significant variation in the number of bat species, among which a majority uses tree cavity and cracks behind bark as roosting sites. See Table 2 for explanation of acronyms.

Step	Variables entered	Partial R^{2a}	Model R^{2b}	*F*	*p*	Effect
Local sampling[c]						
1	Tree_a40	0.427	0.427	7.47	0.021	+
Regional sampling[d]						
1	Cwd_lbr	0.658	0.658	19.27	0.001	-
2	Cwd1_tot	0.168	0.827	8.76	0.016	+
3	Cov_grd	0.072	0.899	5.74	0.043	+
4	Mix2000	0.066	0.965	13.18	0.008	+

[a] proportion (%) of variance explained by the variables entered in the model, [b] total proportion (%) of variance explained by the model, [c] at point count stations, [d] outside point count stations.
Variables were transformed for normality (log + 1 for counts, arcsin-squareroot for percentages and proportions).

Appendix 35. Total number of collected ambrosia bark beetles (*Trypodendron domesticum* (dom) and *signatum* (sig)) using gallery emergence traps in six forest sites (FS, RA, RU, MO, BR, R2). "X" = failed trapping due to trap loss.

	FS				RA				RU				MO				BR		R2	
	Tree 1		Tree 2		Tree 1		Tree 2		Tree 1		Tree 2		Tree 1		Tree 2		Only 1 tree		Only 1 tree	
	dom	sig	dom	sig	dom	sig	dom	sig	dom	sig	dom	sig	dom	sig	dom	sig	dom	sig	dom	sig
Trap 1	X	X	X	X	X	X	X	X	45	0	9	0	8	0	X	X	X	X	X	X
Trap 2	0	1	X	X	X	X	X	X	32	0	X	X	22	0	17	0	4	0	43	0
Trap 3	X	X	0	10	X	X	9	0	X	X	21	0	8	0	29	0	31	0	X	X
Trap 4	0	2	0	20	X	X	X	X	17	0	14	0	14	0	69	0	X	X	30	0
Trap 5	X	X	X	X	X	X	X	X	19	0	33	0	41	0	39	0	27	0	X	X
Trap 6	X	X	0	2	X	X	X	X	X	X	X	X	19	0	15	0	12	0	0	18
Trap 7	0	2	0	44	X	X	X	X	12	0	X	X	28	0	8	0	2	0	0	19
Trap 8	0	2	0	7	X	X	X	X	18	0	1	0	36	0	17	0	X	X	0	5
Trap 9	0	6	X	X	X	X	X	X	12	0	44	0	37	0	8	0	10	0	13	0
Trap 10	0	11	X	X	X	X	X	X	22	0	X	X	30	0	X	X	X	X	0	24
Trap 11	0	1	X	X	X	X	X	X	36	0	55	0	X	X	3	0	X	X	0	40
Trap 12	0	9	X	X	X	X	X	X	13	0	X	X	9	0	1	0	X	X	0	4
Trap 13	X	X	X	X	X	X	X	X	55	0	8	0	12	0	5	0	X	X	0	1
Trap 14	X	X	X	X	X	X	X	X	1	0	55	0	16	0	41	0	X	X	0	11
Trap 15	4	0	X	X	X	X	X	X	44	0	8	0	40	0	X	X	X	X	0	13
Trap 16	2	0	X	X	X	X	X	X	25	0	X	X	33	0	26	0	X	X	36	0
Trap 17	1	0	0	1	X	X	X	X	5	0	17	0	29	0	12	0	1	0	0	1
Trap 18	1	0	0	1	X	X	X	X	38	0	20	0	4	0	X	X	1	0	22	0
Trap 19	0	1	0	20	X	X	X	X	X	X	11	0	X	X	X	X	X	X	0	14
Trap 20	0	4	0	9	X	X	X	X	69	0	19	0	X	X	X	X	5	0	30	0
Total	**8**	**39**	**0**	**114**	**0**	**0**	**9**	**0**	**463**	**0**	**315**	**0**	**386**	**0**	**290**	**0**	**93**	**0**	**174**	**150**

Appendix 36. Presentation of the forest inventory used to estimate the annual tree mortality rate in oak stands.

The data are derived from a management inventory set up in a nearly 1,700 ha oak forest (65 % in basal area). The latter is located near Rochefort, in the Famenne region. The observed dead trees died during the last 10 years, as this corresponds to the last selective cutting (inventory achieved in 2004, last selective cutting carried on in 1994). The inventory is based upon a systematic sampling grid with 1 circular plot per 4 ha (200 m x 200 m). The mean plot area is 550 m² (plot radius ≈ 13.2 m). Within these plots, all dead trees with gbh ≥ 40 cm have been measured. The figure 1 presents the location of the forest and the sampling plots. Table 1 gives the main statistics of this inventory. Table 2 presents the distribution of living and dead trees by girth class.

Table 1. Main statistics of the inventory: number of plots, stands area (in ha), mean basal area (G in m²/ha), error on G estimation (in % for □ = 5%), mean number of stem per ha (N), error on N (in % for □ = 5%), oak basal area (in % of total G).

Number of plots	431
Area (ha)	1.724
G (m²/ha)	18.7
G_error	5.3 %
N	321
N_error	8.9 %
Oak_G	70.4 %

Table 2. Result of the inventory by girth class: total number of trees /ha (Ntot), total basal area /ha (Gtot), total merchantable volume /ha (Vtot); Number of dead trees /ha (Ndt), % of dead trees (DT%).

Girth at breast height (cm)	Total stand			Dead trees	
	Ntot	Gtot	Vtot	Ndt	DT%
40 - 90	260.5	7.2	0.0	2.1	0.9
90 - 150	44.5	4.9	32.0	0.7	
150 - 200	15.0	3.5	28.5	0.5	2.4
200 - 240	5.7	2.1	18.0		
240+	1.0	0.5	4.6	0.1	10.0
Total	327.3	18.3	83.0	3.3	0.3

N/ha : number of trees per ha (girth at breast height > 40 cm)

G/ha : stand basal area (m²/ha)

V/ha : merchantable volume (m³/ha)

N% : percentage of dead trees in comparison of the total stand.

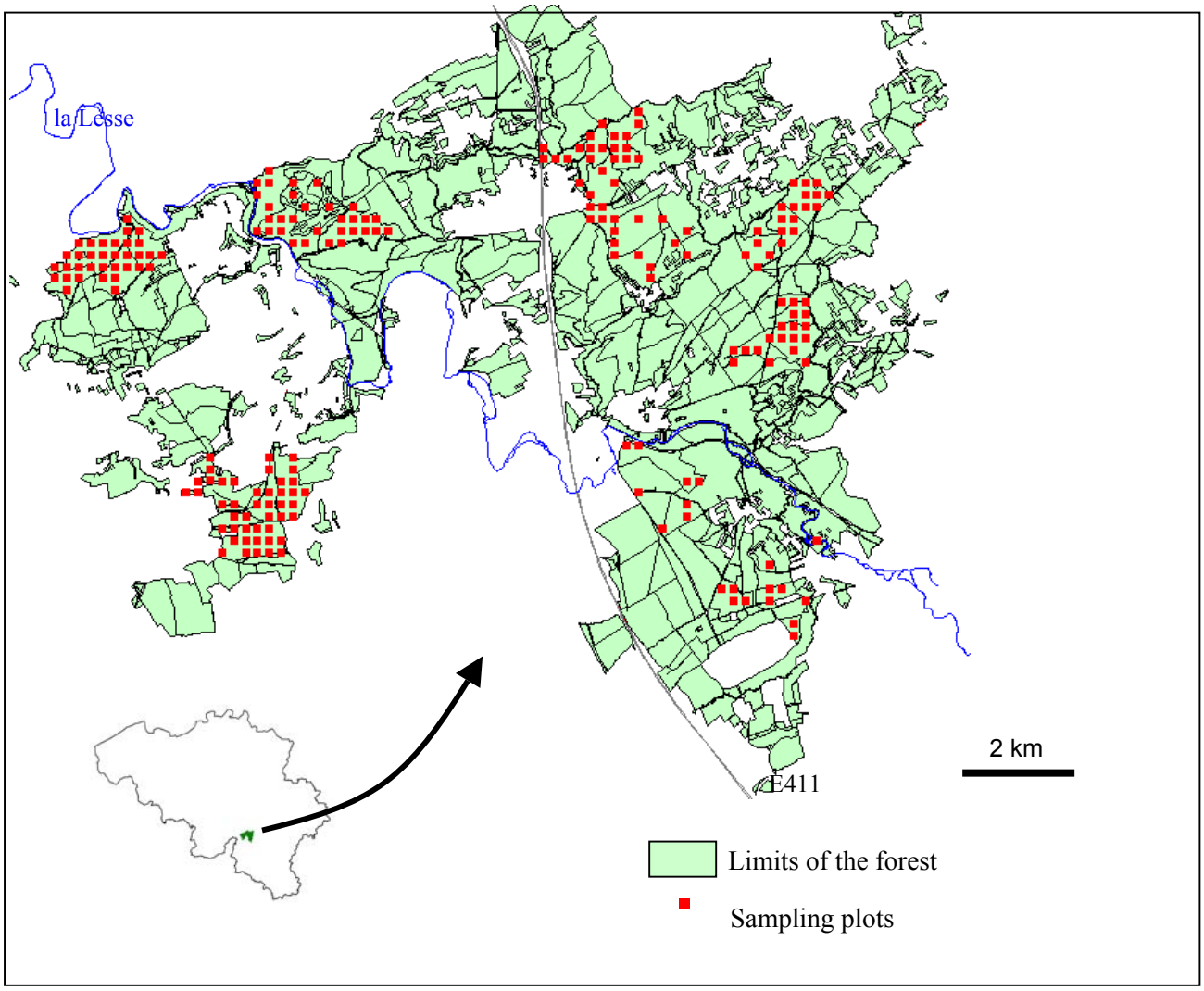

Figure 1. Location of the inventory used to estimate tree mortality rate in oak stands.